ASYNCHRONOUS VIDEO AND THE DEVELOPMENT OF INSTRUCTOR SOCIAL PRESENCE AND STUDENT ENGAGEMENT

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ABSTRACT

Enrollment in online learning continues to grow in the higher education sector, along with persistent goals dedicated to achieving better student outcomes and lowering attrition rates. Improved student engagement has been shown to possibly reduce attrition rates through a greater sense of connectedness and decreased feelings of isolation among online learners. Instructor social presence may be the most important factor in building the relationships that foster learning and retention. Through communication, the instructor conveys the necessary immediacy behaviors required to cultivate these interpersonal relationships. With improved technology that allows for enhanced communication in online classrooms, the use of asynchronous video may be an effective way to improve instructor social presence and student engagement. This quasi-experimental design aimed to determine whether asynchronous video or text-based communication increased students' perceptions of instructor social presence and student engagement in an online graduate classroom. Significance was found for student engagement based on the number of discussion posts and length of discussion posts. Students in the group who received text-based communication demonstrated increased student engagement in voluntary discussion boards as opposed to students in the group who received asynchronous video. There was no significant difference found for instructor social presence between the two groups.

Keywords: Video, engagement, instructor social presence, online learning.

INTRODUCTION

Online learning is an increasingly popular mode of delivery for students in today's higher education landscape. More than 25% of higher education students participate in at least one online course, and despite an overall decrease in higher education enrollments, online education enrollments continue to grow (Allen, Seaman, Poulin, & Straut, 2016). Regardless of evidence that student performance outcomes are similar between face-to-face and online education delivery, perceptions of the effectiveness of online learning have recently declined (Allen et al., 2016). Faculty remain skeptical about the usefulness of online education for providing quality learning experiences (Allen et al., 2016). Online learning creates an atmosphere which allows for greater access to education by reducing the barriers of time and place, but it also changes the ability of peers and instructors to support each other through face-to-face interactions (O'Shea, Stone, & Delahunty, 2015). Text-based communication and the typically asynchronous nature of online learning can create feelings of disconnect or a transactional distance between students and instructors (Byrd, 2016; Estes, 2016). This transactional distance has been shown to reduce student engagement, which is a major predictor of student retention, and an area of concern for higher education institutions that offer online courses (Byrd, 2016; Estes, 2016).

Higher education institutions struggle to improve student retention as student enrollment grows and the demand for positive student outcomes increase. Specifically, online education reportedly has higher attrition rates than traditional face-to-face classes (Xu & Jaggars, 2014). Allen et al. (2016) found that administrators of higher education institutions felt that student attrition in online courses was a significantly larger problem than in face-to-face courses. Students chose to drop out of courses for a variety of reasons, though in the online learning environment, feelings of isolation caused by a lack of interaction with others, was a primary cause (Ali & Smith, 2015; Bowers & Kumar, 2015; McMahon, 2013).

Feelings of isolation seem to pervade online learning and may be caused by a lack of interpersonal relationships with peers and faculty (Bowers & Kumar, 2015; McMahon, 2013). This lack of relationships leads to a perceived disconnection from the learning community (Bowers & Kumar, 2015; McMahon, 2013). Weiss (2000) asserted that through interpersonal relationships, the online learning environment becomes humanized, and allows students to feel they are connecting with real people behind the computer screen. Establishing humanity in an online course may help students feel committed to their learning and encourages them to engage in classroom activities (Weiss, 2000). Student engagement may be the most important method for increasing student retention in online courses (Angelino, Williams, & Natvig, 2007; Tinto, 1997).

While challenging to define, student engagement may be thought of as the cognitive, emotional, and behavioral effort students put into a course, as measured by their time, participation, feelings, and communication with instructors and peers (Dixson, 2015). Engagement requires students to take an active role in the learning process and be deliberate in the development of knowledge (Pittaway, 2012). Understanding student engagement is paramount as new educational policies push more people to enter secondary education. At the same time, millions of students have dropped out of programs or require significant remediation (Lawson & Lawson, 2013).

