

COVID-19'S IMPACT ON HIGHER EDUCATION COMMUNICATION

BY

ABIGAIL L. SANDERS

M.A. THESIS

Submitted in partial fulfillment of the requirements for the degree of Master of Arts in

Communication in the School of Communication and the Arts

at Liberty University

Lynchburg, Virginia

Advisor:

Carmen Navarro, Ph.D.

Acceptance of Master's Thesis

This Master's Thesis is accepted in partial
fulfillment of the requirements for graduation from
School of Communication and the Arts
at Liberty University.

Carmen Navarro, Ph.D.

Thesis Chair

Marie Mallory, Ph.D.

Committee Member

Cecil Kramer, D.Min.

Committee Member

Date

Abstract

The following study was intended to contribute qualitative research on the impact that the Novel Coronavirus (COVID-19) global outbreak has had on higher education communication. A qualitative study was conducted using questionnaires given to professors and students at a private university in the United States. Through this study, three primary research questions were answered. First, among university students, what was the academic impact of COVID-19? Specifically, how did the transition into virtual learning affect student academics during the spring 2020 academic semester? Second, did university students experience professors with poor digital literacy, and did this illiteracy impact professor-student rapport? Third, how was the flow of communication between professors and students adapted because of virtual learning enacted in response to COVID-19? Was this adaptation successful according to professors, students, or both? Two communication theories were applied to the results of the qualitative study results: Cognitive Dissonance Theory and Expectancy Violation Theory.

Keywords: COVID-19, higher education, eLearning, Cognitive Dissonance Theory, Expectancy Violation Theory

Table of Contents

List of Tables	5
Acknowledgements.....	6
Chapter 1 Introduction.....	7
Chapter 2 Review of Literature.....	10
<i>COVID-19 and Global Education</i>	10
<i>Online and Digital Education</i>	15
Chapter 3 Methodology	20
<i>Purpose</i>	20
<i>Study Design</i>	20
<i>Theoretical Framework</i>	26
Chapter 4 Results	32
<i>Demographic Questions</i>	32
<i>Open-Ended Questions</i>	32
Chapter 5 Discussion	53
<i>Academic Experience</i>	53
<i>Digital Literacy</i>	55
<i>Communication</i>	59
<i>Overall Experience</i>	63
Conclusion & Further Research.....	66
References.....	68
Appendix.....	75

List of Figures

Figure 1 *Sentiment Hierarchy Chart of Student Responses to Q7*..... 33

Figure 2 *Sentiment Hierarchy Chart of Professor Responses to Q7* 34

Figure 3 *Sentiment Hierarchy Chart of Student Responses to Q8*..... 35

Figure 4 *Sentiment Hierarchy Chart of Professor Responses to Q8* 36

Figure 5 *Sentiment Hierarchy Chart of Student Responses to Q9*..... 37

Figure 6 *Sentiment Hierarchy Chart of Professor Responses to Q9* 38

Figure 7 *Sentiment Coding Reference Graph of Student Responses to Q10* 39

Figure 8 *Sentiment Coding Reference Graph of Professor Responses to Q10*..... 40

Figure 9 *Sentiment Coding Reference Graph of Student Responses to Q11* 41

Figure 10 *Word Frequency Cloud of Professor Responses to Q11* 42

Figure 11 *Word Tree Map of Student Responses to Q12*..... 43

Figure 12 *Word Tree Map of Professor Responses to Q12* 43

Figure 13 *Sentiment Coding Reference Graph of Student Responses to Q13* 44

Figure 14 *Sentiment Coding Reference Graph of Professor Responses to Q13*..... 45

Figure 15 *Word Frequency Table for Student Responses to Q14*..... 46

Figure 16 *Word Frequency Table for Professor Responses to Q14*..... 47

Figure 17 *Sentiment Coding Reference Graph of Student Responses to Q15* 48

Figure 18 *Sentiment Coding Reference Graph of Professor Responses to Q15*..... 49

Figure 19 *Word Tree Map of Student Responses to Q16*..... 50

Figure 20 *Word Tree Map of Professor Responses to Q16*..... 50

Figure 21 *Sentiment Coding Reference Graph of Student Responses to Q17* 51

Figure 22 *Sentiment Coding Reference Graph of Professor Responses to Q17*..... 52

Acknowledgements

I wish to acknowledge the support and great love of my family, my parents, Erik and Rebecca; my brother, Caleb; and my sister-in-law, Ashley. They kept me going through many bad days and celebrated many good days with me. This work would not have been possible without their input and encouragement.

I wish to express my sincere appreciation to my advisor, Dr. Carmen Navarro, whose encouraging words sustained this process and whose honest feedback helped me reach this audacious goal. Additionally, I wish to thank my committee members, Dr. Marie Mallory, and Dr. Cecil Kramer, for their willingness to guide me through this process with such care and encouragement.

I sincerely wish to acknowledge the group of friends that surrounded me throughout this project and were willing to laugh, cry, pray, and dance with me along the way. It is because of these individuals that I can say this was one of the hardest but most rewarding academic experiences of my life. Thank you!

COVID-19's Impact on Higher Education Communication

"Unprecedented" appears to be the commonly used adjective to define the era and circumstances in which the global community found itself starting in March 2020. The global outbreak of COVID-19 dramatically affected the course of human history and conditions. As the virus began to spread beyond Wuhan, China and inevitably spread in the United States, public health officials' and government leaders' reactions brought about numerous societal changes. According to Murphy (2020), education began a phase of "emergency eLearning" in March of 2020 (p. 492). Harvard University led this action, followed by Yale, followed by most educational institutions from early childhood to higher education. Public health recommendations and mandates of physical distancing led to the securitization of education which took place in a matter of days (Murphy, 2020). The traditional format of universities posed a threat to the health of students and educators.

As educators enacted "emergency eLearning," (Murphy, 2020, p.492) their primary concern was moving course content from the face-to-face format to the university's online tools. Bowles and Sendall (2020) predicted that this initial concentration on technical difficulties gave way to pedagogical concerns related to student engagement. Educators and researchers in various fields have expected this shift in higher education from primarily face-to-face contact to an integrated digital format or solely digital form. The factors contributing to this expectation include the emergence of learning technologies and the current generation's consistent use of technology in all facets of life (Ali, 2020).

Universities underwent various stages throughout time and history with an identifiable fourth-generation beginning; this generation is described as the "Online & Digital University" generation (Strielkowski, 2020). Although this generation of universities did not originate in the

COVID-19 pandemic, the forced integration of online learning pushed universities further into the transition to virtual education. The policies created in reaction to COVID-19 produced a gateway to a future of primarily digital or integrated digital learning in universities.

Researchers have not conducted many studies on the communication effects from virtual learning caused by COVID-19. Researchers labeled this transition as a necessity, but few researchers published on the positive and negative effects. Prior research on information communication technology (ICT) and education gave a few insights to better understand the possible outcomes of COVID-19 in education. For ICT to integrate appropriately, there must be a prevailing attitude of willingness to change among educators and educational leaders (Ali, 2020). This attitude significantly contributes to educators' effectiveness in the classroom as they communicate with students who were born in the digital age and grew up with technology usage in every part of their lives. Embracing ICT elevates the educator to make a lasting impact on their students.

As society moves forward in technological advancement, it calls for the adaptation of educators to a rapidly evolving education style that both meets the needs of various students' learning style and their expectations of technology usage. Educators in the United States of America may experience a gap in their ability to use technology appropriately and their students' expectations of technology usage in the classroom. The reconciliation of these two communication expectations presents itself uniquely in the global circumstances at present.

This study filled a gap in the information currently available about the communication effects of COVID-19 on higher education, specifically in the United States. At the publishing of this article, research on the short and long-term effects of COVID-19 on higher education is limited. Many articles written in countries other than the United States, described in the

following literature review, include insight on various impacts felt globally by COVID-19. While most sources in the following literature review came from an educational pedagogy standpoint, the focus of this research was communication taking place in the educational context. Also included in the literature review were several articles describing communicative and other effects of virtual learning in years prior to 2019 that can be applied to “emergency eLearning” (Murphy, 2020, p.492) caused by the pandemic in March of 2020 in the United States.

Review of Literature

COVID-19 and Global Education

Crawford et al. (2020) created an organized list of 20 different countries' responses to COVID-19, specifically in the area of higher education. The United States was among the few countries attempting to go back to traditional, residential higher education classes in the Fall 2020 academic semester (Crawford et al., 2020). Researchers referred to this period as the "intra-period" of the COVID-19 response in higher education.

According to Bowles and Sendall (2020), when the pandemic began to sweep across the United States, the initial focus of educators was the move of curriculum from an in-person experience to an online or virtual classroom setting. They found when educators began teaching online, they had to deal with many technical difficulties that consumed most of the educator's focus and energy. However, once technical challenges were dealt with, the primary concern became student engagement (Bowles & Sendall, 2020). Not only were educators faced with this issue, but they began to experience increased physiological vulnerability as their professional skills were tested. They found that many educators felt isolated or that their employment was vulnerable. Bowles and Sendall (2020) concluded that COVID-19 was the greatest challenge to education in a century.

In April 2020, The International Association of Universities surveyed via email to see how prepared or unprepared global educators were to handle the impact of COVID-19. Regarding educator-student communication, 91% of higher education institutions agreed that they had the necessary infrastructure to communicate with students (Marinoni, et al., 2020). The researchers found, despite this high number of individuals with access to communication channels, many respondents wrote that it was challenging to maintain clear communication with

students. One survey participant stated that social media could be beneficial to better communicate with students (Marinoni et al., 2020). The impact of COVID-19 on education communication was not limited to certain countries but was felt by many.

According to Bao (2020), Peking University gave useful information to educators for a smoother transition to online learning in a preemptive response. They advised that emergency plans be made for unexpected technical problems that may arise in online education, so the length of time spent on fixing the issue is decreased (Bao, 2020). They also found that smaller sections of content are more manageable for students to follow during a modified online course. When available, embracing the help of teaching assistants is suggested. Additional support is necessary for educators as they transition from in-person to online learning. The acknowledgment of offline self-learning should also be taken into consideration for educators. Additionally, educators must be aware that students will experience higher anxiety levels, which must be relieved before they can engage in productive learning (Bao, 2020). As the pandemic continued to spread, so did the virus's impact on education across the globe.

COVID-19 forced educators to change and embrace digital transformation rapidly, and not all educators had access to the suggestions presented in the previously mentioned article. A study conducted by Iivari, Sharma, and Ventä-Olkkonen (2020) included examples of digital transformation in education caused by COVID-19 in Finland and India. In Finland, the teachers taught basic education, while a special education program was analyzed in India. In particular, a teacher in Finland had already been using Google Classroom as a tool, so their classroom's digitalization was generally seamless. Still, the structure of the classes needed to change. This particular educator implemented a new system in her classroom that allowed students to take more breaks and listen to shorter lessons (Iivari et al., 2020). According to this article, educators

take care of students' needs in real-time with in-person lesson planning and execution. However, with distance learning, the student's needs and issues must be foreseen by the educator, and action must be taken accordingly (Iivari et al., 2020). At the same time, the primary focus of this article was the need for more information management research, which concludes with the need for more easily accessible tools for all students despite location, parental support, or technological access. The application can be made that there was a difficult period for educators as they transitioned from traditional in-person lesson formats to digital or distance learning formats. While some educators were able to complete this adaptation with ease and use of creativity, others were unable to do so (Iivari et al., 2020).

In a survey conducted in China by Chang and Fang (2020), five themes were established as influencing factors in both positive and negative effects of COVID-19 in higher education. The five elements were students' autonomous learning ability, teaching methods, school policies and support, technical tools training, teaching evaluation, and program maintenance. Of the over 100 professors surveyed, 70% reported that students' autonomous learning ability was weak and poor learning habits were evident (Chang & Fang, 2020). Some of the most challenging aspects of online teaching, due to COVID-19, included maintaining classroom order, facilitating discussion and feedback, grasping student attention, and communication between professors and students. In the transition to online learning, 70% of educators agreed that workload was also significantly increased, and the need to change teaching habits contributed to this increased workload (Chang & Fang, 2020). Educators began adapting to new teaching scenarios and learned to communicate differently with their students, who would likely struggle through this time as much as the teachers.

According to Adnan (2020), a study was conducted in Pakistan to measure online learning's effectiveness and show the challenges that higher education students faced in online learning, specifically during the COVID-19 pandemic. This study concluded that, in underdeveloped countries, online learning was not beneficial or effective (Adnan, 2020). Of the 126 higher education students surveyed, 71% of the students studied reported that in-person learning was more motivating than online learning. 76.8% agreed that face-to-face contact with the instructor was essential to complete the course effectively. Within the sample group, 78% of the students felt they were qualified to use laptops or computers for online classes (Adnan, 2020). In conclusion, the researcher suggested that a larger sample size would significantly contribute to the practical analysis of students' online learning perspectives amidst COVID-19. The educator's perspective would add considerably to future research (Adnan, 2020). Accessibility and communication were crucial factors for students and professors as the transition of global education took place.

An auto-ethnographical case study, conducted by Quezada and colleagues (2020), analyzed details of a private university in California's response to COVID-19. They found instructional strategy must be adapted to be technology-based (Quezada et al., 2020). Students in the digital age were exposed to hours of media per day for most of their life. Their familiarity with technology is the cause for the term "digital native"(Quezada et al., 2020, p. 4) to be used when referring to these students. In response to changing assignments, educators took a holistic approach to deadlines and assignments. Many educators gave extensions and changed some assignments completely to accommodate the pandemic's effects on the students. Peking University used synchronous and asynchronous meeting styles, but the students preferred the synchronous meetings as they felt more connected to both the professor and classmates (Quezada

et al., 2020). While the professors, in this case, were flexible in communicating with students and accommodating them in a time of uncertainty not all universities helped their students in this way.

Ali (2020) conducted a study in Fiji that intended to distinguish some of the benefits and challenges of integrating online learning to tertiary higher education institutions in response to the pandemic. The article stated that universities responded in almost total compliance to health and safety standards implemented by many public officials (Ali, 2020). The meta-analysis given in this article concludes that the use of information communication technology (ICT) is instrumental in the successful transition to virtual classrooms (Ali, 2020). When educators embraced ICT along with a willingness to change, there was a distinguishable difference in the impact they made on their student's lives (Ali, 2020). Although this principle was proven right before the outbreak of COVID-19, it allowed educators to integrate even more technology in the classroom. This insight showed that adaptability is an essential element to influential professor and student communication.

Contrary to the preconceived notions of how the environment created by COVID-19 restrictions would affect test results, Gonzalez and colleagues' (2020) found that assessment scores of students surveyed in 2020 increased during the confinement stage brought on by COVID-19. The article identified two possible reasons for the increase in scores: assessment style or teaching methods. There was concern involving the possibility of students cheating on examinations. Still, the type of evaluations given were not considered to be the kind in which cheating could take place or affect the study results. Regardless of the possible risk of cheating, the results of the study concluded that the scores of students confined during COVID-19 and participating in virtual courses increased.

Online and Digital Education

Three distinct generations in the history of education were identified by Strielkowski (2020). The first generation was listed as the medieval university, then Humboldt university, and the entrepreneurial university. These phases led up to the current generation of university education, which is the online and digital university. The shift from entrepreneurial university to the online and digital university began prior to the COVID-19 outbreak. The pandemic simply forced the shift in university education to be more broadly applied (Strielkowski, 2020). As the pandemic caused university education to use the online format more regularly, the more permanent the digital format of the university became. Due to some universities' pre-existing digital format, research on virtual or distance learning was applied to the eLearning brought about by COVID-19.

Before the pandemic, in August of 2019, several scholars conducted a study on the hybrid classroom, which became a common experience for educators and students in the wake of COVID-19. The study included many quizzes given to students in a hybrid classroom that included virtual and in-person students. These quizzes included a question about engagement and motivation. Raes and colleagues (2019) applied the Self-Determination Theory to the results of these quizzes and found that students were least motivated in hybrid virtual classrooms. Social Identity Theory was also applied to this study as an explanation for why engagement was so low in a hybrid setting. The students cannot create a social identity among their peers, which was an invaluable tool in student engagement (Raes et al., 2019). Relatedness to peers was indirectly related to internal motivation among students. An important factor in the successful experiences of a hybrid classroom was a moderator who monitors virtual student's questions and assists the professors in engaging with these students. In this study, the virtual students were also able to

select from multiple camera views of the class, which enabled them to have a more realistic classroom experience (Raes et al., 2019). The research shows that, given the right technology, virtual learning could still be impactful and effective communication may be possible.

Researchers in Ecuador, Spain, and Portugal drew important conclusions regarding the effects of COVID-19 on higher education. Tejedor and colleagues (2021) considered the events of the pandemic to be forced upon educators and students in higher education. The research article stated: "This 'forced situation' also served to identify problems, weaknesses, and spaces for reflection, especially regarding digital literacy, and innovation in education, assessment and evaluation processes" (Tejedor et al., 2021, p. 2). The phrase "digital literacy" is important to note for the context of this study. The students and professors surveyed in this article agreed that synchronous learning had a positive correlation. However, the overall attitude toward the entire virtual learning format was negative, according to the students. The professors' attitude toward the virtual experience was mixed (Tejedor et al., 2021). It is also important to note how the researchers in this study considered that the virtual setup of class meetings was generally the same, if not shorter. While students had an overall negative experience with the new class format, the professors developed equal, if not less, time to teach the students during synchronous meetings. Additionally, the materials used for class instruction, including main text and video content, remained proportionally the same. The students viewed this as a negative quality, while professors remained neutral or positive surrounding the subject (Tejedor et al., 2021). This showed that the view of the virtual learning experience through the students' perspective versus professors' was in opposition.

