

Engaging computer mediated communication in a virtual learning environment

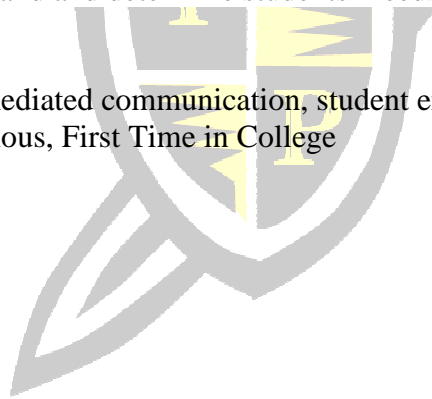
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ABSTRACT

Higher education students are attending online classes more now than ever in history. Many institutions have temporarily converted their traditional face-to-face to online classroom settings. This raises many challenges as it relates to having to rely on Computer Mediated Communication (CMC). A virtual learning survey was sent out to all First Time in College (FTIC) students at a university in South Texas in Fall 2020, the results of which assessed levels of engagement and communication with recommendations on how to improve virtual classroom experiences. Three types of student engagement were measured based on CMC: student-to-student, student-to-instructor, and student-to-content. This study explored a new frontier for many institutions revealing that FTIC students in higher education feel a greater connection to instructors and content while not with their classmates. This research can be used to help higher education better understand and determine students' needs in an online classroom setting and CMC.

Keywords: Computer mediated communication, student engagement, virtual learning, synchronous, asynchronous, First Time in College



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INTRODUCTION

When the coronavirus pandemic struck the United States in Spring 2020, colleges and universities quickly had to convert to a virtual education-only format. Virtual education is defined as an instruction learning environment where teacher and student are separated by time and space, or both (Dung, 2020). This shift presented many challenges for both instructors and students, many of whom had not designed an online course or had not taken an online course, respectively. This immediate shift presented its own set of obstacles, and as such, many colleges and universities offered pass-fail options for students so their grade point average would not be adversely affected by the sudden shift. With little to no progress made in regard to controlling the virus, the start of the Fall 2020 semester found many in higher education still having to provide mostly online courses for students. For First Time in College (FTIC) students, their introduction to college life was conducted through their computers, smartphones and other forms of technology, rather than the traditional face-to-face courses with an immersion into the college culture. Colleges and universities have been offering virtual classes since the early 1990s (Wallace, 2010). Virtual classes gained in popularity as colleges and universities worked to accommodate the learning needs of more diverse student populations (Serrano, et al., 2019, p. 274-275). One continual debate about virtual learning is whether it provides a level of student engagement to ensure satisfaction with the course and more importantly actual learning.

Coronavirus aside, virtual learning has been increasing in recent years McCue (2018) writes that the online education market will grow to \$350 billion in the next five years, a prediction made prior to the coronavirus outbreak. With virtual learning environments expected to increase, it is important that educators present curriculum in an engaging format with an open line of communication not only between educator and student, but student-to-student as well. This can sometimes prove to be a real challenge for educators. To gauge engagement for FTIC students in Fall 2020 online courses, this study was conducted through a communication survey among First Time in College (FTIC) students at the university studied to measure the level of engagement via computer-mediated communication (CMC) they experienced in virtual classrooms during their first semester in college. In this study, questions were posed to determine if FTIC students felt connected to their instructors, course content, and their peers. The levels of engagement in these three areas can help predict how well a student will perform in a virtual learning setting. Moreover, the results of this survey can help guide educators when developing their CMC methods in a virtual classroom setting. Of particular interest to the researchers was whether an asynchronous or a synchronous course provided more engagement for students.

LITERATURE REVIEW

Previous research has presented mixed results in levels of course satisfaction as it relates to computer-mediated communication (CMC), engagement, and positive learning outcomes when it comes to virtual education. It is important to study virtual learning to ensure their quality and effectiveness, particularly as technology continues to grow providing new tools for learning. Sher (2009) describes the three types of interaction essential in virtual learning as student-to-content interaction, student-to-instructor interaction, and student-to-student interaction. Student-to-content interaction is the connections students make to information in the course materials; student-to-instructor interaction refers to the engagement between student and instructor,

including the delivery of information and feedback; and student-to-student interaction is the exchange of information and ideas between students (Sher, 2009, p. 104).