The important role of the instructor in facilitating and encouraging student engagement must be addressed when developing an online course. Chickering and Gamson (1987) established contact between students and faculty as one of the main principles for good practice in higher education. The social interaction between instructors and students, developed by instructor social presence, creates a meaningful sense of classroom community which leads to improved engagement and decreased attrition (Bowers & Kumar, 2015). Instructor

social presence may increase student engagement in the classroom through fostering group cohesion, affective expression, and open communication, as described in the Community of Inquiry (COI) framework (Garrison, Anderson, & Archer, 2000). To positively impact engagement and retention issues, it is essential to understand the methods for improving instructor social presence in an online classroom.

Through improvements in technology, such as the use of video, instructor social presence may be easier to convey than in the earlier years of online education delivery. Using text-based communication, instructors may rely on the use of emoticons, humor, and addressing students by name to improve their perceptions of instructor social presence (Garrison et al., 2000). Verbal forms of teacher immediacy behaviors, such as facial expressions, body language, and vocal inflections, are not easily conveyed through text-based communication, yet they are essential for motivating students to participate (Estepp & Roberts, 2015; Mehrabian, 1971). Video technology may be an essential tool for developing students' perceptions of instructor social presence because of the opportunity for instructors to convey both verbal and non-verbal instructor immediacy behaviors (Borup, Graham, & Velasquez, 2011; Griffiths & Graham, 2009; Ice, Curtis, Phillips, & Wells, 2007). As online learning grows in popularity, it is important to understand the ability of asynchronous video technology to improve instructor social presence, which may lead to improved student engagement and retention.

The problem this study addressed is the challenge of using educational technology to improve student engagement in an online course. Engaging students in online courses has been shown to improve student retention, which is a major area of concern for online learning programs (Allen & Seaman, 2014; Atchley, Wingenbach, & Akers, 2013; Pazzaglia, Clements, Lavigne, & Stafford, 2016). Institutions are developing more online learning opportunities, and students are gravitating towards those options for many of their educational needs, despite continued concern about retention (Allen & Seaman, 2014; Xu & Jaggars, 2014). Online courses tend to be attractive options for non-traditional students who may not respond to the same teaching techniques as traditional students (O'Shea, Stone, & Delahunty, 2015; Tilley, 2014). Understanding mechanisms to improve student retention in online classrooms and support the growing population of non-traditional students, is important for improving outcomes in online education.

Institutions need to understand factors that contribute to student retention and how to improve the aspects of online learning that impact student success, including student engagement (Dixson, 2010, 2015; Tinto, 1997). The social interaction between the student and instructor may be the most important factor influencing student engagement (Ma, Han, Yang, & Cheng, 2015; Zepke, Leach, & Butler, 2010). It has been suggested that instructor social presence may be a significant predictor of improved student engagement through its influence on the development of the instructor-student relationship (Ma et al., 2015; Phirangee, Epp, & Hewitt, 2016). Prior research on the role of the instructor in promoting student engagement focused on the development of a sense of community, methods for communicating with students, and the general importance of communication between instructors and students (Bowers & Kumar, 2015; Byrd, 2016; King, 2014; Tomas, Lasen, Field, & Skamp, 2015). A substantial correlation between the instructor's role and student engagement was found (Byrd, 2016; Glazier, 2016; Phirangee et al., 2016). Several researchers developed the assumption that this correlation was a result of the instructor's social presence. However, instructor social presence as the predominate construct influencing student engagement has not been formally researched (Bowers & Kumar, 2015; Glazier, 2016; Swan & Shih, 2005). Methods for utilizing technology, such as asynchronous video, used to increase the student's perceptions of instructor social presence and student engagement, has been limited as well (Borup, West, Thomas, & Graham, 2014; Glazier, 2016; Kushnir & Berry, 2014). Therefore, this research study

addressed the effect of asynchronous video versus text-based communication on students' perceptions of instructor social presence and the impact on student engagement in the online learning environment.

The purpose of this quasi-experimental quantitative study was to determine the effect of asynchronous video, as compared to text-based communication, on student perceptions of instructor social presence and student engagement in an online graduate course. Student retention in online classes is a growing concern in higher education, and increasing student engagement may be a way to address this problem (Allen, Seaman, Poulin, & Straut, 2016). Through facilitation of instructor social presence using asynchronous video and text-based communication in an online graduate course, instructors may be able to increase student engagement and thus reduce attrition.

