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Abstract

In the spring of 2020, a global pandemic caused an immediate transition to online, synchronous learning platforms in much of the world. In discussion-based classrooms, where students construct learning from the material and their interactions with each other, the shift posed new challenges to educators and students. This mixed methods action research case study focused on the challenges and successes of teaching a university class about sensitive issues in the area of educational equity using a web-based platform. Over the course of two semesters, forty-eight pre-credential teacher education students were surveyed regarding their experiences taking part in equity-focused discussions over a synchronous Zoom platform. Semi-structured interviews with four instructors and five student volunteers were conducted to add depth to the survey data. A key finding is that Students of Color were significantly less comfortable discussing issues of race, gender, and equity with their cameras on than were White students. Additional findings pointed to race- and gender-based preferences in modes of engagement with the class material; the use of a multi-component pedagogy including anonymous discussion boards, chat posts, and group breakouts are suggested approaches for reaching all students when engaging an online class in discussions about race, gender, and sexuality.

Introduction

The realities of the pandemic of 2020 placed distance learning at the forefront of education. The move from face-to-face instruction to remote modalities like Zoom and Google Meet was swift (Yuan, 2020). Teachers were expected to maintain high levels of content delivery, while students were required to engage using an online format with which most had no prior experience. Instruction in such formats is provided through screens, creating new barriers between learners and instructors (Unger & Meiran, 2020). Connecting with students online in deep and meaningful ways requires more than asking them to keep their cameras on. Closing the relationship gap created by the distance of technology is important to creating connections (Gillis & Krull, 2020). What is required in online settings for deep and meaningful class connection is the focus of our study.

This study examined how university students in Zoom-based synchronous learning environments can thoughtfully engage in relevant discussion and exchanges about equity issues. This action research case study used an equity-

focused undergraduate course for pre-service teachers to explore this topic in depth. Course objectives describe exploring biases through discussions about racism and white supremacy, gender, sexuality, and dis/ability. The objectives further ask students to identify anti-racist and anti-oppressive practices they will use in their own teaching. It is generally accepted that such material needs open discussion, with strong student participation to help students form new connections with the material. Learning from each other and sharing experiences, both personal and with the curriculum, are important to growing in this course. In a synchronous, Zoom-based classroom, the online, screen-based learning environment creates unique obstacles to providing and building an inclusive pedagogical approach.

Online Synchronous Learning

Online synchronous learning refers to a class where students meet regularly, in an online modality. These can take several forms, including Google Meet, Webex, and Zoom. Previously a choice, online education became a necessity in the spring of 2020. The lack of information about best practices in online instruction for educators in higher education drove this project into being. The virtual format of synchronous online learning allows for real-time exchanges and feedback between students and instructors and more closely mirrors true face-to-face teaching than asynchronous teaching and learning (Superville, 2020).

Engagement and Online Learning

Pascarella and Terenzini (2005) reported that student engagement was the strongest predictor of student learning and educational development. In a later study of 578 middle and high school students, Dogan (2015) also found that cognitive engagement had a positive relation to academic performance (r = .36). The pursuit of educationally relevant activities predicts student learning (Kuh, 2001). Constructivist learning, which focuses on building meaning through interaction, is a theoretical teaching model behind many best practices and techniques (Abdal-Haqq, 1998). Although the role of engagement in learning is well documented, the literature related to engagement and *online learning* is nascent.

Evidence-based teaching strategies specific to a Zoom-based platform are an emergent area of research. Strategies found to promote engagement on Zoom include small group breakout sessions and teaming. Students report that they stay more engaged for small group breakout sessions and when involved in partner work (Smith et al., 2020). Data from the National Survey of Student Engagement (NSSE) indicate that students in online courses are "less likely to engage in collaborative learning, student-faculty interactions, and discussions with diverse others, compared to their more traditional classroom counterparts" (Dumford & Miller, 2018, p. 452). Such discussions are an integral part of most courses focused on equity.

Engagement with Other Students and the Instructor

Engagement in online learning is more than just connecting with content and listening to lectures. Real engagement that drives learning involves reciprocal learning relationships with other people in the class

(Thurmond & Wambach, 2004). Awareness of this symbiotic relationship and its impact on student learning is critical to the formation of classrooms where critical conversations about oppression and racism can take place.

Interacting and communicating with the instructor in an online modality is different than doing so face to face, in person. Very little body language, and sometimes few facial cues, are available to reassure the learner or to provide non-verbal feedback. Increased interactions with the instructor that mimic proximity can promote student participation in deep discussion and improved perceptions about learning. Research in this area indicates that it might be important for online learners to have an instructor who is aware that a strong focus on high-quality interactions with students promotes higher-order thinking and learning (Thurmond & Wambach, 2004). Impactful interactions enhancing student-faculty connectedness can take place during instructional time or through email or feedback on written work (Billings et al., 2001). Prompt feedback on assignments was found by most students to support positive engagement in an online course (Billings et al., 2001; Dyer et al., 2018; Vrasidas & McIsaac, 1999).

Discussion in Equity-focused Classrooms

Communication and synthesis of information is key to student growth when learning about equity issues (Abdal-Haqq, 1998; Cabrera et al., 2002). Thus, it is important to delve into how to best structure discussions in an online environment. *Collaborative learning*, as termed by Cabrera et al. (2002), refers to how students work together within a class to build learning frameworks. In a study of 2,050 students at 23 institutions in the United States, Cabrera et al. (2002), found that collaborative learning had the strongest impact ($r = 0.235$) on students' openness to diversity. This information is important as the course being studied focused on increasing student awareness and openness to diversity.

