Personalized Weekly Overviews: A Comparison Of Text And Video Announcements Measuring Student Engagement, Achievement And Misunderstanding In An Online Classroom

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ABSTRACT

This study explored the effect of delivery modes for personalized weekly overviews in online courses. Specifically, the study worked to determine if a significant difference between announcements delivered in plain text versus announcements delivered via video influenced: 1) total student engagement; 2) student achievement; 3) instructor related inquires; and 4) instructor evaluations. The study concluded that total student engagement increased in plain text groups, student achievement, as measured by overall grade, increased in text-based groups, student-to-instructor related inquiries increased in text-based groups and that instructor evaluations were not significantly influenced in either group. Finally, while text-based populations reported higher levels of student-to-instructor inquiries, more recorded time in the online course, and an increased overall score, the text-based group also reported a higher fail and/or withdraw rate versus the video-based announcement group. The study concluded with a recommendation for further research involving persistence rates of students in both categories.

Keywords: Online Learning; Student Engagement; Student Success; Delivery Modes; Instructor Evaluations; Student Achievement

INTRODUCTION

Would total student engagement time and achievement differ significantly when professors utilized video overviews as opposed to text overviews in an online classroom? Studies show that online environments and continued technological advancements allow for more dynamic and engaging teaching environments (Davis, Cronley, Madden & Kim 2014). Bradford, Mowder and Bohte (2016) explored techniques used by instructors in an attempt to increase overall student engagement, but questions remained. This study examines total student engagement time, as measured by Learning Management Software (LMS) clicks, log-in duration, and student-initiated faculty contact (via phone, electronic communication or in-person). The study examines total student achievement, as measured by overall letter grade and course evaluation feedback. All aspects of the online courses were controlled, with the exception of the medium used to deliver notifications to students. Explicitly, the study seeks to determine if a significant difference in total student engagement and/or overall student achievement exists when students receive text versus video announcements. The researchers also ran frequencies of student-initiated faculty contact between the control and experiment groups in order to determine if a significant difference exists between groups of students who were given text versus video announcements.

REVIEW OF THE LITERATURE

The field of distance higher education has grown exponentially in the past decade (Simnjanovski, 2015). As a result of the advancement of technology, access to education opportunities through use of online programs has created a relative renaissance of distance educational opportunities. Community of Inquiry theory addresses three constructs: social presence, cognitive presence, and teaching presence, as factors that are extremely important to online courses (Rockinson-Szapkiw, Wendt, Wighting, & Nisbet, 2016). These three constructs together may be indicators of student achievement and success. An essential component of the constructivist view of learning is the support of social and intellectual learning goals for the students (Rockinson-Szapkiw et al. 2016). As such, a consideration must be placed on the value adherent to measuring student achievement as well as student engagement in the distance learning environment (Crosby, Davis & Simnjanovski, 2014).

Retention / Online Class Success

The development of online courses has made education more readily accessible to a variety of students with differing backgrounds; thus, opening previously unattainable educational opportunities to non-traditional students. Although online education allows for individuals to have additional opportunities to complete a certificate or degree program, online student retention rates are typically lower than traditional student rates. While research is divided on the root cause for attrition issues in distance programs, the dropout rate of students in distance programs has been regularly reported up to 50% (Exeter, Korkmaz, Harlin & Bichelmeyer 2016), with some reports as high as 60% or 70% in low performing distance programs or institutions. This study examines an institution which currently serves in an online/distance learning environment with a nearly 80 % retention rate.

Lack of student engagement, specifically in reference to meaningful interactions within a course and/or with the instructor has been reported as a possible factor in student attrition (Crosby et al. 2014). Studies suggest that the first week of a course is critical. There are a portion of students, however, that continue with a course but fail to complete assignments and as a result are administratively withdrawn, fail or end with an incomplete beyond the first week of class. James, Swan, & Datson (2016) reported that students enrolled in online courses were less likely than traditional students to finish a course and those students that did complete a course were less likely to have a passing grade.