THEORETICAL FRAMEWORK

Instructor social presence is a relatively new construct based on the Community of Inquiry (COI) framework originally described by Garrison, Anderson, and Archer (2000), which indicated that social, cognitive and teaching presence were essential components of the educational experience.

Teaching presence and social presence are descriptions of two pieces of an educational environment that interact with one another to enable learning to occur by setting the climate for discourse and interpersonal communication (Garrison et al., 2000). Within this framework, the roles of the teachers and students are outlined as interconnected components which, along with the communication medium, are important to the overall success of the learning experience.

Social presence refers to the ability of students and teachers to be perceived as "real" by demonstrating their personalities and other characteristics to the community (Garrison et al., 2000). Social presence builds on the collaborative constructivist learning theory, which also posits that learning occurs when there is collaboration and social interaction to facilitate the building of knowledge (Swan, Garrison, & Richardson, 2009). Short, Williams, and Christie (1976) believed social presence was a direct result of the quality of communication, and that the perceived level of social presence would vary depending on the media used. The quality of communication and degree of social presence depended largely on whether immediacy behaviors could be conveyed appropriately. The ability of others to perceive non-verbal immediacy behaviors varies according to the mode of communication used, including text and video, and is critical to the development of interpersonal relationships between the instructor and student (Borup, Graham, & Velasquez, 2011; Borup, West, & Graham, 2012).

Teaching presence was described by Garrison et al. (2000) as including "instructional management, building understanding, and direct instruction" (p. 24) that occurs within a course. The role of teaching presence in facilitating discourse is noted in the literature. Teaching must also include a high level of social presence in order to have the intended effect on student learning (Garrison et al., 2000; Lowenthal, 2016). The role of teaching presence is to encourage, acknowledge, reinforce and guide the educational process through reflection, assessment, and feedback. Some examples of teaching presence include structuring content, sharing personal values, and answering questions (Garrison et al., 2000). In an online course, clear communication and prompt feedback from instructors are valuable components of teaching presence that increase student satisfaction and improve student outcomes (Richardson et al., 2015).

There is a clear indication that the instructor's role in social presence is important to the learning experience and that the teaching presence alone does not fully describe the student-teacher interaction that creates student engagement (Lowenthal, 2016; Pollard, Minor, & Swanson, 2014; Swan et al., 2009). The construct of instructor social presence has been developed to describe the overlap between teaching presence and social presence that is essential to online learning (Lowenthal, 2016; Richardson et al., 2015). Instructor social presence includes instructor attributes conveyed in a course that go beyond the structural organization and execution of the content (Sheridan & Kelly, 2010). This includes the way an instructor "positions him/herself socially and pedagogically in an online community" (Richardson et al., 2015, p. 259). Instructor social presence may significantly alter the student's experience of the course, which then impacts their engagement and their likelihood to persist.

Kahu's (2013) framework of student engagement also points to the importance of instructor social presence as a predicting factor in the development of student. Within his framework, Kahu (2013) explained the complicated nature of student engagement as it manifests itself in affective, cognitive, and behavioral ways within a course. Significant for this study is the emphasis on interaction and participation as behavioral components of engagement, as well as the affective manifestations of interest and enthusiasm. Previous studies have looked at the amount or depth (interaction and participation) of discussion board posts to measure student engagement, but have not done so using voluntary discussions (Draus, Curran, & Trempus, 2014). Voluntary discussions require students to go beyond the requirements of the class, and in turn, allow them to demonstrate interest and enthusiasm for the course.

Kahu (2013)'s framework illustrated the relationship between the communication medium (structural influences), the instructor-student relationship (psychosocial influences) and the effect of both on student engagement. The framework explored the consequences of student engagement which included retention as a distant result. This model implied a direct link between communication medium, instructor-student relationships, and student engagement, based on available literature. However, this relationship has not been explicitly researched and the role of instructor social presence on the development of the instructor-student relationship has not been fully addressed (Kahu, 2013).