Method

This mixed methods study explored the types of synchronous online pedagogies and teaching strategies that promote student engagement and meaningful discussion of equity issues in a university course for students studying to become teachers. The course, an undergraduate prerequisite for pre-credential teachers, was intended to help students enhance their personal and professional understanding of equity issues. We examined students' readiness to engage in deep conversations around issues of race, gender, sexuality, and dis/ability within the context of synchronous online learning.

Setting and Participants

This study was set in an online synchronous learning environment in a California state university. The focus course included sections taught by the lead author as well as sections taught by other faculty at the university. The classes were held synchronously via Zoom. Each class met once per week, for two hours and 50 minutes. There were 34 registered students in the section of the course from which the majority of data were collected. The class met 15 times over the course of the 16-week semester. Sources of data included student surveys and interviews,

classroom engagement data, and field notes, as described below.

Process and Instrument Development

Data collection instruments included surveys and interviews. As an active participant in the research, the lead author took fieldnotes during her teaching and reflective notes following each session. *Event sampling* was also employed (Kemmis, McTaggart & Nixon, 2013). This method allows the researcher to gather information about a variety of themes over time. Themes surveyed using this method were: *length of discussion*; *camera use during discussion*; *number of students involved in discussion*; and *use of a variety of modalities to participate in the discussion* (e.g., chat feature, Google docs note taking by group, other technology used to promote discussion, group leadership presentations and engagement, student feedback and verbalizations, student analyses in class of equity issues).

A total of eight sections of this class are held each semester at the university, with four of the eight offered synchronously via Zoom. A link to an anonymous online survey and a request to participate, was emailed to each student in each of the sections of the class taught synchronously via Zoom. These emails were sent to students during weeks 7-10 of a 16-week semester, with three separate emails / survey links sent to encourage students to complete the survey.

Students who completed the surveys were asked if they would be willing to participate in a focus group interview. Five students participated in the interview. Each semi-structured interview was recorded and took place via Zoom or a recorded phone call, lasting approximately 40 minutes.

Each student interviewee was asked questions related to their instructors' strategies to create safety in online class gatherings, what helps them to feel safe to speak up, specific methods used by the instructors to facilitate discussions, prompts or strategies that allow students to feel they can voice or participate, even if they feel what you are going to say may be different from what others will say or are thinking, and barriers to participation, including those that may be unique to the synchronous Zoom environment.

The interviews were transcribed and coded by theme and statement, using the Dedoose software program. Themes used for initial coding included: *student comfort in an online environment*, *methods used by instructor to promote deep discussion about equity in an online environment*, and *methods used by student to communicate in online environment*. Further themes emerged as the data were coded. These themes were: *perceived barriers to student participation*; *classroom environment*, including student-student and teacher-student interactions; and *use of a variety of communication modalities*, including the chat, Google Jamboard, and discussion boards.

All instructors who taught this course in a synchronous Zoom environment during the time when the study took place were invited to participate in semi-structured interviews. Volunteers were interviewed about how they changed and designed their courses when they moved from in-person instruction to Zoom-based synchronous teaching. Each interview was guided by five questions, lasted a minimum of 30 minutes, and took place via Zoom.

The interviews asked about instructional decision-making with the use of ZOOM/online, techniques for encouraging student discussion, changes based on input and situation, how instructors build community and trust, as well as additional considerations. The interviews were recorded, transcribed, and coded using Dedoose software.

Data Analysis

Data for this study came from responses to an online survey as well as interviews with a subset of the students surveyed (n = 5) and four faculty who taught the online equity class. Surveys were sent to 121 students via email link. The survey had a 40% (n = 48) response rate. Demographic data in the form of age, race, and gender were collected. Prior to analysis, race was dichotomously coded as White Students or Students of Color, due to the relatively small numbers of students from different racial groups. Students of Color is a phrase used to "intentionally include students who identify as Black, African-American, Asian, South Asian, Middle Eastern, Pacific Islander, Latinx, Chicanx, Native American, and multiracial" (Race and Pedagogy, 2021, para. 3).

We followed Creswell's (2007) suggestions for qualitative data analysis. First, we organized and prepared the data for analysis, sorting and arranging the data into different types depending on the sources of information. Then, the lead author read through all the data to get a general sense of the information and reflect on possible meanings. During this process, she took notes about emerging themes. Third, using Dedoose software, she coded the data to identify the themes and ideas conveyed, assigning themes and ideas to categories and selecting a descriptive name for each of the categories identified. Fourth, she organized the data by category and searched for interconnected themes. Fifth, she developed ways to represent the themes that emerged, through visuals, selected quotations, and illustrative examples. Finally, she used these emergent themes and representations to interpret the data and draw conclusions.

The following themes guided the lead author's investigation into sustaining deep conversations about equity: *Teaching methods*; *in-class activities*; *student-student relationships or interactions;* and *student-instructor relationships or interactions*. Analytic notes were triangulated with observational data, including field notes and event sampling data. Interviews provided further evidence in the triangulation of the data. The observational data were coded and sectioned into different themes, focusing particularly on student engagement, student-student interactions; and student-instructor interactions. Interviews were used to triangulate data and for member checking (Birt et al., 2016).

Results

In response to the research question, *What types of synchronous online pedagogies and teaching strategies promote student engagement and meaningful discussion of equity issues in a university course for students studying to become teachers?*, students reported that they preferred the use of *Breakout Rooms* (90% of students, n=43), and an *Open-Ended Response* format (77% of students, n=37). Just 6% of student respondents (n=3), perceived that having the *Camera On* was effective in promoting deep discussions around equity.