An article written by Blankenberger and Williams (2020) observed the impact of COVID-19 on education using Gaus's Ecological Approach, which communicated the concept

that catastrophe has a multi-faceted impact on society and public administration. The approach suggested that a catastrophe like COVID-19 had a ripple effect. However, catastrophe was an effective change agent that challenged current views and attitudes. The potential impact of COVID-19 on education presented in this article included budget, enrollment and recruiting, research, course delivery, and accountability and assessment (Blankenberger & Williams, 2020). Since education was a trusted market, accrediting agencies' existence is critical to the survival and funding of higher education. Accrediting agencies ensure quality and consistency (Blankenberger & Williams, 2020). It was important to keep the trust market description of higher education in mind while examining the ripple effects of COVID-19 on higher education. This article suggested that educators must exert greater effort to make critical pedagogy effective in the digital context of higher education. Additionally, this article confirmed that institutional integrity is critical in adjusting to post-pandemic higher education models (Blankenberger & Williams, 2020).

Murphy (2020) applied the concept of securitization to COVID-19 based on the idea of viewing the pandemic as a catastrophe or disaster. Securitization involved making decisions to keep the general public safe, but the desecuritization process, or return to normal, was where many complications arose in public policy (Murphy, 2020). In regards to the securitization of education due to COVID-19, educators made the decision to create a guide to a "new normal" (Murphy, 2020, p. 500) in education. The events and decisions enacted by educational leaders and government officials throughout the world caused higher education institutions to move away from residential courses and toward online education (Murphy, 2020). Murphy's article was published in April of 2020, shortly after the majority of higher education institutions moved online in an act referred to as "emergency eLearning"(Murphy, 2020, p. 492). The article

concluded by stating that evaluating the risks and benefits of desecuritization should be evaluated after the pandemic came to an end (Murphy, 2020).

In a reflective article, Tesar (2020) discussed the future of education, and two major presumed issues when online teaching was abolished. The first issue was that the expected online future of education was not as uncertain as academics predicted. Although there was little research on digital pedagogies, the ability of educators to transition online practically overnight proved that students and educators were capable of this shift (Tesar, 2020). The other issue addressed was that the globalization of education via international students was diminished, and tertiary institutions that viewed international students as sources of revenue were proven wrong. Another issue cited in this article was the unethical favoritism of online education, which favored the white male, middle-class student. In contrast, other students faced unequal opportunities to participate in online education (Tesar, 2020). The ethical concerns of COVID-19's impact on both students and educators, specifically accessibility, was a factor in the quality of communication experienced by professors and students, which may be further proven in future research.

Disciplines beyond education and communication took notice of the changes caused by the pandemic. In an article presented by a business management journal in the UK, Beech and Anseel (2020) discussed the future of research in management and higher education. Although this sector of business management research was narrow in focus, they gave insight that the conditions of COVID-19 created an "electric jolt"(Beech & Anseel, 2020, p. 448) in problem-solving research across many disciplines. Additionally, there was a noticeable change in teaching styles necessary for the flourishing of higher education. In conclusion, Beech and Anseel (2020) suggested disciplinary divisions, such as business or education, be abandoned to comprehend the

pandemic's effects on higher education fully. The social sciences were pivotal in this growing area of research centered on COVID-19 and applied to disciplines ranging from management to education. The field of communication offers special insight into research on the changing relational dynamics of education caused by the pandemic. Two particular communication theories, Cognitive Dissonance Theory (CDT), and Expectancy Violation Theory (EVT) apply to this study. The application and explanation of these theories are found in the Methodology section.

Methodology

Purpose

This study intended to fill a gap in research regarding the effects of COVID-19 on student and professor communication in higher education. As seen in the literature review, there were multiple studies conducted throughout the period of COVID-19 restrictions around the globe. The studies primarily focused on the educational implications and changes in pedagogy presented and executed by educators in higher education. There were several studies that looked at the impact on student academics and achievement. However, the field of communication had done little to analyze the causes or effects of the COVID-19 restrictions in higher education. The communication perspective on this societal event had yet to be researched by scholars, but the following study attempted to contribute qualitative research to fill the gap.

Study Design

This research was conducted as a qualitative study. Qualitative research in this area attempted to understand individuals' feelings and perspectives in higher education. Due to the lack of research on the events of COVID-19, a qualitative study helps researchers understand the virus's non-quantifiable impact on educators and students.

There were a total of 17 questions posed in the questionnaire that categorized into two major groups. The first six questions focused on participant demographics and included questions about age, ethnicity, department, and role. The last section of questions, numbers seven through 17, were open-ended questions centered around the participants' experience related to this study's research questions.

The 10 open-ended questions in the questionnaire were grouped into four topical sections that correlated with one or more of the project research questions. These four topical sections

were the structure by which the questionnaire results were analyzed and discussed throughout this study. The four groups' division was as follows: Questions 7-9, Questions 10-13, Questions 14-16, Question 17. Questions 7-9 (Q7-Q9) focused on academic experience. Questions 10-13 (Q10-Q13) asked about digital literacy. Questions 14-16 (Q14-Q16) were related to communication specifically. Question 17 (Q17) covered the overall experience. Appendix A contains the questionnaires written and distributed to the participants.

Research Questions

This study answers three primary research questions. First, among university students, what was the academic impact of COVID-19? Specifically, how did the transition into virtual learning affect student academics during the Spring 2020 academic semester? The initial effect of COVID-19 on higher education in the United States took place in March 2020 when many institutions shut down residential programs and continued the spring academic semester in an emergency online format. The purpose of this research question was to see if that sudden move changed the overall educational experience of residential college students and if this change was generally positive or negative. While studying the students' academic experience, it was also essential to look at the professor's perception of the spring 2020 academic semester experience. The possible differences in professor and student perceptions were analyzed using Cognitive Dissonance Theory and Expectancy Violation Theory. The questions on the questionnaire given to students and professors that correlated with this particular research question were Q7, Q8, and Q9, which stated the following:

Q7. How would you describe your university academic experience, whether learning or teaching, between January and March 2020?

Q8. How would you describe your university academic experience, whether learning or teaching, between March and May 2020?

Q9. Did you feel that the events of March 2020 impacted your academic experience in a positive or negative way? Explain.

Second, did university students experience professors with poor digital literacy, and did this illiteracy impact professor-student rapport? This research question sought to understand if digital literacy is associated positively or negatively with the connection between professors and students. The questionnaire included questions asking participants if they considered themselves digitally literate to gain better context and understanding. The definition of digital literacy is then subjective to each participant. This study compared the professor and student questionnaire results to see if there is a discrepancy between the two groups' perceptions. Previous research and the researcher's own experience suggested that professors would show poor digital literacy and that students would regard it negatively. However, the questionnaire gave participants the opportunity to declare whether digital literacy was acceptable or not. The following questions, numbered 10-13 on the questionnaire, correlated to this research question in the professor questionnaire:

Q10. How would you describe the digital literacy of the students during the period between March-May 2020?

Q11. Do you believe an individual's level of digital literacy affects their credibility?

Q12. Would you consider yourself digitally literate?

Q13. Do you believe your personal level of digital literacy affects your credibility? Is this effect positive or negative, or neutral?

In the student questionnaire, the questions were:

Q10. How would you describe the digital literacy of the professors during the period between March-May 2020?

Q11. Do you believe an individual's level of digital literacy affects their credibility?

Q12. Would you consider yourself digitally literate?

Q13. Do you believe your personal level of digital literacy affects your personal credibility? Is this effect positive or negative, or neutral?

Third, how was the flow of communication between professors and students adapted because of "emergency eLearning" (Murphy, 2020, p. 492) enacted in response to COVID-19? Was this adaptation successful according to professors, students, or both? This particular research question dealt more specifically with the impact of COVID-19 restrictions on communication within higher education. The use of Information Communication Technology primarily available was Teams, Canvas, Blackboard, or email, by which professors and students could communicate before, and during, the spring 2020 academic semester. Due to the COVID-19 restrictions enacted, the effects of the denial of face-to-face contact were likely to be seen in this section of the research. The following questions were in the questionnaire given to students:

Q14. As a student, how often did you talk to your professor individually about your academics before the transition to virtual courses in March 2020? Was this sufficient?

Q15. Did the amount of communication between yourself and professors change after the transition to virtual courses? How would you describe this change?

Q16. Did you use the available digital communication tools (Blackboard, Microsoft Teams, Email, etc.) to communicate between January-March 2020?

The same questions were phrased to the professors with this wording:

Q14. As a professor, how often did you talk to individual students before the transition to virtual courses in March 2020? Was this sufficient?

Q15. Did the amount of communication between yourself and students change after the transition to virtual courses? How would you describe this change?

Q16. Did you use the available digital communication tools (Blackboard, Microsoft Teams, Email, etc.) to communicate between January-March 2020?

These questions intended to establish the frequency and quality of communication between professors and students from both groups' perspectives.

One additional question posed to participants is more general and serves to establish an overall sentiment regarding the experience as a whole. The questionnaire stated Question 17 as:

Q17. How would you describe the transition of the course format from face-to-face to virtual in March 2020?

Population & Sample

This study's sample group included professors and students from a private Christian university in the eastern United States. An anonymous online questionnaire link was sent out to participants. The two different questionnaires corresponded with the two groups of participants: professors and students. Both questionnaires contained the same questions, but the wording was adjusted to ask each group about the opposing group. Additionally, two academic schools were surveyed. The first school was the School of Communication & the Arts, and the second school was the School of Behavioral Sciences. These two schools were chosen based on the similarity of teaching methods and general knowledge and use of technology in their respective schools.

In conducting the research, the questionnaire collection links were closed after 28 student responses, and nine professor responses. Although more responses would have been preferable, this project's time constraints required an early cutoff for collecting responses.

Investigative Techniques

The research technique was the reliance on an open-ended questionnaire to expose the attitudes and feelings of both professors and students regarding their personal experience with COVID-19's impact on higher education. The questionnaire's addition of six demographic questions provided more insight into the participants' perceptions and accounts for the possible differences in how each participatory group viewed their experience.

After the various participants received the questionnaires, the results were collected and analyzed using the qualitative research data analysis software, NVivo 12 Plus. This software allowed for the collection and analysis of word frequency, trends, themes, and sentiment discoverable in the questionnaire answers. The results were input and auto-coded for themes and sentiment. The auto-coding capability of NVivo 12 Plus assigned each word a fixed value of positive, negative, or neutral sentiment. This feature allowed for the analysis of the language used in each response, which indicated the feelings that a respondent may have had in their response to a questionnaire question. There were other forms of analysis displayed in word cloud charts or word tree charts, like word frequency. As previously stated, there were six demographic questions asked at the beginning of the questionnaire. The demographic answers were not considered necessary to use in the coding process. Sentiment tests on Q7 and Q8 for both professors' and students' responses were run and compared. The sentiment within the response to Q9 by both groups were studied. Next, Q10 and Q12 were compared between each group to establish each group's consistency and perceptions. The summary answer between both groups

for Q11 established the answers' weight to Q10 and Q12. Q13 was compared to the combined application of Q10 and Q12. Next, the sentiment between Q14 and Q15 was considered, while the answer to Q16 was used to explain the answers to Q14 and Q15. Q17 was a general question and the sentiment between both groups was compared.

All of the mentioned sentiment tests and trends were conducted using NVivo 12 Plus software and is explained fully in this study's Results section. The sentiment tests were an auto-coded feature of NVivo 12 Plus. As mentioned previously, this auto-coding categorized the wording used in the answers into positive, negative, and neutral levels of sentiment. Based on the questions' specific wording, the sentiment test results conclusively dictated the respondents' general sentiment in response to each open-ended question answered in the questionnaire.

Ethical Consideration

The questionnaire was submitted along with the necessary forms and documents to the IRB in December 2020, and the study was approved for IRB supervision exemption in February 2021. The questionnaire was then uploaded to SurveyMonkey and opened for participants. When contacting participants, the recruitment email and a consent form were given to each.

Paradigm

This study was conducted in a private, Christian university. The participant group may impact the language with which participants discuss their experience with faculty and students.

Theoretical Framework

Cognitive Dissonance Theory

At the University of Maine, Graham and Jones (2011) applied Cognitive Dissonance Theory (CDT) to the professor's distance education perception. According to their research and experience, they knew that distance learning created a unique set of challenges. Many

universities embraced the trend and begun using distance learning. Some professors opted to embrace distance learning based on the benefits, while others resisted distance learning. Some positive attributes of distance learning experienced by professors were a broader reach across the globe and more opportunities to teach various students. Additionally, other distance learning benefits were generally inherent, and included: intellectual challenge, job satisfaction, and teaching convenience. However, Graham and Jones (2011) found an overall negative perception of distance learning amongst educators. The negative perceptions included lower quality of education for the students and a more extended amount of time needed for preparation. There was also a pervasive fear of technology among most university professors, along with a fear of losing their jobs. Overall, while professors approached the possible benefits of distance teaching, the practical aspects of becoming successful as an online educator discouraged them from making the change.

Graham and Jones (2011) felt that the negative perception of distance learning harmed student experience and could be explained using CDT. They surveyed 112 professors and found several correlations related to negative attitudes toward distance learning. Graham and Jones' (2011) results did not statistically validate the proposed hypothesis: prior positive experience with distance education and technologies are correlated with positive attitudes toward distance education, and lack of technical support is correlated with negative attitudes towards distance education. Another hypothesis presented was that area of expertise is associated with attitudes toward distance education and technologies. Although these hypotheses weren't able to be proven, a few correlations were drawn. The study results found that a lack of technical support and area of expertise correlated with negative attitudes toward distance learning. They also

connected advanced age with a negative attitude, but this was seen as an item that needed more research to be adequately proven (Graham & Jones, 2011).

Cognitive Dissonance Theory was created in 1957 by Festinger, who postulated that pairs of cognitions could be relevant or irrelevant to one another. If the cognitions were relevant, they could either be consonant or dissonant. The cognitions were consonant if they followed each other; in opposition, they were dissonant if the opposite of one cognition followed (Harmon-Jones & Mills, 2019). Festinger theorized that when two cognitions possessed by an individual are inconsistent, they are considered dissonant (Cooper, 2007). Once this dissonance was aroused, it had to be reduced because it is physiologically uncomfortable, motivating the individual to ease the tension. There are several ways that dissonance can be reduced. Dissonance can be reduced by removing dissonant cognitions, adding consonant cognitions, and reducing the importance of dissonant cognitions or increasing the importance of consonant cognitions. An individual can possess cognitions about behaviors, perceptions, attitudes, beliefs, and feelings. Difficult decisions arouse more dissonance than easy choices, meaning a greater proportion of dissonant cognitions after a difficult decision (Harmon-Jones & Mills, 2019). Various paradigms can be applied to Cognitive Dissonance Theory; these cognitions guide to action based on the paradigm (Harmon-Jones & Harmon-Jones, 2007). Two paradigms, in particular, are relevant here: Belief-Disconfirmations and Induced Compliance Paradigms. In the Belief-Disconfirmation Paradigm, the dissonance is aroused when people are exposed to information different than what they believe. The Belief-Disconfirmation paradigm has shown that when a person is exposed to information that contradicts a previously held attitude, they will strengthen their original beliefs (Harmon-Jones & Harmon-Jones, 2007). Harmon-Jones presented a more accurate term for the psychological process involved in dissonance was action

tendency (2007). Additionally, individuals will choose to change their attitudes to be consistent with their recent behavior. The Induced-Compliance Paradigm is when dissonance is aroused when a person does or says something contrary to a prior belief or attitude (Harmon-Jones & Mills, 2019). As it relates to the study in this article, attitudes and actions will be paid particular attention to. When the effort and attitude are dissonant, one must change. The action is more difficult to change and therefore results in attitudes being revised more often than actions. Dissonance also possesses magnitude, which incites that the more significant the discrepancy in cognitions, the greater the dissonance, and the harder it will be to reduce (Cooper, 2007). After difficult decisions are made, individuals will value the chosen alternative more and devalue the rejected option (Harmon-Jones & Harmon-Jones, 2007).

CDT is used to explain and predict dissonance and consonance between cognitions. These cognitions can be contained within actions or attitudes. The theory explains the difference in student and professors attitudes and action shown in the questionnaire results. CDT identifies educators' and students' actions and attitudes in their view and use of technological tools provided by the university to administer the virtual classroom environment. The shift from face-to-face education to virtual learning was a cultural shift for professor and students. The two cultures each possessed certain norms and attitudes that did not transition to the virtual format. The responses and analysis throughout this study show dissonance of cognitions concerning cultural norms and expectations. The negative attitudes held by educators caused adverse actions in the virtual classroom, leading to the application of the next theory: Expectancy Violation Theory.

Expectancy Violation Theory

According to Expectancy Violation Theory (EVT), every culture has set expectancies or guidelines of behavior based on social norms and rules (Gudykunst, 2006). Expectancies, also referred to as expectations, are enduring cognitions about the behavior anticipated by others in interpersonal communication contexts (Burgoon, 2016). These expectations can be met or unmet in either a positive or negative way. The term "violation" generally is considered a negative action, but in Expectancy Violation Theory, these violations are sometimes preferred because they can bring positive change (Burgoon, 2016). When individuals participate in communication and expectancies are violated, it is referred to as deviation. Deviated behavior is interpreted positively or negatively based on valences. Valences are characteristics of individuals that change the outcome of how deviated behavior is perceived (Gudykunst, 2006). So, when individuals engage in communication, they are bringing expectancies into that scenario, and whether or not those expectancies are violated will determine the overall outcome of the communication exchange. This can be applied to explain different scenarios and outcomes of communication. Met expectations are referred to as expectancy confirmations, while unmet expectations are expectancy violations (Burgoon, 2016). The Expectancy Violation Theory was created to be applied within proxemics, but in recent years it has been applied to computer-mediated communication and other contexts but generally stays within the realm of behavior violations.

An instructors' use of technology does play a role in how the instructor is perceived. According to a study conducted by Schrodt and Witt (2006), students had an expectation of competency placed on their instructors. As technology became more widely used by students, educators were expected to appear competent in using technology in the classroom (Schrodt &

Witt, 2006). According to EVT, these expectancies shape the satisfaction, fulfillment, and values of the student. It could be implied that if educators wanted to be seen as more credible, they should have used technology more often and made an effort to use the technology with competence (Schrodt & Witt, 2006). The ever-evolving nature of technology contributes to the ability or inability of individuals to competently use technology.

