

Comparison of Connectedness in Online, Blended, and Face-to-Face Research Methods Courses
among Hispanic and Low-Income Students

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Abstract

When students feel connected to the instructor, they are more likely to remain motivated, engaged, and persist toward completing an online course. Rarely have studies compared connectedness in three modalities: online only, blended, and face-to-face. This study compared perceptions of connectedness among students ($N = 27$) from an Hispanic Serving Institution with their instructor and peers in a research methods course. The sample of students took the same course in three different sections- each taught in a different modality by the same white instructor. Connectedness and students' grades were lower for students who took the course fully online. However, student ratings of teachings were highest for those who took the online-only section. Latinx students reported less connectedness in the online-only section than others. The results inform decisions about teaching modalities during the pandemic and in the future; synchronous learning is critical to obtain equitable connectedness among Latinx students.

Keywords

Teaching modality; connectedness; social presence; Latinx; Hispanic Serving Institution; online teaching; blended learning

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Feeling connected to the learning community is essential to student success. Specifically, students' perception of connectedness to the instructor is critical. When students feel connected to the instructor, they are more likely to remain motivated, engaged, and persist toward completing an online course (Chickering & Gamson, 1987; Caboni, Mundy, & Duesterhaus, 2002; Jaggars & Xu, 2016; Xu & Xu, 2019).

Online courses include modalities with varying degrees of asynchronous, synchronous and blended or hybrid models. Some studies have compared two teaching modalities, such as fully online compared to blended or hybrid modalities, or face-to-face compared to fully online. While novel research has shown that skill-building and learning can occur equally across different course modalities, comparisons of connectedness across fully online, hybrid, and face-to-face course modalities is scant (Anggrawan & Jihadil, 2018; Thai, De Wever, & Valcke, 2020).

Given the unprecedented and rapid shift to virtual instruction due to COVID-19, students who might otherwise choose face-to-face instruction are limited to virtual classes; therefore, evaluating the impact of students' sense of connectedness in virtual courses is of immediate relevance, especially as we consider what lies on the horizon for teaching and learning in higher education, during and after COVID-19. For the foreseeable future, a return to a pre-pandemic instruction is uncertain. However, we can anticipate a continued need for flexibility in course modality as institutions return to in-person instruction. To inform this process, we present findings from a pre-pandemic study comparing the perceived sense of connectedness, course evaluation data, grades, and retention data by students enrolled in the same course across three

course sections, each taught through a different modality: 1. online asynchronous (fully-online) 2. in-person synchronous (face-to-face) 3. 50% online asynchronous and 50% in-person synchronous (blended or hybrid).

Of interest are findings specific to Latinx and low-income students' varying perceptions of connectedness across modalities. While based on a small sample size, given the limited literature specific to Latinx student perceptions in online courses and the growing number of Hispanic Serving Institutions (HSI's), we believe this study raises important questions for future research when considering the intersection of culture and existing research regarding strategies for inclusive online teaching.

Defining Connectedness as a Construct of Social Presence

Connectedness has been defined as “communication behaviors that reduce perceived distance between people” (Thweatt & McCrosky, 1998, p. 349). While physical distance is ubiquitous with online learning, online learning researchers have identified social presence as a construct by which psychological distance is reduced (Rourke, Garrison, Anderson & Archer 2001). Although defined as a psychological construct, social presence does not have a singularly agreed upon definition, with definitions ranging from active engagement and communication behaviors to more emotional definitions that include authenticity, caring and sense of belonging. (Rettie, 2003; Lowenthal, 2009; Lowenthal & Snelson, 2017). While some caution these terms are not equivalent (Rettie, 2003; Lowenthal & Snelson, 2017), others define social presence as connectedness (Whiteside, 2015).

Lowenthal and Snelson (2017) identified seven constructs common in highly cited research on social presence, amongst which include connection and sense of belonging. Therefore, in this article, we define connectedness as a construct within social presence, referring

to “the degree to which learners feel socially and emotionally connected with others in an online environment’ (Swan, Shea, Richardson, Ice, Garrison, Cleveland-Innes, and Arbaugh’s, 2010 (p. 1).