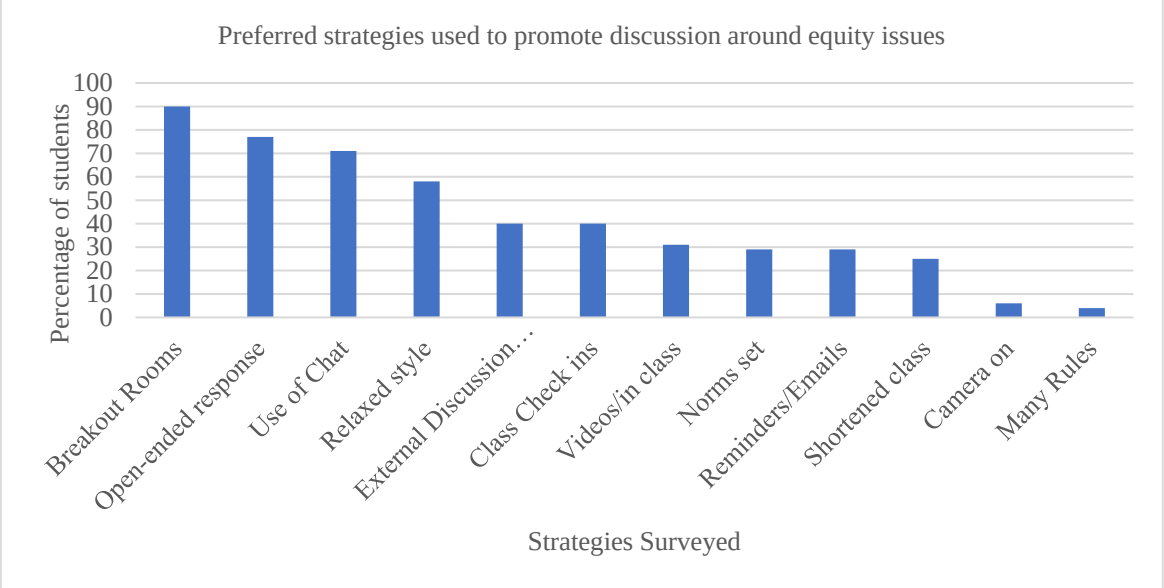

Figure 1. Preferred Strategies to Support Discussion in Synchronous Zoom Classes

In asking, *What are the strengths and weaknesses of a social constructivist approach to teaching and learning in synchronous online classes in terms of creating an environment where students can share and grow in the areas of educational equity*, we wanted to find out how comfortable students felt in the Zoom setting, as students' sense of ease relates to their active engagement in the social context of an online classroom (Woo & Reeves, 2007). Additionally, we wanted to find out what pedagogical decisions and instructional strategies were most impactful in promoting discussion around equity. Students were surveyed to determine their comfort level in participating in this type of classroom experience, and in in-class discussion around equity (see Table 1).

Table 1. Student Responses to Likert-type Survey

Student Response to survey *n*=48	Strongly Agree or Agree	Neutral	Disagree or Strongly Disagree
Most comfortable contributing with camera on	47%	33%	20%
Most comfortable using asynchronous discussion boards vs. Zoom discussion	39%	31%	29%
Best able to express self in face-to-face settings	49%	31%	16%
Most comfortable synchronously vs. online asynchronous discussion	52%	22%	25%
Most comfortable participating in discussion about equity with camera off	37%	27%	35%
Comfortable discussing equity issues during online synchronous	63%	27%	10%
Can express self fully about equity topics	47%	33%	16%
Can only express self in small groups	46%	22%	31%
Most comfortable using chat function to express self	44%	35%	20%

Two of the questions on the survey asked the students to rate how comfortable they felt expressing themselves during difficult discussions about equity with (a) Zoom synchronous instruction and (b) face to face instruction. These responses provided information regarding student overall comfort with these settings. Of the students who responded to the survey, 49% (*n*=23) of students *Agreed* or *Strongly Agreed* that they are best able to express their views in conversations about equity in face-face class sessions. Of the students surveyed, 63% (*n*=30) *Agreed or Strongly Agreed* that they felt comfortable discussing issues such as racism, genderism and sexism in online synchronous classes.

To find out more about why students felt more comfortable discussing equity in online versus face-to-face conversations, the lead author conducted interviews with student volunteers (*n*=5) and faculty who were teaching the class in an online synchronous format (*n*=4). Themes that emerged from the analysis were: *self-expression*; *classroom environment*, including both *teacher-student* and *student-student interactions*; *variety of response modes* and; *barriers to participation*.

Self-Expression

The theme of *Self-Expression* emerged naturally from the data. It was not an original focus of this study; however, interview data emphasized its importance. The theme of self-expression is interpreted as the following: statements from students who perceived that they were able to express themselves outside of class, in a different form, or in a form of their choosing during class or for an assignment. Interview excerpts from faculty who reported using strategies that allowed for students to choose how to express themselves (apart from an in-class activity) also were included.

Fully 40% of students who responded to the survey (*n*=19) perceived that the use of an external discussion board encouraged in-class discussion about equity issues. Students were asked whether they felt more able to express themselves about equity issues by using discussion boards vs online synchronous discussions. When responses of Students of Color and White students were compared, Students of Color (*n*=23, *M*=3.5, *SD*= 1.08) reported being able to express themselves about equity issues by using asynchronous discussion boards over in-class discussions at statistically significant higher rates than White students (*n*=25, *M*= 2.8, *SD*=1.05; *t*(48) = 2.473 p = .02)

Narrative survey and interview data support this finding. Students reported that having an opportunity to have their thoughts validated by the instructor in a separate forum made them feel more comfortable talking about issues of equity. The use of external discussion boards was mentioned frequently in comments and interviews. One participant stated,

> I just don't feel comfortable talking about those things in class, unless the professor is able to provide students with a platform to express themselves freely, without the fear of being judged by the rest of the class. I prefer online forums for that reason (Participant 35 [Male, Student of Color])

A student participant noted that although their instructor did *not* use discussion boards, they would have better supported in-depth discussions about equity.