Asynchronous video may be one way to use technology for improving student engagement by increasing students' perceptions of instructor social presence. Online learning is criticized for its lack of humanization, or the inability of faculty and peers to perceive each other as real, without the audio and kinesthetic clues afforded by face-to-face interaction (Weiss, 2000). Humanization is similar to the construct of social presence, which is the ability of participants in the learning environment to present themselves as real individuals during communication (Garrison et al., 2000; Weiss, 2000). The ability of asynchronous video to convey the verbal and non-verbal immediacy cues necessary to create closeness and increase social presence is indicated in the literature (Borup et al., 2011, 2012, 2014). The online education environment requires students to have increased self-direction and independent learning skills, which can be challenging for students who are not prepared (Xu & Jaggars, 2014). The use of asynchronous video to create a connection between students and instructors through instructor social presence may increase student engagement.

In most online learning literature the role of the instructor in the online class has been minimized secondary to the establishment of social interactions between peers (Lowenthal, 2016). More recently, the focus of education research has shifted back to the importance of online instructors, and their role in facilitating the learning process, engaging students, and increasing student satisfaction (Estes, 2016; Ma et al., 2015). Phirangee et al.

(2016) suggested that the instructor-student relationship may be paramount to the development of a sense of community in online learning, and the biggest influence on student participation. Instructor social presence may be even more important than peer-to-peer social presence for influencing student participation and overall student success (Phirangee et al., 2016). Chickering and Gamson (1987) described the principles of good practice in higher education teaching, which included the importance of instructor-student interaction. These principles, though originally developed for face-to-face teaching, have been widely implemented in online education (Oncu & Cakir, 2011). Developing instructor-student communication is essential to student motivation and involvement in the learning process (Chickering & Gamson, 1987).

Imperative to the development of the student-teacher relationship is the instructor's use of social presence to create an atmosphere of open communication, group cohesion, and effective expression, as defined by the COI framework (Garrison, Anderson, & Archer, 2010; Pollard et al., 2014). Through instructor social presence, humanization of the instructor allows students to develop a deeper connection to the learning community and feel motivated by their interactions with a real individual (Estepp & Roberts, 2015; Glazier, 2016; Griffiths & Graham, 2009; Weiss, 2000). The ability of asynchronous video to convey verbal and non-verbal immediacy behaviors creates a greater sense of community, and may allow for a better expression of instructor social presence (Estepp & Roberts, 2015; Griffiths & Graham, 2009). Instructor social presence is often cited as the potential mediating factor between the use of asynchronous video and student engagement, but a direct investigation into this connection does not exist (Glazier, 2016; Mcdowell, 2011; Tomas et al., 2015; Zak, 2015). Additionally, the development of instructor social presence by asynchronous video has been qualitatively established in the literature, but it has not been supported by quantitative data (Borup et al., 2014). A quantitative study regarding the ability of asynchronous video to enhance instructor social presence and student engagement in an online class is necessary for the development of online teaching andragogy.

Understanding the influence of asynchronous video on students' perceptions of instructor social presence may help online and blended format instructors facilitate the necessary student-teacher relationships to build a sense of classroom community, and encourage student engagement (Borup et al., 2014; Glazier, 2016). Examining the historical foundations of online learning and adult learning theory demonstrates the evolution of online instruction and the usefulness of technology to improve andragogy and student outcomes. Through the lens of the previously established COI framework and Kahu's Student Engagement framework, an underlying connection between the communication medium, instructor social presence, and student engagement can be viewed. Research suggested a significant relationship between the role of the instructor and student engagement in an online classroom, along with the important long-term consequences of student retention based on student engagement levels (Bowers & Kumar, 2015). While the role of the instructor has been verified, the way in which that role is established is less clear (Lowenthal, 2016; Pollard et al., 2014). Indications from the literature suggested that instructor social presence may be a significant factor in student engagement (Borup et al., 2014). Understanding the relationship between instructor social presence and student engagement, and the utilization of asynchronous video for developing both in an online course, may be critical to the future of online learning and should be further explored.

RESEARCH METHODS

The researcher chose a nonequivalent group, post-test, quasi-experimental, quantitative design. Prior research on the variables of asynchronous video, instructor social presence, and student engagement, have been primarily based on qualitative and mixed-methods designs. Specifically, Borup et al. (2014) indicated that quantitative data in the study did not suggest a significant impact of asynchronous video on instructor social presence.