Social Presence and Instructor Presence

In an online course, the instructor bears primary responsibility for designing, organizing, and facilitating interactions that convey social presence, a “perceived closeness between the student and instructor” (D’Alba, 2014) and establish connectedness with and between students (Moore, 1989; Shea, Hayes, Vickers, Gozza-Cohen, Uzuner, Mehta, Valchova & Rangan, 2010). Course design, organization and facilitation are attributed to teaching presence (Garrison et al, 2001). At the intersection of Social Presence and Teaching Presence is [Instructor Presence](#) (Richardson, Koehler, Besser, Caskurlu, Lim and Mueller, 2015). Strong instructor presence can mitigate a sense of psychological distance, regardless of teaching modality (Anderson, 1979; Mehrabian, 1969; Rourke, Anderson, Garrison & Archer, 2001; Shea et al, 2009) since student perception of social presence is strengthened through interaction with the instructor and other students (Whiteside, 2015).

Latinx Perspectives and Social Presence

However, research specific to Latinx student perceptions of social presence in online learning is limited. Plotts (2018) examines the role of acculturation, “the psychological and cultural change occurring when two or more ethnic groups engage in sustained contact with one another,” and the perception of social presence by individuals from differing ethnic cultures of origin. In other words, the methods by which instructors demonstrate social presence may not be perceived as such by students from an ethnic culture different from the instructor. As such, Plotts identifies five potential barriers to acculturation, and thereby social presence, in an online course:

1. Lack of cultural competence among faculty members
2. Limited multicultural consideration of teaching and learning perspectives
3. Faculty resistance to cultural training
4. Writing proficiency
5. Online courses and time

In addition to ethnic cultural differences, the cultural norms specific to higher education may also pose barriers between faculty and students. More research is needed to better understand the impact of culture on social presence, especially from the Latinx perspective (Plotts, 2018).

To this end, Plotts (2020) suggests application of the cultural lens approach (CLA) as a process by which to evaluate the cultural validity of social presence. CLA consists of a process by which the validity of a previously accepted psychological construct, such as social presence, is reevaluated to determine if the construct is generalizable across diverse cultures or if cultural nuances should be considered when analyzing outcomes (Hardin, Roitscheck, Flores, Navarro & Ashton, 2014). While not applied in this study, CLA could provide further insight as to the role of culture when defining Latinx perception of social presence.

Strategies for Instructor Presence

Martin, Wang, & Sadaf (2018) found that instructors' timely response, also known as “social respect” (Sung & Mayer, 2012), to questions and instructors' timely feedback on assignments/projects were highly correlated with students' perception of instructor presence, instructor connectedness, and student engagement and learning among 12 different instructor engagement facilitation strategies rated by 188 undergraduate students.

Teaching strategies associated with instructor presence include video lectures, personal assignment feedback, visual syllabus, and synchronous/asynchronous peer interactions (Martin,

Wang, & Sadaf, 2018; Swaggerty & Brommel, 2017; Stone, 2019). Research suggests these strategies strengthen students' sense of connectedness to the instructor.

With lack of engagement an early sign of failing an online course, course analytics such as most recent date/time of access, number of page views, and time in the course can serve as an early warning system (Shelton, 2016). Faculty can use this data to identify and reach out to students who are less active. Similarly, frequency, rather than the amount of interaction with course materials, was found to be an important predictor of student success (Shelton, 2016). Pairing analytics with frequent and consistent due dates can encourage the number of interactions within the course.

Challenges in Online Learning: All Online Learners

Gillett-Swam (2017) refers to online students as “isolated learners” and describes that many are challenged with anxiety about technology, perception of being out of one's comfort zone, inequity in assessment, and difficulty with peer interaction. In a comparison of online and blended courses, military undergraduate students at a 4-year institution reported a desire for more of a sense of connectedness in online and blended courses (Merc, 2020). A challenge highlighted in many articles is with student collaboration and group assignments. While instructors may intentionally assign student collaboration and group assignments to increase engagement, students find group work online difficult (Gillett-Swan, 2017 & Chang & Khan, 2016). Chang and Khan suggest that instructors split group work into individual portions, use peer evaluation, establish communication guidelines, use Google Drive to streamline collaborative works, and monitor group work.