> I know this is more work but I feel like discussion posts would be good. I really liked the reading for this class and actually read them all! I just wanted to talk about them more and see what other people had to say as well (Participant 36 [Female, Student of Color]).

Use of individual written assignments provided students with a way to express themselves and the new things they were learning about equity. The lead author gave careful feedback to each student on their individual written work that was submitted through the online learning system. She did not employ discussion boards for this class. Students reported that individual written feedback was valuable to them and encouraged them to persist in their learning.

> The writing assignments, when the instructor provided feedback on the things that I wrote, when I said things that were very personal or difficult to write, but that were necessary for me developing my own thoughts about being a future teacher, …(and they provided feedback) like, "I understand how you feel, these are really good perspectives." I almost felt like I had a cheerleader behind me (Participant 48 [Female, Student of Color]).

Strategies the four instructors reported using that were not surveyed included the use of video to promote discussion (100% of instructors); the use of articles and current events (100% of instructors); the use of podcasts (50% of instructors); and the use of self-expression, meaning art or a creative project (50% of instructors). One instructor shared their impression about the benefit of using videos. They explained, “I guess one thing I haven't mentioned yet is the use of videos has been really powerful for promoting discussion” (Faculty Interview 2).

Variety of Virtual In-Class Response Modes

Breakout rooms were reported by 90% (*n*=43) of student respondents as being effective in promoting discussions about equity. These virtual “rooms” allow students to interact as they would in a small group format in class. Forty-six percent of students (n = 22) *Strongly Agreed* or *Agreed* with the statement *I can only express myself or talk comfortably in small groups*, with Students of Color (*M*=3.48, *SD*=1.03) reporting higher scores than White students (M=2.96, SD=1.2; t[48] = 1.588, *p* = .2). Although this difference failed to meet statistical significance, it suggests a potential direction for further research with a larger sample. Female students (*M*= 3.42, *SD*=1.17) agreed with this statement to a greater degree than did Male students (*M*=2.71, *SD*=.99; *t*[47] = -1.979, p = .1).

Again, although these differences were not large enough to be statistically significant, a larger sample might have sufficient statistical power to provide deeper insight into these results. The data collected provide information about how different groups of students may interact during synchronous discussions. Interview and survey data support these findings. Said one participant, “I follow well when we do many breakout groups. Kind of like switching it up in class to different things to keep us engaged” (Participant 28 [Female, Student of Color]).

Another student stated,

> The breakout rooms were wonderful, because it made everybody human, instead of just a face on the screen, and once you got to know a few people in that class, those people became representative of the

> group, and then you just felt a little more comfortable in general (Student Interview 1[Female, White]).

The chat feature was noted by 71% of respondents (*n*=34) as being important to promoting in-class discussion. In all, 44% of students who responded to the survey (*n*=21) *Strongly Agreed* or *Agreed* that they feel most comfortable expressing themselves using the chat. Of these students, more Female students (*M*=3.49, *SD*= 1.15) than Male students (*M*=2.92, *SD*= 1.14) reported that they felt most comfortable using the chat to express themselves ($t[47] = -1.521$, $p = .2$. Although this difference was not statistically significant, qualitative data provide evidence in support of female students feeling most comfortable using the chat to discuss sensitive topics.

Additional reasons given for using the chat included appreciating the brief forum for "trying out" new ideas or posing questions, particularly for people who are less comfortable speaking up. Said one student, "asking us to type in the chat and making an effort to read the chat and acknowledge those replies is also great because I'm a shy person (Student Interview 2 [Female, White]). Said another, "It was quick, so it didn't have to be some crazy long, thought out thing. It was just throw your thoughts out there" (Student Interview 1 [Female, White]).

A majority of student respondents (77%, *n*=37) also agreed that an open-ended response style by an instructor contributed to producing in class discussion around equity. One student (Interview 1 [Female, White]) reported, "I think, if a professor just said, 'No, that's wrong,' and then moved on, you kind of feel shut down a little bit." Interview data also suggest that students who could feel anonymous in class felt more comfortable responding. Anonymous modes of contribution, such as Google Jamboard, an online interactive platform, were frequently noted by students as encouraging them to become involved and "voice" their opinions.

Classroom Community

Most students who responded to the survey (63%, *n*=31) indicated that they *Agreed* or *Strongly Agreed* that they were "comfortable" discussing equity issues in the online synchronous zoom classes. Students agreed that when faculty used strategies and methods "factually, directly, openly, using varied resources," students were more wont to participate (Participant 33 [Female, White]). A majority of student respondents (58%, *n*=28) reported that a "relaxed classroom style", where the instructor created an environment that was open-ended, non-judgmental, and supportive, was more conducive to in-class discussions about equity.

Community Building

Both students and faculty emphasized the importance of community building to invoke an atmosphere of trust that might lead to open discussion. Personal connections and space to talk about topics other than those on the syllabus were important contributors to community building. One faculty member called this a space to "be human."

> I try to give students a chance often in the class to share what's going on in their lives outside of being a student…I do that often in pairs so that they get a chance to actually talk to someone else in the class for a while about their life (Faculty Interview 2).

Teacher-Student

Faculty discussed how they provide space for students to have discussions about equity, and how they are supported and maintained. Faculty described this as "kind of building it as a conversation rather than a lecture. I mean, delivering, you know, information like really encourage, making them feel proud of what they're sharing and really acknowledging the value of what they're sharing" (Faculty Interview 2). Another faculty member described strategies to encourage students to talk to others and to speak out, "I have them choose somebody to respond, and the next time somebody else will respond, and then everybody can respond. And then I try to change people in the breakout rooms so they are working with different people*"* (Faculty Interview 1).