EVT applies to the communication experienced by professors and students throughout the period of virtual learning that began in March 2020. Very little research connects EVT and the use of technology in the classroom, whether virtual or in-person. However, based on the research presented, the connection between credibility and the instructor's use of technology is existent. This connection should be further explored and updated with the new uses of technology caused by COVID-19. Possibly, the technology used by educators before the pandemic varied based on their level of comfort. When the pandemic forced all higher education to participate in virtual classrooms, all educators forcibly embraced technology. This theory gives a basis for the analysis of the possible breakdown of communication seen in the period of virtual learning from March to May 2020.

This theory applies to multiple subject areas in this study. The first application is the violation experienced in students' view of professors' digital literacy. There was a mixed response from students concerning the expectation placed on professors regarding the acceptable level of digital literacy. The next area that EVT applies to was classroom cultural changes caused by the transition to virtual learning in March 2020.

Results

Demographic Questions

The chart of Q1-Q6, found in Appendix A, contains the demographic information of the questionnaire respondents. I presented two questionnaires to the participants, which corresponded to the two groups that received each questionnaire. These two groups were professors and students, both members of a large, private, Christian university on the United States east coast. These pieces of demographic information were the responses to Q1-Q6 on the questionnaire. The chart displays the following information for each respondent: role, department, gender, age, education level, and ethnicity.

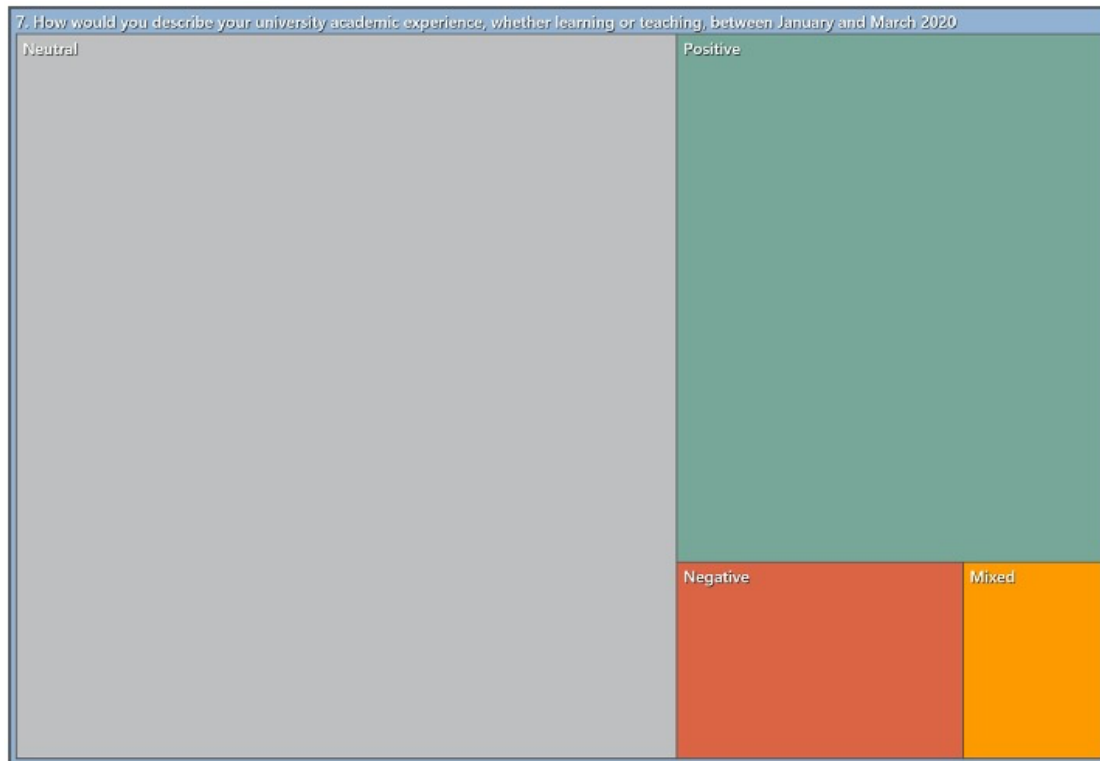
Open-Ended Questions

The next set of information gathered from the questionnaire was Q7-Q17; each question was an open-ended question. According to the steps outlined in the methodology, the answers to these open-ended questions were uploaded to the qualitative data analysis software NVivo 12 Plus. The charts created using NVivo 12 Plus show the responses to these questions by the two groups of participants. The charts in Figures 1-22 were visual representations of word frequency or sentiment for each group's response to Q7-Q17. The two groups' answers were coded on separate figures for comparison purposes.

Academic Experience

Figure 1

Sentiment Hierarchy Chart of Student Response to Q7



Note. This figure shows the auto-coded sentiment results on a hierarchy chart from the responses to Q7 in the Student questionnaire.

Figure 2

Sentiment Hierarchy Chart of Professor Responses to Q7



Note. This hierarchy chart shows the auto-coded sentiment results from the responses to Q7 in the Professor questionnaire.

Figure 1 and Figure 2 showed the auto-coded sentiment from Q7, which stated: “How would you describe your university experience, whether learning or teaching, between January and March 2020?” Figure 1 contains the student questionnaire’s answers, while Figure 2 includes the answers from the professor questionnaire. Figure 1 shows the primary sentiment among students was neutral with a secondary positive sentiment. The auto-coded sentiment proved that students generally had a positive or neutral experience before the events of March 2020. Figure 2 likewise shows a primarily neutral response to this timeframe of teaching.

Figure 3

Sentiment Hierarchy Chart of Student Responses to Q8



Note. This hierarchy chart shows the auto-coded sentiment results from the responses to Q8 in the Student questionnaire.

Figure 4

Sentiment Hierarchy Chart of Professor Responses to Q8



Note. This hierarchy chart shows the auto-coded sentiment results from the responses to Q8 in the Professor questionnaire.

The auto-coded charts generated for Q8 are pictured in Figure 3 and Figure 4. Q8 was similar to Q7 but focused on the period between March and May 2020. The results in Figure 3 show that students used a more negative sentiment in their descriptions of this period than the previous period shown in Figure 1. According to Figure 4, the professors appeared to have not changed their view of the different periods as much, but more mixed results were present. The results from the analysis of Q7 and Q8, pictured in Figure 3 and Figure 4 indicates a shift toward negative sentiment by the students but not the professors.

Figure 5

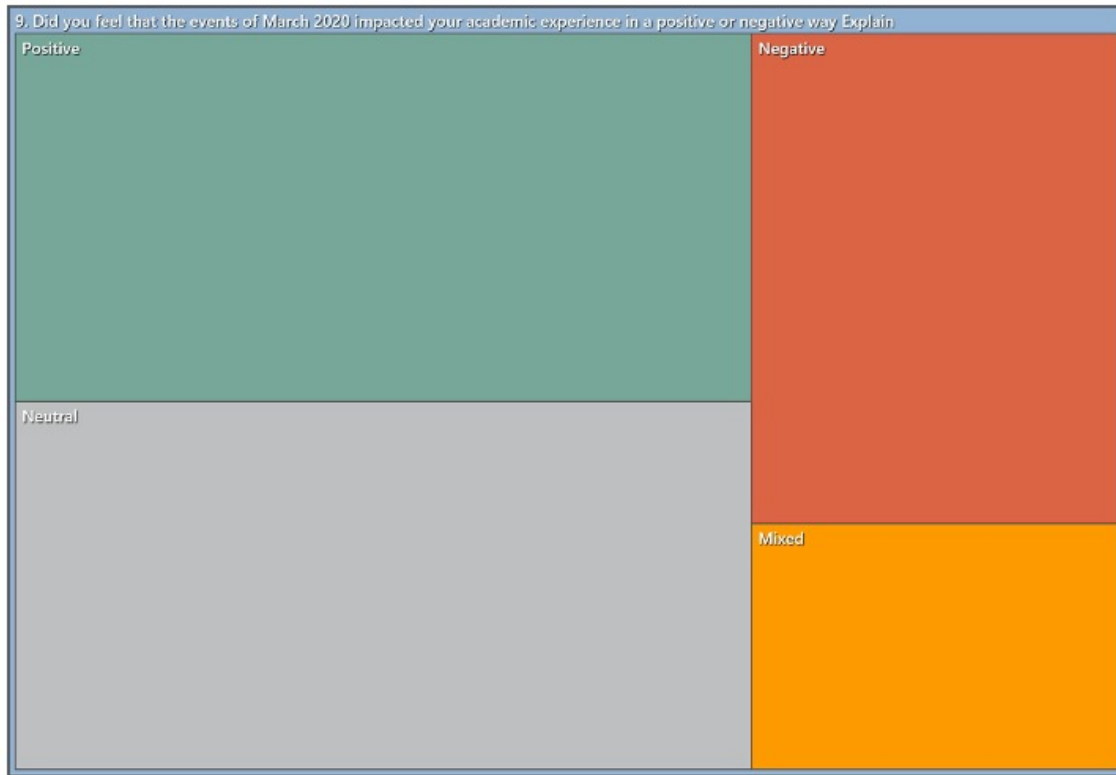
Sentiment Hierarchy Chart of Student Responses to Q9



Note. This hierarchy chart shows the auto-coded sentiment results from the responses to Q9 in the Student questionnaire.

Figure 6

Sentiment Hierarchy Chart of Professor Responses to Q9



Note. This hierarchy chart shows the auto-coded sentiment results from the responses to Q9 in the Professor questionnaire.

Q9 on the questionnaire asked participants the following: “Did you feel that the events of March 2020 impacted your academic experience in a positive or negative way? Explain.” The auto-generated sentiment results from Q9, shown in Figure 5, displays a primarily neutral sentiment and secondarily negative sentiment. However, the professor’s responses, indicated in Figure 6, display a mostly positive sentiment in response to this question. There was a disparagement between professor and student responses to this particular question.

In summary, professors and students discussed the period between January-March 2020 with generally neutral or positive sentiment. When asked specifically about the period between

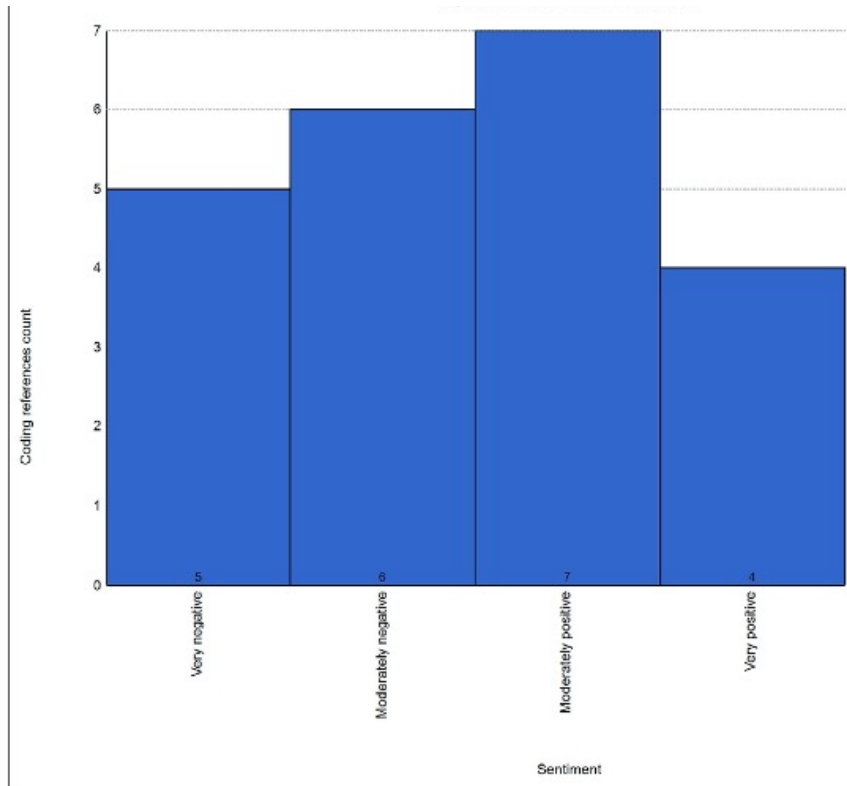
March-May 2020, students used language with primarily negative sentiment. However, professors discussed the period with language categorized in positive or mixed sentiment. When asked about the overall experiential impact of the events in March 2020, students responded with negative sentiment. Professors responded differently than students to Q9 with primarily positive sentiment.

Digital Literacy

Figures 7-14 displayed respondents’ answers to Q10-13, which were categorized under the theme of digital literacy.

Figure 7

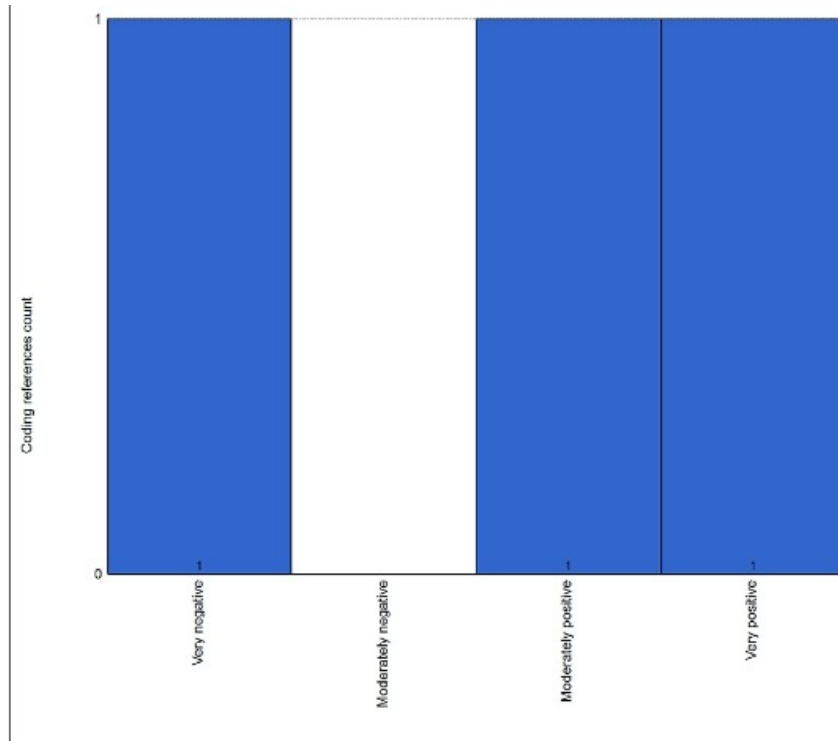
Sentiment Coding Reference Graph of Student Responses to Q10



Note. This graph shows the number of coding references from the sentiment results for the responses to Q10 on the Student questionnaire.

Figure 8

Sentiment Coding Reference Graph of Professor Responses to Q10



Note. This graph shows the number of coding references from the sentiment results for the responses to Q10 on the Professor questionnaire.

The auto-coded sentiment results of Q10, which was changed in each questionnaire to describe the opposite group, indicated how one group viewed the other group’s level of digital literacy. Figure 7 demonstrates that the students primarily viewed the professors’ digital literacy with moderate sentiment. Conversely, Figure 8 indicates that professors used entirely neutral sentiment coding references, which did not appear on this chart. The responses included in Figure 8 showed a diverse mixture of how professors perceived the students’ digital literacy.

Figure 9

Sentiment Coding Reference Graph of Student Responses to Q11



Note. This hierarchy chart shows the auto-coded sentiment results for the responses to Q11 in the Student questionnaire.

Figure 10

Word Frequency Cloud of Professor Responses to Q11



Note. This word cloud shows the frequency of words used in Professor responses to Q11.

The response to Q11, indicated in Figure 9 and Figure 10 shows each group's belief concerning digital literacy and credibility. The student response to Q11, shown in Figure 9, was very mixed and therefore inconclusive. However, the professor's answer to Q11, shown in Figure 10, was overwhelming. Most professors believed that, yes, an individual's level of digital literacy did impact their credibility.

Figure 11

Word Tree Map of Student Responses to Q12

yes	know	absolutely	best	digitally	forms	generation	get	given	going
		always	cases	enough	great	lot	media	naturally	online
	literate	answers	certainly	experience	hard	part	somewhat	super	tech
		technology	basics	computers	fairly	jobs	past	technologic	use
	understand	becoming	degree	figure	keep	research	terms	various	working
		behind	digital	find	learn	savvy	try	willing	world

Note. This word tree map shows the frequency of words used in the responses to Q12 on the Student Questionnaire.

Figure 12

Word Tree Map of Professor Responses to Q12

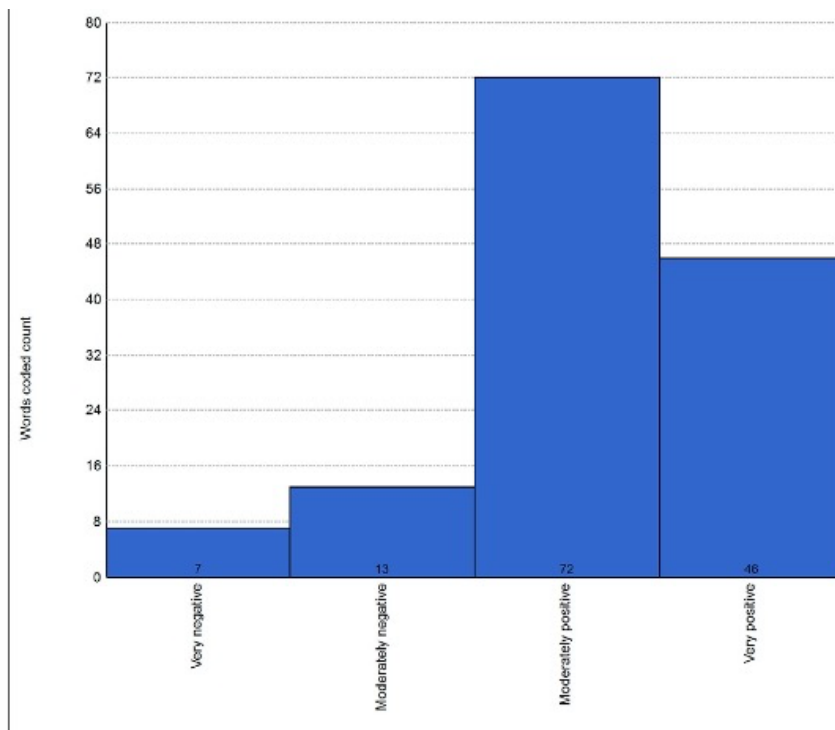
yes	somewhat	literate	average	correcting	degrees	depends	efficiency
			class	interferes	media	navigate	need
	complete	now	comes	keeping	part	social	time
			content	less	programs	trends	work
	job	adequately	context	literacy	progress	varying	

Note. This word tree map shows the frequency of words used in the responses to Q12 on the Professor Questionnaire.