On the surface, James et al. (2016) study supports Yang, Sinha, Adamson, and Rose's (2013) study; which posited that keeping students involved and engaged in the course and subsequent course content was a key to retention and higher student success rates, as measured by letter grade and graduation rates. Additionally, multiple factors may attribute to retaining a student in a distance learning environment. These factors include, but are not limited to including social integrations, quality of faculty and student interaction, and student self-discipline. Students are more likely to do well in online courses if they feel they hold responsibility for their own learning (Gaytan, 2013). In more recent studies, this 'responsibility' has been termed "Self-Directed Education." The responsibility and motivation to take part in one's own learning may also be attributed, in part, to the level of social interaction in the online course (Sutton, 2014). The greater the sense of community, the more likely a student is to interact due to the connections made with others and the instructor (Crosby et al. 2014).

Engagement

In a traditional classroom setting the dynamic is teaching-centered. This style of teaching may not always be productive for all students, especially the less motivated, less organized students, or students who have a desire to create, communicate or participate more regularly; which may be more evident in a flipped classroom. In order to change the learning environment to be productive for all students, a student-centered approach may be taken. This approach attempts to break down barriers between the material and students by introducing alternative techniques. Student-centered learning involves the student becoming more active in the learning process through cooperative learning, group work, and critical thinking (Bradford et al. 2016).

For students to be more successful in their online courses, according to studies, *classroom community* needs to be facilitated by the instructor and through students interacting with each other (Young & Bruce, 2011). To encourage classroom community and success, instructors need to be easily accessible to the students, show commitment to

interacting with students, and bridge the gap that is a major element of distance learning (Young & Bruce, 2011). A number of researchers are in agreement that for students to be most successful and retain the greatest amount of information, they must feel a secure sense of community between themselves, their classmates, and their instructors (Bradford et al. 2016; Young & Bruce, 2011; Sutton, 2014; Xiong, Kornhaber, Suen, Pursel, & Goins, 2015).

One theory suggests that within online courses, text-based experiences are not as effective or conducive to learning as face-to-face interactions. Exter et al. (2009) discovered that students wanted more face-to-face interaction with their instructors through teleconferencing workshops, virtual orientation sessions, real time virtual gatherings, and other methods. Exter et al. (2009) results suggest that students may be looking to feel more involved in their program. The results would be in line with a study by Crosby et al. (2014) which explored non-cognitive factors as well as students wanting the luxury of campus schooling but from the comfort of their own home. Exter et al. (2009) suggests that even distance education students want to meet, typically synchronously, and develop meaningful relationships with their fellow classmates and instructors.

Online Delivery

For online schools and instructors, it is pertinent to make sure that the students enrolled in online programs are engaged in dynamic learning experiences. To ensure educational equality, Garratt-Reed, Roberts, and Heritage (2016) conducted a study that compared student grades, student satisfaction and student retention between face-to-face on-campus psychology classes and the equivalent online psychology classes. The researchers found that student grades for the online courses were lower than the equivalent on-campus course and that student satisfaction for on-campus and online courses were the same. Lastly, the retention rates for on-campus students was higher than online students, which is consistent with previous research conducted by Maki, Maki, Patterson amd Whittaker (2000) and Neff and Donaldson (2013).

To guarantee that students in online courses have access to the same education as on campus students, different ways to deliver information online can be utilized that are more conducive to learning. It is imperative to ensure that information for students is easily accessible and simple to understand (Hasan & Rahman, 2005). In a classroom setting the, "emphasis should be placed on the 'collaborative' work between the two entities [instructor and student]" (Hasan & Rahman, 2005, p. 248). The method of delivering information is a predictor of how well students will do (Hansan & Rahan, 2005). To help facilitate learning, an important factor for instructors to incorporate into their courses is learning through social interactions (Mbati & Minnaar, 2015).