Students referenced situations that made them feel more and less willing to participate and be open in their discussion. During an interview, a student mentioned that an instructor telling their story made them feel more willing to open up. Faculty vulnerability and openness were mentioned in open-ended survey comments as encouraging participation in class discussions around equity. One respondent added the comment "vulnerability" when surveyed about strategies their instructors used to promote discussion around equity. Another felt that "by being kind and allowing everyone to feel comfortable and not pushing their boundaries" the instructor created an atmosphere where they were more able to contribute (Participant 29 [Female, Student of Color]).

Both faculty and student interviewees discussed classroom norms and how difficult situations were handled. Survey data indicated that 29% of student respondents (n=14) felt that setting norms promoted class discussion around issues of equity.

> Participant 45 (Female, White) [The professor] encouraged us to express ourselves but wouldn't let anyone talk down to someone else for their opinions or feelings. It was fair and led to good discussions.

Slightly less than a majority of student respondents (45%, n=22) reported that they *Strongly Agreed* or *Agreed* that they were *better able to express myself in difficult conversations about race and equity when I keep my camera on during discussion*, while the same number (45%, n=22) *Strongly Disagreed* or *Disagreed* with that statement. When these data were analyzed through Dedoose software using a *t-test* analysis, some significant differences were discovered. When responses of Students of Color and White students were compared, Students of Color (M=2.96, SD= .98) were significantly less comfortable contributing during difficult conversations about race and equity with their camera on than White students (M= 3.7, SD=1.02; t[48] = -2.643, p = .02), p <.05.

Male identifying students (M=3.86, SD= .86) were more comfortable contributing with their camera on during classroom conversations about race and equity than Female identifying tudents (M= 3.15, SD= 1.09; t[47] = 2.143, p = .05). Although the difference between Male and Female responses was not large enough to be statistically significant, it is worth noting as an area for potential future exploration with a larger sample. Just 6% (n=3) of students felt that requiring students to keep their camera on supported in-class discussion about race and equity. Interview and open-ended questions provided greater detail about these results. Explained one participant, "Make sure cameras off and chat is an option, I have anxiety about talking in front of groups" (Participant 11 [Female, White]). A faculty member said,

> I reframe what participation looks like; it doesn't have to be cameras on whole class participation...I try to tell them that, "I'm not favoring people who are doing the whole group camera on kind of participation" because that's not really fair (Faculty Interview 2).

Faculty Key Phrases and Behaviors

Faculty reported using key phrases and behaviors to promote deep discussion around equity. One reported using articles and videos suggested by students to augment discussion (Faculty Interview 1). Another commented, "I try to point out what they are saying that's interesting. And ask them, 'What do you mean by that?' 'Can you say more about that?'... I'm trying to make them the experts" (Faculty Interview 2). They also explained, "If the conversation is going on and on in a certain direction where I feel like we're, de-centering the experiences of other identities, I'll try to bring it back (Faculty Interview 2). Other faculty referred to "reframing" the way they see participation. The lead author made this overt by adding listing on the syllabus a menu of options from which students could choose to share and participate in the synchronous Zoom class. She added to this list verbally as the semester went on. An excerpt of this approach is provided below:

> You will be graded on attendance, preparation for discussions and class work, and participation. You may participate more actively in small groups, or prefer to use the chat. Maybe you are the note-taker. An active role can look differently for each person—but the end result is engagement with the course.

Student-Student

Building connections and community with other students created an atmosphere where students felt they could engage in discussions around equity. Students reported that group work made them feel like they could discuss issues of equity in class. Slightly less than a majority of students (46%, n=22) *Strongly Agreed* or *Agreed* that they can only express themselves or talk comfortably about equity issues in small groups. Students of Color (M=3.48, SD= 1.03) responded that felt they could only discuss equity issues comfortably in small groups more than did White students (M= 2.96, SD=1.2; t[48] = 1.588 p = .2). Although not statistically significant, this result bears further investigation with a larger sample.

Group work projects outside of class also provided students an opportunity to express themselves and connect in ways that encouraged participation. All four instructors reported using groups in a variety of ways. Examples included using break out rooms, group work during class, and whole term group projects. Some groups remained the same over the semester, and other groups varied each time the class met. Noted one student, "Students who try to engage with me really help because I'm shy. When we are in groups, I enjoy people who start conversations and include everyone" (Student interview 2 [Female, White])

Barriers to Participation

Students were surveyed regarding barriers they experienced during synchronous Zoom classes focused on equity issues. Students were prompted to select all that apply to them in this situation (see Figure 2). Not all students

chose to respond to this part of the survey, with *n*=46. The barrier that students selected the most (54%, *n*=25) was when they were *Not sure of the topic.* Other students (48%, *n=22)* reported feeling less willing to participate when they felt that their ideas may differ from the group's. Interestingly, fewer students, at 17% (*n*=9) felt that it was a barrier when they *Must turn on camera*.