Challenges in Online Learning: Latinx Students

Data from an HSI, California State University, that compared GPAs in online courses between non-Latinx students (2.94) and Latinx students (2.79) revealed a disparity, especially for Latino students (2.73), whose grades are significantly lower than their Latina (2.82) counterparts (Murphy, 2020). Acculturation, language, and economic stressors may affect Latinx students' success in online courses (Murphy, 2020). Online courses may require improved student-faculty interactions (including through smaller class sizes), expanded online student support, and a broad equity focus for tracking and serving subgroups to better facilitate Latinx student success. Interviews, surveys, and focus group data with Latinx students at a Hispanic-serving institution found that blended learning, social interactions, and faculty communication contributed most to their success (Arbelo, Martin, & Frigerio, 2019)

Low Income Students

Low-income students are more likely to be first-generation students (the first in their family to attend college; Brown, Wohn, & Ellison, 2016). Brown, Wohn, and Ellison introduced the term “knowledgeable translators” for contacts or people with specialized knowledge about postsecondary education. People who grow up in homes where their parents or guardians attended college informally receive information from these “knowledgeable translators” about how to apply common terms and language used to describe functions at a university, how to be successful in college, etc. Challenges from low-income students who do not have knowledgeable translators in their lives are exacerbated in an asynchronous online course where instructor or peer responses to students' questions are not instantaneous. Elkins and Hanke (2018) reported that low-income students practice “code switching,” in which they change the way they speak when they are at a higher education institution versus when they are at home, to fit in.

Research Questions

The research questions addressed in this study were: 1) What is the impact of different teaching modalities (face-to-face only, blended, and online-only) on students' connectedness with the instructor and their peers, evaluations, grades, and retention? and 2) What is the impact of different teaching modalities on Latinx and low-income students' connectedness with the instructor and their peers compared to others? The authors hypothesized that: 1) Online-only students would report statistically significantly less connectedness towards instructors and peers than students in blended and face-to-face courses and 2) Students with Latinx ethnicity and low-income backgrounds in online-only courses would report statistically significantly less connectedness with peers and the instructor compared to non-Latinx and student with no low-income background in blended courses.

Methods

Three sections of the same research methods course taught by the same white instructor were taught in three different teaching modalities in Spring 2018 (one face-to-face only section) and Spring 2019 (one blended section and one online-only section) at an HSI. Students in these sections were emailed and invited to participate in an online survey asking them the following questions: 1) What is your gender? 2) What is your ethnicity? 3) Do you have a low-income background?, 4) How connected do you feel to the instructor of this course? 5) How connected do you feel to your peers in this course? Connectedness response options were coded: 1 = very disconnected, 2 = disconnected, 3 = neither connected nor disconnected, 4 = connected, and 5 = very connected. A second survey with follow-up questions was sent in Spring 2019 to see which specific aspects of the course helped students to feel connected to the instructor and their peers. Students were asked demographic questions as well as: 1) Overall, what do you believe impacted

your connectedness to your peers? and 2) Overall, what do you believe impacted your connectedness to your instructor? Students in the face-to-face section were not asked the questions regarding ethnicity and low-income background nor were they asked follow-up questions. These variables were added after the face-to-face section survey was collected.

Student evaluations came from the university-wide Student Rating of Teaching (SRT) surveys administered to students at the end of each semester electronically for each section of each course. In the SRT, students are asked to rate the course and instructor on many different aspects of the course. Items are reported with the results (Table 1). Frequencies and percentages of students' course letter grades were also collected and reported for each section. Retention was defined as students' completion of the course section after course assignments were turned in. A student who registered for the course and then dropped before any assignments were collected was not considered to be enrolled in the course at all. At the study university, students can drop and enroll through the third week of courses.