Historically for online course offerings, instructors have relayed information through using text and pictures. The use of written instructions has both positive and negative effects on a student. A positive effect is that students can easily navigate the information that is given and have the ability to read or reread the information until they understand it (Collins, Neville, & Bielaczyc, 2000). Another positive use of text is that the instructor or author spends time thinking about what is being written, resulting in the message being thought-out. However, a drawback of using text to relay information is that the reader is not interacting with the author directly, thus causing a disparity between teacher and student. Another disadvantage is the student's perceived interpretation of the text, which can lead to the true meaning of the message that the instructor intended to portray being lost. The use of pictures to accompany text is beneficial for the student because pictures represent ideas within the textual information, allowing for the student to better interpret the written portion (Collins et al. 2000); however, static visual images can often also lose effectiveness or become distracting.

For students to best learn the information, materials must be packaged in an efficient and effective manner. A challenge with teaching online courses, that traditional course instructors do not face, is implementing different teaching methods to facilitate online learning. The use of videos in online learning is more engaging, aesthetically pleasing, and dynamic, in comparison to the utilization of static pictures, and/or block text information (Collins et al. 2000). Videos being used for online learning is conducive for students to achieve better scores, have higher retention of information, and can instill more motivation to learn. In online learning, the use of videos is more beneficial for the student than implementing text based lectures (Chen, 2012). Video interactivity could be described as the next level of engagement, which involves interaction through video of two or more people. This can be done through video conferencing, hosting a lecture through video, or having the students respond and interact with the instructor virtually (Onita, Petan, & Vasiu,

2016). Studies have reported the need to advance the use of video in online learning to facilitate "collaborative processing, directing the attention of the students, and questioning students online" (Onita et al. 2016, p. 27). Traditional use of video lectures is not interactive, but is a unidirectional passive television type of experience, and one development in video use that is needed is to make the experience multidirectional (Pea, 2006).

Importance of Online Programs

Online programs are critical in the fact that students are able to access a quality education anywhere, at any time, in the world (Castle & McGuire, 2010). Online education is flexible for persons whom the ability to attend school on-campus is not an option, or who have not fared well in traditional classroom environments. Online education, by providing students the opportunity to interact with classmates from all over the country or globe, offers a diverse culture of students which brings a new, enriched, and holistic education to each individual (Bransford, Brown, & Cocking, 1999). The diversity of the students is beneficial for the learning process because each student brings something new to the table with their unique background. Additionally, continued study into the dynamics of online courses in order to make learning more effective, and in line with traditional course success rates, is a critically important research area.

Background of the Problem

Distance education has challenged an established, highly structured and formalized educational process; however, this new paradigm in education is not without its own set of unique challenges. Countless articles detail the difficulties of distance education. Some challenges include but are not limited to critical thinking (Bradford et al. 2016), the role of media (Collins et al. 2000), sense of community (Exter et al. 2009), and student retention (Gayton, 2013; Crosby et al. 2014; Xiong et al. 2015). The purpose of this study is to examine one variable (i.e., the medium of delivery for weekly announcements), that may directly relate to several significant factors, in order to determine if the manner in which communication of assignments is conducted influences student engagement, achievement and/or misunderstanding in a distance environment.

Most recently, Self-Regulated Learning (SRL) has regained traction in distance education (Schunk, 2000; Zimmerman, 2001; Castle & McGuire, 2010). The notion that a student may be their own 'educational guide*'* by determining a course of action based on their own education, through metacognitive thought, is not a new idea. Even in recent studies, the power of an individual creating a personalized plan for educational success, which may include an educational plan, formal and informal assessments, evaluation, and course correction has been shown to have dramatically positive outcomes when examining success levels (Schunk, 2000; Zimmerman, 2001; Castle & McGuire, 2010). This concept, however, can be seen as far back in teachings of ancient philosophers and most notably in the Bible – Proverbs 10:7 of the English Standard Version states, "Whoever heeds instruction is on the path to life."