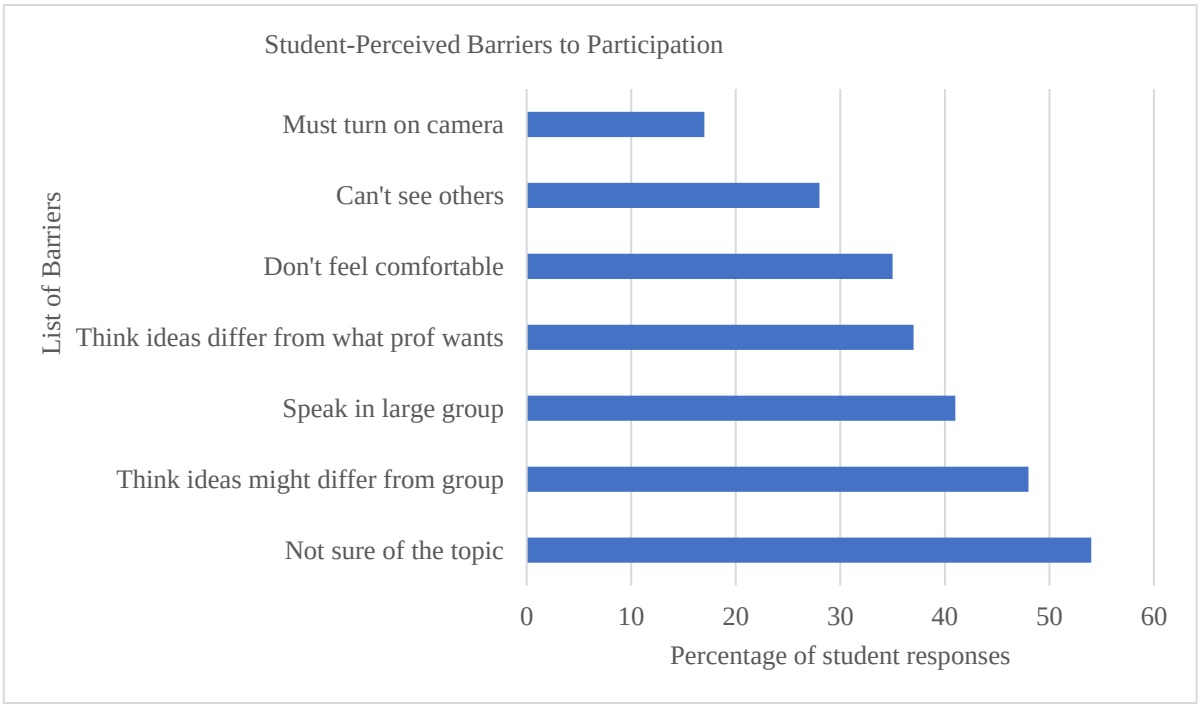

Figure 2. Perceived Barriers to Student Participation in Discussions

Willingness to Participate

Survey data indicated that 35% of student respondents (*n*=16) *Don't feel comfortable* speaking in class at times. Almost half of the students who responded (48%, *n*= 22) indicated that they are concerned that their ideas may differ from the groups, and this impacts their willingness to participate in the discussion. Interview and open-ended response data support these findings. A student noted that they were unwilling to participate "when they feel like they are already wrong" in what they are going to say (Student Interview 2, Male, White).

During the interview process, both students and faculty described some concern about sharing and participating in the Zoom synchronous environment. One instructor remarked, "I think we need to be more imaginative with the tasks that we're giving our students to do. And how are we creating these spaces for reflection in a way that is mindful of that temporalness regarding braveness and safeness" (Faculty Interview 3). The occasions when students feel willing or "*brave"* or "*safe"* to participate can vary based on input and setting.

Students can sometimes feel willing to participate, but that feeling can be fleeting. One student noted that "the barrier lies in the safety of the individual in the class. This has to do with both instructor and peers" (Participant 32 [Male, Student of Color]). On the survey, students were asked to respond to the open-ended question *"What barriers are there to your participation?"* One participant noted, "A lot of people have strong opinions, that if

yours differ in any way, you will be shut down, made a fool of, or embarrassed by classmates" (Participant 28 [Female, Student of Color]).

Technology-related Barriers

Faculty discussed barriers that were more specific to the Zoom synchronous format and reiterated the barriers that students had noted. One faculty member said,

> For many of the students that I've worked with, they don't have a lot of experience, they don't have a lot of language to articulate some of the ideas that they may be having… And so that translates into trepidation or reticence where they don't want to participate because they're concerned about saying the wrong thing (Faculty Interview 3).

One of the students interviewed provided corroborating evidence:

> I have a hard time putting my thoughts together, so unless it's something not necessarily a hundred percent prepared, but unless there's something I've thought out thoroughly, then I stumble over my words, and it gets real choppy (Student Interview 3, [Male, White]).

Student interview and open-ended response data reveal more about the barriers students face over Zoom, specifically related to technology or access issues. Both faculty and students miss the opportunities provided in face-to-face classes to interact casually with others. Half of the instructors interviewed noted that they miss the opportunities at the beginning and end of class to just interact casually with students, talking about the weather or non-class related topics. One student noted that Zoom presented barriers to building a sense of connection with others:

> All the connections I would have made started from, hey, where are we at? What are we doing? Can I borrow a pencil? Can I steal a piece of paper from you? There's really not necessarily a way to do that, utilizing Zoom, because everybody's in their home (Student Interview 3, [Male, White]).

Barriers to participation were also embedded in the online format, as revealed in the interview data. Students mentioned the sound gap between when someone starts speaking and when others can hear them. One student can start to respond and another student starts to respond, they overlap because of a connection delay, and one ends up not speaking or participating. Another barrier involved the clarity of directions or instructions in an online class. A student described being unwilling to interrupt and break the silence to ask for clarification. Another mentioned the level of engagement of other students contributed to their own engagement and participation in discussion.

> I feel like in person you'd definitely get some agreement, some nodding of heads, something that just makes you feel as though the person speaking about something that they at least acknowledged you and heard you. While in Zoom, it is a little bit more difficult. Some people are not fully engaged and you're just not getting that feedback or response, just to reassure you that you're being heard basically (Student Interview 5 [Female, Student of Color]).