The Research Methods Course Design

Overview of the Course

All three sections of the courses included the same instructor, syllabus, lectures, and generally the same learning activities and assignments. Minor adjustments were made in Spring 2019 based on student feedback from Spring 2018 semester. The course included two hours of lecture and two hours of a lab each week. The course included five modules covering the following topics: 1) thinking like a researcher, 2) sampling and design, 3) quantitative research, 4) qualitative research, and 5) literature review and program evaluation. Module 1 was four weeks, Module 2 was two weeks, Modules 3 and 4 were three weeks, and Module 5 was three weeks, for a total of 15 weeks. The face-to-face only and blended sections included an in-person

lecture for two hours, while the online only section included a video-recorded lecture. Lab assignments, which often included group work, were conducted using online applications for all sections; students worked on the assignments asynchronously in the blended and online only sections and worked synchronously in the classroom for the face-to-face only section. Lab assignments included use of engaging creation applications and tools, such as Adobe Sparks, Google Docs, Google Forms, Google Presentation, Padlet, Piktochart, Screen-cast-o-matic, and Vialogue.

Course Design

The course was set up using Canvas as the learning management software. Each module included a separate weekly folder organized by, “read,” “due before class,” “engage,” and “apply.” The “read” page included required textbook and other article readings assigned for that week. It should also be noted that the instructor used a no-cost course, free online textbook. The “engage” page included a copy of the PowerPoint, presentation notes, and/or online lecture for the week. The “apply” page included a description of the lab, links to the apps or tools necessary to complete the lab assignment, and examples of completed labs.

The “due before class” included an online, low-stakes five-point, five-question quiz on the required readings for the week. This was added in the spring 2019 semester and was not included in the spring 2018 face-to-face section. The quizzes were initially added based on research showing that they improved class preparation and student success (Orr & Foster 2013; Dobson 2008; Pape-Lindstrom, Eddy & Freeman 2018). However, for these classes, in which meaningful participation and engagement with peers (rather than exams) were the markers of success, the quizzes made a difference as well. Students were able to connect more quickly on all

levels - with the concepts, with each other, and with the professor - because they were held accountable for reading the materials before class.

Connectedness Teaching Methods

The following teaching methods that have been associated with instructor and peer connectedness were included in the course design: video lectures, timely, personal assignment feedback, visual syllabus, and synchronous/asynchronous peer interactions (Martin, Wang, & Sadaf, 2018; Swaggerty & Brommel, 2017). Weekly video lectures were provided instead of face-to-face lectures in the online only section. The instructor embedded professional and personal examples of course concepts into the lectures to increase connectedness as well. For example, in her lecture on research ethics, she sat in front of a collage of ultrasound pictures from her baby and referred to it as she discussed unethical research conducted on pregnant women. Weekly lab assignments were graded within one week and included individual, written feedback to each student or group, if it was a group assignment (Appendix A). The colorful course syllabus was created using a Google Doc and included a photo of the instructor at an academic conference with one of her children. Group work was included as a part of most weekly lab assignments; one included a sampling exercise in which students use small bags of M&Ms to assess how sampling generalizability changed as they combined their samples. The assignment description was created in Adobe Spark, including pictures of the instructor completing the assignment herself, and is [publicly available online](#). VoiceThread lectures and lab assignments also integrated group work and discussion (Appendix B).

2.5 Analysis

Descriptive statistics were used to describe the sample. One-way ANOVAs were used to test the relationship between teaching modalities and connectedness to peers and the instructor.

Descriptive statistics and figures were used to test the relationship between ethnicity, income, teaching modality, and connectedness with peers and the instructor. Inferential statistics were not used due to small sample sizes.

Results

Descriptive statistics are presented in Table 1. The SRT data found that students in the online-only section rated the course and instructor higher on average as compared to rating by students in the blended and face-to-face courses. (Table 2). As hypothesized, the mean score for the connectedness to peers among online students ($M = 2.93$, $SD = 0.89$) was statistically significantly lower than that of blended learning ($M = 4.29$, $SD = 0.76$) and face-to-face students ($M = 4.33$, $SD = 0.82$; Table 3 & 4). However, the face-to-face and blended learning students' connectedness to peers did not differ statistically significantly. Only one student was not retained in any of the course sections; that student was in the blended section. The lowest percentage of A letter grades were found in the online-only section as compared to the blended and face-to-face sections.