The question remains - How can one control for students, instruction, materials and content delivery in a classroom environment? This is a complicated dilemma, which extends when additional outside factors, such as non-cognitive challenges and a *controlled* experiment can quickly become out of control. Crosby et al. (2014) explored this topic and found that non-cognitive factors played a significant role in student success and failure in distance education programs. Specifically, that non-cognitive factors (such as a quiet place to study, a supportive family, financial means, etc.) play a significant role in academic success as well as student persistence. As a result, questions arise such as – how can *any* study *control* for non-cognitive factors when attempting to measure student engagement, achievement and/or misunderstanding?

PURPOSE OF THE STUDY

The purpose of this study is to attempt to control nearly all aspects of a distance education course, in a variety of different educational content areas (Business, Health Science, Computer Information, and Education) as well as at differing academic levels (Undergraduate and Graduate). The study will explore identical courses, taught by the same instructor (per discipline area) and will attempt to control for textbook selection, lecture materials, assessments, grading criteria, time frame, and feedback (where applicable).

The study will make one variable, medium of delivery for weekly announcements, unique to the study. The courses identified with a "V" will be communicated with, on a weekly basis, by video presentation from the instructor. Courses marked with an "NV" will not be communicated weekly by the instructor in a video format but will instead receive the exact same communication in a text format as a weekly announcement; for all intents and purposes: *V=Video; NV= No Video*.

As such, the purpose of the study will be to determine *if* a significant difference in student achievement, engagement, and/or misunderstanding exists when instructors alter the manner in which they deliver introductory weekly information to their students.

Significance of the Problem

The significance of the study could have an extraordinary impact in distance education in the coming years. Could the manner in which an instructor simply disseminated their weekly announcements meaningfully influence student engagement or clarify typically misunderstood assignment or instructions on assignments? If so, what would the results be across several disciplines?

The study, as it currently has been coordinated, could be generalized across disciplines as well as could directly impact a generation of future learners and educators by proposing an alternative method of disseminating weekly announcements.

METHODS

Participants

Participants consisted of undergraduate and graduate level students at California Baptist University's Division of Online and Professional Studies ($n_1 = 193$) as well as corresponding faculty members (*identified as* $X_1, X_2 X_3, X_4$; $n_2 = 4$) for six sessions examined over a semester year period in an academic year. For the purposes of this study, n_1 will represent student participants with n_2 representing faculty participants. The gender and ethnic makeup was similar across sections for students. In total, 71% of the students were female. Forty-three percent of the students were Caucasian, 30% were Hispanic or Latino, 14% were African-American, and 2% were Asian. Student ages ranged from 19 to over 60, with the highest proportion of students (40%) falling between the ages of 28 and 38. Ages were approximately normally distributed with a slight positive skew. Additionally, faculty participants ($n_2 = 4$) had the following gender, ethnic and demographic makeup, in an attempt to control for instructor/student age, race, gender bias: 100% male, 100% Caucasian, an age range of 31-42, an experience of teaching range between 4-15 years. The Division of Online and Professional Studies at California Baptist University was selected for convenience as well as because the Division currently has an 85% retention rate with nearly 92% course evaluation response rate; these data are an outlier compared to distance education systems nationally and would aid in controlling for response rates and attrition.

RESEARCH QUESTIONS

RQ1: Does student total engagement time differ significantly when professors use video notifications as opposed to text notifications in an online classroom?

RQ2: Does student achievement differ significantly when professors use video notifications as opposed to text notifications in an online classroom?

RQ3: Is there a measurable difference in questions received when professors use video notifications as opposed to text notifications in an online classroom?

RQ4: Does the use of video notifications significantly affect instructor evaluation scores when compared to text notifications in an online classroom?

HYPOTHESES

H1: Student total engagement time will differ significantly when professors use video notifications as opposed to text notifications in an online classroom.

H2: Student achievement will differ significantly when professors use video notifications as opposed to text notifications in an online classroom.

H3: A measurable difference in questions received will be evident when professors use video notifications as opposed to text notifications in an online classroom.

H4: The use of video notifications will significantly affect instructor evaluation scores when compared to text notifications in an online classroom.