First Time in College Students

Many Students have difficulty transitioning from high school to college (Jaijairam, 2016). This includes them having a difficult time taking on the responsibility and accountability of their assignments and exams (Jaijairam, 2016). For example, while in high school, teachers give numerous reminders and allow students to study for an upcoming test in class. In addition, faculty members at the university have an expectation of their students that they may not have had before (Jaijairam, 2016). Some solutions to bridging this gap include a first-year seminar, tutoring and mentoring, and other accessible student support systems (Jaijairam, 2016).

To effectively teach students from all cultures including international students, first generation students, or students with a wide array of socio-economic status educators must adapt their teaching methods and become sociocultural literate. In the same way, in order to be successful, the instructor must first put forth the effort to learn about each student and teach with a wider perspective (Blas, 2014). The educated instructor should be well versed about the socioeconomically, culturally diverse student (Blas, 2014). For example, a culturally acclimated individual will abide by those rules, norms, and more both spoken and unspoken, to achieve a goal, usually prosperity or power (Blas, 2014).

Cultures exist not only with ethnic or racial groups, but even within socioeconomic class. Cultures also vary depending on education, domestic or international home environments, rural and urban settings, community service groups or personal causes, and first-generation students to students who come from a long line of college graduates (Blas, 2014). All FTIC students arrive to a college campus for the first time with a unique background. When an educator understands the cultural background of their students, they then can establish a foundation that forges a relationship with the student that enables the instructor to teach them in the most effective way (Blas, 2014).

Hispanic Serving Institutions

Hispanic Serving Institutions (HSIs) are federally designated colleges and universities in which 25% of the student population is made up of Latino/Mexican/Hispanic ancestry. The university at which this research was conducted is a Hispanic Service Institution. The need to improve access to education among this historically underserved population is greater than ever before in history. By connecting the university with the community and the public schools, HSIs can transform and close the gap between high school and college (Ruiz and Valverde, 2012). Today, one out of every six workers is Hispanic. By 2050, one out of every four will be Hispanic (Arciniega, 2012). The education system must prepare for the future and the Latino population is the future of the United States. Without addressing the educational needs for this fast-growing demographic, we are hurting ourselves as a nation. For a FTIC student who also is a member of a minority group, making connections in a virtual learning environment is of the utmost importance to ensure a positive first experience in college, which can influence the likelihood of completing to degree.

The first step to serve Latino students is to enroll them into college and help them graduate. The retention and completion of students depends on the institution support provided.

In addition, higher educational institutions need to serve their needs in order for them to be successful in the end (Medina and Posadas, 2012). Issues that these students face include dealing with cultural changes, campus climate, and should they stay or go. In order for our higher Institutions to be successful, HSIs must create a sense of community at their institutions and serve the needs of all of their students (Medina and Posadas, 2012). In a virtual learning environment, creating a community presents a new set of challenges for instructors to ensure students make the connections with other peers, the instructor, and the curriculum.