Figure 11 and Figure 12 show the participants’ answers to Q12, which asked if they consider themselves digitally literate. It is apparent in Figures 11 and 12 that both groups considered themselves to be digitally literate. The professors’ answers in Figure 12 indicated that some consider themselves somewhat digitally literate, while others emphatically considered themselves digitally literate.

Figure 13

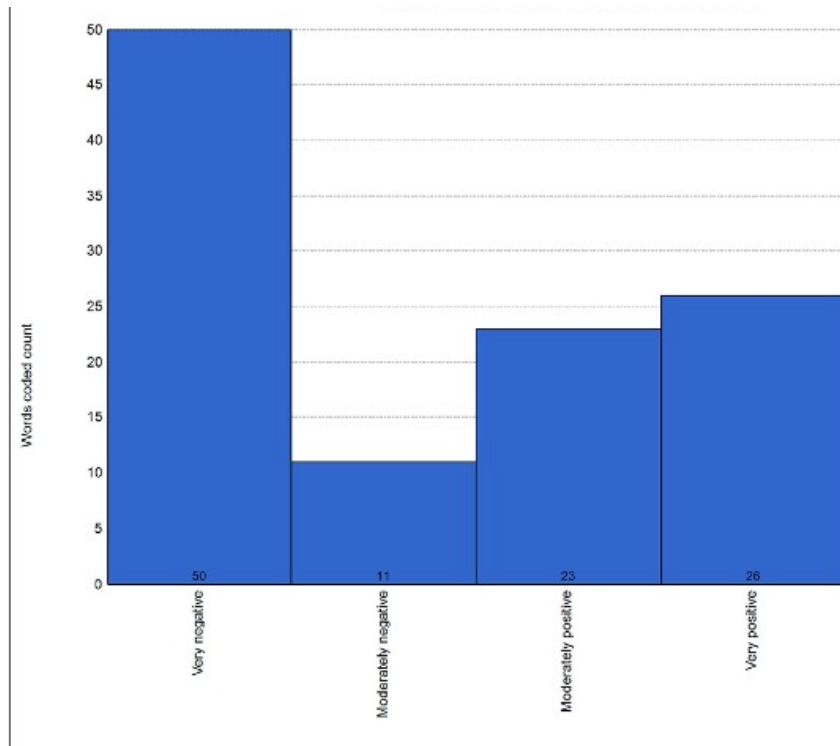
Sentiment Coding Reference Graph of Student Responses to Q13



Note. This graph shows the number of coding references from the sentiment results for the responses to Q13 on the Student questionnaire.

Figure 14

Sentiment Coding Reference Graph of Professor Responses to Q13



Note. This graph shows the number of coding references from the sentiment results for the responses to Q13 on the Professor questionnaire.

Pictured in Figure 13 and Figure 14, the responses from professors and students to Q13 indicated opposing results. In Figure 13, the students used moderately positive language to answer the question: “Do you believe your personal level of digital literacy affects your personal credibility? Is this effect positive or negative, or neutral?” However, in Figure 14, the professors used very negative sentiment in the language used to answer Q13. This means that while students answered that their digital literacy positively influenced their credibility, professors responded that their digital literacy negatively influenced their credibility.

Communication

Figures 15-20 displayed the sentiment and word frequency auto-coded results from Q14-Q16 which discussed communication between professors and students.

Figure 15

Word Frequency Table for Student Responses to Q14

Word	Length	Count	Weighted Percentage (%)	Similar Words
week	4	10	6.29	week, weekly
class	5	9	5.66	class
sufficient	10	7	4.40	sufficient
talked	6	7	4.40	talk, talked
times	5	7	4.40	multiple, timely, times
often	5	6	3.77	much, often
yes	3	6	3.77	yes
person	6	5	3.14	person, personable
professors	10	5	3.14	professor, professors
face	4	4	2.10	cases, face, looking
believe	7	3	1.89	believe, probably
communicate	11	3	1.89	communicate, communication
daily	5	3	1.89	daily
email	5	3	1.89	email, emailed
every	5	3	1.89	every
occasionally	12	3	1.89	occasionally, period, periods
questions	9	3	1.89	question, questions
effective	9	3	1.47	effective, effectively, good
able	4	2	1.26	able
amount	6	2	1.26	amount
converse	8	2	1.26	converse, transition
instructors	11	2	1.26	instructors, teachers
march	5	2	1.26	march
needed	6	2	1.26	needed, needs
outside	7	2	1.26	outside
prior	5	2	1.26	prior
setting	7	2	1.26	setting
2020	4	2	1.26	2020
per	3	2	1.26	per
beneficial	10	2	0.84	beneficial, good
expectations	12	2	0.84	expectations, looking
feel	4	2	0.84	feel, looking

Note. This table shows the words most frequently used in the responses to Q14 on the Student questionnaire.

Figure 16

Word Frequency Table for Professor Responses to Q14

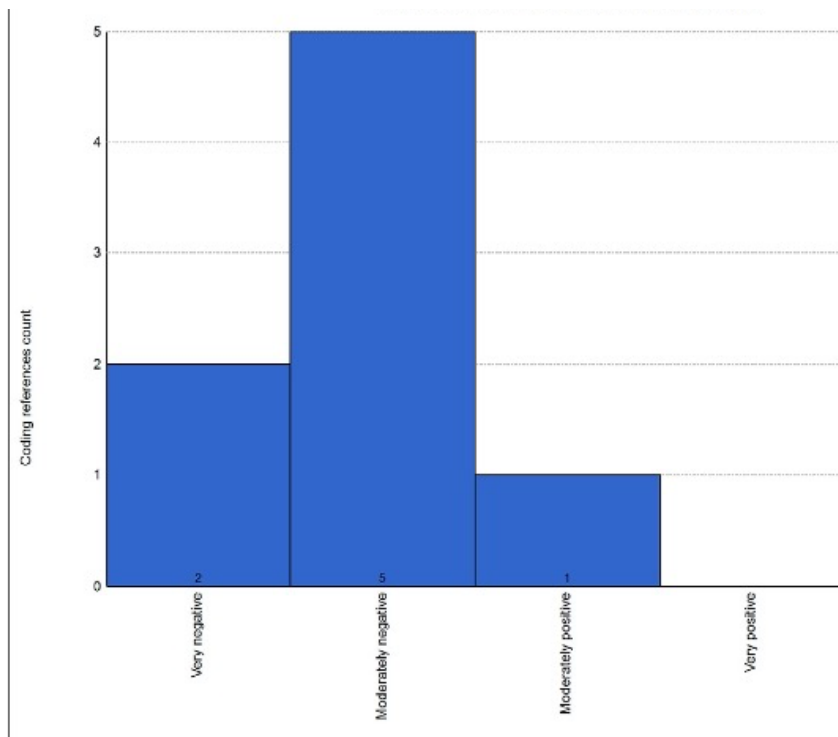
Word	Length	Count	Weighted Percentage (%)	Similar Words
frequently	10	4	8.89	frequently, often
sufficient	10	4	8.89	enough, sufficient
ask	3	3	6.67	ask, need, needed
days	4	3	6.67	day, days
students	8	3	6.67	students
yes	3	3	6.67	yes
always	6	2	4.44	always, constant
every	5	2	4.44	every
average	7	1	2.22	average
classrooms	10	1	2.22	classrooms
communication	13	1	2.22	communication
conversations	13	1	2.22	conversations
daily	5	1	2.22	daily
email	5	1	2.22	email
help	4	1	2.22	help
individual	10	1	2.22	individual
least	5	1	2.22	least
many	4	1	2.22	many
office	6	1	2.22	office
regularly	9	1	2.22	regularly
seems	5	1	2.22	seems
talked	6	1	2.22	talked
text	4	1	2.22	text
think	5	1	2.22	think
times	5	1	2.22	times
two	3	1	2.22	two
week	4	1	2.22	week
per	3	1	2.22	per

Note. This table shows the words most frequently used in the responses to Q14 on the Professor questionnaire.

According to Figure 16, the professors believed they met with students a sufficient amount before the events of March 2020. The term used most often to answer this particular question was “frequently,” according to the auto-coded word frequency test from NVivo 12 Plus pictured in Figure 16. In the student responses, shown in Figure 15, the most frequently used words were “week,” “class,” and “sufficient.” The responses to Q14 from both groups were similar to one another and prove that professors and students agreed communication before the events of March 2020 was sufficient.

Figure 17

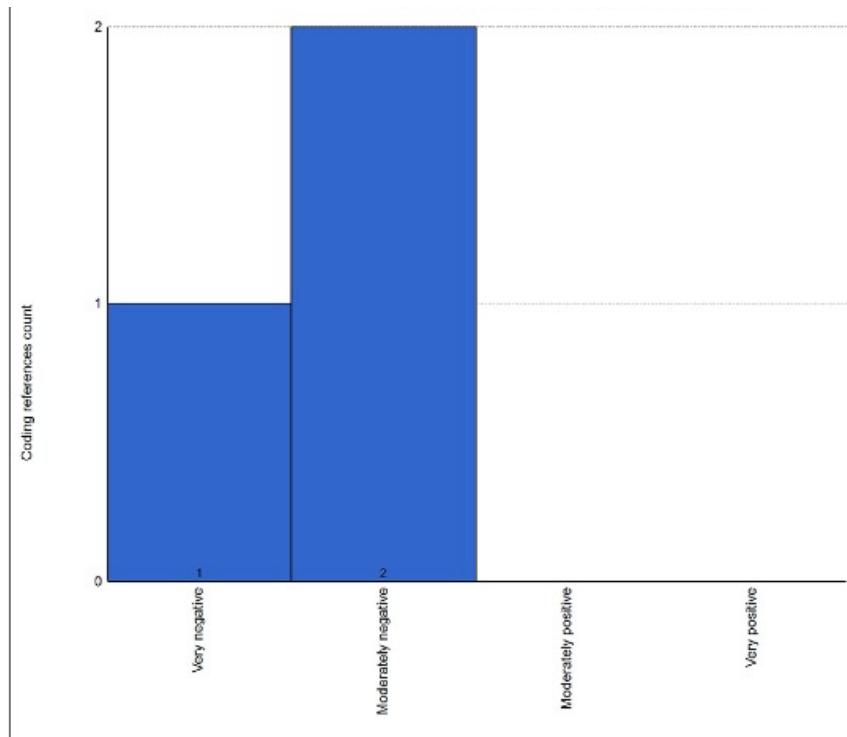
Sentiment Coding Reference Graph of Student Responses to Q15



Note. This graph shows the number of coding references from the sentiment results for the responses to Q15 on the Student questionnaire.

Figure 18

Sentiment Coding Reference Graph of Professor Responses to Q15



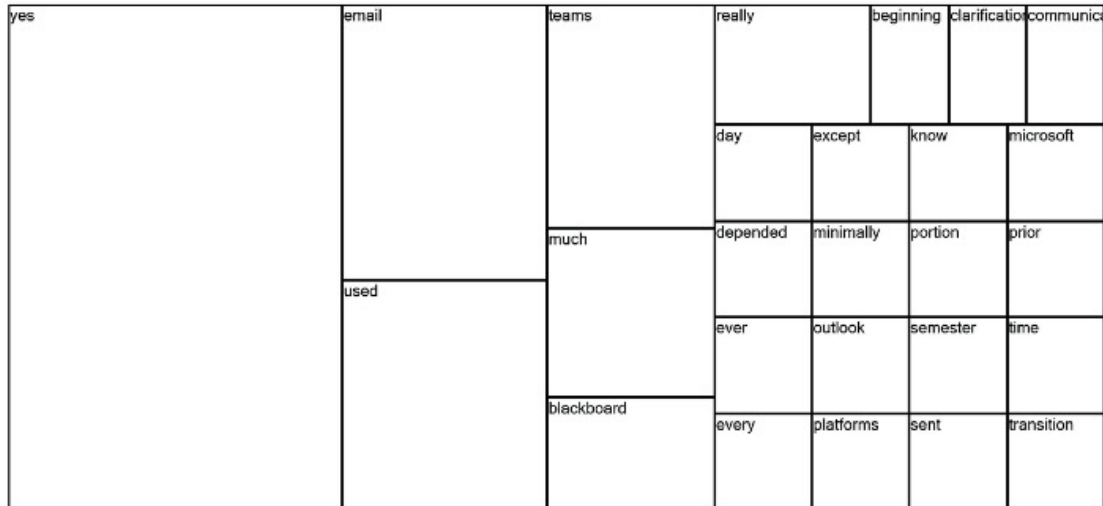
Note. This graph shows the number of coding references from the sentiment results for the responses to Q15 on the Professor questionnaire.

Q15 stated: “Did the amount of communication between yourself and students (professors) change after the transition to virtual courses? How would you describe this change?”

The auto-coded sentiment results displayed in Figure 17 and Figure 18 found that the language used by students and professors describes the communication during the period of virtual learning as primarily negative. There was a total lack of positive sentiment used in all of the responses to Q15, meaning the respondents described the change negatively in all answers.

Figure 19

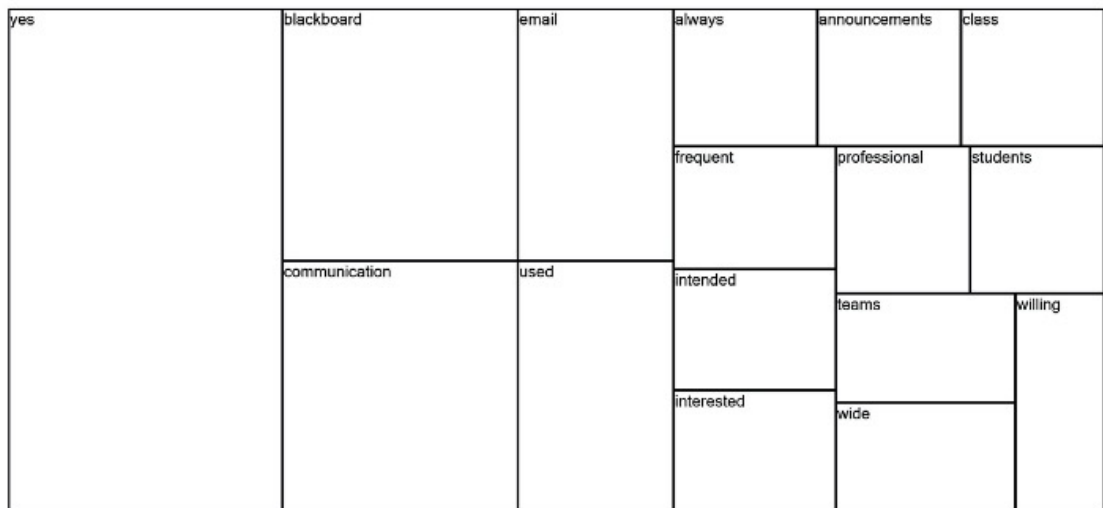
Word Tree Map of Student Responses to Q16



Note. This word tree map shows the frequency of words used in the responses to Q16 on the Student Questionnaire.

Figure 20

Word Tree Map of Professor Responses to Q16



Note. This word tree map shows the frequency of words used in the responses to Q16 on the Professor Questionnaire.

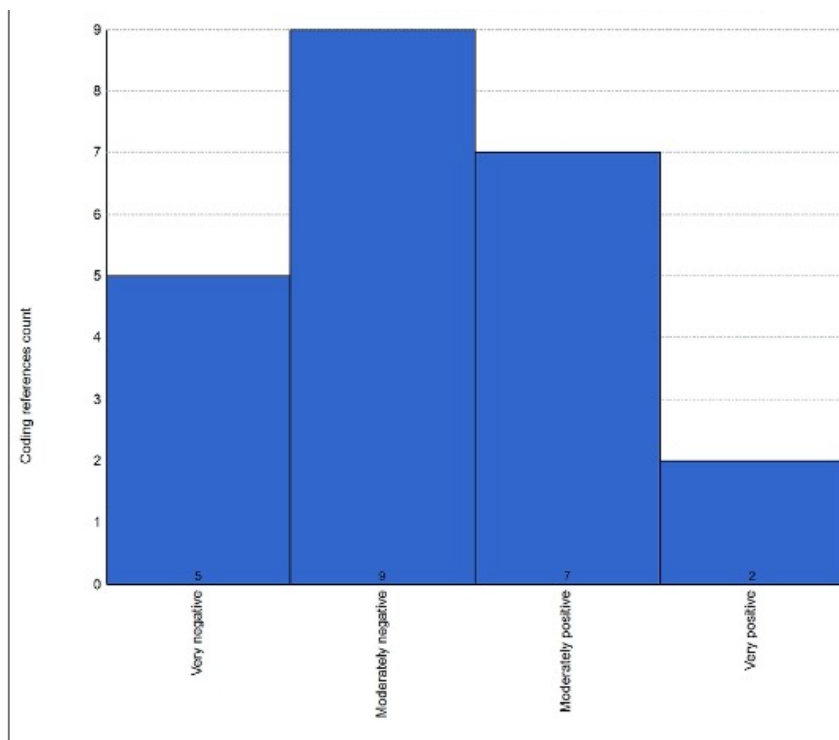
According to Figures 19 and 20, the professors and students used the online tools provided by the university, including Teams, Canvas, Blackboard, and Email among others. There was a high frequency of the word “yes” used by both participant groups to answer Q16.

