

University of Memphis

University of Memphis Digital Commons

Electronic Theses and Dissertations

1-1-2018

**EXPLORING THE EFFECTS OF VIDEO FORMATS ON TEACHING,
SOCIAL, AND COGNITIVE PRESENCE IN ASYNCHRONOUS
ONLINE DISCUSSIONS**

Michelle Rudolph

Follow this and additional works at: <https://digitalcommons.memphis.edu/etd>

Recommended Citation

Rudolph, Michelle, "EXPLORING THE EFFECTS OF VIDEO FORMATS ON TEACHING, SOCIAL, AND COGNITIVE PRESENCE IN ASYNCHRONOUS ONLINE DISCUSSIONS" (2018). *Electronic Theses and Dissertations*. 1874.

<https://digitalcommons.memphis.edu/etd/1874>

This Dissertation is brought to you for free and open access by University of Memphis Digital Commons. It has been accepted for inclusion in Electronic Theses and Dissertations by an authorized administrator of University of Memphis Digital Commons. For more information, please contact khggerty@memphis.edu.

EXPLORING THE EFFECTS OF VIDEO FORMATS ON TEACHING, SOCIAL, AND
COGNITIVE PRESENCE IN ASYNCHRONOUS ONLINE DISCUSSIONS

by

Michelle Rose Rudolph

A Dissertation

Submitted in Partial Fulfillment of the

Requirements for the Degree of

Doctor of Education

Major: Instruction and Curriculum Leadership

The University of Memphis

May 2018

Copyright © 2017 Michelle Rudolph
All rights reserved.

Acknowledgements

The completion of my dissertation would not been possible with the dedication and support from my committee members: Dr. Trey Martindale, Dr. Clif Mims, Dr. Tawfik, and Dr. Amanda Rockinson-Szapkiw, as well as all of the professors I had in through my doctorate program. Thank you Hollie Knechtel and Sean Childers-Gray for allowing me to conduct my study within the Graphic Arts Department at Independence University and for assisting in motivating students to patriciate. Thank you to the instructors and ‘helpers’ who participated and encouraged students to participate in this study. Terri Oltman-Rast and Erin Gabrysh, thank you for your encouragement and support as I furthered my educational goals. Ann Zevnik and John Maddoux, thank you for your countless hours copy editing my manuscript. Jonathan, thank you for your support, practice, and brainstorming sessions. To my cats Miss. Norris and Nimbus, thank you for your help in writing my dissertation when I fell asleep at the keyboard, however, please watch the spelling errors, fndddddd is a bit difficult to interpret.

Abstract

Rudolph, Michelle R., Ed.D. The University of Memphis, December 2017.
Exploring the Effects of Video Formats on Teaching, Social, and Cognitive Presence in Asynchronous Online Discussions. Major Professor: Amanda Rockinson-Szapkiw, Ed.D.

Since student retention in online courses is related to the students' community, this dissertation explores the effect of discussion board prompt format on students' sense of community of inquiry (CoI). The quasi-experimental study design examined the participation levels, sense of CoI (i.e., social, teaching, and cognitive presence), and final grade of nontraditional, fully online undergraduate students in an entry-level graphic design course in the Graphic Arts Department at a fully online college. The study involved 90 undergraduate students in the Graphic Arts Department at a fully online college. The study consisted of four groups: one control group who experienced the text-based discussion prompts and three experimental groups who experienced one of the asynchronous video discussion prompts (i.e., voice-over-presentation, picture-in-picture, or overlay mode). A one-way ANOVA was used to examine if the number of discussion posts made by students was significant different across groups. The same analysis was used to examine whether there was a significant difference in student's final grade among the groups. A one-way multivariate analysis of covariance (MANCOVA) was used to determine if the format of facilitation for weekly discussion prompts in the online courses influenced online, nontraditional undergraduate students' sense of Community of Inquiry (CoI) (i.e., social, teaching, and cognitive presence) while controlling for the CoI pretest. All results were non-significant. *Keywords:* Community of Inquiry, cognitive presence, social presence, teaching presence, overlay mode, picture-in-picture presentation, voice

over presentation attrition, meaningful learning, persistence, retention, and online education

Table of Contents

	List of Tables	ix
	List of Figures	x
	Chapter	Page
1	Introduction	1
	Theoretical Framework	3
	The Learning Experience in Discussion Forums	6
	Need for This Study	7
	Research Purpose	9
	Significance	10
	Research Questions	11
	Hypotheses	12
	Definitions of Terms	15
2	Introduction to the Literature	18
	Retention and Funding	18
	Nontraditional Students and Retention Rates	20
	Limitations to Online, Non-traditional Student Success	21
	Personal Factors	21
	Demographic variables.	32
	Individual characteristics.	32
	Academic experiences.	33
	Institutional and Integration Factors	23
	Academic integration.	34
	Social integration.	34
	Community of Inquiry	25
	Cognitive Presence	26
	Teaching Presence	28
	Social Presence	29
	Sense of Community and Discussion Forums	30
	Importance of and Best Practices for Online Discussion Forums	30
	Video Use in Discussions	32
	Video Formats	36
	Voice-over presentation.	37
	Picture-in-picture.	37
	Overlay mode.	38
	Video Findings in the Literature	39
	Summary	42
3	Methodology	44
	Method and Design	44
	Participants	45
	Setting	50

	Instrumentation	52
	Student demographic information.	53
	Community of inquiry questionnaire.	53
	Final grade.	55
	Participation variables.	55
	Self-reporting questionnaire variables.	56
	Procedures/Data Collection	57
	Study Implementation and Data Collection	59
	Data Analysis	59
	Summary	62
4	Results	63
	Sample Descriptive Statistics	63
	Results	63
	Research question one.	63
	Research question two.	65
	Research question three.	69
	Additional Analysis	70
	Summary	72
5	Discussion, Conclusion, and Recommendations	80
	Introduction	73
	Discussion	73
	Research question one.	74
	Research question two.	77
	Research question three.	78
	Additional Analysis	79
	Amount of times the video was watched.	79
	Video time watched.	79
	Theoretical Implications	80
	Implications	81
	Limitations	82
	Recommendations for Future Research	84
	Conclusion	85
	References	88
	Appendices	
	A. E-mail and Course Announcement Week 1	129
	B. E-mail and Course Announcement Weeks 3 & 5	130
	C. Consent Form	131
	D. Pretest Survey	135
	E. Posttest Survey	144
	F. Discussion Scripts used for the Initial Discussion Post in Weeks 1-3	149
	G. Institutional Review Board Approval Letter	155
	H. Support Letter	156
	I. Full Sample Descriptives	157

J.	Summary of Continuous Variables	162
K.	Average Number of Posts	163
L.	Teaching Presence Pretest	166
M.	Item Analysis of CoI Items (Post)	184

List of Tables

Table	Page
1. Community of Inquiry Coding Template	26
2. Frequencies and Percentages of Selected Categorical Demographics (N = 90)	45
3. Frequencies and Percentages of Selected Categorical Demographics	49
4. Instructors' Course Section Assignments	51
5. Dependent variables with Theoretical Construct of COI	55
6. Self-Reporting Questionnaire Variables	57
7. Research Questions, Hypothesis, Instruments, Theoretical Construct of COI, and Statistical Procedures	60
8. Average Student Posts by Instruction Method (N = 90)	64
9a. Pre and Post CoI Scores by Instruction Type	65
9b. Pre and Post CoI Scores by Instruction Type	65
10. Pearson's Product Moment Correlations among CoI Items for Pre and Post	67
11. Estimated Marginal Means of Posttest CoI Scores by Group	68
12. Final Grade by Group (N = 90)	70
13. Frequencies and Percentages of Amount of Video Watched by Group	71
14. Post CoI Scores by Instruction Type	77

List of Figures

Figure	Page
1. An example of a voice-over presentation.	37
2. An example of a picture-in-picture video presentation.	38
3. An example of an overlay mode video presentation.	39
4. Example of voice-over discussion prompt video embedded into the Canvas LMS.	58
5. Means and Standard Deviations of Times Video Watched by Group.	71
6. Recording/embedding video icon in the WYSIWYG editor.	86

Chapter 1

Introduction

Higher education has been making use of technology since its invention (Wright, Marsh, & Miller, 1999). The integration of technology into courses ranges from making use of specific applications, to making use of digital spaces to supplement course materials, to offering fully online courses via course management systems. Through the early 1990s and early 2000s, online class enrollment in higher education has grown each passing year. For example, the number of students enrolled in higher education online classes increased by 7% between Fall 2012 and Fall 2014 (Allen et al., 2016). Recent reports have indicated a plateau in this growth (Allen, Seaman, Poulin, & Straut, 2016, p. 12); however, over 5,828,826 students are enrolled in online classes in higher education institutions across the United States.