However, qualitative data implied there was a significant effect. Most studies on the implications of asynchronous video on student engagement have been mixed or qualitative in nature.

Apart from Draus et al. (2014) which used count data of student discussion posts to measure student engagement and found a significant difference indicating asynchronous video may increase student engagement, studies have relied on student qualitative responses, coding of discussion posts, and self-report surveys to measure engagement (Dixson, 2015). Unique to this study was the emphasis on quantitative data to support or refute the qualitative findings and assumptions from past research, which concluded that instructor social presence may be a mediating factor between the positive effects of asynchronous video on student engagement (Borup et al., 2012; Bowers & Kumar, 2015; Ma et al., 2015).

One experimental group received twice weekly video-based, instructor-generated announcements, and one control group received twice weekly, text-based, instructor-generated announcements, through the learning management software (LMS) over a 10-week period. In all groups, the dependent variable of instructor social presence was measured through a Likert scale electronic survey, and the dependent variable of student engagement was measured by the number and length of student posts, on voluntary weekly discussion forums. Data was analyzed using a multivariate analysis of variance (MANOVA) statistical test.

Population
The population of interest included online graduate students enrolled in one of two sections of a Masters of Occupational Therapy (MOT) course during the spring 2017 term. Student background information was not accounted for in this study and may be a delimitation of the research. All students in this population were first-term students enrolled at the St. Augustine, Florida campus in either the campus-based program (Group A) or Flex program (Group B). The Flex program required students to take their didactic coursework online during the week and attend labs on weekends. Both the campus-based and Flex programs required students to take blended and fully online courses; the proportion of fully online and blended learning is higher in the Flex program than the campus-based program. All participants met the admissions criteria for the institution before enrolling in the course. Learners were automatically enrolled in the section of the course that corresponded with their program delivery format, campus-based (Group A) and Flex (Group B).

The Flex program closely models an online program, and thus tends to attract more non-traditional students. While demographic data was not collected for this study, research has indicated that students who enroll in the online programs tend to be non-traditional students (Xu & Jaggars, 2013). These students are usually older, and have non-academic responsibilities such as work or family (Ortagus, 2017; Xu & Jaggars, 2013). The inherent differences between the Flex and campus students was a limitation of this study and may be a confounding variable that was not accounted for in the research. Participants were required to be enrolled for the first time at the University of St. Augustine.

Sample
A total of 39 students provided consent to participate in the study. Twenty-nine campus-based students and 10 Flex-based students consented to participate in the research. This study had a high dropout rate in the campus-based section of the course. Sixteen participants, or 55%, of the students from the campus program did not participate in any portion of the research and were dropped from the study due to non-participation. One participant from the Flex program did not participate and was dropped from the study due to non-participation.

Materials

All participants took part in the course through the LMS Blackboard system. The instructor utilized video recording software and embedded the bi-weekly videos directly into the course announcement page to prevent students from having to access a separate website to obtain the information. Other course content, including readings, assignments, audio presentations, and text-based information, was presented in the same way to both cohorts through the coursework and unit tabs within the LMS platform. This content, including the audio presentations, was developed by instructors not involved in the current course. Voluntary discussions took place within the LMS course. Students were required to have access to a computer to participate in the course.

Data Collection and Analysis

All willing participants were asked to return the signed consent form after all questions had been addressed, if they chose to participate. While all students received the experimental or control condition, only those who consented to participate in the study received an electronic Instructor Social Presence scale through SurveyMonkey during Week 10 of the course. Also, only those who consented to participate had their voluntary discussion forum posts counted during Week 10 of the course. SurveyMonkey was chosen for electronic delivery of the Instructor Social Presence scale as it allowed for participant convenience in completing the survey. The Instructor Social Presence scale is part of a larger instrument designed, tested, and used by the original researchers, Pollard, Minor, and Swanson (2014). The instructor social presence section of the instrument has established internal consistency (Cronbach's alpha of .93) across the items measuring this construct.