Active Learning; Peers and Instructors

Active learning occurs with more student engagement and as such engagement is imperative for increased student learning (Gray & DiLoreto, 2016). Student engagement is defined as the purposeful time and effort students invest in their academics; higher engagement reduces a sense of isolation and improves student performance (Lu, 2020). Engagement is key to online learning success. Engagement in virtual settings can be illustrated through “actions that build community,” and includes the development of relationships with peers and instructors, both of which are important to student learning (Heffernan, 2018, p. 191). Watts (2016) states that the largest concern with virtual education is the lack of face-to-face, student-to-student engagement, interaction, and communication. What makes a strong connection for students in virtual learning are connections to peers and instructors, which then boosts student motivation in the course and can result in positive outcomes, such as a good grade (Watts, 2016). Such connection concerns have spurred researchers to seek effective ways to keep students engaged in virtual learning (Watts, 2016, p. 23). Studies show there can often be disconnects between subject matter, peers, and instructors in virtual learning. One of the biggest challenges in virtual learning is overcoming that feeling of disconnect (Gray & DiLoreto, 2016). Boling, Hough, Krinsky, Saleem & Stevens (2012) state it is surprising that as Web technology continues to grow more tools for education are available and yet many educators have not taken advantage of those tools to improve engagement and communication in virtual classrooms. These authors advocate “adaptions in teaching practices” and encourage instructors to realize they are more than teachers but also mentors and facilitators of learning (Boling, et al., 2012, p. 118). Gray & DiLoreto (2016) find that direct instruction – regardless of whether a virtual class is being taught synchronously or asynchronously – is key to ensuring students feel the instructor’s presence in a course. An instructor’s presence can be felt in a virtual learning environment in a variety of ways. Some suggestions include video lessons, direct feedback on assignments, and other forms of communication such as personal emails between the instructor and students.

There are three types of virtual education classes: asynchronous, synchronous, or a mixture of the two with or without some face-to-face elements. Asynchronous is a virtual course that does not take place in real time with students self-directing, while synchronous has an assigned meeting time that allows for simultaneous online interaction between students and instructors. They each share a common goal, according to Watts (2016), to ensure students feel they are part of the learning process and feel engaged. Increased communication and engagement can then lead to positive outcomes in virtual learning in so much that information is better retained. Each form of virtual learning has its own benefits and shortcomings. However, Hiranrithikorn (2019) notes that online learning in general offers many positives, including the flexibility to achieve goals by working anywhere, anytime.

Asynchronous Virtual Learning

Asynchronous learning environments are beneficial because they allow for flexibility for students who can work in their own time; it is convenient. Asynchronous learning provides learners who work full-time, care for family members, or have other commitments to earn a bachelor's degree or higher (Lu, 2020). This can be beneficial for some students in that it allows them time to reflect on an assignment, consider their thoughts and as an extension make deeper connections with course content (Watts, 2016, p. 27). Gray & DiLoterio (2016) studied student satisfaction in asynchronous classrooms and concluded that instructor presence has significant impact on student learning. With a lack of direct peer interaction, virtual learning then hinges more on the instructor to communicate a sense of engagement with students. Too often, according to Wallace (2010), students often struggle in virtual environments that require them to learn more on their own and have little discussion or feedback (p. 242). Hiranrithikorn (2019) found in his focus group study a main disadvantage in virtual learning is the lack of social interaction, which can be present in asynchronous learning settings, as undergraduate level students thrive with social interaction with people their own age (p. 16).

Synchronous Virtual Learning

Peer interaction in a synchronous virtual learning environment is also beneficial because it allows students to navigate small group communication dynamics and are integral to better communication between students and instructors (Watts, 2016, pp. 24 & 27). There are online tools that can be used to increase student engagement and communication in a synchronous virtual learning environment, including video conferencing, breakout study-groups, and more. In their study, Rockinson-Szapkiw & Wendt (2015) determined that the use of multi-media tools allow for more virtual classroom interactions and engagement, and thus are generally preferred over their asynchronous counterparts. Additionally, studies have shown that students view synchronous virtual learning positively because it offers “instantaneous feedback” and allows them to see their peers, which leads to engagement (Watts, 2016, p. 27). A review of research, according to Wallace (2010) solidifies that students in virtual classrooms value discussion, social presence among their peers, and direct instructor participation (p. 254). These elements are mostly present in synchronous classes. Synchronous virtual classrooms allow for accessibility to peers and instructors, similar to face-to-face classrooms, but remain flexible in that a student can access the virtual class from anywhere. Negatives regarding synchronous virtual learning environments are potential time conflicts with live meeting times, which can lead to frustration and less satisfaction with the virtual course (Watts, 2016, p. 28).