Since the inception of online education, both nonprofit and for-profit higher education institutions have faced internal and external scrutiny related to poor student persistence and retention rates in online classes and programs (Hachey, Conway, & Wladis, 2013). Research has shown the attrition rate (failure to pass the course; withdrawal from the course) is higher in online classes than in face-to-face courses (Bawa, 2016; Allen & Seaman, 2015; Simpson, 2013). Several studies have found that attrition can be 10–20% higher in online classes than face-to-face classes (Herbert, 2006; Angelino, Williams, & Natvig, 2007; Carr, 2000). Poor retention rates can jeopardize an institution's credibility, efficacy, and future funding (Shaw, 2014). The consequences of poor retention in online classes can cause a college to lose its ability to offer federal aid to students and to lose funding due to reduced student enrollment and underutilized

resources (e.g., student services, tutoring, counseling and disability services) (Jakiel, 2016; Leeds et al., 2013). The effects on students who do not persist can be detrimental. Students have to repay to take the failed course, delay graduation, or could drop out of the program or college (Gašević et al., 2016).

A number of factors have been associated with online students' choice to persist or withdraw from a class or program; the reasons are complex and often vary from institution to institution (Park & Choi, 2009). Personal factors, such as age, gender, ethnicity, income, life circumstance, and intuitional factors play a role in online student persistence (Park & Choi, 2009; Wojciechowski & Palmer, 2005). A critical line of research has demonstrated that community and interaction are vital to students' persistence, and the lack thereof is often a reason for attrition (Tinto, 1997, 1998; Swan, 2001; Rovai, 2002a; Rovai & Wighting, 2005). Researchers have consistently documented that online student attrition is associated with isolation from fellow students and the instructor (Angelino, Williams, & Natvig, 2007), lack of community (Rovai, 2002a), poor academic and social integration (Wade, 2016), and lack of social presence (Vaughn, Orr, & Gorman, 2016). Community and social presence are associated with a student's choice to persist and are associated with effective online education (Garrison, Anderson, & Archer, 2000; Rovai, 2002a). Thus, copious research has been conducted to determine how to improve a sense of community in online classes (Rovai, 2002a; Garrison & Kanuka, 2004; Shea, 2006; Shea & Pickett, 2006).

The present study continues this line of research through the investigation of how the instructor's communication format (i.e., text-based, voice-over-presentation, picture-in-picture, or overlay mode) in the initial discussion board posts influences students'

sense of community of inquiry (Garrison, Anderson, & Archer, 2000). This study also examines if the instructor's communication format makes a significant difference in the students' final grades and the number of discussion posts made. Chapter 1 provides a foundation for this study through an overview of the theoretical framework, purpose, significance, research questions, and definition of terms.

Background

Theoretical Framework

What constitutes high quality, effective distance education that promotes persistence continues to evolve. In addition to criteria concerning content and student learning, most models and frameworks that explain effective online education include the idea of community. One such model is the community of inquiry (CoI). The CoI is a validated framework, and the most frequently cited model used in online education research (Rubin, Fernandes, & Avgerinou, 2013). In studies of online education, the CoI framework has been used to assess the effectiveness of online discussion forums (McKerlich et al., 2011; Garrison, Anderson, & Archer, 2000) and has been used to assess pre-reordered videos, welcome announcements, and assignment feedback (Garrison, Anderson & Archer, 2010).

Based on John Dewey's practical inquiry model (1933) and consistent with many of the tenets of social constructivist theory, Garrison and Anderson (2003) noted that the CoI framework is based on the notion that knowledge construction is a collaborative, continuous process. Garrison and Anderson (2003) stated that the community of inquiry is "a fusion of individual and shared worlds" (p. 23). The framework is associated with persistence and is based on the idea that presence is necessary (Arbaugh, 2007; Garrison

& Arbaugh, 2007; Ice, Gibson, Boston, & Becher, 2011). Presence is “a sense of active participation and a focus on learner creation and contribution through multi-mediated forms of communication” (McKerlich et al., 2011, p. 327). Presence is essential between the instructor and the student to promote learner success in an online class in order to influence participation and to improve retention rates (Dunlap & Lowenthal, 2014; Mazzolini & Maddison, 2007; Reio & Crim, 2013; Stavredes, 2011; Swan & Shih, 2005).

The CoI framework consists of three different types of presences: cognitive (CP), social (SP), and teaching presence (TP) (Garrison, Anderson, & Archer, 2001). SP is “the ability of participants in the CoI to project their personal characteristics into the community, thereby presenting themselves to the other participants as real people” (Garrison et al, 2000, p. 89). An instructor can create SP by using greetings, names, humor, and self-disclosure (Dennen, Darabi, & Smith, 2007; Richardson et al., 2015). TP is “the design and the facilitation that guides the cognitive and social processes for the purpose of achieving deep and meaningful learning outcomes” (Garrison et al., 2000, p. 89). TP connects the student with fellow classmates and the instructor who do not exist in the same physical space (Zhang, Lin, Zhan, & Ren, 2016).

The instructor demonstrates teaching presence by facilitating online discussions. This can include providing prompts and comments to focusing online discussions, summarizing salient discussion points, and providing relevant information about a topic (Garrison & Anderson, 2007). Through teaching presence, instructors can help online students persist and reach their educational goals (Stavredes, 2011) and increase student satisfaction, perceived learning, and sense of community (Garrison, 2007; Meyer, 2003; Swan et al., 2005). CP is supported by TP and SP. CP is “the extent to which the

participants in any particular configuration of a community of inquiry are able to construct meaning through sustained communication” (Garrison et al., 2001, p. 89). CP is encouraged through providing encouragement to students to learn the content (Dunlap, Verma, & Johnson, 2016; Rubin & Fernandes, 2013) and questioning ideas in a discussion topic (Olesova, Slavin, & Lim, 2016). The CoI framework assumes that high quality and effective online learning experiences occur within a community in which the three types of presence are in play. The instructor’s promotion of social, teaching, and cognitive presence in online courses contributes to student persistence and retention as well as learning outcomes; and thus, provides value from an administrative perspective, since these contribute to sustaining financial stability and therefore programs (Shaw, 2014).

Hundreds of studies using quantitative and qualitative methods have validated the CoI framework as being beneficial when examining online higher education effectiveness and instructional strategies (Arbaugh, 2007; Garrison et al., 2008). Thus, the CoI framework provides an appropriate theoretical foundation upon which to examine the effectiveness of different online discussion facilitation formats the instructor provides to initiate a discussion. The CoI framework guided the identification of the dependent variables for this study. Social presence, teaching presence, and cognitive presence are dependent variables (Garrison et al., 2000; Rourke & Kanuka, 2009).

Measuring student learning is also used to determine the effectiveness and success of online education. While grade inflation has been alleged to be a problem, particularly in adjunct-taught courses, grades still provide some indication, even if relative, to measure a student’s understanding of the course material (Dumont, 1996). Grades are

also considered a measure of cognitive learning and can be associated with cognitive presence. This study also made use of grades as a dependent variable. In addition, this study examined students' participation in discussion posts as measured by the average number of discussion posts made weekly to see if any of the experimental groups had a different level of participation than the control group. Although research has been mixed, some have noted that greater levels of participation in discussion forums have been demonstrated to increase students' community and social presence (Rovai, 2007). Thus, level of participation was investigated as a dependent variable.

The Learning Experience in Discussion Forums

Researchers have continually found that a student's ability to master the curriculum and successfully complete a course depends heavily on the learning experience the instructor creates (Shea, 2006; Boling, Hough, Krinsky, Saleem, & Stevens, 2012; Nonis & Fenner, 2012). The instructor facilitates discussions and guides the student through the construction of new knowledge (Hew, 2015). Phirangee, Demmans, and Hewitt (2016), echoing Rovai (2002a), stated that faculty has the responsibility to foster community in online classes in order "to minimize feelings of isolation, alienation, and disconnection online learners may experience" (p. 2). Researchers admonish faculty to focus on "the social nature of learning" (Hew, 2015, p. 2), providing ample opportunity for interactions and communication of ideas among students (Phirangee, Demmans, & Hewitt, 2016).

Online discussion forums can be used by instructors as a centralized location in an online class where knowledge construction develops through social interactions with fellow students and the instructor (Xie, Miller, & Allison, 2013; Xie, Yu, & Bradshaw,

2014). Text-based dialogue between fellow students and the instructor forms an ongoing discussion, which makes it possible for students who work different shifts and live in different time zones to participate in the class (Parsad & Lewis, 2008). This ongoing conversation provides the needed time for a quiet or shy learner to participate, as well as time to reflect on the discussion topic and reexamine ideas (Davie & Wells, 1991; Mason & Kaye, 1990).

Need for This Study

The research on the discussion forums ability to support CP, TP, SP, learning, and online course participation, while positive at times, has been mixed (Borup, 2012; Glazier, 2016). While some research demonstrates that text-based discussions can help students feel like they belong (i.e., a sense of community) (Phirangee, 2016), limitations of asynchronous text-based online discussion forums have been documented and criticized for “their lack of support for social presence ... [which] may impact the sense of belonging and acceptance in a group” (Rovai, 2002a, p. 588). While discussion forums encourage reflection, students might find it difficult to understand or explain new or difficult concepts in a text-based communication (Arend, 2009; Hew, & Hara, 2007). Text-based discussions can lack instructor immediacy that occurs in a traditional classroom such as “real-time verbal and non-verbal communications, including smiles, head nods, use of inclusive language, and eye contact, [that] promote increased learning” (Griffiths & Graham, 2009). Reason for ambiguous results in the literature may be attributed to the fact that there has been inconsistent instructor design and facilitation within the discussion forums (Cho & Tobias, 2016; Nandi et al., 2011).