Discussion

Our findings suggest that using the same techniques that were effective in face-to-face teaching may not produce the same results when teaching in a synchronous online format. Additionally, there may be significant differences in the effects these strategies and pedagogies have with different populations of students. One important finding is that the level of comfort discussing equity issues such as race and gender varied for students from different ethnic and racial groups, under different conditions. For example, White students were significantly more comfortable sharing with their cameras on than were Students of Color. In contrast, Students of Color reported being significantly more comfortable than White students discussing deep issues of equity using asynchronous discussion boards versus synchronous in-class discussions. Responses from the constructed response survey items and interview data underscore this difference. These findings might suggest that the level of participation of Students of Color during difficult conversations about race and equity may be dependent on whether or not they are *required* to have their camera on or be interacting with other students in a synchronous setting. In a 2020 study of students in a university biology class, researchers found that while it was important to encourage camera use, for equity reasons it should not be required (Castelli & Sarvary, 2020).

We could find no other studies that have measured this effect. This finding is relevant, as how students engage with each other and with the class material is important to their development. Deep and honest interaction helps promote insight into the concepts they are discussing, particularly when students are discussing equity (Abdal-Haqq, 1998). In a meta-analysis, Abdal-Haqq (1998) noted that without careful analysis and discussion, structural oppression may be perpetuated in classrooms that mean to dispel it.

Notably, if students are uncomfortable in a certain modality (camera on, mandatory participation in Zoom discussions), they may not fully contribute. Although our results were just under the threshold for statistical significance ($p = .05$), it may be worth considering that male students reported being more comfortable discussing equity issues with their cameras on than did female students. A study of 71 credential students in online classes found that male identifying students reported having slightly more' social presence', an indicator of confidence, than female identifying students (Al-Dheleai & Tasir, 2019). The study found that this might be an indicator of willingness to participate online (Al-Dheleai & Tasir, 2019). Future studies might investigate whether differences in comfort levels associated with being visible are shaped by broader lived experiences in which greater visibility is associated with greater vulnerability for members of certain social groups. Further research is recommended with a larger sample.

One faculty member interviewed mentioned "reframing" how we see participation. Similarly, a strong majority of students who responded to the survey reported preferring the use of breakout rooms (90%) and an open-ended response style (77%) when engaging in discussion. Rather than change groups several times during class, students suggested feeling more comfortable in the same groups for the whole period. Additionally, they indicated that another layer of groups-such as group projects-that remained consistent over the semester provided them an extra opportunity for connection, and thus more confidence to participate in class discussions.

The use of the Zoom "chat" feature (71%) and a Relaxed Classroom style (58%) also were preferred strategies to promote discussion around equity. The personal approach of the instructor also impacted the degree to which students participated in deep, difficult discussions. Interview and survey data provided supporting evidence that a relaxed classroom style and an atmosphere of trust, built through connection, encouraged students to participate. Respondents indicated that instructors fostered this atmosphere by modeling vulnerability, and indicated that their perception of an instructor's holding a non-judgmental attitude was also a factor. This finding aligns with prior research. Increased student-faculty interaction, whether it is through showing that they care about students, through email or timely feedback, and creating a caring respectful environment, have been shown to increase student engagement in discussions during online classes (Billings et al., 2001; Thurmond et al., 2002).

Students surveyed indicated that discussion boards, external to the class, and constructive, personal written feedback on assignments from instructors had a positive impact on their in-class participation in discussions. Forty percent of students reported that instructor check-ins with the class supported their participation in class discussions about equity. Dyer et al. (2018) noted that approximating proximity is important to building and maintaining relationships online. The use of learning communities, such as group work, timely feedback, and discussion boards were the most relevant methods for instructors to develop a classroom community.

Contributions to Practice

This study found that Students of Color differed significantly from White students in their comfort during discussions of equity in online Zoom classes. Their voices are critically important, so instructors must find ways to incorporate them into discussions while honoring their preferences. It is important to note that each individual student has different needs and spaces where they feel like they can speak up. The significance of this study is that it provides some evidence in support of strategies that can be used as starting points to promote an inclusive space for all students to participate.

Students need to be seen, heard, and recognized, even if their camera is off. The survey data suggests that students appreciate and use a variety of ways to contribute, including in small breakout rooms, a chat board, or on more personal discussion board spaces. Some students prefer the anonymity of apps like Google Jamboard, where they can post discussion comments without identifying themselves to the whole class.

Using discussion boards to form relationships with students and to encourage them to participate in class is a relatively new practice. The building of relationships in an online course does not take place before class or during a break—since screens go blank and microphones go mute. Facilitating conversations and interactions that are more personal and break down the barriers that the technology creates are important, and might be achieved by keeping groups the same during class time and creating other groups that work together throughout the semester. Connecting as "humans" helps create a space for constructing new knowledge.

A new constructivism, a new building of knowledge that takes place on Zoom, is emerging. Using a lens that investigates classes where some of the most intense, possibly life-changing discussions can take place, sharpens

this focus. Students are building and creating knowledge together, and they are using new tools to do this. Anonymous posting boards, a chat so that students do not need to speak out loud, and the safety of keeping a camera off if they want to are all emerging pedagogical tools of the new Zoom constructivism.

Zoom based pedagogy and constructivist practice are nascent fields of study. More research in this area is needed to uncover what strategies are best in each modality. It may be that we cannot use the same strategies and practices as we do in a face-to-face classroom. Non-verbal forms of discussion and communication were preferences noted by students surveyed in this study. Allowing a space for written feedback, and student expression through the use of discussion boards and response papers also promotes student engagement in learning and discussion. Our research has implications for instructors teaching in online synchronous classes, most pointedly those that are seminar or discussion-based.