MEASURES

Intended Population & Sample: Data collected compared different sections of the same OPS (Online and Professional Studies) courses where professors used video announcements in lieu of text announcements to convey weekly vital information to students; enrollment in these courses determined the total population size.

Procedures: Multiple sections of courses in online accounting, business, health science and education courses were selected. Format (asynchronous, fully online), instructor, assessments, assignments, lectures, presentations, rubrics and instructions were controlled for. The single examined variable between sections was – TYPE OF ANNOUNCEMENT (one section was given weekly text announcements and the other weekly video announcements recorded by the instructor of record). Data was automatically collected in Blackboard™ as well as the institution's SmartEval™ system (with instructor written permission) and will be examined post-hoc with archival data. Reporting included: generalized and anonymized student data based on grade center reporting, student engagement (clicks, time spent), instructor course evaluation scores (generalized and anonymized), and a frequency count (based on emails, phone calls or other documented communication - generalized and anonymized).

Cooperation with other universities: NONE

Deception: NONE

Treatment and/or manipulation of independent variables: NONE

Data-gathering instruments and procedures: This experiment required data gathering from three primary sources. Student engagement and achievement data were available through Blackboard via time usage tracking (i.e., engagement) and overall grades (i.e., achievement). Professors involved will gather data from Blackboard with the help of ITS (Integrated Technology Services) if necessary, for engagement time. Student misunderstanding was measured by manually tracking inquiries received about course topics for each section by the professor teaching that section. Instructor evaluation scores were gathered from the SmartEvals system and compiled to determine overall results.

Outlined plan to ensure student/participant privacy: Participants names and identification numbers were deleted prior to commencing with data analysis; all reported data was generalized and anonymized.

Risks: NONE

Follow-up Procedures: NONE / NOT APPLICABLE

Plan for data analysis and disseminating the research results: Between group differences in achievement, engagement, misunderstanding, and instructor evaluation scores were investigated through the use of analysis of variance (ANOVA) and independent samples *t*-tests.