In general, there is a consensus that more research is needed on the effectiveness of the design and facilitation for online discussion forums and how online instructors can promote cognitive, social, and teaching presences as well as learning and participation in discussion forums. Online instructional and facilitation strategies mainly remain heavily text-based (Vai, & Sosulski, 2015; Jaggars et al., 2013; Gao, Zhang, & Franklin, 2013); however, colleges and universities have started to integrate various technologies and modes of communication to improve the students' online learning experience (Clark & Mayer, 2016; Rockinson-Szapkiw, 2012). Some colleges are starting to adopt different types of instructional videos to increase instructor presence in online courses. Welcome videos in which the professor shows his or her face (e.g., overlay mode and picture-in-picture) have become popular because they create a personalized experience (Draus et al., 2014), humanize the professor (Wright, 2014), and help to establish and build rapport with students (Orlando, 2013). In addition to creating a personalized experience, the implementation of instructor-generated videos also has a positive effect on student engagement, learning, and satisfaction (Zydney, 2014; Borup, West, & Graham, 2012; Cox, Black, Heney, & Keith, 2015; Mills, 2015).

The instructor's use of video in an online class can provide visual and audio cues, as well as interaction, that are not possible in text-only online communication (Borup, West, Thomas, & Graham, 2014). Studies showed that the richness of instructor-generated videos compared to text-only communications helped students connect to the instructor as a real person and perceive the instructor as friendly and personal (Borup, Graham, & Velasquez, 2011; Borup, West, & Graham, 2012; Griffiths & Graham, 2009a, 2009b). As studies have shown that students like to watch instructional videos where the

instructor interacts seamlessly with the content (van Wermeskerken & van Gog, 2017; Wang & Antonenko, 2017) and integration of audio and video instruction and facilitation is growing (Ibrahim, 2012), the use of different formats used by the instructors for weekly discussion prompts is examined for this study. More research is needed to study the impact different formats can have on students' frequency of posting discussions and final grade (Wang & Antonenko, 2017) as well as the three presences of the community of inquiry. According to Wang and Antonenko (2017), "little is currently known about the effects of course instructor presence in instructional video" (p. 79), especially when used in discussion forums.

Research Purpose

The purpose of this quasi-experimental study is to compare online, nontraditional undergraduate students' participation levels (i.e., average number of weekly discussion board posts), sense of CoI (i.e., social, teaching, and cognitive presence), and final grade based on the format of the instructor's weekly online discussion facilitation (i.e., text-only control vs. asynchronous video treatments—voice-over-presentation, picture-in-picture, or overlay mode) prompts. Both a posttest only, nonequivalent control group design and a pretest-posttest, nonequivalent control group design is used. I designed the study to include a control group and worked with online course instructors to manipulate the format of online discussion facilitation used for the weekly discussion prompt (Campbell & Stanley, 1963; Gall, Gall, & Borg, 2005, 2014).

This study consisted of four groups. One control group experienced the text-based discussion prompts created by the instructor. Three experimental groups each experienced one of the asynchronous video discussion prompts (i.e., voice-over-

presentation, picture-in-picture, or overlay mode). Thus, there are four different levels of independent variable: (1) voice-over-presentation video, (2) picture-in-picture video, (3) overlay-mode video, and (4) text-based. The voice-over-presentation discussion prompts showed what the instructor was presenting on his or her computer screen with the instructor voice-over (e.g., PowerPoint presentation or a software demonstration) (Tuna et al., 2016). The picture-in-picture presentation captured instructional aids the instructor was presenting on the computer (e.g., PowerPoint presentation or a software demonstration) and contained an embedded live video of the instructor in the lower left-hand corner (Bhat et al., 2015; Chen & Wu, 2015). Finally, the overlay presentation was similar to the picture-in-picture presentation. However, the embedded video of the instructor speaking was seamless (objects behind the instructor are not visible) against the instructional aids the instructor is presenting on their computer (e.g., PowerPoint presentation or software demonstration) (Chen & Wu, 2015). The independent variable in this study is the format of facilitation the instructor used for the weekly asynchronous discussion prompts.

The dependent variables, as discussed above, for this study are the three elements of the CoI, including CP (i.e., triggering event, exploration, integration, and resolution), SP (i.e., emotional expression, open communication, and group cohesion), and TP (i.e., instructional management, building understanding, and direct instruction); final grades; and the average number discussion posts made weekly by students.

Significance

While the use of text-based discussions and discussion prompts created by the instructor still has value (Kanuka, 2011), a growing variety of formats and instructional

strategies are being implemented in online courses. Unfortunately, research-incorporating video is limited (Bhat et al., 2015). Therefore, this study added to the limited literature base. Findings from this study can also be used to guide decisions about discussion board prompts that faculty use to facilitate students' sense of CoI, their participation, and their final grades—and thus retention of students—in online discussions and courses.

Research Questions

This study investigated the following research questions:

- RQ₁* Is there a statistically significant difference in online, nontraditional undergraduate students' participation in the discussion forum (measured by average number of posts) based on the format of facilitation (i.e., text-only control vs. asynchronous video treatments—voice-over-presentation, picture-in-picture, or overlay mode) used for weekly discussion prompts for their online courses?
- RQ₂* Does the format of facilitation (i.e., text-only control vs. asynchronous video treatments—voice-over-presentation, picture-in-picture, or overlay mode) used for weekly discussion prompts in the online courses influence online, nontraditional undergraduate students' sense of Community of Inquiry (CoI) (i.e., social, teaching, and cognitive presence) while controlling for the CoI pretest?
- RQ₃* Are there statistically significant differences in the online, nontraditional undergraduate students' final grades based on the format of facilitation (i.e., text-only control vs. asynchronous video treatments—voice-over-

presentation, picture-in-picture, or overlay mode) used for weekly discussion prompts for their online courses?

Hypotheses

H₁₁: There is a statistically significant difference in online, non-traditional undergraduate students' participation in the discussion forum (measured by average number of posts) based on the format of facilitation (i.e., text-only control vs. asynchronous video treatments—voice-over-presentation, picture-in-picture, or overlay mode) used for weekly discussion prompts for their online course.

H₁₂: There is a statistically significant difference in the linear combination of online, nontraditional undergraduate students' CoI elements (teaching presence, social presence, and cognitive presence) based on the format of facilitation (i.e., text-only control vs. asynchronous video treatments—voice-over-presentation, picture-in-picture, or overlay mode) used for weekly discussion prompts for their online courses while controlling for the CoI pretest.

H_{12.1}: There is a statistically significant difference in online, nontraditional undergraduate students' teaching presence based on the format of facilitation (i.e., text-only control vs. asynchronous video treatments—voice-over-presentation, picture-in-picture, or overlay mode) used for weekly discussion prompts for their online courses while controlling for the CoI pretest.

H_{12.2}: There is not a statistically significant difference in online, nontraditional undergraduate students' social presence based on the format of facilitation (i.e., text-only control vs. asynchronous video treatments—voice-over-presentation, picture-in-picture, or overlay mode) used for weekly discussion prompts for their online courses while controlling for the CoI pretest.

H_{12.3}: There is a statistically significant difference in online, nontraditional undergraduate students' cognitive presence based on the format of facilitation (i.e., text-only control vs. asynchronous video treatments—voice-over-presentation, picture-in-picture, or overlay mode) used for weekly discussion prompts for their online courses while controlling for the CoI pretest.

H₁₃: There is a statistically significant difference in online, nontraditional undergraduate students' final grades based on the format of facilitation (i.e., text-only control vs. asynchronous video treatments—voice-over-presentation, picture-in-picture, or overlay mode) used for weekly discussion prompts for their online courses.

The null hypotheses were:

H₀₁: There is not a statistically significant difference in online, nontraditional undergraduate students' participation in the discussion forum (measured by average number of posts) based on the format of facilitation (i.e., text-only control vs. asynchronous video treatments—voice-over-presentation,

picture-in-picture, or overlay mode) used for weekly discussion prompts for their online course.

H₀2: There is not a statistically significant difference in the linear combination of online, nontraditional undergraduate students' community of inquiry elements (teaching presence, social presence, and cognitive presence) based on the format of facilitation (i.e., text-only control vs. asynchronous video treatments—voice-over-presentation, picture-in-picture, or overlay mode) used for weekly discussion prompts for their online courses while controlling for the CoI pretest.

H₀2.1: There is not a statistically significant difference in online, nontraditional undergraduate students' teaching presence based on the format of facilitation (i.e., text-only control vs. asynchronous video treatments—voice-over-presentation, picture-in-picture, or overlay mode) used for weekly discussion prompts for their online courses while controlling for the CoI pretest.

H₀2.2: There is not a statistically significant difference in online, nontraditional undergraduate students' social presence based on the format of facilitation (i.e., text-only control vs. asynchronous video treatments—voice-over-presentation, picture-in-picture, or overlay mode) used for weekly discussion prompts for their online courses while controlling for the CoI pretest.

H₀2.3: There is not a statistically significant difference in online, nontraditional undergraduate students' cognitive presence based on the format of

facilitation (i.e., text-only control vs. asynchronous video treatments—voice-over-presentation, picture-in-picture, or overlay mode) used for weekly discussion prompts for their online courses while controlling for the CoI pretest.