Blended Classrooms

Blending elements of both synchronous, asynchronous, and face-to-face settings have increased student engagement as well. Serrano, Dea-Ayuela, Burgo, Serrano-Gil & Lalatsa (2019) advocate for a blended model of learning because it leads to better student outcomes and more effective teaching, provided content is delivered appropriately in a combined setting (p. 273). Blending the best attributes of all the models can create a more dynamic learning experience. Serrano, et al. (2019) suggest using typical tools of asynchronous and synchronous virtual classrooms with face-to-face discussion; these can include journals, discussion boards,

and blogs (p. 275). Students then can enjoy the best of both the virtual and in-person classrooms and have satisfactory levels of engagement and communication between one another and the instructor.

Computer-Mediated Communication

Virtual learning relies on the use of computer-mediated communication. Today, nearly all social activities are or can be mediated by some type of computing technology (Yao & Ling, 2020). Moreover, since 2010 the combination of “networked computing, big data processing, and mobile communication have led to an eruption of technological innovations in media and communication” (ibid, p. 6). Therefore, it seems logical that computer-mediated communication (CMC) continues to grow in education, particularly in all models of virtual learning. The only limitation is an instructor’s imagination to incorporate different methods of CMC into virtual classrooms. Students may engage in virtual settings with the use of CMC in real-time virtual classes (i.e., synchronous) through such technologies as video conferencing, or in delayed time (i.e., asynchronous) through previously recorded lectures and email (Ajabshir, 2018). CMC affords students opportunities for joint learning, more talk time between peers and instructors, which Ajabshir (2018) contends leads to increased outputs, higher participation, collaborative learning, and development of social skills (p. 170).

METHODOLOGY

The university used in this study is located in South Texas and is a Hispanic-serving institution located in South Texas. The Fall 2020 enrollment was 6,000 students. Of those 6,000 students, 1,054 were freshmen students, or First Time in College (FTIC). In response to the coronavirus, this university offered only 35% Fall 2020 semester courses face-to-face. While many courses were offered strictly in online formats, others were presented in a hybrid model – a mix of virtual and face-to-face settings. Virtual classes are taught through the Blackboard platform.

For this study, an online survey was sent via email to the 946 First Time in College students at this university who were enrolled in the First Year Seminar Course. First Year Seminar Courses are created to ease transition into college while providing tools necessary to be successful from freshman year to senior year and beyond. Johnson, J. & Krsmanivoic (2018) note that these seminar courses utilize high-impact practices, which increase engagement, and are widely used in college and universities across the United States as a strategy for student success. The First Year Seminar Course at this university was presented either completely online or in a blended classroom setting. The survey (see Appendix), which was posted on Survey Monkey, consisted of twenty questions and statements, and sent through the First Year Seminar Course. All FTIC students, with some exceptions, are required to enroll in this course at this university, which allowed for ease of survey delivery to this student demographic. Of the 189 surveys attempted, 169 were completed fully and were used for the analysis of this study. This is an overall completion rate of 18% of the FTIC students enrolled in the First Year Seminar Course. This survey presented statements regarding classroom engagement and communication between students and peers, students and instructors, and students and content. Responses were recorded on a Likert scale measured from strongly agree to strongly disagree. The results here

are presented to focus on two levels of engagement – student-to-student and student-to-instructor comparing synchronous and asynchronous settings.

RESULTS

Of the 169 surveys completed, 121 self-identified as female and 48 self-identified as male; the majority self-identified as Hispanic or Latino, 114; and 63 self-identified as a first-generation college student. The majority of FTIC students were also taking five to six online courses in Fall 2020. Of the 169 students surveyed, 41 were taking online courses only and the remaining 59% were taking a hybrid course that included online and face-to-face components, so that all the FTIC students surveyed experienced virtual learning.

This study measured the level of communication between students and their peers as well as communication between students and their instructors. The fact that many students had a mixture of both online and face-to-face courses makes these results even more compelling as students had a direct basis for comparison. The level of communication is used here as the measure for engagement in virtual classes for Fall 2020. Students in virtual settings can interact in three main ways – student-to-student, student-to-content, and student-to-instructor. The survey was designed to address these communication areas in virtual education regarding student-to-student interactions as well as student-to-instructor interactions. Students weighed each question on a Likert Scale with the following responses: Strongly Agree, Agree, Neutral, Disagree, Strongly Disagree.