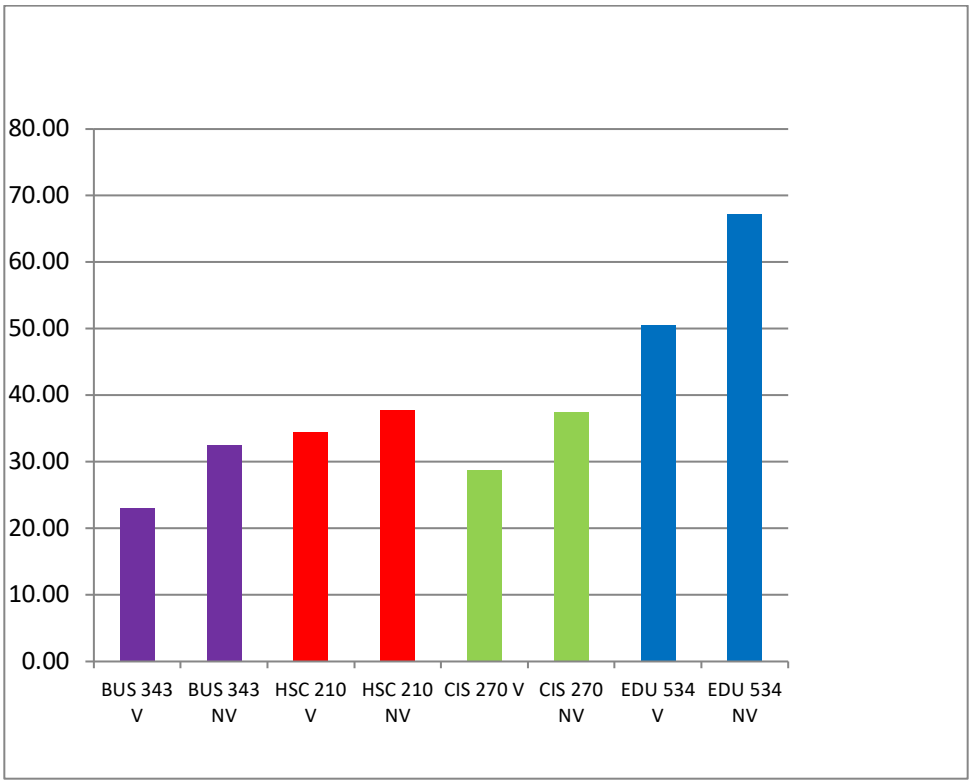
RESULTS

Research Question 1

RQ1: Does student total engagement time differ significantly when professors use video notifications as opposed to text notifications in an online classroom?

RQ1 RESULTS: Yes, the average student engagement time, as measured by time in the online environment and clicks within the system differed, but not as expected. Student 'in class' time decreased for the experiment group. Specifically, students who received video instructions spent less time in the online environment. Approximately 25% less time was spent in online courses where instructors provided video overviews. Figure 1 illustrates the increased *engagement* time for student who were in the 'non-video' group.

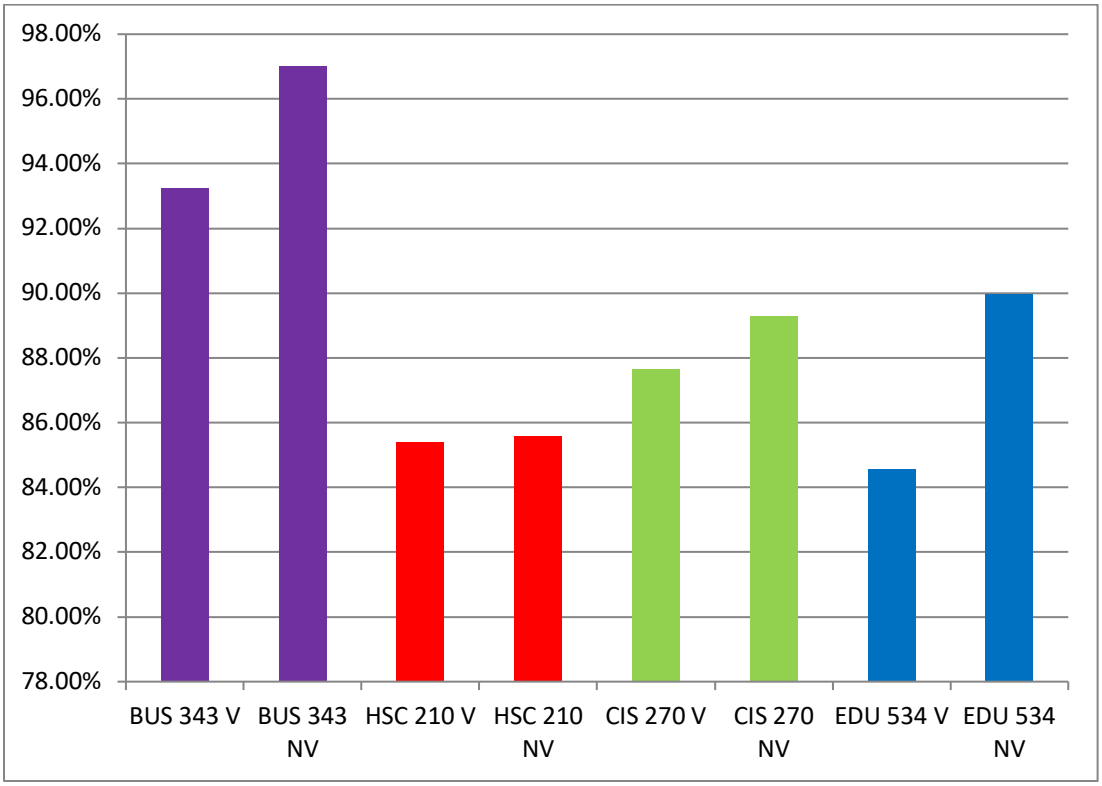
Figure 1. Average Time (in hours) in Course



RQ2: Does student achievement differ significantly when professors use video notifications as opposed to text notifications in an online classroom?