Students of Latinx ethnicity reported less connectedness with the instructor and peers in the online-only section as compared to non-Latinx students in the online-only section and Latinx and non-Latinx students in the blended section (Tables 3 & 4, Figures 2 & 4). Contrary to the hypothesis, low-income students reported more connectedness in online-only courses as compared to non-low-income students in online-only courses, but not more than those in the blended section (Tables 4 & 5; Figures 1 & 3).

Students that participated in a follow-up survey ($n = 6$) that inquired about what made them feel connected reported that group work and VoiceThread assignments helped them to feel

more connected to their peers. Written assignment feedback and video lectures were reported as teaching methods that helped the students to feel more connected to the instructor.

Discussion

The authors recognize the limitations of this study, including a small sample size and one instructor who is white and thus does not share an ethnicity or culture with Latinx students. While this article presents findings from an exploratory study, the authors believe the findings raise questions for future research, especially when seeking to define practices that result in equitable and inclusive online courses, specifically for Latinx and low-income students.

Since social presence as connectedness is attributed with increased student satisfaction and retention in online courses (Swan & Shih, 2005) and online courses provide non-traditional students access to higher education, the authors are concerned by the statistically significant finding that online-only students reported less connectedness to peers and poorer grades on average, as compared to those in the blended and face-to-face courses. Secondly, while the online-only students' connectedness to the instructor did not differ statistically significantly, it was lower on average, as compared to those in the blended and face-to-face courses. The higher SRT ratings for the online-only section may also be a result of the fact that online courses provide access to education for non-traditional students. Students at the study university often request online courses as it enables them to do schoolwork on their own schedules as working students with other responsibilities.

Consistent with previous research, this study found that students felt that group work and video discussions made them feel more connected to their peers, while individualized written assignment feedback and video lectures made them feel more connected to their instructor (Martin, Wang, & Sadaf, 2018; Swaggerty & Brommel, 2017; Stone, 2019). Novel findings

include results of comparisons between three different teaching methods, as well as between Latinx and low-income students' connectedness with their peers and instructor.

Although the small sample size prevented a statistically significant finding specific to Latinx students, of equal concern is the trend that Latinx students reported less connectedness with the instructor and peers in the online-only section as compared to Latinx and non-Latinx students in the blended section of the course, even though students typically shared an ethnicity and culture with their peers. The teaching modality may have been what was creating a difference in the connectedness for Latinx students. There were face-to-face, synchronous meetings weekly in the blended section of the course. This may mean that some face-to-face time is needed to meet Latinx students' connectedness needs. Joyner and colleagues (2020) introduced the concept of "The Synchronicity Paradox," in which they describe compelling evidence that students desire synchronicity to form strong social communities, and yet part of the chief appeal of these online programs to students is their asynchronicity. Online programs can introduce synchronicity into asynchronous programs without sacrificing the benefits of asynchronicity. The instructor could do more to foster a sense of community among peers by asking students to complete collaborative, group assignments with clear expectations on each person's role and supervision.

On average, for the online-only section only, low-income students felt more connected to the instructor or peers than non-low-income students. The instructor's background is social work, in which she advocates for people from low-income background, so that could be the reason why low-income students felt connected to the instructor. Individual characteristics of instructors contribute to students' connectedness (Martin, Wang, & Sadaf, 2018). It is important for faculty to find a way for students to relate to them. Another way that the instructor connected with

students is through personal stories. For example, while teaching students about measurement reliability, she uses the example of checking her toddler's thermometer and repeatedly getting a different temperature result, because she must chase around her toddler who is wiggly while she checks his temperature. Students often laugh and connect with the instructor as a real person with a life and family outside of academia.