A direct statement was posed to students who completed the survey: You feel connected to other students in your course. In total, only 9% of respondents in synchronous courses felt this connection to other students, while 15% in asynchronous courses felt connected to their peers. The majority disagreed with this statement. Fifty-three of synchronous students responded that they disagreed while 52% of asynchronous students disagreed. The remaining students, 38% synchronous and 33% asynchronous, felt neutral about that statement.

A direct statement regarding whether students felt connected to their instructor showed a strong difference between students in a synchronous course and an asynchronous course, which 26% of the former answering in the affirmative and 31% in the later also responding positively. Some 33% of synchronous students disagreed with this statement while 34% of asynchronous students disagreed. The remaining, 39% synchronous and 35% asynchronous, were neutral.

Students completing the survey were also asked about whether instructors provided opportunities to collaborate with other students. Thirty-four percent of synchronous respondents agreed while 50% of asynchronous students agreed there were opportunities. Some 26% of synchronous students disagreed while 25% of asynchronous students survey disagreed. The remaining students were neutral to the statement: 40% synchronous and 25% asynchronous.

The last of the statements relevant to this paper analysis was whether the instructor encouraged engagement between the students, which would be the first step in ensuring students feel connected to one another in class. Some 56% of students in synchronous online courses said instructors did encourage engagement, while 39% of asynchronous respondents agreed. Only 6% of respondents in synchronous courses disagreed while 22% of asynchronous respondents disagreed. Of the synchronous respondents, 38% were neutral, while 39% of their counterparts responded neutrally.

DISCUSSION AND RECOMMENDATION

The biggest takeaway here is that FTIC students on the campus studied felt greater connections to their instructors rather than to their peers. The results of this survey of 169 FTIC students shows more of a connection to instructors in online courses rather than engagement between peers. Whether the online course was presented synchronously or asynchronously did not impact the level of engagement among students. The high number of neutral responses in the survey indicates to researchers that even if engagement opportunities were presented, students may not have recognized them as such. This is evident in the fact that students acknowledged there were opportunities presented for engagement. Therefore, engagement opportunities were not successful. The conclusion of the results is that student engagement was more positive in asynchronous online courses rather than synchronous. This may be because instructors approached their synchronous online courses the same way they would a face-to-face course. This approach could have resulted in students losing interest in the course as an online teaching setting has been proven to be highly different than a face-to-face setting as there are more distractions.

One limitation of this survey is that it did not measure the level of experience students did or did not have in virtual learning prior to their first semester at this university. With that established, future research is imperative as higher education transitioned literally overnight to almost all their courses being offered online to combat the ramifications the global pandemic placed. Many universities now offer more courses online post-pandemic. Future research for this specific study could include expanding the survey to all students and then comparing the results by number of completing college hours. This is just the tip of the iceberg, if you will. Although many traditional face-to-face institutions have been migrating to some online classroom environments, the 2020 COVID pandemic expedited the transition to an online platform and forced all face-to-face courses to an online format. The ramifications of this will be discussed for many years to come.