RQ 2 RESULTS: Yes, student achievement did differ significantly when professors used video notifications as opposed to text notifications in an online classroom, but not as expected. Specifically, in the undergraduate business course, video recipients earned an average of 93.253% in the course, whereas non-video recipients earned 97.016%. This discrepancy was replicated in all other experiments as well. In an undergraduate health sciences course, video recipients earned an average of 85.400% while non-video recipients earned 85.570%. Additionally, in an undergraduate computer systems course, video recipients earned an average of 87.667% while non-video recipients earned an average of 89.300%. Finally, in a graduate level education course, video recipients earned an average of 84.55% while non-video recipients earned 89.980%. Figure 2 illustrates the increased, overall, grade percentage of students in the non-video (text-based) announcement group.

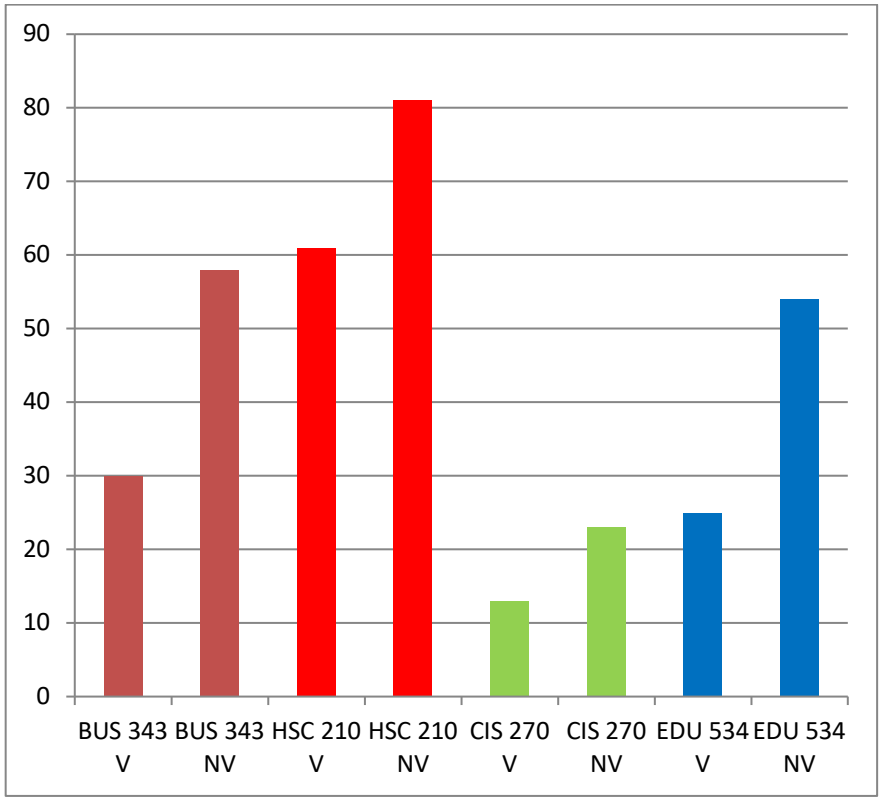
Figure 2. Average Student Grade Percentage



RQ3: Is there a measurable difference in questions received when professors use video notifications as opposed to text notifications in an online classroom?

RQ 3 RESULTS: Yes, there a measurable difference in questions (inquiries) received when professors use video notifications as opposed to text notifications in an online classroom. For the undergraduate business course, the video experiment group recorded 30 communications with the instructor, while the non-video group recorded 58 communications; a nearly 50% increase in communications to the instructor. In the undergraduate health sciences, the video experiment group recorded 61 communications while the non-video group recorded 81 communications; a nearly 25% increase in communications with the instructor. Next, in the undergraduate computer information systems course, the video experiment group recorded 13 communications while the non-video group recorded 23 communications; a nearly 44% increase in communications with the instructor. Finally, in the graduate level education course, the video experiment group recorded 25 communications with the instructor while the non-video group recorded 54 communications; a nearly 54% increase in communication to the instructor when a video was not implemented.