Since student satisfaction and retention is related to student persistence, student perceptions of connectedness warrant attention if higher education is to fulfill a critical role in realizing social and racial justice. Online course options increase access to higher education for non-traditional students (e.g. underrepresented minorities, Pell-eligible, etc.). The inequity in access to connectivity and technology brought to light during the global pandemic, coupled with previous research findings that non-traditional students typically struggle in online courses (Xu & Xu, 2019). Identifying strategies that increase social and instructor presence are relevant and important topics in the design and facilitation of equitable and inclusive courses across all modalities.

This study affirms previous research findings that instructor presence influences student perception of connectedness to the instructor and peers, or social presence. Yet, the differences in perception of social presence between Latinx and non-Latinx students highlights a timely and critical need for additional research regarding the role of culture in perception of social presence. Frameworks such as The Cultural Lens Approach (CLA) and Culturally Responsive Teaching (CRT) need further investigation in respect to online teaching and learning to determine their potential for identifying instructional strategies that nurture social presence for ethnically and culturally diverse students enrolled in online courses (Plotts, 2018, 2020).

Conclusion

We currently live in uncertain times and are given limited choices on teaching modalities during the covid-19 pandemic. This study informs us that minimal face-to-face synchronous interactions can foster connectedness. If state law or university policy prevents us from meeting face-to-face, we should strive to offer synchronous interactions via Zoom, Google Classroom, or other apps. Instructors can find ways to connect with students by providing stories and bits of information about themselves to foster connectedness in any teaching modality. These methods are critical to addressing inequities in education.

Table 1.

Description of the Sample and Connectedness, Grades, and Retention based on Teaching Modality

	Total Survey Sample ($N = 27$)	Face-to-Face Online ($n = 6$)	Blended (50% Face-to-face and 50% Online; $n = 7$)	Online Only ($n = 14$)
	<i>f(%)</i>			
Gender				
Male	3 (11.1)		0(0)	3(21.4)
Female	20 (74.1)		7(100)	11(78.4)
Missing	4			
Ethnicity				
Latinx	11 (40.7)		4(57.1)	7(50.0)
Non-Latinx	12 (44.4)		3(42.9)	7(50.0)
Missing	4			
Income				
Low Income	10 (43.5)		3(42.9)	7(50.0)
Not low income	13 (56.5)		4(57.1)	7(50.0)
Missing	4			
	Total Class Size ($N = 91$)	Face-to-Face ($n = 24$)	Blended ($n = 23$)	Online Only ($n = 44$)
Retention				
Retained		24(100)	22(96.65)	44(100)
Not Retained		0(0)	1(4.34)	0(0)
Grades				
A		19(79.16)	19(86.36)	28(63.63)
B		4(16.66)	3(13.63)	11(25.0)
C				4(9.09)
D		1(4.16)		
F				
Incomplete				1(2.27)
	<i>M(SD)</i>			
	Total Survey Sample ($N = 27$)	Face-to-Face Online ($n = 6$)	Blended (50% Face-to-face and 50% Online; $n = 7$)	Online Only ($n = 14$)
Connected to Instructor (response options range 1-5 with 5 being very connected)	4.26(0.76)	4.50(0.83)	4.71(0.48)	3.93(0.73)

Connected to Peers (response options range 1-5 with 5 being very connected)	3.59(1.04)	4.33(0.82)	4.29(0.76)	2.93(0.89)
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Note. Valid percentages reported. Participants from the Face-to-face modality were not asked demographic questions.

Table 2. Description of the Student Course Evaluations based on Teaching Modality (Response options ranged from 1-5 with 1 being strongly disagree and 5 being strongly agree).

	Face-to-Face Online (n = 14)	Blended (n = 14)	Online Only (n = 15)
	<i>M(SD)</i>		
I understood the goals expected from this course	4.6(.61)	4.8(.41)	4.8(.54)
The course content was well organized	4.6(.73)	4.4(.97)	4.9(.50)
The delivery (online, blended, or face-to-face) of the course content was effective for my learning	4.6(.62)	4.4(1.08)	4.8(.54)
The assignments/activities in the course aided my learning	4.6(.61)	4.6(.49)	4.7(.57)
The class atmosphere supported my learning	4.6(.61)	4.4(.90)	4.6(.90)
The course was a valuable learning experience for me	4.6(.48)	4.7(.45)	4.7(.57)
The instructor helped me achieve the course goals described in her/her syllabus	4.5(.73)	4.6(.48)	4.9(.34)
Throughout the course I received timely and meaningful feedback from the instructor	4.5(.91)	4.6(.48)	4.9(.25)
When I sought outside help from the instructor, I received it.	4.6(.74)	4.5(1.05)	4.9(.25)
The instructor employed fair and consistent grading strategies	4.6(.62)	4.8(.41)	4.9(.34)
The instructor treated me with respect	4.6(.61)	4.7(.59)	4.9(.25)
I would take a course from this instructor again	4.5(.75)	4.6(.81)	4.9(.25)