Overall Experience

The last question asked about the overall experience of participants during the transition to virtual learning. The students’ answers to Q17 are pictured in Figure 21 and the professors’ responses are shown in Figure 22.

Figure 21

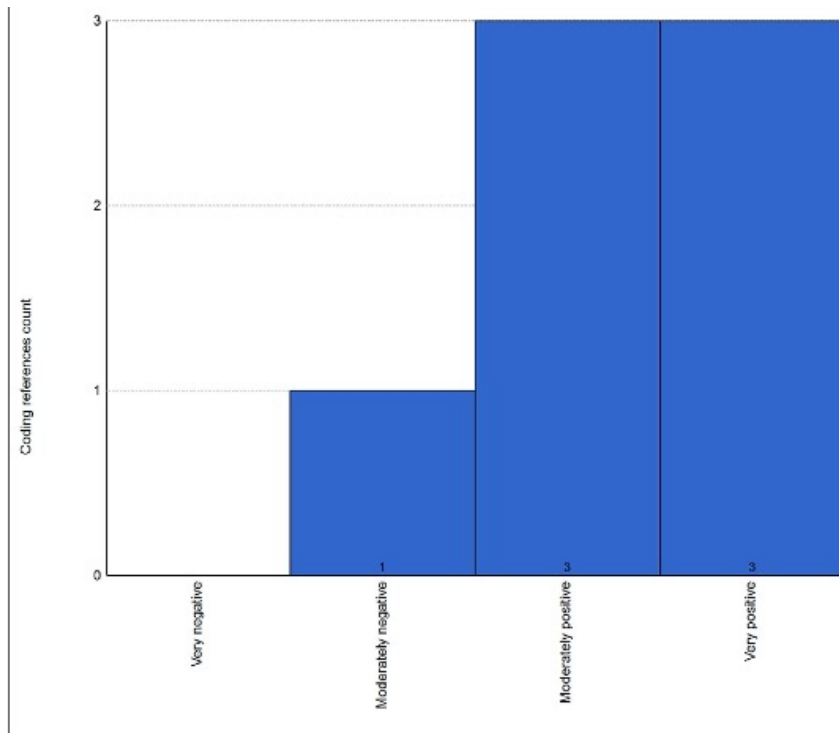
Sentiment Coding Reference Graph of Student Responses to Q17



Note. This graph shows the number of coding references from the sentiment results for the responses to Q17 on the Student questionnaire.

Figure 22

Sentiment Coding Reference Graph of Professor Responses to Q17



Note. This graph shows the number of coding references from the sentiment results for the responses to Q17 on the Professor questionnaire.

Q17 summarized both groups’ general feelings surrounding the transition to virtual learning in March 2020. There was a discrepancy in the two groups’ responses to this particular question. In Figure 21, the students show higher levels of moderately negative and moderately positive sentiment, showing the use of mixed sentiment with no emphatic positive or negative sentiment. The moderately negative category was the highest category on the student response sentiment test. However, in Figure 22, the professors’ reported primarily moderately positive and highly positive sentiment. The professor and student responses were distinctly different, based on the auto-coded sentiment test results.

Discussion

Academic Experience

In review, the first research question stated, “Among university students, what was the academic impact of COVID-19? Specifically, how did the transition into virtual learning affect student academics during the spring 2020 academic semester?” The correlating questions from the questionnaire were Q7, Q8, and Q9, which were: “How would you describe your university academic experience, whether learning or teaching, between January and March 2020? How would you describe your university academic experience, whether learning or teaching, between March and May 2020? Did you feel that the events of March 2020 impacted your academic experience in a positive or negative way? Explain.”

Based on the results from Q7, students felt very positive about their university experience between January and March 2020 prior to the initial impact of COVID-19. One student wrote, “I enjoyed my classes. It was my last semester of undergrad... and my professors did a great job sharing/teaching the course material in the classroom” (personal communication, 2021). Another student wrote: “...fun, interactive, exciting, personal” (personal communication, 2021) (See Appendix B for full questionnaire responses). Similarly, the results from professors in Figure 2 were primarily positive. One professor shared: “good, stable, effective” (personal communication, 2021) (See Appendix C).

Comparatively, the professor and student responses to Q8 were decidedly different. The students had many negative things to say about their academic experience between March and May 2020, the period after the changes were implemented due to COVID-19. In studying the comments made by students, there is a theme of unwelcomed change and difficulty. One student wrote, “It has honestly been isolating. I thrive off of group study, and the situation of studying

alone or over Zoom calls is a sad replacement for in-person studies” (personal communication, 2021). Another wrote: “the worst academic experience I ever endured” (personal communication, 2021). Some other words used in response to Q8 by students were “challenging,” “boring,” “painful,” and “disappointing” (personal communication, 2021) (See Appendix B for full questionnaire responses). These words clearly show that the students’ academic experiences were negative between March and May 2020. The professors’ responses aligned with the student's responses, and several professors described the period as “challenging” (personal communication, 2021). One professor wrote, “We were thrown for a loop when COVID hit and we went all virtual, but we learned to adjust. It was difficult at first, but then I ended up learning some new ideas and tools that I still use now that we are back in person” (personal communication, 2021) (See Appendix C).

The responses to Q8 prove that the events of the COVID-19 pandemic did negatively affect student academics; many students felt effects beyond academia. The academic impact of COVID-19 also caused emotional and physical distress expressed by the students in answering Q8. Q9 solidified this conclusion by asking the participants directly how they felt about the COVID-19 caused events of March 2020 and the sentiment with which they regarded the experience. The students responded with a negative response which correlated with their answers to Q8 pictured in Figure 6. The professors also used the term “negative” (personal communication, 2021) to describe the impact of the events of March 2020 on academics (See Appendix C). One student shared:

It was an extremely negative experience. I’d honestly describe it as depressing. You couldn’t really leave your house, meaning school was moved online. I felt I was just attending YouTube channels while being online. I know that I lost the ability to create

relationships with some people because we all moved home away from each other. I will never have those opportunities again (personal communication, 2021) (See Appendix B). Based on this description, which was similar to other student responses in Appendix B, this period was very difficult for students and changed their attitude toward university courses tremendously. Another student shared, “School was no longer fun, and I was not able to learn as much” (personal communication, 2021) (See Appendix B).

Based on the sentiment results and the wording of both students' and professors' responses regarding their academic experience in the spring 2020 academic semester, there is a clear answer to the first research question. Yes, the “emergency E-learning” (Murphy, 2020, p. 492) brought about by the COVID-19 pandemic affected student academic experience. This effect is primarily negative according to the participant responses. Not only did the students have a poor academic experience, but the professors agreed with students stating that they also had a negative experience with the academic changes enacted in March 2020. The goal of the first research question, as discussed previously, was to determine if there was a common attitude or perception among students concerning the period between March and May 2020. The secondary purpose of this question was to examine the professor and student responses and look for perception differences. However, the consistency between professor and student responses proves no opposing perceptions that necessitate analysis through the proposed theories, CDT and EVT. Students and professors agreed that the academic experience before March 2020 was decidedly more positive than the period of virtual learning after March 2020.

Digital Literacy

The next research question asked, “Did university students experience professors with poor digital literacy and did this illiteracy impact professor-student rapport?” As previously

discussed, the goal of this research question was to determine whether or not digital literacy impacted professor-student rapport. The corresponding questionnaire questions were Q10-Q13, which asked, “How would you describe the digital literacy of the professors (students) during the period between March-May 2020? Do you believe an individual's level of digital literacy affects their credibility? Would you consider yourself digitally literate? Do you believe your personal level of digital literacy affects your personal credibility? Is this effect positive or negative, or neutral?”

The results from the sentiment tests run on the student responses, shown in Figure 8, indicate that there were mixed attitudes among students regarding the professors' digital literacy. In reading through each answer, I believe this to be an accurate portrayal of student responses. One student stated:

Professors did their best! At no fault of their own, there was great adaptation necessary for these courses to be successful. They did their best, but professors often struggled to set up courses in ways that would facilitate student success (personal communication, 2021) (See Appendix B).

This response indicates the students knew that the professors were actively trying to adapt to virtual learning. However, it was apparent to students that professors struggled to adapt. Another student wrote: “It was relatively easy because they did not require much help. The fall of 2020 was much worse when things were hybrid” (personal communication, 2021) (See Appendix B). One student wrote, “My experience, professors adapted pretty well to digital learning while I know it was not ideal” (personal communication, 2021) (See Appendix B). In opposition, one student recorded: “Not great. Many times, my classes would be canceled because my teachers/professors did not understand how to use technology or because Zoom would not

cooperate” (personal communication, 2021) (See Appendix B). This particular response shows a concerning outcome in which a professor with poor digital literacy kept students from attending class entirely in addition to technological errors.

In response to the second research question, the students did experience professors with poor digital literacy in some cases but not universally. The students cited many factors as to what might have been the cause of a professor’s ability or inability to use technology. According to various students, professors that taught within different departments performed better than others, and older professors struggled more than younger professors (See Appendix B). Although students experienced professors with adequate digital literacy, the virtual learning transition exposed professors with obviously poor digital literacy.

In the next section of the second research question, the focus was on whether or not poor digital literacy impacted professor-student rapport. The analysis of Q11 in Figure 9 shows that the students surveyed had very mixed feelings regarding their belief that digital literacy connects to credibility. Initially, I assumed that the student participants would agree that digital literacy does affect credibility. However, a large number of students answered “no” (personal communication, 2021) in response to Q11. Some students indicated a more complicated belief on this particular issue. Student participants had a variety of responses: “No, but it certainly has an effect on their level of effectiveness in teaching in the current situations,” “...If a professor in the field of communication cannot stay updated on the trends and technology it will affect how I view their credibility,” “Yes, in this day and age it is critical for someone to be digitally literate,” “I think it depends on the professor and what they teach. If their specialty has nothing to do with technology, I wouldn’t expect them to have complete digital literacy. However, a degree like strategic communications deals heavily with technology so a lack of digital literacy leads me to

believe that the professors might be a bit outdated for the subject matter” (personal communication, 2021) (See Appendix B).

Due to the students' varied responses, there is not a clear, decisive answer to reconcile digital literacy and credibility from the student perspective. There appears to be evidence of expectancy violation involved in the responses shared by students. Some students cited that they did not expect professors to be digitally literate, while others did expect professors to be digitally literate. The expectation: “I think it depends on the professor and what they teach” (personal communication, 2021) (See Appendix B) shows that some subject areas are considered more essential for professors to be digitally literate than others. The expectation from students that professors be digitally literate based on their area of mastery was violated in both positive and negative valences. In accordance with EVT, the positive violation of an expectation brought about a generally positive result. The negative violation brought a negative result. In the student responses, there is a combination of positive and negative expectancy violations because the expectancy is based on a variety of outside factors. One possible reason for varied expectations and violations among students is the type of program and subject of course taken. There was not enough data in this study to empirically prove the reason for the various expectations.

Interestingly, the professors' responses indicate that digital literacy does affect credibility. This response from professors shows a high value of digital literacy not shared by the students' responses. The expectancy among professors is clear: they expect that they should be digitally literate to maintain credibility. This expectancy was formed for various reasons and the data in this study does not go in depth on possible factors in the formation of these expectations.

In the responses to Q12, the majority of students reported themselves to be digitally literate. The professors' response to Q10 confirmed that the students were digitally literate. One professor made an interesting comment in their response to Q10,

[The] students are very digitally literate. They seem less so when it comes to academic matters; however, I think this may be because it is "less fun" or there is less desire to learn the inner workings of the campus library website than to learn how to make a TikTok video (personal communication, 2021) (See Appendix C).

In conclusion, students did not correlate digital literacy and credibility. Most professors and students would consider themselves digitally literate and the professors' responses regarding students reinforce that the students possess digital literacy. The students appeared to have mixed responses surrounding the professors' digital literacy; some considered professors to be digitally literate while other students did not consider professors to be digitally literate.

Communication

The third research question asked: "How was the flow of communication between professors and students adapted because of 'emergency eLearning' (Murphy, 2020, p. 492) enacted in response to COVID-19?" The questionnaire used Q14-Q16 to answer this particular research question by asking:

"As a professor (student), how often did you talk to individual students (professors) prior to the transition to virtual courses in March 2020? Was this sufficient? Did the amount of communication between yourself and students (professors) change after the transition to virtual courses? How would you describe this change? Did you use the available digital communication tools (Blackboard, Microsoft Teams, Email, etc.) to communicate between January-March 2020?"

The communication between professors and students indicated in Q14 shows that before March 2020, there was an adequate level of communication between the two groups. The students shared in their response that meeting with professors every week was a typical experience. Students shared that they felt they could connect with professors when they needed help by visiting their offices or talking to them after class. One student shared, “I would say that I often spoke with my professor before the online transition. Being able to converse with them outside of class, yet in a face-to-face setting was very beneficial” (personal communication, 2021). This student response indicated that the face-to-face interactions with professors were helpful. Another student wrote similarly: “...In-person communication was what I normally chose to do because it was sufficient. I was able to communicate all of my thoughts and questions effectively and get them answered in a timely manner” (personal communication, 2021) (See Appendix B). The face-to-face communication that took place before March 2020 was effective from the students’ perspective. Additionally, the professors’ responses verified the students’ answers. The results from Q14 show that the professors were satisfied with the frequency of student interaction prior to COVID-19. Most professors reported they met with their students daily and felt that this was sufficient. Many of the professors wrote that they communicated with their students daily during this period.

However, the transition to virtual learning changed the communication between professors and students. In response to Q14, a student wrote, “I definitely talked to them more prior to March 2020 because I was in-person. The virtual setting made it harder to connect with my professor” (personal communication, 2021) (See Appendix B). Q15 covered the change in communication caused by the transition to virtual learning. The professors and students all reported negatively in Q15 when asked about the communication during this period. The

sentiment results shown in Figures 17 and 18 reinforce the fact that the professors or students used no positive language in answering Q15.

The professors' responses show themes of decreased communication with students, if not a complete lack of communication in any form. The majority of professors indicated a substantial change in the frequency of communication with students. One professor wrote, "Casual conversations were limited as communication moved to digital formats" (personal communication, 2021) (See Appendix C). I analyzed the lack of students interacting casually with professors in the virtual setting using EVT. EVT prescribes that behaviors and expectations will differ between cultures. The change from an in-person communication format to a virtual communication design for professors and students participating in university courses would constitute a cultural shift. This shift reset professors' and students' set expectations while staying in the same university course. Based on this new culture, the behavioral expectations of students and professors saw a dramatic shift. Included in this shift was the cultural expectation of casual conversation between professors and students in the classroom. When the university shifted courses to a virtual format, professors noted an expectancy violation. The violation was negative and included a severe lack of casual conversation, which was an expectation in the previous format.

Not only was there a lack of casual conversation between professors and students, there was a lack of face-to-face communication of any kind. One professor wrote:

I had no communication face to face and a few virtual video meetings. I think this negatively impacted communication, as it was not as easy to have verbal explanatory conversations with students who had questions. Primarily students would communicate over email or Teams chat (personal communication, 2021) (See Appendix C).

This response indicates the severity of the breakdown in communication experienced by the professors. According to this professor, there was a shift away from any form of face-to-face interaction with students, including the video option.

Likewise, the student responses show a total disparagement between professor and student communication before March 2020 and after March 2020. In response to Q15, one student wrote: "...my personal communication became nonexistent. I only attended virtual lectures and completed assignments" (See Appendix B). This particular response aligns with the professors' experiences with negative expectancy violation of personal communication with students after the transition to virtual learning. The cultural norms of the new virtual learning environment did not include time spent engaging in personal communication like the face-to-face classroom did. Both professors and students, therefore, experienced this expectancy violation. Another student went on to say, "I felt as if I did not have any personal communication with professors once we went digital". Another student shared, "...[I] did not speak to them personally at all. [It was] awkward, frustrating, [and] caused [a weaker] relationship" (personal communication, 2021) (See Appendix B). This lack of personal communication harmed the professor-student relationship according to both groups of participants.

The lack of communication was evident in the absence of personal conversations and the lack of academic interaction. According to one student:

I communicated less and participated in class less often. No one wanted to communicate over Teams. It was either email or you did not communicate. Teachers would have to force their class to answer questions and participate through the online forum (personal communication, 2021) (See Appendix B).

This particular response was echoed in other student survey responses and led to the application of CDT. Students' apparent lack of desire to participate in the virtual learning environment explains the dissonance in student attitude and perception. According to Q14, students readily interacted with professors frequently in and out of the classroom (See Appendix B). However, Q15 showed a severe lack of communication between the two groups (See Appendix C). The students experienced some dissonance in their attitudes toward the professors and their actions in the virtual learning environment.

The first cognition involved is the attitude of students based on professor-student interaction before March 2020. The second cognition is students' attitudes in the virtual learning space after March 2020. Based on the sentiment tests, shown in Figures 15-18, and analysis of the student responses to Q14 and Q15, there is apparent dissonance in attitude, which resulted in the students' action of decreasing any form of participation. The students' transition to a new environment shaped a perspective that directly opposed the previously held attitude of frequent communication and participation.

However, few responses opposed the majority of student responses to Q15. One student wrote:

Personally, the communication between myself and my professors did not change very much. I did receive many more emails from my professors after COVID.... As a freshman, that meant the world because it reminded me that I was not alone. They were trying to figure everything out as well (personal communication, 2021) (See Appendix B).

Not all students had a negative experience, but this response was in the minority of responses collected in the questionnaire.

According to the results from Q16, depicted in Figures 19 and 20, professors and students used all of the university provided communication tools, including Blackboard, Microsoft Teams, email, and others. The communication breakdown discussed under Q15 cannot be attributed to the available tools' lack of usage or lack of available tools. The university provided professors and students with several communication tools, but these tools' presence did not equate to positive communication.