Figure 3. Student Initiated Contacts to Instructor for Clarification (Frequency Count)



RQ4: Does the use of video notifications significantly affect instructor evaluation scores when compared to text notifications in an online classroom?

RQ 4 RESULTS: Inconclusive, the use of video notifications did not appear to significantly affect instructor evaluation scores when compared to text notifications in an online classroom. Results are detailed in Table 1.

Table 1. Video and Non-Video Instructor Evaluation Results

	N	N Majors	Top Two (score of 4 or 5)	Top Two Majors	Average Instructor Evaluation (0.00-5.00)
BUS 343 V	16	12	100%	100%	4.900
BUS 343 NV	20	11	99%	99%	4.800
HSC 210 V	19	17	98%	99%	4.568
HSC 210 NV	23	18	99%	99%	4.857
CIS 270 V	24	N/A	93%	N/A	4.637
CIS 270 NV	25	N/A	90%	N/A	4.474
EDU 534 V	32	32	99%	99%	4.890
EDU 534 NV	34	34	99%	99%	4.900

DISCUSSION

The purpose of this study was to explore personalized weekly overviews and the role they may play in distance education. Moreover, the study examined if a significant difference between plain text versus video announcements exists in regard to student engagement, instructor evaluations and misunderstanding in online classrooms, as measured by student communications.

The data reported appear to suggest that the average student engagement time, as measured by time in a learning environment (Learning Management System or LMS) actually decreased when students received a weekly video announcement versus a control group that received a text announcement. These results may be, in part, due to students more clearly understanding assignment criteria and as a result, spending less time within the LMS and more time engaged with the material. Data reported that approximately 25% less time was spent in the LMS for students receiving video announcements versus a control group which did not. These data are significant and should seek further consideration and possible examination.

When exploring student achievement, as measured by overall grade percentage, results were in a negative skew, based on the control group. In other words, when students received a video announcement, their average grade was lower than that of the control (non-video) group. Specifically, undergraduate business with video reported 93.253%, while undergraduate business without video reported 97.016%; undergraduate health sciences with video reported 85.400%, while undergraduate health sciences without video reported 85.570%; undergraduate computer information systems with video reported 87.667%, while undergraduate computer information systems without video reported 89.300%; finally, graduate education with video 84.555%, while graduate education without video reported 89.980.

These data may be, in part, due to the increase in student communication(s) with the instructor based on clarifying questions posed via electronic communication, phone communication and in-person meetings. Data recorded that contact points for undergraduate business when video announcements were present were at 30, while when video announcements were removed, contact points increased to 58. While more research must be conducted to investigate this phenomenon, prima facie, illustrates a possible correlation to direct communication with the instructor and increased overall academic achievement as based on percentage score.

Finally, inconclusive data resulted when examining faculty evaluation scores, based on student perception of learning, quality, content mastery and technological usage. An area discovered for future study may include, but is not limited to, exploring faculty evaluations in a similar experiment, when controlling for majors or non-majors. Furthermore, additional data and educational implications may be derived by exploring, in depth, the demographic data of students, as well as perhaps controlling for majors or non-majors. Finally, while not examined explicitly, retention and attrition levels could also be explored in an attempt to determine if students in video or non-video announcement distance education courses felt more *connected* to a course and as a result persisted.

Students in non-video distance courses examined had an increased level of *withdraw* or *drop* designations, approximately 2.24 per course within a non-video course versus courses with a video. These results, while not explored directly in this study, may lead to a significant body of future research. Perhaps students who would have otherwise withdrawn, dropped or failed a course, persisted based on instructor communication via personalized video. As such, this hypothesis would explain a lower level of overall student achievement based on grade center percentage. While more examination is required, this study worked to re-introduce a topic to distance education's academic community - significant changes that may occur when personalized weekly video announcements are included within an online environment.

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