Total number and length of voluntary discussion board posts were collected for each unit in which the independent variables were presented to students. The number of posts and length of posts, measured by character count, are valid measures of student engagement based on engagement frameworks utilized to inform this study and previous research on student engagement in online courses (Dixon, 2015; Kahu, 2013). The researcher tested the data through a one-way, between-subjects MANOVA. There were two dependent variables, instructor social presence which is an ordinal variable, and student engagement, which was measured in two ways and provided ratio data.

FINDINGS

Prior to conducting the analysis, the data was examined to determine whether there was any missing data due to the limitations of MANOVA. Out of N = 36, only N = 22 were useable for the MANOVA tests due to missing values on the instructor social presence and student engagement measures. Group A had 13 participants and Group B had 9 participants. The primary data missing was the Instructor Social Presence survey. Missing data would have needed to be replaced with a zero, which was not a mathematical possibility based on the scale of the survey and would have skewed the data. Fortunately, according to G-Power analysis, only N = 22 was necessary to achieve a power of .80, and an alpha of .05.

Preliminary MANOVA assumption testing was conducted to check for multivariate normality and homogeneity of covariance. Due to the small sample size, a few of the assumptions of the MANOVA were not supported. These included normality, which was tested using the Kolmogorov-Smirnov Test, Homogeneity of covariance matrices, using Box's Test, and equality of error variances using Levene's Test. The number of student posts for Group A, $D(13)$ = .453, p = .000, the length of student posts for Group A, $D(13)$ = .451, p = .000, and the length of student posts for Group B, $D(9)$ = .333, p = .005, were statistically significant for the test of normality indicating that they violated the assumption of normality for the MANOVA. The Box's Test was also significant, p = .004, indicating that the data did not meet the homogeneity of covariance matrices.

Based on the Levene's Test, equality of error variances was rejected for the number of student postings, F = 16.829, p = .001, and length of student posting, F = 15.620, p = .001.

RESULTS

The multivariate result was significant for type of communication, Pillai's Trace = .411, F = 4.185, df = (3,18), p = .021, η_2 = .411, indicating a difference in the level of student engagement and instructor social presence between those who received asynchronous video and those who received text-based communication. Table 1 shows the univariate analysis for each of the variables in the current study.

Table 1. Summative Analysis of Univariate Statistics

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.
Type of Communication	Number of Posts	79.724[a]	1	79.724	11.132	.003
	Length of Posts	26670460.030[b]	1	26670460.030	7.636	.012
	ISP Score	34.732[c]	1	34.732	2.410	.136

a. R squared = .358 b. R squared = .276 c. R squared = .108

After analysis of the data, a significant difference in student engagement for NP and LP was found, based on type of communication. Since the assumptions of the MANOVA were not fully met, the researcher conducted a Kruskal-Wallis test to validate the findings. Table 2 depicts the findings from the Kruskal-Wallis test.

Table 2. Kruskal-Wallis Summative Analysis

Test Data	Number of Posts	Length of Posts	ISP Score
Chi-Square	9.476	8.352	1.921
df	1	1	1
Asymp. Sig.	.002	.004	.166
Exact Sig.	.001	.003	.175
Point Probability	.000	.001	.011

After analysis of the data, a significant difference for student engagement was found based on the exact significance for NP and LP. A MANOVA was run for type of communication, and no statistically significant differences in student perceptions of instructor social presence were found, F (3, 18) = 2.410, p = .136. A Kruskal-Wallis test was run for type of communication, and no statistically significant differences in student perceptions of instructor social presence were found, χ^2 (1) = 1.921, p = .175. The researcher concluded that there was no significant difference in the use of asynchronous video on student perceptions of instructor social presence.

The amount of student engagement was measured using number of student posts and length of student posts, calculated by character counts without spaces, in a voluntary discussion board. A MANOVA was run for student engagement based on NP. There was a statistically significant difference in the number of discussion posts based on type of communication, F (3, 18) = 11.132, p = .003. Analysis of the Kruskal-Wallis data indicated that a statistically significant difference existed for NP based on communication type, χ^2 (1) = 9.476, p = .001. The

MANOVA follow-up tests in Table 3 showed that the group who received text-based communication produced the highest mean number of discussion posts (4.333).