Future Research Directions

Future research directions include a large-scale study of students and camera use, specifically focused on classes where the content addresses equity. The option to keep cameras on or off, especially in a whole class discussion, requires further research. A much larger sample, and a variety of classrooms and levels might provide insight into the findings reported here. Additionally, the focus of each class (biology, math, equity) may have an impact on the use of cameras and why students choose to leave them on or off.

Students lauded the use of discussion boards and instructor feedback. Specific research into each of these forms of communication is recommended. The quality and quantity of feedback, as well as its timing are all ripe for additional research. Additionally, the nature of the feedback, be it positive, negative, or neutral should also be studied. It may be that students who will respond to a math-related discussion board may not respond the same way to one about gender and race. Research into the impact of written feedback on asynchronous discussion boards on student connection and participation could yield important information about how and when instructors respond to students. Looking as these discussion boards as important tools of connection and motivation may change how instructors see and use them. Investigating this element—how instructors see and use discussion boards, and whether they are used as a tool, a check in, to develop classroom community, or a combination would also be a study of interest. This study, in asking more questions than it answers, provides a framework for researchers to investigate these ideas more deeply.

References

Abdal-Haqq, I. (1998). *Constructivism in teacher education: Considerations for those who would link practice to theory.* ERIC Digest.

Al-Dheleai, Y.M., Tasir, Z. (2019). Web 2.0 for fostering students' social presence in online learning-based interaction. Journal of Technology and Science Education, 9(1), 13-19. https://doi.org/10.3926/jotse.552

Billings, D. M., Connors, H. R., & Skiba, D. J. (2001). Benchmarking best practices in web-based nursing courses. *Advances in Nursing Science, 23*(3), 41-52.

Birt, L., Scott, S., Cavers, D., Campbell, C., Walter, F. (2016). Member checking: A tool to enhance trustworthiness or merely a tool for validation?

Cabrera, A.F., Crissman, J.L., Bernal, E. M., Nora, A., Terenzini, P. T., & Pascarella, E. T. (2002). Collaborative learning: Its impact on college students' development and diversity. *Journal of College Student Development*, *43*(1), 20-34.

Castelli F.R., Sarvary M.A..Why students do not turn on their video cameras during online classes and an equitable and inclusive plan to encourage them to do so. *Ecol Evol*. 2021;11:3565–3576. https://doi.org/10.1002/ece3.7123

Creswell, J. W. (2007). *Qualitative inquiry and research design: Choosing among the five approaches.* Sage.

Dedoose Version *9.0.17*, web application for managing, analyzing, and presenting qualitative and mixed method research data *(2021)*. Los Angeles, CA: SocioCultural Research Consultants, LLC www.dedoose.com.

Dogan, U. (2015). Student engagement, academic self-efficacy, and academic motivation as predictors of academic performance. *The Anthropologist*, *20*(3), 553-561.

Dumford, A. D., & Miller, A. L. (2018). Online learning in higher education: exploring advantages and disadvantages for engagement. *Journal of Computing in Higher Education*, *30*(3), 452-465.

Dyer, T., Aroz, J., & Larson, E. (2018). Proximity in the online classroom: Engagement, relationships, and personalization. *Journal of Instructional Research*, *7*, 108-118.

Gillis, A., & Krull, L. M. (2020). COVID-19 Remote learning transition in Spring 2020: Class structures, student perceptions, and inequality in college courses. *Teaching Sociology*, *48*(4), 283–299. https://doi.org/10.1177/0092055X20954263

Kemmis, S., McTaggart, R., & Nixon, R. (2013). *The action research planner: Doing critical participatory action research*. Springer Science & Business Media.

Kuh, G. D. (2001). The National Survey of Student Engagement: Conceptual framework and overview of psychometric properties.

Pascarella, E. T., & Terenzini, P. T. (2005). *How college affects students: A third decade of research. Volume 2*. Jossey-Bass.

Racial category terms. (2021). *Race and pedagogy.* https://raceandpedagogy.ssc.wisc.edu/getting-started/terminology/

Smith, J., & Schreder, K. (2021). Are they paying attention, or are they shoe-shopping? Evidence from online learning. *International Journal of Multidisciplinary Perspectives in Higher Education*, *5*(1), 200–209. https://doi.org/10.32674/jimphe.v5i1.2643

Superville, D. R. (2020, June 30). *Hybrid school schedules: More flexibility; big logistical challenges.* Education Week. https://www.edweek.org/ew/articles/2020/06/25/hybrid-schoolschedules-more-flexibility-big-logistical.html.

Thurmond, V. A., Wambach, K., Connors, H. R., & Frey, B. B. (2002). Evaluation of student satisfaction: Determining the impact of a web-based environment by controlling for student characteristics. *The American journal of distance education*, *16*(3), 169-190.

Unger, S., & Meiran, W. R. (2020). Student attitudes towards online education during the COVID-19 viral outbreak of 2020: Distance learning in a time of social distance. International Journal of Technology in

Education and Science (IJTES), 4(4), 256-266.

Vrasidas, C., & McIsaac, M. S. (1999). Factors influencing interaction in an online course. *American Journal of Distance Education, 13*(3), 22-36**.**

Woo, Y., & Reeves, T. C. (2007). Meaningful interaction in web-based learning: A social constructivist interpretation. *The Internet and Higher Education, 10*(1), 15–25. doi: https://doi.org/10.1016/j.iheduc.2006.10.005.

Yuan, E. S. (2020). *A message to our users*. Zoom. Retrieved from https:// blog.zoom.us/a-message-to-our-users/. Accessed June 01, 2020.

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