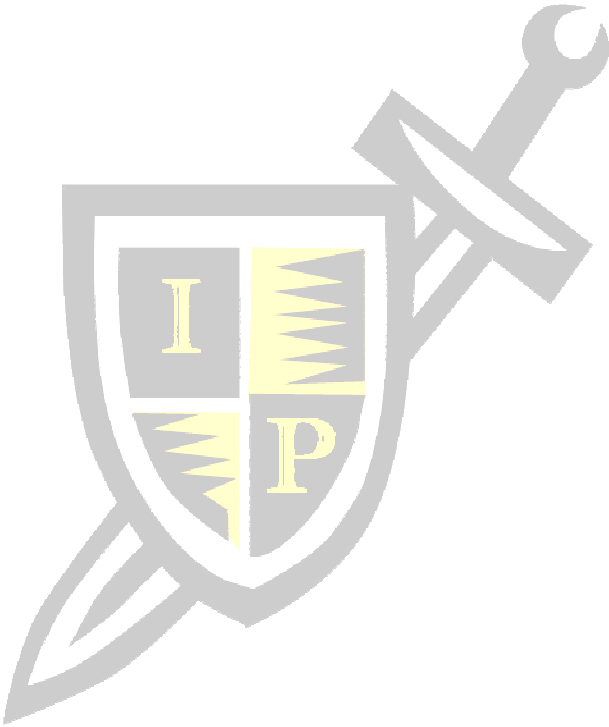
Although the past years, 2020 and into 2021, have brought many changes in higher education, it is still uncertain as to how much a greater online presence has affected students. Many factors have not been tested yet, and one of the major ones includes the level of comfortability the faculty has with an online platform. This study could also be done through the lens of the faculty and then comparing the success of their students with their level of knowledge and implementation of their class in an online platform. With that said, this could also become very controversial and yet this seems to one of the next variables in determining student success in an online classroom environment.

Furthermore, discussions detailing the need for instructors to understand an online platform and to be able to implement their classroom content within it has already begun and will need to continue to be expanded on. Many faculty are not familiar with an online platform and their previous way of communicating their content does not work in this new online environment. Perhaps new guidelines must be placed detailing the expectation of all faculty understanding and implementation for an online classroom platform. Regardless of how and why, the reality is that higher education institutions have moved into a new era literally overnight. Discussions on how to continue to educate, motivate, and guide faculty to a new online curriculum format are already underway, but must be expanded on. Higher education institutions exist to serve students and, therefore, educators must meet the needs of this new and ever-changing new generation.

Boling, et al. (2012) found in their study that students view online courses that limited interaction between teachers and peers to be “less helpful” as it limited their ability to use deeper

cognitive thinking and creative thinking (p. 120). The findings here emphasize that FTIC students also value connections with their instructors and peers. At the onset of online classrooms in the 1990s, CMC was much slower than traditional face-to-face classroom interactions; feedback was slower. Walther & Tidwell (1995) stated twenty-five years ago CMC was more task oriented, rather than person-oriented. Today, technology advancements allow for more organic experiences in virtual classrooms, and CMC is more person-oriented and immediate with advancements such as video conferencing. Online classrooms should be structured in such as to build a community for students with high-engagement and communication to ensure students make connections with peers, content, and instructors. Studies have shown that “average” students in more engaging virtual learning settings have performed as good as or better than “average” students in traditional classrooms (Hiranrithikorn, 2019).