H₀₃: There is not a statistically significant difference in online, nontraditional undergraduate students' final grades based on the format of facilitation (i.e., text-only control vs. asynchronous video treatments—voice-over-presentation, picture-in-picture, or overlay mode) used for weekly discussion prompts for their online courses.

Definitions of Terms

The following definitions were used in this dissertation:

- **Attrition rate:** how many students fail or drop out of an online class (Shea & Bidjerano, 2014); also referred to as student retention or dropout rate (Simpson, 2013).
- **Community of inquiry (CoI):** a student-centered model that is used to illustrate the multifaceted components of teaching and learning in a text-based environment (Garrison, Anderson, & Archer, 2000).
- **Cognitive presence:** the exploration, construction, resolution, and confirmation of understanding through collaboration and reflection in a community of inquiry (Garrison, 2007).
- **Information Richness (known now as Media Richness):** the information-carrying capacity of data (Daft & Lengel, 1986).

- **Instructor immediacy:** verbal and nonverbal behaviors that reduce psychological and physical distance (Baker, 2004).
- **Instructional media:** the integration of technologies tool, such as: video conferencing, virtual worlds, and prerecorded videos in an online class (Holden & Westfall, 2010).
- **Instructional strategies:** the techniques, treatments, or methods used to deliver instruction (Spector, Merrill, Elen, & Bishop, 2008).
- **Khan-style video:** a video presentation type that relies mainly on handwritten tutorials created by using a digital pen and tablet, with an audio voice-over by the instructor (Chen & Wu, 2015).
- **Meaningful learning:** a deep understanding of the material (Mayer & Moreno, 2003).
- **Overlay mode:** captures instructional aids the instructor is presenting on the instructor's computer (e.g., a PowerPoint presentation or a software demonstration) and through video editing, shows the embedded video of the instructor overlaid onto the instructional aid without the original background (Chen & Wu, 2015).
- **Persistence:** the ability to complete an online course despite obstacles or adverse circumstances (Hart, 2012).
- **Picture-in-picture presentation:** captures instructional aids the instructor is presenting on the instructor's computer (e.g., a PowerPoint presentation or a software demonstration) and contains an embedded, live video of the instructor in a corner of the screen (Bhat et al., 2015; Chen & Wu, 2015).

- **Retention:** the ability of an institution to maintain a student's enrollment from admission through graduation (Fenty, Messemer, & Rogers, 2016).
- **Social presence:** the degree to which participants feel connected to one another in an online community (Boston, Diaz, Gibson, Ice, Richardson, & Swan, 2009; Garrison & Arbaugh, 2007; Oztok & Brett, 2011).
- **Student perception:** also referred to as student satisfaction; the student's opinion of the value the course had and the quality of the learning experience (Kuo, Walker, Belland, & Schroder, 2013).
- **Teaching presence:** the design, facilitation, and direction of cognitive and social processes for realizing personally meaningful and educationally worthwhile learning outcomes (Anderson, Liam, Garrison, & Archer, 2001).
- **Text-only control:** use of text-based input from a keyboard by instructors and students in a discussion forum to exchange resources, ideas, perspectives, and experiences (Oh & Kim, 2016).
- **Voice-over presentation:** displays what the instructor is presenting on students' computer screens (e.g., a PowerPoint presentation or a software demonstration) with audio of the instructor speaking about the presentation or demonstration (Tuna et al., 2016).

Chapter 2

Introduction to the Literature

Student success is a foremost goal at any college or university, whether classes are taught online or in face-to-face. Online student success has been defined using several factors, including student satisfaction, learning, community, and persistence (Garrison, Anderson, & Archer, 2001; Kuh, Kinzie, Schuh, & Whitt, 2011; Rovai, 2004a). Faculty and the instructional strategies they use are vital to student success. Kyei-Blankson, Ntuli, and Donnelly (2016) noted the need for more research to gain a deeper understanding of how instructors can design and implement online classes to improve students' learning experience. This study will focus on online nontraditional students at an open-selection, private, nonprofit college and how their social, teaching, and cognitive presence, average number of discussion posts (i.e., participation), and final grades are influenced by the format of facilitation an online instructor uses for their initial discussion post.

Retention and Funding

Online student retention across nonprofit and for-profit colleges is a significant issue for academic leaders and faculty. Private for-profit and private nonselective (also known as open admissions) institutions are known for having poorer outcomes, lower graduate rates, and higher student debt and default on loans compared to traditional nonprofit colleges (Deming, Goldin, & Katz, 2013; McGuire, 2012). Current research has noted that online institutions with open enrollment (nonselective) have the lowest retention rates due to limited requirements for admissions (Sutton, 2014). These institutions often require only a high school diploma and minimal grade point averages

(GPAs) for admission (Sutton & Gannon-Cook, 2013). By not having any admission requirements outside of a high school diploma, students have inadequate preparation to begin their college degree (Powers, 2017). Private for-profit and nonselective are thus often the first scrutinized by the U.S. Department of Education and accrediting body (Sutton, 2014).

Deming et al. (2013, p. 153) stated, “Federal student financial aid is the lifeblood for-profit higher education in the United States.” The majority of private for-profit and private nonselective colleges depend heavily on Title IV funding (Guida & Figuli, 2012). Colleges in the private sector can obtain up to 90% of their revenue from Title IV (Cellini & Goldin, 2014; Deming et al., 2013). The remaining 10% has to come from cash, state aid, and veterans’ benefits (Guida & Figuli, 2012).

Due to the high default rate of students at for-profit institutions, additional government oversight was needed to ensure that these institutions were following policies and procedures. The U.S. Department of Education announced the Gainful Employment Rule (GER) in 2010, but the District of Columbia Circuit Court threw it out in 2012 due to its misrepresentation statements colleges made in student recruitment advertisements and incentive compensation provisions for recruiters (Jakiel, 2016). The GER was redrafted in 2014 to address the misrepresentation and incentive compensation and was not contested. The GER uses employment rates and loan repayment metrics to evaluate student outcomes at each institution (Jakiel, 2016). These metrics are used to determine if the institution may offer federal aid to students. In addition, the GER regulates many private and public nonprofits for federal funding.

It is logical that academic administrators want to maintain their Title IV funding. If a student is able to pass his or her courses, graduate with a degree, and obtain a job, he or she should be able to start paying back any federal loan(s). With the pressure private-sector colleges' face in obtaining federal funding, administrators and faculty have much greater motivation to determine ways to assist students and give them the best chance at being successful.

Beyond Title IV funding, institutions have to worry about accreditation. Depending on the accrediting body, additional policies and rules apply. If the institution fails to meet the agreed-upon policies and criteria, it could lose its accreditation. Some policies and criteria focus on student enrollment, retention, graduation, course completion, and job placement rates (Principles of Accreditation, 2012).

Nontraditional Students and Retention Rates

Private for-profit and nonselective sector institutions are also more likely to have a larger popular of nontraditional students. These students are more likely to present a retention problem for the institution. Nontraditional online students can have lower graduation rates because they struggling to balance work, life, and families (Cochran, Campbell, Baker, & Leeds, 2013). They are over the age of 22 years old (though some studies state over 25) (Burke, 2016; Lindsey & Rice, 2015), work part-time to full-time (Van Doorn & Van Doorn, 2014), balance life roles (family and caregiving) (Burke, 2016; Shea & Bidjerano, 2014; Gilardi, 2011), and are often from minorities and from a lower socio-economic background (Wladis, Conway, & Hachey, 2015; Xu & Jaggars, 2013). A nontraditional student is likely to have children, and those having a child under

six are more likely than their peers to fail to complete an online course (Wladis, Conway, & Hachey, 2016).

Nontraditional students juggle multiple responsibilities with competing obligations that could result in withdrawing from the course or program (Cochran et al., 2014). Types of nontraditional students include those who are financially responsible for their own education and living expenses, who have a family to provide for, and who work in addition to attending school (Esteban et al., 2016). Research has shown that nontraditional students sometimes enroll in an online program during a major life change such as changing or losing a job, pregnancy or recent birth, children going to school or leaving home, and retiring (Kasworn, 2003). These are all reasons they are at higher risk for dropping out.

Limitations to Online, Non-traditional Student Success

Retention is complex and influenced by numerous factors. The literature indicates that three main factors limit an online student's success and persistence in online classes: personal (student characteristics), circumstantial (environmental factors), and integration and institutional factors (course and instructor features) (Glazier, 2016; Herbert, 2006; Tinto, 1987; Tyler-Smith, 2006). This study examines an institutional factor and constructs related to persistence, namely community and learning (Tyler-Smith, 2006).

Personal Factors

Bawa (2016) stated that “the reasons for high attrition rates in online classes could be a combination of social factors, as well as the attitude, aptitude, and motivational threshold of the students” (p. 4). These factors can greatly limit how successful a

nontraditional student is regardless of instructor presence (Glazier, 2016), and unfortunately for student success, the majority of these personal factors lie beyond a university's control (Bernardo et al., 2016), though not beyond its possibility of providing support and scaffolding through different instructor and university interventions.