Overall Experience

The last question on the questionnaire given to professors and students intended to gain an overall perspective on the transition from face-to-face into the virtual format in March 2020 by asking, "How would you describe the transition of the course format from face-to-face to virtual in March 2020?" Based on the results of Q17, mixed feelings surrounded the transition in March 2020 in the student responses (See Figure 21). Primarily positive sentiment was seen in the professor's responses to Q17 as well (See Figure 22). In summary, the professors reported a positive outlook on the transition because they identified that they were doing their best under challenging circumstances. One professor wrote, "[It was] challenging as it presented hurdles for both faculty and students. However, the resilience of both faculty and students allowed an eventual successful navigation of the challenge" (personal communication, 2021) (See Appendix C). The other professors' responses indicated similar themes that the transition was difficult at first and adaptation was not perfect. Eventually, they figured out how to make virtual learning work for themselves and the students. The professors did not enjoy the virtual learning format as much as the traditional face-to-face format based on the prior discussion. According to Q17, they were able to make the experience work at a basic level (See Appendix C).

Students expressed their responses to Q17 in a wide variety with little consistency between their answers. One student described the transition as “challenging and inefficient,” while another student wrote, “The online format was much more detailed and organized” (personal communication, 2021) (See Appendix B). Many factors contributed to this response, which possibly included: learning style, environment, course content, or academic ability. There was not enough data in this study to support these possible contributing factors.

Conclusion & Further Research

In conclusion, COVID-19 had a dramatic effect on higher education in March 2020. The literature review discussed the pedagogical impact of the pandemic. This study explores the communicative effects of the pandemic, specifically within higher education. Through questionnaires, professors and students answered several questions intended to determine the primary area of impact in the spring 2020 academic semester. These results show that while negative academic experience is one effect, the most critically effected area is communication between professors and students. Not only is there a generally negative attitude toward post-March 2020 virtual learning, but in some cases, a clear absence of communication. The results from students show feelings ranging from isolation to frustration. Results from professors show negative thoughts regarding the decrease in frequency of communicating with students and attempting to engage the students in the virtual classroom.

The results from this study prove that there was a negative expectation shift in communication due to the physical distancing regulations given by officials in response to COVID-19. I used EVT and CDT to explain the shift from positive to negative responses by participants. The expectations created by professors and students prior to March 2020 did not translate to the virtual learning experience after March 2020. The results of this research show negative expectancy violations experienced by professors and students at the time, which caused the negative attitudes and feelings portrayed in the results.

My assumption regarding the importance of digital literacy was not supported by the research. Students do not regard digital literacy as highly as I anticipated. However, the professors' results do uphold my assumption regarding credibility and digital literacy. A limitation to this study includes the cause of this discrepancy in professor and student views of

digital literacy. Further research should explore the responses given by professors and students regarding digital literacy and credibility in detail.

Further limitations include the discussion of the variety of student responses concerning overall experience during the period of virtual learning. There was not enough data in this study to support claims explaining the diversity of answers in the results covering overall experience.

The overall goal of this study was to start a process of research, qualitative and quantitative, to determine the experience-altering effects of the COVID-19 pandemic on higher education in the communication discipline. In further research, more participants should be included in the study to grasp a more complete sampling of professor and student experiences. There is a need for more application of communication theory to describe the events that took place in March 2020 in higher education and in the time following the pandemic.

References

- Adnan, M., & Anwar, K. (2020). Online learning amid the COVID-19 pandemic- students' perspectives. *Journal of Pedagogical Sociology and Psychology*. <https://10.33902/JPSP>
- Ali, W. (2020). Online and remote learning in higher education institutes: A necessity in light of COVID-19 pandemic. *Higher Education Studies*, 10(3), 16. <https://10.5539/hes.v10n3p16>
- Appolloni, A., Colasanti, N., Fantauzzi, C., Fiorani, G., & Frondizi, R. (2021). Distance learning as a resilience strategy during covid-19: An analysis of the italian context. *Sustainability*. <https://10.3390/su13031388>
- Aristovnik, A., Keržič, D., Ravšelj, D., Tomaževič, N., & Umek, L. (2020). Impacts of the COVID-19 pandemic on life of higher education students: A global perspective. *Sustainability*. <https://10.3390/su12208438>
- Bao, W. (2020). COVID-19 and online teaching in higher education: A case study of peking university. *Human Behavior and Emerging Technologies*, 2(2), 113-115. <https://10.1002/hbe2.191>
- Beech, N., & Anseel, F. (2020). COVID-19 and its impact on management research and education: Threats, opportunities and a manifesto. *British Journal of Management*, 31(3), 447-449. <https://10.1111/1467-8551.12421>
- Blankenberger, B., & Williams, A. M. (2020). COVID and the impact on higher education: The essential role of integrity and accountability. *Administrative Theory & Praxis*, 42(3), 404-423. <https://10.1080/10841806.2020.1771907>

- Bond, M., Buntins, K., Bedenlier, S., Zawacki-Richter, O., & Kerres, M. (2020). Mapping research in student engagement and educational technology in higher education: A systematic evidence map. *International Journal of Educational Technology in Higher Education*, 17(1), 1-30. <https://10.1186/s41239-019-0176-8>
- Bowles, D. C., & Sendall, M. C. (2020). COVID-19: The elephant in the virtual classroom. *Pedagogy in Health Promotion*, 6(3), 156-158. <https://10.1177/2373379920938419>
- Burgoon, J. K. (2016). Expectancy Violation Theory. *The international encyclopedia of interpersonal communication, first edition*. <https://10.1002/9781118540190.wbeic0102>
- Candrasari, R., Harinawati, Dewi, R., Kurniawati, Rizki, D., Meliza, R., Cut Rizka, A. U., & Teuku, K. F. (2021). Learning communication strategy at colleges during the covid-19 pandemic and the new normal phase. Paper presented at the *International Conference on Social Science, Political Science, and Humanities (ICoSPOLHUM 2020)*, 18-23. [https://https://doi.org/10.2991/assehr.k.210125.004](https://doi.org/10.2991/assehr.k.210125.004)
- Cervero, A., Castro-Lopez, A., Álvarez-Blanco, L., Esteban, M., & Bernardo, A. (2020). Evaluation of educational quality performance on virtual campuses using fuzzy inference systems. *PloS One*, 15(5). <https://10.1371/journal.pone.0232802>
- Chang, C., & Fang, M. (2020). E-learning and online instructions of higher education during the 2019 novel coronavirus diseases (COVID-19) epidemic. *Journal of Physics. Conference Series*, 1574(1), 12166. <https://10.1088/1742-6596/1574/1/012166>

- Cicciarelli, M. (2007). Behavioral, cognitive, and humanistic theories: Which theories do online instructors utilize? *International Journal of Information and Communication Technology Education*, 3(4), 1-12. <https://doi.org/10.4018/jicte.2007100101>
- Cooper, J. (2019). Cognitive dissonance: Where we've been and where we're going. *Revue Internationale De Psychologie Sociale*, 32(1). <https://10.5334/irsp.277>
- Crawford, J., Butler-Henderson, K., Rudolph, J., & Glowatz, M. (2020). COVID-19: 20 countries' higher education intra-period digital pedagogy responses. *Journal of Applied Learning & Teaching*, 3(1). <https://10.37074/jalt.2020.3.1.7>
- Farhadi, B. (2019). *"The sky's the limit": On the impossible promise of E-learning in the Toronto district school board.*
- Gonzalez, T., de la Rubia, M. A., Hincz, K. P., Comas-Lopez, M., Subirats, L., Fort, S., & Sacha, G. M. (2020). Influence of COVID-19 confinement on students' performance in higher education. *Plos One*, 15(10), Article: e0239490. <https://doi.org/10.1371/journal.pone.0239490>
- Graham, C. M., & Jones, N. (2011). Cognitive dissonance theory and distance education: Faculty perceptions on the efficacy of and resistance to distance education organizational fault lines and virtual team leadership view project. *International Journal of Business, Humanities and Technology*, 1 (2), 212-227.
- Harmon-Jones, E., & Harmon-Jones, C. (2007). Cognitive Dissonance Theory After 50 Years of Development. *Zeitschrift für Sozialpsychologie*, 38(1), 7-16. <https://doi.org/10.1024/0044-3514.38.1.7>

- Harmon-Jones, E., & Mills, J. (2019). An introduction to cognitive dissonance theory and an overview of current perspectives on the theory. *Cognitive dissonance: Reexamining a pivotal theory in psychology* (2nd ed., pp. 3-24). American Psychological Association.
<https://10.1037/0000135-001>
- Huang, R.H., Liu, D.J., Guo, J., Yang, J.F., Zhao, J.H., Wei, X.F., Knyazeva, S., Li, M., Zhuang, R.X., Looi, C.K., & Chang, T.W. (2020). Guidance on Flexible Learning during Campus Closures: Ensuring course quality of higher education in COVID-19 outbreak. *Beijing: Smart Learning Institute of Beijing Normal University*.
<https://www.researchgate.net/publication/341266514>
- Iivari, N., Sharma, S., & Ventä-Olkkonen, L. (2020). Digital transformation of everyday life – how COVID-19 pandemic transformed the basic education of the young generation and why information management research should care? *International Journal of Information Management*, 55, 102183. <https://10.1016/j.ijinfomgt.2020.102183>
- Marani, I. N., Subarkah, A., & Wijayanto, A. (2020). The use of computer mediated communication (CMC) in distance learning during covid-19 pandemic: Pros and cons. *Advances in Social Science, Education, and Humanities Research*, 510, 95-102.
<https://doi.org/10.2991/assehr.k.201219.015>
- Marinoni, G., van't Land, H., & Jensen, T. (2020). *The impact of COVID-19 on higher education around the world*. International Association of Universities (IAU).

- Mishra, L., Gupta, T., & Shree, A. (2020). Online teaching-learning in higher education during lockdown period of COVID-19 pandemic. *International Journal of Educational Research Open, 1*, 100012. <https://10.1016/j.ijedro.2020.100012>
- Mukhametshin, A., Asratyan, N., Safina, A., Gaifutdinov, A., Ganieva, G., & Ganieva, A. (2021). Students' attitude to e-learning. *SHS Web of Conferences, 97*, 1042. <https://10.1051/shsconf/20219701042>
- Murphy, M. P. A. (2020). COVID-19 and emergency eLearning: Consequences of the securitization of higher education for post-pandemic pedagogy. *Contemporary Security Policy, 41*(3), 492-505. <https://10.1080/13523260.2020.1761749>
- Naciri, A., Baba, M. A., Achbani, A., & Kharbach, A. (2020a). Mobile learning in higher education: Unavoidable alternative during COVID-19. *Aquademia, 4*(1), Article: ep20016. <https://10.29333/aquademia/8227>
- Oyedotun, T. D. (2020). Sudden change of pedagogy in education driven by COVID-19: Perspectives and evaluation from a developing country. *Research in Globalization, 2*, 100029. <https://10.1016/j.resglo.2020.100029>
- Pandit, D., & Agrawal, S. (2021). Exploring challenges of online education in COVID times. *FIIB Business Review, 2319-7145*. <https://10.1177/2319714520986254>
- Patricia Aguilera-Hermida, A. (2020). College students' use and acceptance of emergency online learning due to COVID-19. *International Journal of Educational Research Open, 1*, 100011. [https://https://doi.org/10.1016/j.ijedro.2020.100011](https://doi.org/10.1016/j.ijedro.2020.100011)

- Peters, M. A., Wang, H., Ogunniran, M. O., Huang, Y., Green, B., Chunga, J. O., Quainoo, E. A., Ren, Z., Hollings, S., Mou, C., Khomera, S. W., Zhang, M., Zhou, S., Laimeche, A., Zheng, W., Xu, R., Jackson, L., & Hayes, S. (2020). China's internationalized higher education during covid-19: Collective student autoethnography. *Postdigital Science and Education*, 2(3), 968. <https://10.1007/s42438-020-00128-1>
- Quezada, R. L., Talbot, C., & Quezada-Parker, K. B. (2020). From bricks and mortar to remote teaching: A teacher education program's response to COVID-19. *Journal of Education for Teaching : JET*, 46(4), 472-483. <https://10.1080/02607476.2020.1801330>
- Raes, A., Vanneste, P., Pieters, M., Windey, I., Van Den Noortgate, W., & Depaepe, F. (2020). Learning and instruction in the hybrid virtual classroom: An investigation of students' engagement and the effect of quizzes. *Computers and Education*, 143, 103682. <https://10.1016/j.compedu.2019.103682>
- Bullock, A. N., Colvin, A. D., & Jackson, S. M. (2021). Zoom fatigue in the age of COVID-19. *Barbara Solomon School of Social Work Publications*. 24. https://scholarworks.waldenu.edu/swhs_pubs
- Schrodt, P., & Witt, P. L. (2006). Students' attributions of instructor credibility as a function of students' expectations of instructional technology use and nonverbal immediacy. *Communication Education*, 55(1), 1-20. <https://10.1080/03634520500343335>
- Shahzad, A., Hassan, R., Aremu, A. Y., Hussain, A., & Lodhi, R. N. (2020). Effects of COVID-19 in E-learning on higher education institution students: The group comparison between male and female. *Quality & Quantity*. <https://10.1007/s11135-020-01028-z>

- Strielkowski, W. (2020). *COVID-19 pandemic and the digital revolution in academia and higher education*. Preprints. <https://10.20944/preprints202004.0290.v1>
- Tejedor, S., Cervi, L., Pérez-Escoda, A., Tusa, F., & Parola, A. (2021). *Higher education response in the time of coronavirus: Perceptions of teachers and students, and open innovation*. <https://10.3390/joitmc7010043>
- Tesar, M. (2020). Towards a post-covid-19 ‘New normality?’: Physical and social distancing, the move to online and higher education. *Policy Futures in Education, 18*(5), 556-559. <https://10.1177/1478210320935671>
- Toquero, C. M. (2020). Challenges and opportunities for higher education amid the COVID-19 pandemic: The philippine context. *Pedagogical Research, 5*(4), Article: em0063. <https://10.29333/pr/7947>
- Trespacios, J., & Uribe-Flórez, L. J. (2020). Case studies in instructional design education: Students’ communication preferences during online discussions. *E-Learning and Digital Media, 17*(1), 21-35. <https://10.1177/2042753019874149>
- van Twillert, A., Kreijns, K., Vermeulen, M., & Evers, A. (2020). Teachers’ beliefs to integrate web 2.0 technology in their pedagogy and their influence on attitude, perceived norms, and perceived behavior control. *International Journal of Educational Research*. <https://10.1016/j.ijedro.2020.100014>
- Wut, T., & Xu, J. (2021). Person-to-person interactions in online classroom settings under the impact of COVID-19: A social presence theory perspective. *Asia Pacific Education Review*. <https://10.1007/s12564-021-09673-1>

Appendix

Appendix A

Questions on Questionnaire

Professor Questions

1. Role: What is your academic role at the university? Professor, Student
2. Department: With which department are you associated? Communications and the Arts, Psychology
3. Gender: _____
4. Age: What is your age? 18-25, 25-35, 35-45, 45-55, 55-65, 65+
5. Education: What is the highest degree or level of school you have completed? *If currently enrolled, highest degree received.* High School Diploma, Bachelor's degree, Master's degree, Doctoral degree
6. Ethnicity: Please specify your ethnicity. Asian or Pacific Islander, Black or African American, Hispanic or Latino, Native American or Alaskan Native, White or Caucasian, Multiracial or Biracial, A race/ethnicity not listed here.
7. How would you describe your university academic experience, whether learning or teaching, between January and March 2020?
8. How would you describe your university academic experience, whether learning or teaching, between March and May 2020?
9. Did you feel that the events of March 2020 impacted your academic experience in a positive or negative way? Explain.
10. How would you describe the digital literacy of the students during the period between March-May 2020?
11. Do you believe an individual's level of digital literacy affects their credibility?
12. Would you consider yourself digitally literate?

13. Do you believe your personal level of digital literacy affects your personal credibility? Is this effect positive or negative, or neutral?
14. As a professor, how often did you talk to individual students prior to the transition to virtual courses in March 2020? Was this sufficient?
15. Did the amount of communication between yourself and students change after the transition to virtual courses? How would you describe this change?
16. Did you use the available digital communication tools (Blackboard, Microsoft Teams, Email, etc.) to communicate between January-March 2020?
17. How would you describe the transition of the course format from face-to-face to virtual in March 2020?

Student Questions

1. Role: What is your academic role at the university? Professor, Student
2. Department: With which department are you associated? Communications and the Arts, Psychology
3. Gender: _____
4. Age: What is your age? 18-25, 25-35, 35-45, 45-55, 55-65, 65+
5. Education: What is the highest degree or level of school you have completed? *If currently enrolled, highest degree received.* High School Diploma, Bachelor's degree, Master's degree, Doctoral degree
6. Ethnicity: Please specify your ethnicity. Asian or Pacific Islander, Black or African American, Hispanic or Latino, Native American or Alaskan Native, White or Caucasian, Multiracial or Biracial, A race/ethnicity not listed here.

7. How would you describe your university academic experience, whether learning or teaching, between January and March 2020?
8. How would you describe your university academic experience, whether learning or teaching, between March and May 2020?
9. Did you feel that the events of March 2020 impacted your academic experience in a positive or negative way? Explain.
10. How would you describe the digital literacy of the professors during the period between March-May 2020?
11. Do you believe an individual's level of digital literacy affects their credibility?
12. Would you consider yourself digitally literate?
13. Do you believe your personal level of digital literacy affects your personal credibility? Is this effect positive or negative, or neutral?
14. As a student, how often did you talk to your professor individually about your academics prior to the transition to virtual courses in March 2020? Was this sufficient?
15. Did the amount of communication between yourself and professors change after the transition to virtual courses? How would you describe this change?
16. Did you use the available digital communication tools (Blackboard, Microsoft Teams, Email, etc.) to communicate between January-March 2020?
17. How would you describe the transition of the course format from face-to-face to virtual in March 2020?