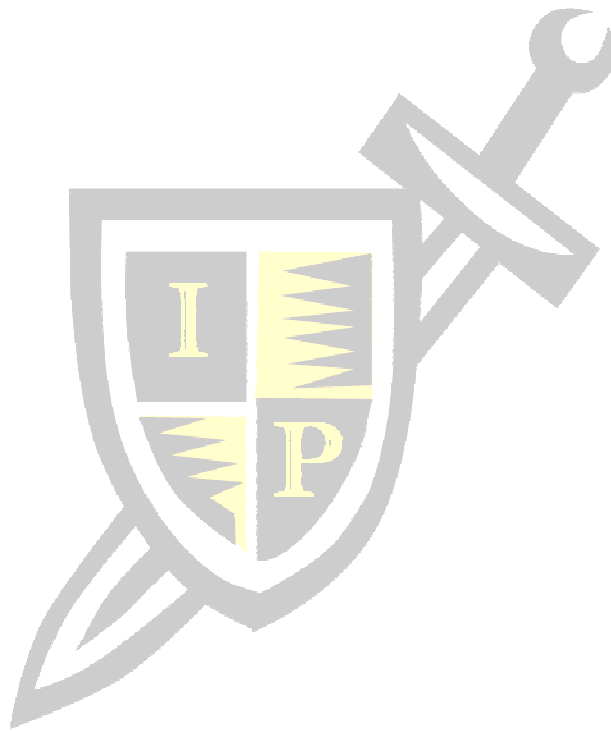
As in all classroom settings, instructors have to take into consideration individual needs of students. This is the same in online learning classrooms as well. Students have a more positive outlook and connections to their virtual courses when interaction with their instructor are high (Gray & DiLoterio, 2016). Sher (2009) also noted in her study that student-to-student and student-to-instructor interactions are “significant contributors to the level of student learning and satisfaction in a technology mediated environment” (p. 114). The study featured in this report shows that FTIC students in online classrooms at this university recognized a close connection with their instructors and the instructors’ communication. This is a positive result but is only part of the equation that results in stronger online classrooms. The shortcoming based on this study is the student-to-student engagement in online classes at the university. If instructors at this university who are teaching online courses can continue with their own level of engagement and communication but add more opportunities for student-to-student engagement, the university will see more positive results for students taking online classes. It is clear instructors are embracing their role as facilitators of learning and facilitation needs to extend to encourage student-to-student engagement and communication opportunities. Perhaps the increased use of multimedia tools in virtual classrooms at this university as well as all others can help increase student-to-student engagement, such as the use of videoconferencing which allows students to speak to one another. An increase in instructor workshops aimed at creating curriculum that is specifically designed to encourage collaboration among students could help improve student-to-student engagement in virtual classrooms. New communication tools and platforms can have unique effects on the world (Yao & Ling, 2020, p. 8), and their inclusion in virtual classrooms can lead to more engaging courses in higher education. As CMC continues to evolve, online classroom settings should evolve with it to enhance the virtual learning experiences for students. Online learning is a complex and ever-changing journey that will require all participants to make use of CMC tools available.



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Appendix

VIRTUAL LEARNING COMMUNICATION SURVEY - FTICs at
Texas A&M University-Kingsville
Developed by Nicole D. Morris, M.A.

Instructions: Please select your responses on the online survey form and hit submit when done. Please answer all questions since each is important for possibly improving the operation of virtual learning environments. If there are any questions which do not apply to you, leave them blank. If there are questions which you do not understand, please leave it blank. We appreciate your patience for this important survey.

PLEASE MARK ONLY ONE RESPONSE TO EACH QUESTION

Instructions for Questions 1 through 6

The following information allows us to compile demographic information on the first-time-in-college students completing the survey. Your response is anonymous. Please select the response that best represents you:

1. What gender were you assigned at birth?
 - a. Male
 - b. Female
2. Which ethnicity group do you fall under?
 - a. American Indian or Alaskan Native
 - b. Black or African American
 - c. Hispanic or Latino
 - d. White
 - e. Do not wish to disclose
3. Are you a first-generation college student?
 - a. Yes
 - b. No
4. Your online (virtual) course(s) this semester is/are being taught synchronously or asynchronously (at a designated required meeting time or not).
 - a. Synchronously
 - b. Asynchronously
5. How many online courses are you taking?
 - a. 1-2
 - b. 3-4
 - c. 5-6
6. Are your online courses this semester completely online or a mix of online and face-to-face?
 - a. Online only
 - b. Mix of both

Instructions for Questions 7 to 19

Indicate the extent to the following statements or questions as they apply to your online (virtual) learning experience using the following scale.

- 1 = Strongly Agree
- 2 = Agree
- 3 = Neutral
- 4 = Disagree
- 5 = Strongly Disagree

7. You received instructions on how to navigate Blackboard at the start of the semester.
8. The course syllabus provided detailed information on assignments and due dates.
9. You feel connected to other students in the course.
10. You feel connected to the course instructor.
11. You feel connected to the course content.
12. Online directions are communicated clearly and with easy-to-follow instructions.
13. The expectations for the course were openly communicated at the start of the semester.
14. The course affords you an opportunity to collaborate with your classmates.
15. The course instructor responds to questions in a timely manner (within 24 hours).
16. The course meets your expectations for a college-level class.
17. Your online course instructor encourages engagement between students.
18. Your online course is just a lecture.
19. What are your expectations that you will pass your online course(s)?
20. If you would like, please tell us your overall thoughts about the quality of online courses offered at Texas A&M University-Kingsville.