Demographic variables. A few of the main demographic variables related to persistence include age, gender, ethnicity, marital status (Wladis, Conway, & Hachey, 2017), having children, working, and income (Ferdousi, 2016). While the majority of research on demographic variables is conflicting (Jones, 2010), gender, ethnicity, and age are considered important factors (Wladis et al., 2017). Online learners are most likely to non-traditional students who are at least 24 years old, female, and employed at least part-time (Aslanian & Clinefelter, 2012). Some studies have shown that older Caucasian females are more likely to persist in their studies (Xu & Jaggars, 2011), compared to older minority students (Wladis et al., 2015). Nontraditional students juggle multiple responsibilities with competing obligations that could result in withdrawing from the course or program (Cochran et al., 2014). Types of nontraditional students include those who are financially responsible for their own education and living expenses, who have a family to provide for, and who work in addition to attending school (Esteban et al., 2016).

Individual characteristics. Individual variables center on key attributes that determine whether an online student will be successful. These include cognitive, motivation, determination, time management skills, and self-discipline (Ferdousi, 2016). Online classes require the student to be motivated and self-directed in their learning compared to a traditional course where there is an instructor present (Bawa, 2016).

Several factors can limit a student's motivation level. Having the needed time to learn and complete each week's tasks, personal factors such as family obligations that could distract the student, and running into technology issues or lack of support systems to help student with their needs (Smart & Cappell, 2006). Research showed that the best way to counter individual characteristic variables that might result in low retention and success rates is to focus on students' experiences and provide individual instructional support in the learning environment (Glazier, 2016). This can be accomplished by having the instructor build learning communities within the discussion forums (Anderson, 2004).

Academic experiences. Commonly identified academic experience variables that might impact student success are: first or limited experience with online classes, low reading levels, and lack of computer and technical knowledge (Ferdousi, 2016). GPA is a commonly used measure to predict student success; however, a student's GPA is not considered for admission to an open-admissions college (Glazier, 2016). Colleges that have an open-admissions policy and do not screen new students might find their students lack the needed skills and academic preparedness to be successful in an online class (Glazier, 2016). This concern is magnified if the student has not had taken online classes before or has had an extended break from an academic setting (Arbaugh, 2008).

Institutional and Integration Factors

Academic integration and social integration are two of the few factors that institutions can control and use to their advantage to improve retention (Garrison et al., 2000). These two factors are the most prominent themes in the literature about

persistence and have been associated with both community and learning, which are the focus of this study (Tinto, 1997).

Academic integration. Academic integration is a student's experience with academic systems and is measured by grades and intellectual development (Tinto, 1975). It is fostered through the instructor's guidance of learning in a learning community where knowledge is shared (Tinto, 1998). Increased academic integration from the institution and instructor can result in "greater acquisition of knowledge and development of skills" (Tinto, 1997, p. 600). Lack of academic integration can cause attrition rates to increase (Golde, 2005). The construction of this shared knowledge can increase social integration while also fostering the acquisition of knowledge and skills, thereby bridging the "academic-social divide" (Tinto, 1997, p. 610).

Social integration. Social integration is the interaction between individuals that Tinto (1975) described as "informal peer group associations, semi-formal extracurricular activities, and interaction with faculty and administrative personnel" in the academic environment (p. 107). Greater success in developing social integration is the result of instructors who are caring (Joyner et al., 2014). Related constructs include community and social presence that play a significant role in creating a successful connection between the instructor and students (Joyner et al., 2014).

Fostering of a sense of community can help students develop a sense of belonging, trust, and connection to the community, and thus, promote social and academic integration (Joyner et al., 2014; Rovai, 2002). Online discussion forums are the centralized location in an online class where knowledge construction or learning and community develop through social interactions with fellow students and the instructor

(Xie, Miller, & Allison, 2013; Xie, Yu, & Bradshaw, 2014; Wise & Chiu, 2012). A study conducted by Joyner et al. (2014) found that nontraditional students considered the use of audio and/or video in the discussion forum a great way to build a connection with the instructor. Viewing the instructor's video enabled students to form student-instructor connections (Joyner et al., 2014).

Community of Inquiry

As outlined in Chapter 1, the theoretical framework for this study is the CoI framework. The CoI framework is frequently used as a validated model for online education research studies (Lee, 2014). This model provides a framework for researchers to explain effective educational experience from a process perspective (Akyol & Garrison, 2014). The creators of the CoI framework for e-learning, Garrison, Anderson, and Archer, worked together at the University of Alberta for five years (1996–2001) in the Faculty of Extension Department on a graduate program that was partially online (Garrison, Anderson, & Archer, 2010), adapted John Dewey's model, derived from C. S. Pierce, to study online education. At that time, asynchronous, text-based group discussions were a new concept in distance learning that required new theoretical perspectives (Garrison et al., 2010).

CoI drew upon research from Henri (1992) on the cognitive dimension and John Dewey's constructivist approaches to higher education (Garrison & Arbaugh, 2007). Garrison et al. (2010) developed a model that would: (1) connect human issues around being virtual, text-based dialogues, (2) address teaching issues that could come up in an online environment, and (3) provide cognitive goals for the program (Lee, 2014). They proposed that learning occurred in a CoI through the interaction among three essential,

overlapping elements: cognitive, social, and teaching presence (Garrison et al., 2000). These three types of presence in an online class are crucial to student success (Yuen, Deng, & Fox, 2009). Each of these types of presence has categories and indicators (Garrison, 2007; see Table 1).

Table 1

Community of Inquiry Coding Template

Element	Categories	Indicators (examples only)
Cognitive Presence	Triggering Event	Sense of puzzlement
	Exploration	Information exchange
	Integration	Connecting ideas
	Resolution	Apply new ideas
Social Presence	Emotional Expression	Emoticons
	Open Communication	Risk-free expression
	Group Cohesion	Encouraging collaboration
Teaching Presence	Instructional Management	Defining & initiating discussion topics
	Building Understanding	Sharing personal meaning
	Direct Instruction	Focusing discussion

Note. Reprinted from “Critical Inquiry in a Text-Based Environment: Computer Conferencing in Higher Education” by Garrison et al., 2000. *The Internet and Higher Education*, 2(2), p. 89. Copyright 2000 by Garrison et al.

Cognitive Presence

CP is defined as the extent to which learners are able to construct meaning through collaboration and reflection (Garrison et al., 2000; Garrison et al., 2001; Garrison & Arbaugh, 2007; Yang, Quadir, Chen, & Miao, 2016). It is important to note that in 2009, Garrison et al. clarified that the CP was not intended to be evaluated at a higher status than the other presences (teaching and social) as the CoI framework depends, for

the most part, on the interaction of all presences (Garrison et al., 2010). However, there can be subtle variations based on course content, learners, and communication technology (Garrison et al., 2010).

There are four phases of developing cognitive presence: (1) *trigger event*, identifying a problem or issue that needs to be investigated; (2) *exploration*, exploring the problem or issue through critical reflection; (3) *integration*, constructing meaning through exploration of the problem or issue; and (4) *resolution*, applying knowledge learned (e.g., in assignments and discussions) (Garrison et al., 2000; Garrison et al., 2001; Garrison & Arbaugh, 2007; Lambert & Fisher, 2013). Discussion forums are a critical tool used to create CP in an online class (Andresen, 2009).

Unfortunately, research has shown that most students do not reach all four phases of CP in online discussion posts. Most students remain at the initial phases of the inquiry process (Garrison et al., 2001; Garrison, 2011; Kanuka & Anderson, 1998; Rourke & Kanuka, 2009; Zydney, deNoyelles, & Kyeong-Ju Seo, 2012). The instructor plays a critical role in helping students progress through each phase by providing thoughtful initial questions and asking students follow-up critical thinking questions in discussion forums (Garrison & Arbaugh, 2007; Lambert & Fisher, 2013; Mills, 2016). This can be hard for an instructor to achieve, as discussion topics are mainly text-based with very limited visual images of the instructor (Garrison et al., 1999, 2001; Shea & Bidjerano, 2009). TP is needed to help students to achieve learning and connect to the instructor and fellow classmates.

Teaching Presence

TP is defined by Anderson et al. (2001) as “the design, facilitation, and direction of cognitive and social processes for the purpose of realizing personally meaningful and educationally worthwhile learning outcomes” (p. 8). Anderson et al. (2001) developed three categories in the CoI that define the role of teaching presence: instructional design and organization, facilitating discourse, and direct instruction. In terms of design and organization, students are more likely to be successful when the instructor is clear and consistent with the expectations of the course (Lo, Reeves, Jenkins, & Parkman, 2016; Ma’arop & Embi, 2016).

The lack of face-to-face time with the instructor in an online course could impact students’ perception of the instructor social and teaching presence and how students evaluate the course and instructor (Richardson & Swan, 2003; Trammell & Aldrich, 2016). In terms of facilitating discourse, while online discussion forums are standardized with students answering the same question, the communication approach the instructor uses can individualize the interaction and show the instructor’s personality (Morgan, 2011). TP is in fact the easiest presence to manipulate to improve students’ online experience, as it is dependent the instructor and how the instructor communicates enthusiasm and support (Costley, 2016). Further, instructors who use emerging video technologies may improve their students’ social experience and more easily support the development of the teaching as well as cognitive and social presence (Borup, West, & Graham, 2012).

Social Presence

SP is defined as the degree to which students feel connected to one another and the instructor in an online class (Garrison et al., 2000, 2001; Boston et al., 2009; Garrison & Arbaugh, 2007; Oztok & Brett, 2011), as well as the students' ability to identify with fellow classmates and project their own individual personalities (Garrison, 2009). There are three subcategories within social presence: open communication, group adhesion, and expression of emotion.