Appendix B

Student Responses Q1-Q17

Respondent ID	Role: What is your academic role at the university?	Department: With which department are you associated?	Gender:	Age: What is your age?	Education: What is the highest degree or level of school you have completed? If currently enrolled, highest degree received.	Ethnicity: Please specify your ethnicity.
12459672588	Student	Psychology	female	18-25	High School Diploma	White or Caucasian
12458999288	Student	Communications and the Arts	Female	18-25	High School Diploma	White or Caucasian
12458621306	Student	Psychology	F	18-25	High School Diploma	White or Caucasian
12455175566	Student	Psychology	Female	18-25	High School Diploma	White or Caucasian
12452087250	Student	Communications and the Arts	Male	18-25	Bachelor's degree	White or Caucasian
12449206638	Student	Communications and the Arts	Female	18-25	Bachelor's degree	White or Caucasian
12448621264	Student	Communications and the Arts	Male	18-25	Bachelor's degree	White or Caucasian
12448590712	Student	Psychology	Male	18-25	High School Diploma	White or Caucasian
12446099187	Student	Communications and the Arts	Female	18-25	Bachelor's degree	White or Caucasian
12443400233	Student	Psychology	Female	18-25	High School Diploma	White or Caucasian
12442411748	Student	Communications and the Arts	Female	18-25	High School Diploma	White or Caucasian
12440985314	Student	Communications and the Arts	Female	18-25	Bachelor's degree	Asian or Pacific Islander
12440512198	Student	Communications and the Arts	Female	18-25	High School Diploma	White or Caucasian
12440015265	Student	Communications and the Arts	Female	18-25	High School Diploma	White or Caucasian
12439986787	Student	Communications and the Arts	Female	18-25	High School Diploma	White or Caucasian
12439977425	Student	Communications and the Arts	Female	18-25	High School Diploma	White or Caucasian
12439970270	Student	Communications and the Arts	Male	18-25	High School Diploma	White or Caucasian
12439951673	Student	Communications and the Arts	female	18-25	Bachelor's degree	White or Caucasian
12439931879	Student	Communications and the Arts	Female	18-25	High School Diploma	White or Caucasian
12439906211	Student	Communications and the Arts	Female	18-25	High School Diploma	A race/ethnicity not listed here.
12439010289	Student	Communications and the Arts	Female	18-25	Bachelor's degree	White or Caucasian

Respondent ID	Role: What is your academic role at the university?	Department: With which department are you associated?	Gender:	Age: What is your age?	Education: What is the highest degree or level of school you have completed? If currently enrolled, highest degree received.	Ethnicity: Please specify your ethnicity.
12438973021	Student	Communications and the Arts	male	18-25	Bachelor's degree	White or Caucasian
12438942622	Student	Communications and the Arts	Female	18-25	Bachelor's degree	White or Caucasian
12438940864	Student	Communications and the Arts	Female	18-25	Bachelor's degree	White or Caucasian
12438840235	Student	Communications and the Arts	Female	18-25	Bachelor's degree	White or Caucasian
12438819289	Student	Communications and the Arts	Female	18-25	Master's degree	White or Caucasian
12438760455	Student	Communications and the Arts	Female	18-25	Bachelor's degree	White or Caucasian
12432035896	Student	Communications and the Arts	Female	18-25	Bachelor's degree	White or Caucasian

How would you describe your university academic experience, whether learning or teaching, between January and March 2020?	How would you describe your university academic experience, whether learning or teaching, between March and May 2020?	Did you feel that the events of March 2020 impacted your academic experience in a positive or negative way? Explain.
in person, normal, routine, laid back	difficult to learn new platforms, lots of miscommunication, time consuming , frustrating	negative, i did not learn effectively at all and did not feel that i grew academically at all.
It was great! All of my professors were so kind and willing to help!	It wasn't the best. It was very difficult transitioning so fast to an online platform. But, my professors adapted quickly to ensure we were still learning material.	I feel as if it impacted me both negatively and positively. During this time, I was in need of a much needed break from school and just life in general. With this, I was able to finally relax and do things I hadn't been able to do in a while due to school. This is probably an unpopular opinion, but my mental health improved after March! But, at the same time, I know that I was not learning the things I needed to because I don't do well in online classes. I value face-to-face teaching since I am a hands-on learner.
Great	Difficult	Negative; it was difficult to merge my academic life with my home life. The study environment at home was not as suitable as on campus.
This was a hard but rewarding time in my life. I was in many difficult courses but was able to spend time with friends studying and understanding the material.	It has honestly been isolating. I thrive off of group study, and the situation of studying alone or over zoom calls is a sad replacement for in person studies	It was definitely negative. I struggled to communicate well with professors and friends and missed support of those groups.

How would you describe your university academic experience, whether learning or teaching, between January and March 2020?	How would you describe your university academic experience, whether learning or teaching, between March and May 2020?	Did you feel that the events of March 2020 impacted your academic experience in a positive or negative way? Explain.
I enjoyed my classes. It was my last semester of undergrad at Liberty and my professors did a great job sharing/teaching the course material in the classroom.	Switching to Online was not the most enjoyable. The professors had to somehow upload all of the course materials online, and unfortunately it was not as easy for my 'more experienced' professors. Meeting online worked but the physical aspect of communication struggled a little. It was hard to ask for instruction and questions over online classes but we made it work.	Negative because certain projects and assignments had to be altered where the true impact on the student from the assignment was simplified for online compatibility.
Great!	I felt like assignments and lectures were very impersonal.	Negative - I missed the in-person interaction and opportunity for discussion within the class.
Great	Challenging	Negative - distance learning is not as good as in person
Normal, in-person residential classes	Online, at-home classes	Negative because I am a person who prefers in-person learning with my peers.
Was really enjoying my classes and the communication I was having with teachers and other classmates. I felt much of class discussion was helpful and very impactful on my learning.	It seemed as if work was forgotten about. Many of my assignments were changed or waved. I also saw classes got out much earlier because not as much material was being covered.	Negative, I noticed that both professors and students relaxed and did not care as much. Speech times were cut shorter, class discussion was diminished and even assignments were waved. Even though as a student that was helpful to relieve some stress I feel as if I lost opportunity.
I was enjoying my classes, making new friends, and learning interesting content. I also was enjoying my practical and gaining real experience in the classroom. .	I believe it was the best it could be, given the circumstances. I struggled to focus and it was harder to keep my motivation up. I still learned but I had to miss out on learning opportunities like my practicum and job experiences.	They impacted my education in a negative way in that I had to miss out on a lot of important life experiences. However, it did help me refocus on what I found as important. It made me realize how much I valued school and needed to keep working even if it was online.
I enjoyed going to class online. My teachers made the transition easy & adapted the lessons for the online structure.	Online was easy & the transition was smooth thanks to the professors	I felt like I had a positive experience because I realized the benefits of learning in person with a professor.
It was the normality- we met in class and listened to lectures	certainly different, but the professors did a good job in making the transition.	as far as academics are concerned, the impact was not huge being a strategic communication major. The challenge was time mangement as the days seemed to blur together and getting myself to socialize instead of binge-watching shows
Great experience	Boring, not enjoyable, waist of time and money, did not learn, lost social connection, etc.	Negative, school will never be the same. It is terrible to never see the smile of my peers and always be on our toes greeting others.
great! it wasn't until after march that is was very different, but my professors even through zoom are the best people!	Harder for sure but liberty professors are unmatched! It was awesome to see how full of grace and positivity they were- literally love them	yes just because i would rather have been in class but im neutral
it was normal. compared to now anyways	during this time, LU did online school. that was extremely rough, emotionally, mentally, and especially spiritually.	residential classes literally became online courses. difficult to learn through a video call
Normal, effective	Difficult at first, not very effective. I am a visual learner and zoom seemed to distract me	Negative. Zoom was not my preferred way of communication. I did not learn much material and I believe this is because my teachers/professors were not used to this new form of teaching.
Good nothing super out of the ordinary, starting to make plans for after scho	That semester of school was a hard one due to having to re adjust to the new ways of learning online and adapting to a new pace of life	Negative, set me back by having to re-target the other I want to take to be sucessful

How would you describe your university academic experience, whether learning or teaching, between January and March 2020?	How would you describe your university academic experience, whether learning or teaching, between March and May 2020?	Did you feel that the events of March 2020 impacted your academic experience in a positive or negative way? Explain.
great	not great	yes. lots of changing in the way teachers had to teach
great	Boring	Negative, I didn't really pay attention to online classes
Was fun, interactive, exciting, personal.	Felt like a chore, could not complete certain learning experiences and projects, felt distant.	Negative. School was no longer fun and I was not able to learn as much.
a whirlwind	Challenging	Mostly negative. Less face to face communication with others.
perfectly normal, in-person	the worst academic experience I ever endured	negative - I was forced to stay in my house for 3 months straight
This time was good, as it was an effective time of hands-on effort and in-person communication	It was rough - we had to make a lot of transitions and projects suffered	Both, it was really difficult but it showed the power of technology
My school is very communicative in its nature. I feel connect to the faculty and students. As a result, I have made some close friends through the department. I believe the interactive experience has enhanced my education.	It was honestly very difficult. While I could complete my assignments fine, I lost the connection that I held so dear. I could not be with my friends and learn from them. Conversing with my professors was not the same. I felt distant from what was happening, and it was a lonely feeling.	It was an extremely negative experience. I'd honestly describe it as depressing. You couldn't really leave your house, meaning school was moved online. I felt I was just attending YouTube channels while being online. I know that I lost the ability to create relationships with some people because we all moved home away from each other. I will never have those opportunities again.
Challenging, unknowing, uncomfortable	Challenging, frustrating, draining	negative because students checked out. I personally focused less on work and school because I had other things to tend to.
I would say that my academic experience was very normal and simple. Everything was residential and fairly easy to keep up with. I really enjoyed the interaction with my fellow classmates as well as my professors.	My academic experience between these months was very different. Everything was switched over to online and I had a very hard time keeping with what was going on. I did not enjoy listening to 2.5 hour lectures over Teams and I had a hard time staying focused and motivated.	I would say definitely negative. As I previously mentioned, it was hard for me to keep up with what was going on and I missed the interaction between me and the other people in my classes.
Typical, interactive, personal	Painful	I saw some positive and negative impacts. It definitely thought me to be more resourceful, but also made me feel distant from my professors and classmates. I also feel like I learned way less through virtual learning than I would have if I attended class residentially.
Exciting and fulfilling	Disappointing and isolating	I felt that March 2020 impacted by experience in a negative way because I was not able to get the full academic experience I had signed up for.

How would you describe the digital literacy of the professors during the period between March-May 2020?	Do you believe an individual's level of digital literacy effects their credibility?	Would you consider yourself digitally literate?	Do you believe your personal level of digital literacy effects your personal credibility? Is this effect positive or negative or neutral?
i would say it was deffinetly very low at first but grew and got better at the end	not really because some people can just struggle with computers and thats ok because thats not their talents. Theyre good at something else	yes	neutral, i think it is helpful to understand the computer but not the end all things importantcy

How would you describe the digital literacy of the professors during the period between March-May 2020?	Do you believe an individual's level of digital literacy effects their credibility?	Would you consider yourself digitally literate?	Do you believe your personal level of digital literacy effects your personal credibility? Is this effect positive or negative or neutral?
Surprisingly, really good!	No.	Absolutely.	I believe for how old I am and what generation I am in, it definitely affects my personal credibility. People my age are expected to be literate when it comes to the digital world.
Adequate, but still needed improvement	No	For the most part	No. It is neutral
Professors did their best! At no fault of their own, there was great adaptation necessary for these courses to be successful. They did their best but professors often struggled to set up courses in ways that would facilitate student success.	no, but it certainly has an effect on their level of effectiveness in teaching in the current situations.	yes	Yes, I have had interviews for grad school over video chat. If not able to handle this well, I would be viewed negatively. I think that it reflects the skills necessary to be part of higher ed at this point in time. This is more of a neutral change, because no one wanted this switch to mostly online programs, it is simply a challenge of the times.
I think that my professors did a pretty good for being thrown into it. Of course some professors were able to grasp the online format easy the others but overall they all did a good job in my opinion.	No. Just because an individual is struggling to share their screen online, does not mean that their presentation and findings are any less credible.	yes.	Yes in a neutral way. There are numerous Digital platforms where an individual may share their research. For myself, I am more familiar and comfortable with certain ones over others. So I say I would be neutral because if I am comfortable then it would be positive. And if I would be forced to use a platform I am not familiar with, then it would be negative. Therefore I am neutral.
My professors did well with the digital environment. However, other that I worked with struggled with using the extra functions in the digital platform (eg. chat, screen sharing, discussion, etc.).	For the most part. If a professor in the field of communication cannot stay updated on the trends and technology it will affect how I view their credibility.	Yes	Yes, I believe it does. This seems to be a positive effect
Some good, others not so much	No	Yes	No - personal credibility should be based on things other than digital literacy
Many of my professors were good with online teaching. One of them pre-recorded lectures and sent them to us, which was not preferred. The other one, however, taught live so that we could ask questions.	No because teachers do not need to master technology in order to be credible.	Yes, but I am certainly not the best with computers.	No, I do not believe that in order for me to be credible I need to be good with computers. I believe it's neutral.
Some professors did well with it, others really struggled.	I had grace for many professors that did not understand the technology as it is a new process for all of us.	I would say that my past jobs have given me great experience to understand technology.	i believe that it is an important skill and impactful to me as being apart of the next generation and the impact on all work forces now.
I think it was very efficient. Although some professors struggled using the technology at first, many of them improved and knew what they were doing.	I think as an effective teacher, you must be digitally literate in order to interact with your students best. However, simply based on their knowledge and practice- they are credible with and without their digital literacy abilities.	Yes	I think that it does help me become credible in the work force; however, I think knowledge and other skills are more important. Digital literacy impacts me positively and only has helped me in school and other areas of life.

How would you describe the digital literacy of the professors during the period between March-May 2020?	Do you believe an individual's level of digital literacy effects their credibility?	Would you consider yourself digitally literate?	Do you believe your personal level of digital literacy effects your personal credibility? Is this effect positive or negative or neutral?
It was relatively easy because they did not require much help. The fall of 2020 was much worse when things were hybrid.	No	Yes	Knowing how to navigate the digital world is a skill, but does not make someone any less or more capable of anything else. It was invalidate your credibility if you were meant to be working digitally.
outstanding	yes and no- we all need to learn and adapt as technology is changing all the time. I am turning 26, and I don't think I am as digitally literate as I can be!	fairly	yes! sometimes it does have a negative effect!
Fair	Yes	Yes	Yes, digital literacy is important for this day in age.
awesome!! figured it out quick and rolled with the punches they did	no not at all, but within my digital major i did expect digital literacy amongst my professors	yes	yes only because of my major, in general as a human, no
it was as good as could be expected	I don't think so	to some degree	im not sure
Not great. Many times my classes would be cancelled because my teachers/professors did not understand how to use technology or because zoom would not cooperate.	No, but digital literacy does help them person seem more professional and credible.	I know enough to get me by, but I am working hard to becoming more media/digital literate. I am always willing to learn more!	I do not believe that my lack of digital knowledge determines my credibility. I would say that it depends on the major. If an IT worker did not consider themselves literate, I would most certainly question their credibility. I would not want them working on my laptop.
There were some professors that handled it very well and others that struggled noticeably	Yes, I'm this day and age it's critical for someone to be digitally literate	Yes	Neutral because my generation is expected to knwo and understand technology
6	yes	yes	yes. could go either way
Some of them were way stronger than others (my coms professors were good)	Not really	In some cases, yes	No, you can be credible but not know how to use a computer to the fullest ability
Some were better than others but they all were literate enough to handle it.	No.	Yes.	Yes, mostly because I should be digitally literate to succeed in my major. Neutral.
Better than expected but could be worked on.	No	No	I do not think that it affects my credibility. Neutral.
not terrible - some professors who I wouldn't have guessed to figure it out did, and others who should have didn't try to	sometimes	yes	neutral
It was fine, but many had difficulty learning Teams	Yes	Yes	Yes, I think it has helped efficiency in the classroom
I think they did a good job with all things considered. They communicated well, so I knew the expectations. Everyone was learning the functions of the online platform we used, but they seemed to navigate it pretty well.	I think it depends on the class and the context. If it is a digital or social media class, then yes, absolutely. With some communication classes, though, it is not as relevant.	Yes. While I am not super tech-savvy, I can usually figure out how to use various forms of technology. I know how to research terms online to find answers.	I think this also depends on the context, which may mean a neutral effect. I think an individual can be knowledgeable but unfamiliar with technology. But if it is related to the digital or social media world, then that lack of literacy could make you seem less credible.
My experience, professors adapted pretty well to digital learning while I know it was not ideal.	It definitely felt that way being on the other side. If things took too long to load or get situated digitally it made you check out mentally.	Yes	Yes, positive.

How would you describe the digital literacy of the professors during the period between March-May 2020?	Do you believe an individual's level of digital literacy effects their credibility?	Would you consider yourself digitally literate?	Do you believe your personal level of digital literacy effects your personal credibility? Is this effect positive or negative or neutral?
I would describe their digital literacy as relatively poor. Most of my professors were older and were not super technologically savvy. I believe that over time, they adjusted well, but initially, it was a struggle.	I believe that in today's very technologically advanced world, digital literacy does effect credibility. If someone is trying to teach college students how to be an effective employee in today's world, they themselves need to contain some aspects of digital literacy.	I would say that I am somewhat digitally literate. I understand a lot of the basics and I try to keep up with what is going on in the world technologically.	I believe that it effects my credibility in some areas. As a student, maybe not so much. As a Graduate Student Assistant, I would say that it does effect my credibility more in a positive way because it allows me to relate with my younger students. It also effects me positively in my search for a job in the field of communications because much of this field is now digital.
There was definitely a transition period and a lot of issues at first, but overall I was surprised at how quickly my professors adjusted to visual learning.	I think it depends on the professor and what they teach. If their speciality has nothing to do with technology, I wouldn't expect them to have complete digital literacy. However, a degree like strategic communication deals heavily with technology so a lack of digital literacy leads me to believe that the professors might be a bit outdated for the subject matter.	Yes, but not as naturally as the generation behind me.	Yes, I think being digitally literate makes me look better to employers.
Fairly decent. There were some professors who struggled more than others.	Unfortunately, I do think that in this day and age, it does impact an individual's level or credibility.	Yes	Yes. I do believe that my personal level of digital literacy effects my personal credibility. This is a positive effect.