Table 3. MANOVA Results for Dependent Variables Based on the Type of Communication and Number of Discussion Posts

Dependent Variable	Type of Communication	N	Mean	Std. Error	95% Confidence Interval	
					Lower Bound	Upper Bound
Number of Posts	Asynchronous Video	13	.462	.742	-1.087	2.010
	Text-based	9	4.333	.892	2.473	6.194

After the data was analyzed, the researcher concluded that there was a significant difference in the number of discussion posts based on the type of communication. A MANOVA was run for student engagement based on LP, and it was found a statistically significant difference was found in the length of discussion posts based on type of communication, $F_{(3, 18)} = 7.636$, $p = .012$. Analysis of the Kruskal-Wallis data indicated that a statistically significant difference existed for LP based on communication type, $\chi^2(1) = 8.352$, $p = .003$. The MANOVA follow-up tests in Table 4 indicated that the group who received text-based communication produced the highest mean length of discussion posts (2661.333).

Table 4. MANOVA Results for Dependent Variables Based on the Type of Communication and Length of Discussion Posts

Dependent Variable	Type of Communication	N	Mean	Std. Error	95% Confidence Interval	
					Lower Bound	Upper Bound
Length of Posts	Asynchronous Video	13	421.923	518.342	-659.318	1503.165
	Text-based	9	2661.333	622.969	1361.843	3960.824

After the data was analyzed, the researcher concluded that there was a significant difference in the length of discussion posts based on the type of communication with the student. The researcher was able to determine that there is a statistically significant difference in student engagement based on the instructor's use of asynchronous video.

A Spearman's rho test was performed on the individual items of the Instructor Social Presence survey to determine if any differences between individual survey items occurred based on type of communication, which may help explain the unique study findings. One of the ten items did indicate a significant correlation between item and type of communication, $r_s = .469$, $p = .028$. Type of communication was significantly correlated to the item "my instructor creates an attitude of sharing" (Pollard et al., 2014, p.9). Upon further analysis, it appears that those in the text-based group indicated a higher level of perceived *attitude of sharing* than those in

the asynchronous video group (M = 4.778, M = 4.231). No other correlations were significant between type of communication and items on the Instructor Social Presence survey

CONCLUSION AND DISCUSSION

Previous research has investigated the use of asynchronous video, separately identifying a potential increase in student perceptions of instructor social presence and student engagement in an online or hybrid course (Borup et al., 2014; Draus et al., 2014). Positive findings for improved student outcomes when using asynchronous video have primarily been based on qualitative comments from students (Borup et al., 2011, 2012, 2014). As student retention issues in online education continue to be a concern for institutions (Allen & Seaman, 2014; McMahon, 2013), there is a need to determine whether asynchronous video is an appropriate method for impacting student engagement. Further understanding the complexity of the interaction between asynchronous video, instructor social presence, and student engagement is important.

The previous research has indicated a positive relationship between the use of asynchronous video and student engagement, with an assumption that the improvement in student engagement was due to increased instructor social presence afforded by the technology (Borup et al., 2014; Kushnir & Berry, 2014; Mcdowell, 2011). These assumptions were made based on student comments, and the idea that asynchronous video increases humanization of an online course through the conveyance of immediacy behaviors. In turn, these immediacy behaviors can increase a student's sense of community and therefore student engagement (Baker, 2010; Borup et al., 2011, 2014; Bowers & Kumar, 2015; Glazier, 2016; Weiss, 2000). Direct investigation into this concept has not been conducted and is worthy of investigation. Borup et al. (2014) identified the need for further investigation into the connection between asynchronous video and instructor social presence, along with the impact of both on student outcomes. This research should be conducted with additional quantitative analysis, in an online classroom. The present study investigated the use of asynchronous video as a method of communication to increase instructor social presence in an online class and improve student engagement through quantitative means.