Social presence is vital to student success in an online class (Sung & Mayer, 2012) and is pivotal in online discussions in the development of cognitive presence (Rourke, Anderson, Garrison, & Archer, 2001). Discussion forums are the hub for student-student and student-instructor interaction (Akcaoglu & Lee, 2016). Instructors and students mainly communicate with each other in an online class via text-based responses. Copious studies have validated the capability of instructors to create a social presence in an online discussion through text-based communication (Caspi & Blau, 2008; Garrison et al., 2000; Rourke et al., 2001; Rovai, 2002a); however, the lack of nonverbal and other interpersonal cues such as nodding, smiling, and tone of voice can make it harder for students in an online class to understand and mentally "hear" the instructor's tone and what the instructor is trying to teach the student (Cooke, 2016; Garrison et al., 2000; Garrison & Arbaugh, 2007; Rovai, 2002; Sung & Mayer, 2012). Students can also become discouraged or frustrated about the delay or lack of response from fellow students and the instructor (Xia, Fielder, & Siragusa, 2013).

Instructors can counter these limitations on social presence by including more human aspects of themselves (McGuire, 2016). Welcome videos and using a web camera

during office hours, video feedback for assignments, and video for discussions are examples of ways online instructors can enhance social cues (McGuire, 2016). When an online instructor uses video technology to enhance the opportunities for students to interact with him or her and fellow students, a sense of community can develop and through meaningful discourse, deeper learning can emerge (Garrison et al., 2009; Paquette, 2016).

Sense of Community and Discussion Forums

A critical component of online class success depends on developing a community (Palloff & Pratt, 2007). Online discussion forums are used as a best-practice pedagogical technique to encourage student interaction and community (Muilenburg & Berge, 2006). An instructor who encourages and facilitates community via a discussion forum among students can reduce their feelings of disconnection and isolation (Phirangee, Demmans, & Hewitt, 2016; Rovai, 2002a), reduce attrition rates (Liu, Gomez, & Yen, 2009), and increase satisfaction with the course content and instructor (Cobb, 2009; Kear, 2010; So & Brush, 2008). Real-time verbal and nonverbal communications in videos such as smiles, nodding while speaking or listening, and eye contact can promote increased learning (Griffiths & Graham, 2010).

Importance of and Best Practices for Online Discussion Forums

Research has found that the online discussion forum is an effective and powerful pedagogical tool that the instructor and students use to promote peer interaction, critical thinking, and collaborative learning (Ryan, 2013; Xia, Fielder, & Siragusa, 2013). Discussions forums are the primary place in an online class where communication between the instructor and classmates occur and, as previously noted, where all three

presences (social, teaching, cognitive) occur (Clark, 2015; Covelli, 2015). Student success can depend on the quality of facilitating and interacting with students in the discussion forums (Maddix, 2012).

Discussion prompts are important as they help students recall new information learned, be reflective, and stimulate learning (Berge, 2002). Providing a well-developed prompt for a discussion is a standard best practices that promotes students' sense of teaching presence and builds a sense of community (Baker, 2010). The initial post the instructor creates should introduce students to the topic, help promote practical inquiry, and provide resources or references to help students feel more comfortable about the material being introduced (Darabi et al., 2011). To motivate students to participate in the discussion, the instructor should encourage students to participate and share their ideas (Bassani, 2011). The instructor may choose to use text or audio or video for the prompt provided to initiate a discussion. If the instructor creates an initial video discussion post, best practices indicated that the video should be under three minutes long and the instructor should speak quickly with high enthusiasm to engage students (Guo et al., 2014).

For deeper learning to occur, student-instructor interactions are required (Ravenna, 2012). There is no specific "best practice" on how many students an instructor should respond to; however, research has found that if an instructor posts only minimally (e.g., once every 10 postings), students might not feel their instructor is present (An et al., 2009). Conversely, if the instructor responds to most students, the discussion can become too teacher centered (An et al., 2009; Arend, 2009). Strategies identified for enhancing all presences are modest feedback, protocols, and video feedback (deNoyelles

et al., 2014). Instructors who inspire motivation and show social presence can help students engage in effective discussions (Rovai, 2007). However, in order to motivate and create SP, the instructor needs to create an engaging initial discussion post before students have access to the discussion topic (Mazzolini & Maddison, 2007).

Video Use in Discussions

According to Borup et al. (2011), “Although text-based online courses can develop instructor immediacy as well as all three presences through the use of humor, sharing of personal stories and encouragement, they cannot include the visual and vocal cues that naturally occur in a classroom” (p. 7). Audio, instead of text-based communication, offers vocal cues for students; however, it lacks facial expression and hand-gesture visual cues (Borup, West, & Graham, 2012). Administrators have started to ask faculty to expand on “best practices” in online classes. For example, faculty are asked to upgrade their welcome messages by sending personalized welcome e-mails and/or phone calls (Draus, Curran, & Trempus, 2014; Franklin, 2015), to provide timely feedback and grading (Shook, Greer, & Campbell, 2013), and to incorporate short instructor-generated videos to increase TP (O’Flaherty & Phillips, 2015).

In their mixed methods study, Draus, Curran, and Trempus (2014) followed an instructor who created instructor-generated video content over the course of three consecutive terms in an undergraduate upper management course. Nine total sections were used for this study ($n = 251$). Six sections ($n = 172$) were used as the experimental group who received instructor-generated videos and three sections ($n = 79$) were used as the control group that did not receive instructor-generated videos. They discovered that the use of instructor-generated video increased student engagement in the discussion

forum and increased the experimental group mean grade by 3.2%. The use of videos in discussions can increase the sense of community and social presence and still retain the flexibility and freedom of asynchronous communication Borup et al., 2012; deNoyelles et al., 2014). Conrad (2015) and Draus et al. (2014) found that the use of video in discussions can counter low student engagement and low performance. The use of video in discussions can even provide support to offers students at risk of failing the course and possibly dropping out of college (Kuh et al., 2008).

Wade (2016) and Clark (2015) found that instructors who created video content for their courses had greater personal connections and increased students' social and teaching presence. The use of video by the instructor in the discussion forum allows students to see the instructor as more of a real person from facial and physical cues compared to instructors who only communicate with students via text messages, which were considered impersonal (Clark, 2015). Integrating video into online courses can also increase satisfaction, student participation, and construction of knowledge (Underdown & Martin, 2016).

Unfortunately, utilizing technology to create different types of videos to increase teaching, social, and cognitive presence requires additional time, training, and resources from the instructor. In addition, very few administrators offer any form of incentive to create such videos (*Inside Higher Ed*, 2014). Empirical evidence for using video, especially for discussion forums, is also in a neophyte stage. Moreover, not all videos are equal (Chorianopoulos, K., & Giannakos, 2013); there are different ways and formats to create videos. For example, Ali, Zamzuri, Samsudin, Hassan, and Sidek (2011) found that students learned best when the video lecture contained narration, was short and

simple (did not contain complex animation), and the learner had low prior knowledge. A video lecture piece that is too detailed or too long can cause cognitive overload for the student. In addition, Chen and Wu (2015) found that picture-in-picture videos had a higher level of media richness and the use of verbal and nonverbal cues than the voice-over presentation. The picture-in-picture and overlay video format type allows students to see the instructor in the corner of the screen while viewing the slides or application the instructor is demonstrating. Richness is shown through the emotion the instructor can convey visually and vocally by looking at the video camera and smiling, laughing, or using hand gestures (Borup, West, Thomas, & Graham, 2014). However, picture-in-picture and overlay are the most expensive in terms of software costs and production time (Chen & Wu, 2015).

There is also limited research on the guidelines for alignment with each type of strategy that is the most effective for nontraditional students in a specific degree program (Chorianopoulos & Giannakos, 2013). As of 2017, “theoretical propositions and empirical evidence for the support of incorporating instructor video in instructional materials are limited and mixed” (Wang & Antonenko, 2017, p. 79). While research is beginning to show that instructor-created audio and video instruction and facilitation have positive effects on student outcomes, many questions remain. What format of facilitation (i.e., voice-over-presentation, picture-in-picture, or overlay mode) can foster a CoI? If the format of facilitation fosters a sense of community, it can result in students participating more frequently, grade in the course, and possibly their persistence (Jacobi, 2017).

As a result, online instructors and administration need to continue to study and experiment with various instructional and facilitation practices, and with different technologies to establish SP, TP, and CP as current research is limited (Dunlap & Lowenthal, 2014; Draus et al., 2014). According to Thomas, West, and Borup (2014), “little research has been attempted to broaden the scope of the CoI framework and the role multimedia communication types have” (p. 62). Different formats of video facilitation can help instructors create a sense of community that helps students feel connected to their fellow classmates and instructor (Lu, 2017). An instructor who creates multimedia pieces in their online classes can help address the physical and psychological distance, raise instructor immediacy, simulate students’ interest, and participation (Draus et al., 2014; Lu, 2017). As the result, the instructor’s use of multimedia communications can help establish a classroom environment where meaningful learning happens (Mandernach et al., 2006).

Another gap in the literature is what type of video instruction non-traditional students in the private sector will have the longest duration time watched. Draus et al. (2014) recommend investigating how the use of instructor-generated video influences the students’ overall experience, collecting demographic data (Chakraborty & Nafukho, 2015), and breaking down the time each student spends watching each video for further research.