As a student, how often did you talk to your professors prior to the transition to virtual courses in March 2020? Was this sufficient?	Did the amount of communication between yourself and professors change after the transition to virtual courses? How would you describe this change?	Did you use the available digital communication tools (Blackboard, Microsoft Teams, Email, etc.) to communicate between January-March 2020?
i would communicate with my teachers daily and it was very sufficient and effective	I would say it depended on the day and the assignment. If the assignment was confusing i would communicate multiple times a day. If not i would not talk to them except for turning it in	i used email to communicate
Not too often. Only during class.	It decreased a lot, but it was understandable. It didn't really affect me at the time.	No
Weekly. Yes	Yes. My personal communication became nonexistent. I only attended virtual lectures and completed assignments.	Yes, but only minimally
several times a week, yes.	yes, rather than stopping by their offices for a quick chat and a few questions, I had to send emails that were to the point and wait hours, sometimes days, for an answer.	yes
I would say that I often spoke with my professors prior to the online transition. Being able to converse with them outside of class, yet in a face to face setting was very beneficial.	Yes it did because the physical aspect of our face to face conversations unfortunately ceased. It made class time more crucial to share and talk about any and all questions.	Yes.
I would talk with my professor in-person before, during, or after class.	Yes, I did not ask as many questions once we switched to the virtual courses. It was not as easy to make comments that would the turn into conversations and learning opportunities.	Yes
At least weekly; daily in some cases	Yes - less frequent	Email only

<p>As a student, how often did you talk to your professors prior to the transition to virtual courses in March 2020? Was this sufficient?</p>	<p>Did the amount of communication between yourself and professors change after the transition to virtual courses? How would you describe this change?</p>	<p>Did you use the available digital communication tools (Blackboard, Microsoft Teams, Email, etc.) to communicate between January-March 2020?</p>
<p>I talked with my instructors multiple times per week, which I feel was sufficient for my educational needs.</p>	<p>It certainly did change. For one of my professors, I still spoke with her during class if I had a question, although it was less than before the transition. As for the other professor, I did not have the opportunity to speak with him at all after the transition to online learning.</p>	<p>I only really used email prior to the transition and did not know much about MS Teams.</p>
<p>mainly just during class times.</p>	<p>yes, I felt as if i did not have any personal communication with professors once we went digital.</p>	<p>I had sent a few emails between the beginning portion of the semester but only for clarification.</p>
<p>I would either email or talk to them in person. In person communication was what I normally chose to do because it was sufficient. I was able to communicate all of my thoughts and questions effectively and get them answered in a timely manner.</p>	<p>Yes, I communicated less and participated in class less. No one wanted to communicate over Teams. It was either Email or you did not communicate. Teachers would have to force their class to answer questions and participate through the online forum.</p>	<p>Blackboard and Email only</p>
<p>I rarely met with professors before March 2020</p>	<p>The amount of communication increased because they knew it was unprecedented times and everyone would need extra guidance</p>	<p>Yes</p>
<p>Looking back, I could have reached out to my professors more for guidance</p>	<p>Great question - being quarantined in a sense "encouraged" my slack and binge-watching, which was not conducive for growing relationships. I don't think I was as proactive as I could be.</p>	<p>yes</p>
<p>Every day</p>	<p>Yes, changed to email communication, and lack of professor/student communication in classes.</p>	<p>Yes</p>
<p>very often, everyone is so personable</p>	<p>yes it actually transitioned to more communication</p>	<p>Not Teams ever at all</p>
<p>I talked with them as much as I felt I needed to</p>	<p>it greatly deteriorated.</p>	<p>yes</p>
<p>I emailed them about the same amount. If I had a question about a class discussion or homework then I would email them. It was sufficient.</p>	<p>Personally, the communication between myself and my professors did not change very much. I did receive many more emails from my professors after Covid. Many of my professors reached out and said that they were praying for me. As a freshman, that meant the world because it reminded me that I was not alone. They were trying to figure everything out as well.</p>	<p>I did. I utilized Blackboard, Microsoft teams, and Outlook every day.</p>
<p>A good amount whenever I had questions 1-2 a week</p>	<p>Yes they're were a lot more questions regarding how new things operate</p>	<p>Yes</p>
<p>daily. yes</p>	<p>if anything the way we talked was the only difference</p>	<p>yes</p>
<p>Occasionally</p>	<p>Yes, I had to chat them about assignments a lot</p>	<p>I used email</p>
<p>Often, some every class period. Yes</p>	<p>Yes. Did not speak to them personally at all. Awkward, frustrating, caused less strong relationship.</p>	<p>Yes.</p>
<p>One to two times a week</p>	<p>Yes less accessible through email.</p>	<p>Yes all of the above.</p>
<p>weekly</p>	<p>negative - talked less</p>	<p>not really</p>
<p>Every week, yes</p>	<p>I was less engaged virtually</p>	<p>Yes, except for Teams</p>

<p>As a student, how often did you talk to your professors prior to the transition to virtual courses in March 2020? Was this sufficient?</p>	<p>Did the amount of communication between yourself and professors change after the transition to virtual courses? How would you describe this change?</p>	<p>Did you use the available digital communication tools (Blackboard, Microsoft Teams, Email, etc.) to communicate between January-March 2020?</p>
<p>I might have talked to them once or twice a week when we had class. I believe that was sufficient since they clearly outlined their expectations for assignments.</p>	<p>I would say that it changed because I could not easily approach them as I did in-person. They were responsive over email or video, but it was just not the same. The change was not positive since I could not be with them in-person.</p>	<p>Yes, I used all the platforms during that time.</p>
<p>Not very much, could have had more</p>	<p>It varied. Some were very communicative through the process, others would be much more distant</p>	<p>Yes, very much so. We depended on them.</p>
<p>I probably talked to them 2-3 times per week. Yes I believe that this was sufficient.</p>	<p>Yes the amount of communication changed. I probably only spoke to them once a week through Teams. I believe that this change negatively impacted me as my classes did not feel as relevant to my life once they were online and it was easy to forget about them because I wasn't seeing my professors frequently.</p>	<p>Yes, but not very often.</p>
<p>Most class periods and sometimes outside of class. This was sufficient.</p>	<p>Yes, I did not talk to my professors as often and participated in class way less.</p>	<p>Yes, all of the above.</p>
<p>I definitely talked to them more prior to March 2020 because I was in-person. The virtual setting made it harder to connect with my professors.</p>	<p>Yes. It did change.</p>	<p>Yes, I did.</p>

<p>How would you describe the transition of the course format from face-to-face to virtual in March 2020?</p>
<p>i would say it wasnt as difficult as i thought it would be. now i am used to sending emails out whenever needed and i feel confident to be able to do so formally and informally.</p>
<p>It was difficult.</p>
<p>Very difficult. My changed study environment resulted in poorer grades mid semester.</p>
<p>I am thankful that we could still hold live courses. Online learning was my least favorite time of my college career. I hope that it is not here to stay.</p>
<p>With it being forced and professors and students being forced into an online teaching and learning format, I would say the transition went as well as it could have been for, again, being thrown into it.</p>
<p>The school made the transition very simple and offered the proper resources for understanding the new learning environment.</p>
<p>Challenging and inefficient</p>
<p>It was smooth, although not ideal. Liberty did a great job with making the transition as quickly and smoothly as possible.</p>
<p>I would say professors did the best they could as they even didn't know how long we would be virtual</p>
<p>It was difficult at first but became easier over time. However, I would never willingly choose Teams.</p>
<p>Easy & smooth</p>
<p>The transition was more of a mental, emotional, spiritual, and spiritual one! My academic experience did not hurt much, but it was the aspect of interacting with people face-to-face that virtual classes could not replace. It definitely required more self-discipline and accountability!</p>
<p>Tough, never want to do it again</p>
<p>Learning curve, patience, and positive</p>

How would you describe the transition of the course format from face-to-face to virtual in March 2020?
it was confusing and not explained well
I can tell that some of the online classes I am taking this semester would likely have been residential. In one class, my textbook is virtual even though my class is residential. This is difficult for me because I enjoy having a physical book in my hand that I can write notes in or highlight.
Rough but a good change allowing for more options for learning
varied
It was smooth for the most part
My professors switched over fairly well, but virtual compared to face-to-face was annoying, hard, demotivating, awkward and disappointing.
Challenging. There was a lot of confusion surrounding the transition.
gross
Learning Teams was hard
The transition had a lot of kinks to work out. It was able to be done but it was a pain. I was able to complete my assignments without an issue, but I missed the collaboration that I had before in-person. I just did not feel connected to my peers or faculty.
Bumpy, but it mostly just got tiring and old quickly.
I would describe the transition as negative at first, but with improvements later on in the semester. The initial transition was very chaotic and confusing.
The online format was much more detailed and organized.
At first it felt very hectic and "thrown together." I didn't feel like I was learning as much as I would have been if I were in-person.

Appendix C

Professor Responses Q1-Q17

Respondent ID	Role: What is your academic role at the university?	Department: With which department are you associated?	Gender:	Age: What is your age?	Education: What is the highest degree or level of school you have completed? If currently enrolled, highest degree received.	Ethnicity: Please specify your ethnicity.
	Response	Response	Open-Ended Response	Response	Response	Response
12464761393	Professor	Psychology	Female	65+	Doctoral degree	White or Caucasian
12463699650	Professor	Psychology	Male	45-55	Doctoral degree	White or Caucasian
12463609964	Professor	Psychology	Female	65+	Doctoral degree	White or Caucasian
12439384297	Professor	Communications and the Arts	Female	55-65	Master's degree	White or Caucasian
12439284256	Professor	Communications and the Arts	Male	65+	Doctoral degree	White or Caucasian
12438891601	Professor	Communications and the Arts	Female	25-35	Master's degree	White or Caucasian
12438837402	Professor	Communications and the Arts	Female	25-35	Master's degree	White or Caucasian
12420946583	Professor	Communications and the Arts	Female	45-55	Doctoral degree	White or Caucasian
12420511951	Professor	Communications and the Arts	Male	55-65	Doctoral degree	White or Caucasian

How would you describe your university academic experience, whether learning or teaching, between January and March 2020?	How would you describe your university academic experience, whether learning or teaching, between March and May 2020?	Did you feel that the events of March 2020 impacted your academic experience in a positive or negative way? Explain.
Increasingly uneasy due to the changing news and conditions.	Much more complicated by the need to produce the courses for in-person and Teams students.	Generally negative; the only positive is that it was better to have contact with the students than no contact, and the virtual classes offered options that can benefit some students ongoing.
Good	challenging	Depends - it presented unexpected challenges, but these challenges can provide growth opportunities.
Much different; I miss more direct person to person interaction with my students.	Better because I had become more comfortable with the "new" way of teaching. However, I still miss more person to person interaction. It's harder to hear my students with masks on!	Negative as mentioned previously. Not to an extreme, but still less than optimal.
good, stable, effective	unpredictable, labored	negative; isolation, figuring out how to teach same material in a different format; stressful
Busy but Manageable	Turbulent	Negative

How would you describe your university academic experience, whether learning or teaching, between January and March 2020?	How would you describe your university academic experience, whether learning or teaching, between March and May 2020?	Did you feel that the events of March 2020 impacted your academic experience in a positive or negative way? Explain.
Everything seemed normal during that time.	We were thrown for a loop when COVID hit and we went all virtual, but we learned to adjust. It was difficult at first, but then I ended up learning some new ideas and tools that I still use now that we are back in person.	The events at first impacted us negatively, in the sense that we could no longer teach in person. However, some positive effects did come out of the transition, such as safety and learning new tools.
Normal, productive and engaging.	Challenging. I could not connect with my students as well virtually.	Both. It was challenging but taught me a lot about technology and virtual teaching practices.
Comfortable	Challenging	Negative. I believe the stress associated with the changing of platforms impacted me personally and also impacted the way in which I work and teach as I had far more to do than a normal day would allow.
Excellent.	Mediocre.	Negative -- the loss of real, face-to-face, classroom time was terrible.

How would you describe the digital literacy of the students during the period between March-May 2020?	Do you believe an individual's level of digital literacy affects their credibility?	Would you consider yourself digitally literate?	Do you believe your personal level of digital literacy affects your personal credibility? Is this effect positive or negative or neutral?
Most were quite capable of transferring to virtual learning, but the motivation for involvement was decreased.	An individual's level of digital literacy affects the extra cognitive load in virtual learning.	Moderately digitally literate--I can navigate the programs adequately, but correcting a digital problem interferes with content presentation and with class time efficiency.	My personal level of digital literacy has been adequate, so that it seems not to have affected my students negatively or produced any negative credibility.
Students are familiar with "apps". However, the aspect of deeper levels of computer programming and development has not been formulated in students.	No - it may impact their effectiveness.	Yes - in varying degrees	It aids in providing help to those around me.
Much better. They were more familiar with Teams and with Canvas.	Yes.	Yes now; it has been a work in progress.	I would say positive I'm getting better.
good, better than mine	yes	somewhat	negative
Good	Yes	Somewhat - Average	Yes - negative at this point
Personally & socially, students are very digitally literate. They seem less so when it comes to academic matters; however, I think this may be because it is "less fun" or there is less desire to learn the inner workings of the campus library website than to learn how to make a Tik Tok video. Most students caught on to the new virtual format quickly and seemed to be doing fine.	Yes.	It depends on the context. I would say I have the digital literacy I need to complete my job, but I am less digitally literate when it comes to keeping up with social media trends.	Yes. For me I would like to say neutral - I'm not overly impressive, but I feel I have basic skills I need to teach.

How would you describe the digital literacy of the students during the period between March-May 2020?	Do you believe an individual's level of digital literacy affects their credibility?	Would you consider yourself digitally literate?	Do you believe your personal level of digital literacy affects your personal credibility? Is this effect positive or negative or neutral?
Moderate but it improved very quickly.	Yes absolutely!	Not completely but for the most part yes.	Yes! And I think neutral. At times I feel I'm unsure how other people do things. If a teacher has a more effective way of using technology I wonder if students think I'm lacking proficiency when I may feel positive (or neutral).
The majority of students had no issues with the change of platform. Some did, but they were the minority. However, in situations where you are responsible for ALL learning, even having a few that are not catching on can be time consuming, frustrating, and detrimental to the class as a whole.	In many cases but not always. I believe that when someone is an expert in the spoken word for instance, their credibility would be much less affected by a lack of literacy than someone who claims marketing or social media as an area of expertise.	Yes.	Yes. I believe it is mostly neutral as I'm expected to be able to create and supply digital materials but I am not supposed to be an expert. I believe my skill set is about what someone would expect it to be in my position so it neither helps nor hurts me.
Fair -- good enough to log into Teams, at least.	Only if they are asserting credibility in the digital realm.	Yes.	Possibly -- since education has become inextricably intertwined with software, if I cannot operate the half-dozen or so systems I need to for classes, the students may assume I don't know my subject either.

As a professor, how often did you talk to individual students prior to the transition to virtual courses in March 2020? Was this sufficient?	Did the amount of communication between yourself and students change after the transition to virtual courses? How would you describe this change?	Did you use the available digital communication tools (Blackboard, Microsoft Teams, Email, etc.) to communicate between January-March 2020?
I talked to students in classrooms, in my office, in email and text many times through most days.	There is decreased communication, since students seem less likely to participate verbally in classes because of mask interference with speech understanding. During the virtual-only classes, there was only electronic communication possible and I exchanged many emails with students.	Yes, I have always had frequent communication with students who are interested or willing to communicate.
Regularly	Casual conversations were limited as communication moved to digital formats.	Yes, when the communication was intended to be professional.
Often and yes I would say sufficient.	Yes; virtual communication is not the same as face to face communication.	Yes.
frequently; yes, was sufficient	yes; less contact/access	yes, used all
6 students per week on average	0 students per week - Bad change	Yes
As often as they needed. I always think some students need to ask for more individual help/conversations.	I had no communication face to face and a few virtual video meetings. I do think this negatively impacted communication, as it was not as easy to have verbal explanatory conversations with students who had questions. Primarily students would communicate over email or Teams chat.	Yes - Blackboard, Teams, & email.
Every day - every two days. Constant communication. It was enough.	Yes, the ability to talk 1-1 was challenging but TEAMS helped. As well, I already had relationships built.	Only email and blackboard
Frequently. Yes.	Obviously there was less face-to-face interaction but I believe I spoke with students just as much, if not more, after the transition, just in a different format.	Yes.
At least daily, which seems sufficient.	Yes, it went down.	I used Blackboard for class wide announcements.

How would you describe the transition of the course format from face-to-face to virtual in March 2020?
Open-Ended Response
Students attended synchronous class sessions regularly, but there was much less interaction student-student or students to me. I encouraged the Chat feature and occasional use of camera/mic to talk.
Challenging as it presented hurdles for both faculty and students. However, the resilience of both faculty and students allowed an eventual successful navigation of the challenge.
Good but again less than optimal.
building the airplane while we tried to fly it
It decreased.
At first it was a little rocky as we adjusted, but it didn't take too long to get used to the new format. I did my best to deliver as close to the same content and opportunity as possible and learned some new tools to engage students over Teams, but there is definitely less (quantity and accuracy of) communication overall in the virtual format.
Not terrible. I adjusted as I went along and felt better as time went on. Class discussion was a challenge.
While the transition was not difficult for me personally, as a supervisor, it was difficult with regards to assisting, managing, and training others who struggled with the transition.
Hurried, obviously, but not quite as rough as it might have been.