In an online classroom, it is important for students to perceive their instructors as real people in order to create the sense of community needed to improve the educational experience (Arbaugh et al., 2008; Lowenthal, 2016; Pollard et al., 2014). Determining how to effectively display instructor social presence to online learners is essential to building classroom community. As a result, students will benefit from the improved student engagement that develops because of the feelings of connection and support (Borup et al., 2014; Lowenthal, 2016; Richardson et al., 2015). Borup et al. (2014) indicated that through instructor and student comments, increased instructor social presence was conveyed through the use of asynchronous video better than through text-based communication. This finding was not supported through quantitative analysis however, and the researchers indicated that the lack of quantitative findings were due to the blended format of the course. Through data analysis the present study confirmed that no statistically significant difference could be determined for instructor social presence based on the type of communication students received, despite conducting the study in a fully online course. The present study only focused on quantitative data, so it is not clear whether a qualitative finding, similar to that of Borup et al. (2014), would have been found in the current study. Research has indicated that increased instructor-student rapport and quality communication through the use of asynchronous video are key to creating an atmosphere that supports students in an online classroom (Glazier, 2016; Kushnir & Berry, 2014). The current study did not indicate that asynchronous video was any more effective than text-based communication for increasing student perceptions of instructor social presence in an online class.

Through analyses of the data, a significant difference was found in student engagement based on the use of asynchronous video for both the number of discussion posts and the length of the discussion posts. There were 13 students in the group who received asynchronous video and 9 who received text-based communication. Students who received asynchronous video had significantly fewer total numbers of posts and length of posts than those who received text-based communication. The mean number of posts for those who received asynchronous video was .462, while the mean number of posts for the group receiving text-based communication was 4.333. The mean length of posts for those who received asynchronous video was 421.923 characters, while the mean for those who received text-based communication was 2661.333.

Previous research has indicated the essential nature of student engagement for online learning to be successful and for students to persist in an online course (Kahu, 2013; Pazzaglia et al., 2016; Pittaway, 2012; Tinto, 1997). Thus, examining student engagement and the mechanisms to improve engagement in an online course is necessary to the future of online learning. Despite the findings of previous research, which indicated a positive relationship between the use of asynchronous video and increased student engagement (Draus et al., 2014), the findings of the present study suggest that text-based communication increases student engagement more than asynchronous video communication. Zak (2015) also found that student engagement did not increase with the use of asynchronous video communication in an online course, despite its positive effect on students' sense of community. Analysis of the students quantitative and qualitative data indicated that while they appreciated the asynchronous video, it was of little consequence to their learning or learning behaviors, including engagement, within the course (Zak, 2015). Asynchronous video has been suggested as a potential method for increasing student engagement through humanization of the instructor in the online course (Glazier, 2016). The results of this study did not support these findings. The present study analyzed the use of asynchronous video as a means for increasing student engagement in an online classroom. While the data was statistically significant, the results indicated that the use of text-based communication improved student engagement more extensively based on both number and length of discussion board posts.

The results of the current study indicate that text-based communication may be the preferred method for increasing student engagement in voluntary discussion forums, in a fully online course. This study suggests that instructor social presence may have less interaction with the degree of student engagement than previous research has assumed. Developing a sense of community through instructor and student interaction in an online course has long been established as a necessary step to enhancing student motivation and engagement in the learning process (Garrison, Archer, & Anderson, 2010). This study suggests that more factors, such as student demographics, the expectations of the student population, and the content of the course, may need to be considered when determining the extent of the role of the instructor in the enhancement of student learning behaviors in the online classroom. Understanding the inherent differences between the groups studied in this research (traditional and non-traditional students) may provide additional understanding about the role of the instructor in establishing a sense of community in online courses.

Due to limitations in the study, the results should be considered cautiously. Further investigation is needed to understand the unique results found in this research. Knowing how to utilize educational technology, such as asynchronous video, to enhance perceptions of instructor social presence and student engagement is important to the future of online learning. (Ali & Smith, 2015; Atchley et al., 2013). Based on the results of this study, it is assumed that instructor social presence can be established using a text or asynchronous video communication. The important component may not be the medium used to communicate, but the content of the

communication and the student's sense of instructor presence in general. Further investigation about student perceptions and expectations of instructor presence using asynchronous video and text-based communication, may provide additional information about how students motivation and engagement are impacted by the role of the instructor in an online class. Additional investigation into the impact of asynchronous video and text-based communication with traditional and non-traditional student populations is also needed. Utilizing an appropriate type of communication to enhance the instructor-student relationship and to improve student learning behaviors is important as online education enrollments grow and the demand for positive student outcomes increases

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