Gibson, Ice, Mitchell, and Kupczynski (2015) echoed this statement, adding the need to look at student demographic characteristics as a factor in retention. They found, however, that no demographic variable in a large sample had a meaningful relationship to any of the three CoI presences (Gibson et al., 2015). The authors recommended

repeating this study to see if the same results are found. If another study shows no meaningful relationships, then other factors need to be examined (Gibson et al., 2015). Gibson et al. (2015) also recommend future research to investigate whether instructional methods (in this studies case format of facilitation) plays a role in showing a meaningful relationship with student demographics, teaching, social, and cognitive presences. There is also a general gap in the literature about the use of videos in online discussion forums (Fernandez et al., 2014).

Further investigation is needed to examine the different video types and formats for different uses in online courses, especially for use in discussion forums (Chorianopoulos, K., & Giannakos, 2013).

Video Formats

This study looked at three different video discussion prompt formats as compared to a text-based prompt. These videos are pre-recorded by the instructor to communicate learning material to the student (Chauhan & Goel, 2015). Before discussing the video formats examined in this study, it is useful to note the types or formats *not* included. While the “talking head” is a video type, it shows only the instructor’s face and does not show instructional material via a PowerPoint or screencast (Krosnick, 2015). Another video format referred to Khan shows the instructor drawing on an interactive board (Chorianopoulos & Giannakos, 2013). These are not effective video formats for graphic design students who need to visually see the concepts being introduced, the population studied here. To accommodate these students’ needs, three formats were included in this study: voice-over presentation, picture-in-picture, and overlay mode.

Voice-over presentation. Voice-over presentations, also known as lecture or screen captures, are commonly used in online classes (Chorianopoulos & Giannakos, 2013; Ilioudi, Giannakos, & Chorianopoulos, 2013). Video consists of what is on the instructor's computer screen, such as a PowerPoint presentation or software demonstration (Tuna et al., 2016). Figure 1 illustrates an example of the voice-over presentation type.

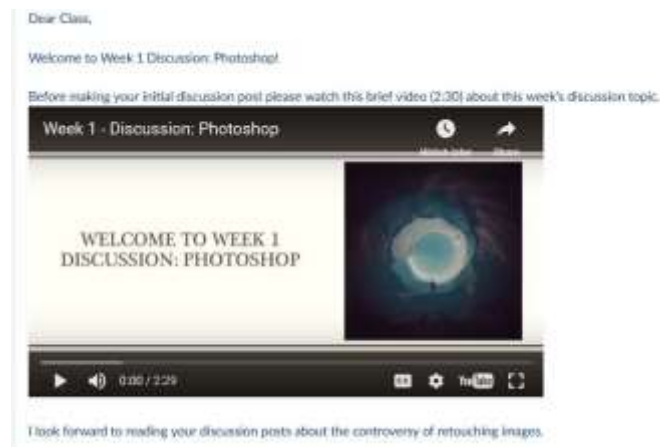


Figure 1. An example of a voice-over presentation (Rudolph, 2017).

Picture-in-picture. In a picture-in-picture presentation, an embedded video of the instructor speaking is shown in a window with the course content around it. Sometimes instead of seeing the instructor speaking, a static image is used. The instructor window usually appears in the lower left-hand corner (Bhat et al., 2015). This video lecture type is created by recording the instructor's voice, a video, or a static image of the instructor, and instructional aids (e.g., PowerPoint slides) (Chen & Wu, 2015). Benefits of this type are low video production costs and the availability of high-resolution video, and it is easy for the instructor to master the technology. Figure 2 illustrates an example of the picture-in-picture video presentation type.



Figure 2. An example of a picture-in-picture video presentation (Rudolph, 2017).

Overlay mode. The latest technology in screen capturing and video editing applications allows the picture-in-picture video background of the instructor to overlay the content while removing objects in the instructor background. The use of this video-based discussion prompt lets instructors interact seamlessly with the content by raising their hand or pointing to specific areas. The instructor is also in closer proximity to the content without distracting students by the sharp transition between the instructor's video and the content (Baht et al., 2015). The use of a green screen behind the instructor followed by video editing creates the seamless overlay of the instructor over the presentation graphics or text (Johnston, 2015).

Bhat et al. (2015) conducted a study with undergraduate students to analyze student engagement, motivation, and navigational patterns showing the instructor in two different video styles (picture-in-picture and overlay). The research found that students preferred the overlay mode over picture-in-picture presentations because students were drawn to the larger size of the instructor's image, the seamless overlay of the instructor video with the content, and the instructor's proximity to the slides (Bhat et al., 2015). Another possible reason that students were drawn more to the overlay format of

facilitation is because picture-in-picture can cause cognitive overload. The instructor's face increases the amount of visual attention the student needs to look at (in addition to the text, screencast, images, and other elements on the screen) (Wang & Antonenko, 2017). In addition to the visual processing of the instructor's face, the background behind the instructor can "distract learners' attention away from important instructional information, thus hindering learning" (Wang & Antonenko, 2017, p. 81). Whereas in the overlay mode, the background behind the instructor is removed in postproduction and the instructor's body is shown seamlessly against the content. Detailed specifics about the program or characteristics these students had in this study were not provided. Figure 3 shows an example of the overlay mode video presentation type.

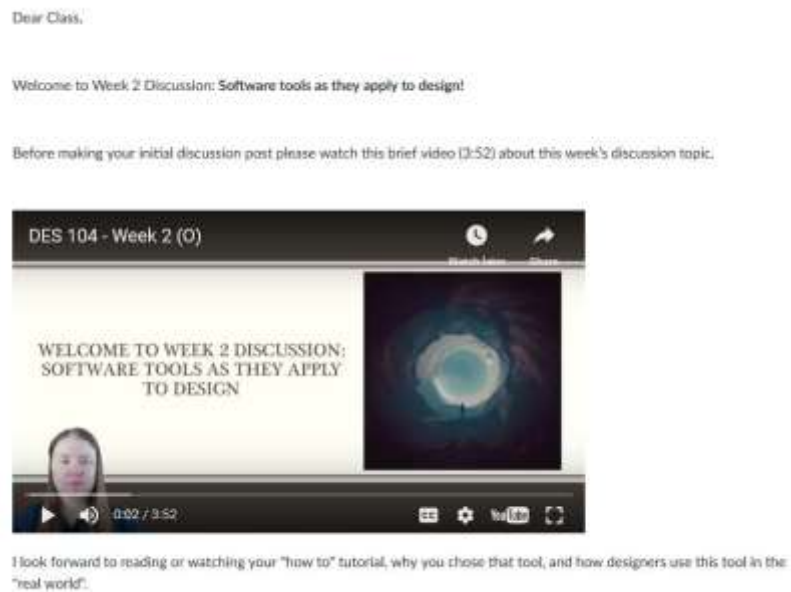


Figure 3. An example of an overlay mode video presentation (Rudolph, 2017).

Video Findings in the Literature

A variety of studies (e.g., quantitative, qualitative, and mixed methods) have been conducted on the use of video for instructional purposes in online classrooms (Bhat et al., 2015; Draus et al., 2014; Guo et al., 2014; Wang & Antonenko, 2017). Many of these

studies do not examine the various formats of video facilitation or instruction, and many studies have primarily focused on student perception and satisfaction. Many are focused on video lectures or instructor welcomes rather than discussion prompts (Valeri, 2015). For example, one of the few recent studies that incorporated the overlay mode discovered that seeing the instructor in close proximity to the content increased the learner's motivation, duration of time watched, and satisfaction (Bhat et al., 2015). This study did not look at the use of the overlay mode in an initial discussion post and instead focused on using this format of facilitation for lectures that were on average 19.23 minutes (Bhat et al., 2015). Whereas, Guo, Kim, and Rubin (2014) found that videos no longer than (no specific type of format of facilitation type mentioned) three minutes had the highest level of student engagement.

The one study located in the review of the literature that examined the use of videos in a discussion forum demonstrated that students had a mean grade increase of 3.2% compared to the control group, who used a text-based discussion forum (Draus et al., 2014). However, Draus et al. (2014) examined only one video format and did not discuss the video format (voice-over-presentation, picture-in-picture, or overlay mode), only stating that "each discussion question began with an instructor-generated video discussing the topics and offering points for students to address in their discussion postings" and that the videos were posted on YouTube™ (p. 243). Draus et al. (2014) discovered that the use of instructor-generated video content improved course satisfaction, increased student participation in discussion responses and length, and that students found the videos informative.

In a discussion on the integration of instructor created videos for online courses, it is important to note, several challenges limit instructors in developing instructional videos. Creating instructional videos requires a lot of time, money, and patience (Draus et al., 2014). With many different types of video choices (i.e., voice-over-presentation, Khan, picture-in-picture, or overlay mode) available, it can be a daunting task for the instructor to determine which video lecture type is the most beneficial for students (Chen & Wu, 2015). At many institutions, the instructor must also master the technology then actually create the instructional video and upload it to a media server (Das, 2012). In addition to the technology requirements, the instructor must learn how to present information effectively in a video to capture the students' attention. Before administrators can train faculty on how to create instructional videos another hurdle must be crossed— getting faculty on board and willing to participate.