Table 3.

One-way ANOVAs Assessing Differences in Connectedness based on Teaching Modalities

	<i>F</i>	<i>p</i>
Connectedness to Instructor	3.36	.051
Connectedness to Peers	9.81	.001

Table 4.

Descriptive Statistics Connectedness to Instructor for Blended and Online Teaching Modalities by Ethnicity and Income

	Blended (50% Face-to-face and 50% Online; <i>n</i> = 7)	Online Only (<i>n</i> = 14)
Ethnicity		
Latinx	4.50(0.57)	3.86(0.90)
Non-Latinx	5.00(0.00)	4.00(0.57)
Income		
Low-Income	4.67(0.57)	4.14(0.69)
Not Low-income	4.75(0.50)	3.71(0.76)

Note. Participants in the face-to-face only course were not asked about their ethnicity and income.

Table 5.

Descriptive Statistics Connectedness to Peers for Blended and Online Teaching Modalities by Ethnicity and Income

	Blended (50% Face-to-face and 50% Online; <i>n</i> = 7)	Online Only (<i>n</i> = 14)
	M(SD)	M(SD)
Ethnicity		
Latinx	4.67(0.57)	2.71(0.95)
Non-Latinx	4.00(0.82)	3.14(0.69)
Income		
Low-Income	4.67(0.57)	3.14(0.69)
Not Low-income	4.00(0.81)	2.71(0.95)

Note. Participants in the face-to-face only course were not asked about their ethnicity and income.

Appendix A.

Screenshot of Timely, Personalized Individual Instructor Feedback on a Piktochart Assignment

The screenshot displays a submission interface for a Piktochart assignment. The main content area shows a student's Piktochart titled "Does health insurance impact ones ability to go to the Doctors Office?". The chart is divided into two sections: "Qualitative Methods" and "Quantitative Methods".

Qualitative Methods: Form in depth interviues with people who do and don't have access to healthcare. Make sure to focus on one community at a time. Learn their experiences, reasons, and consers with the

Quantitative Methods: Conduct a Survey asking people how often they access health care. (Ex. Every 6months, 1 a year etc.)

The interface includes a toolbar at the top with icons for refresh, zoom, and share. On the right side, there is a submission information panel:

- Submitted: Feb 7 at 9:11pm
- Submitted Files: (click to load)
[Health insurance.png](#)
- Assessment
Grade out of 5
- Assignment Comments
Wonderful job demonstrating your knowledge of each method with a great example.
Kristen Linton, Feb 11 at 9:16am

Appendix B.

Screenshot of a VoiceThread, Group Assignment

The screenshot shows a VoiceThread interface. At the top, a dark header bar contains the text "Positivism, Post, Quant, and Qual (Slide 2 of 16)" on the left and "Kristen Linton" with a profile picture and a CC icon on the right. Below the header, the main content area features a large, centered title "Review". Underneath the title is a bulleted list of concepts: "• How would you describe the following concepts?" followed by "Selective observation", "observation", "alization", "asoning", and "to change". Below the list is the question "How does the media affect our understanding of research?". A video player overlay is positioned on the left side of the slide, showing a woman speaking. The overlay has a name "Kristen Linton" at the top, a close button (X), and icons for trash, CC, and a back arrow. On the far left, a vertical sidebar shows a search icon, a right arrow, and a list of profile pictures, including one with the initials "KM". On the right side of the slide, there are two circular icons: a plus sign and a dark circle.

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