Over half of online instructors employed at a for-profit or nonprofit private college are adjunct, non-tenure (Magda, Poulin, & Clinefelter, 2015). Adjuncts are part-time instructors who might teach at several colleges, and could be working a full-time job (Gottschalk & McEachern, 2010). They are used to fill courses at the eleventh hour (Mechenbier, 2015; Richardson et al., 2016). Adjuncts' course preparations and requirements as they facilitate the course continue to increase, while the salary per course remains the same with little chances of advancement or yearly raises (Mandernach, Register, & O'Donnell, 2015). The cost of hiring an adjunct instructor is dramatically lower, does not require the college to pay retirement and health benefits, compared to a full-time instructor, and on average only earns a median salary of \$2,700 per course (Keller, 2015; McKenna, 2015). Adjunct instructors play a significant role in their

students' success and attrition rates, however, are often faceless in their department and not given access to the same resources and budgets full time faculty and are often overburdened with teaching responsibilities (Mechenbier, 2015; Mueller, 2013). In the CoI literature, limited studies investigate courses adjunct instructors teach who did not develop the course themselves (Richardson et al., 2015). Therefore, research is needed to analyze the various layers and complexities of deploying technologies to facilitate a CoI and the optimal forms of presence in online teaching, as well as support administrative and instructional implementation.

Summary

As of 2017, “theoretical propositions and empirical evidence for the support of incorporating instructor video in instructional materials are limited and mixed” (Wang & Antonenko, 2017, p. 79). Moreover, Garrison and Arbaugh (2007) stated that additional studies are needed to better understand how social, cognitive, and teaching presence are supported together with different types of instructional strategies and technologies, especially in discussion forums.

Few studies analyze whether the use of three different video formats of facilitation for the initial instructor's discussion post has any effect on students' community of inquiry, final grades, and the number of student postings in the discussion forum. Moreover, it is important to remember that research is needed that focuses on specific populations, acknowledging that individual student factors as well as faculty also affect overall achievement (e.g., success, community, learning) in the online course (Ke & Kwak, 2013). Thus, I collected, reported, and investigated the use of video discussion difference in online, nontraditional undergraduate students' participation in

the discussion forum (measured by average number of posts), grades, and community of inquiry based on the video format of facilitation (i.e., text-only control vs. asynchronous video treatments—voice-over-presentation, picture-in-picture, or overlay mode) the instructor used for weekly discussion prompts for their online course at a nonselective, private institution.

Chapter 3

Methodology

The purpose of this study was to compare online, nontraditional undergraduate students' participation levels, sense of CoI (i.e., social, teaching, and cognitive), and final grades based on the format of facilitation used for weekly discussion prompts for their online courses (i.e., text-only control vs. asynchronous video treatments—voice-over presentation, picture-in-picture, or overlay mode). I investigated the research questions and corresponding hypotheses, outlined in Chapter 1, using a quantitative method. In chapter 3, details about the method and design were introduced. Followed by who the participants were and the setting the study was conducted in. Then the instrumentations used were presented. This chapter ends with explaining the data procedures, collection, and analysis used.

Method and Design

The research method most well suited for this investigation is quantitative because I was interested in examining the effectiveness of an intervention and its influence on a number of variables (Gall, Gall, & Borg, 2005). The chosen research design for this study is quasi-experimental. Both a posttest only, nonequivalent control group design and pretest-posttest, nonequivalent control group design were employed as the designed study to include a control group and three experimental groups. I worked with the course instructors to manipulate the format of facilitation used for the weekly discussion prompt (Campbell & Stanley, 1963; Gall et al., 2005). Therefore, the design included two defining elements of a quasi-experimental design, control, and manipulation (Campbell & Stanley, 1963; Gall et al., 2005). The quasi-experimental, well-known

designs are similar to true experimental designs, with the exception that nonequivalent groups are used (Gall et al., 2005; Rovai, Baker, & Ponton, 2013). The designs allowed the researcher to “approximate the conditions of a true experiment in a setting that does not allow for random assignment of participants to a treatment and control conditions” (Rovai et al., 2013, p. 62).

Since I was not able to assign participants randomly to the control and treatment groups, there are threats to the internal validity in this study (Muijs, 2010). To control for the selection threat (factors that can lead to posttest differences between groups) to internal validity due to nonequivalent groups, I used homogeneous groups. I examined each group to make sure that the extraneous variables such as gender were similar in the proportion among groups. In the graphic design department, women usually outnumber men. Demographics of the current sample are consistent with research showing that female enrollment has continuously been higher than male enrollment in online classes at the bachelor’s degree level (Kena et al., 2015). I gave a pretest for Question 2 to control for the selection threat to validity. For Question 1, there were no group differences in average number of posts, indicating that the number of posts were equivalent across all groups. As such, there was no indication to control for number of posts in subsequent analyses. Details are in the Instrumentation section.

Participants

Nonrandom sampling (i.e., convenience sampling) was used in this study. Educational research most commonly uses nonrandom sampling because random sampling is often not possible or feasible, or it is too costly (Rovai, Baker, & Ponton, 2013). The nonrandom sampling method used in this study was a convenience sample

because the students and the courses where the research took place were readily accessible to me as an adjunct at the institution.

The students sampled were enrolled in one of four sections of a graphic design course during the fall 2017 session. I randomly assigned students to each section of this course by the college's automated scheduling system. I randomly assigned courses to either the text-only control group or an asynchronous video treatment group (i.e., voice-over presentation, picture-in-picture, or overlay mode). Although I was not able to assign students randomly in treatment and control groups, the computer randomizing of the section assignments helped to prevent some bias (Muijs, 2010).

During Week 1 of the course, I worked with the course instructors to invite students via email and course announcement to participate in the study. The instructors informed students about the purpose of the study, what it was looking to discover, and how the collected data from students would be used. The instructors asked the students to follow a link and digitally sign a consent form agreeing to participate and informed that their participation was voluntary. Students were informed that if they completed all of the questionnaires (pretest and posttest); they would earn an Amazon gift card. . Further description about the recruitment of participants is in the Procedures section.

Of the 238 students invited to participate, 142 completed the first survey and 90 students completed the both the pretest and posttests. The volunteer rate for completing the pre and posttest survey was 37%. Students who opted out still participated in the course, but their data was not collected. In this study, I conducted *a priori* power analysis in order to determine sufficient sample size to find significance, if significance in fact exists. Using G*Power v. 3.1.9.2, in order to ensure sufficient power (.80), based on

an estimated moderate effect size ($f^2 = .0625$), 88 participants were ideal (Cohen, 1988; Erdfelder, Faul, & Buchner, 1996; Faul, Erdfelder, Lang, & Buchner, 2007). With 90 students who completed both the pre and posttest, the sample size was sufficient for this study.

The participants in this study were online undergraduate students, located in various states in the United States, and working on their associate or bachelor's degree in the Graphic Arts department at a private, nonprofit college. They were adult learners who were 18 years of age or older. Research has shown that older students enroll at primarily online institutions (James, Swan, & Daston, 2015). Similar to the profile of nontraditional students in the literature, the participants were over the age of 22 years (Burke, 2016; Lindsey & Rice, 2015) and struggled to balance life roles (e.g., family and caregiving) (Burke, 2016; Shea & Bidjerano, 2014; Gilardi, 2011). While 21.1% of the participants were 18–23 years old, over 78.8% of students who participated in the study were at least 24 years old. Many were in a caretaking role, as 6.7% of students reported they were caring for an ill family member and 40% had at least one child under the age of six in the home.

Similar to students in Fishman's (2015) studies, these college students "juggle[d] family obligations with employment and school," these students reported that 53.3% of them were not employed, 21.1% worked part-time, and 25.6% worked full time (p. 2). It is important to note that over half the students in this study were not employed, which is not consistent with research. Possible reasons could have been the student is a stay at home mom, caring for a family member, or currently looking for a job (Barczyk et al.,

2017). Specific descriptive information divided by control and experimental groups are below (see Table 2).

Table 2

Frequencies and Percentages of Selected Categorical Demographics (N = 90)

	Full Sample		Text		P2P		Overlay		Voice Over	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Work Status										
Not Working	48	53.3	10	45.5	13	56.5	11	47.8	14	63.6
Part Time	19	21.1	3	13.6	5	21.7	6	26.1	5	22.7
Full Time	23	25.6	9	40.9	5	21.7	6	26.1	3	13.6
Caring for Ill Family Member										
No	84	93.3	22	100.0	22	95.7	21	91.3	19	86.4
Yes	6	6.7			1	4.3	2	8.7	3	13.6

Similar to the typical online undergraduate student in the United States in 2016 who are Caucasian females (Clinefelter & Aslanian, 2016; Wladis, Conway, & Hachey, 2016), this sample was made up of fifty-four females and thirty-six males.

Crosstabulations with Pearson’s chi-square indicated that there was not a significant difference in gender proportions across group, $\chi^2(3) = 3.74, p = .292$. Through self-reporting, 56 students identified as Caucasian (65.6%), 8 as Hispanic (8.9%), 19 as African American (21.1%), and the remaining 4.4% as Asian or Pacific Islander. With regard to income, 43.3% students reported a family income under \$10,000, 25.6% reported a family income between \$10,000–19,000, 17.8% reported a family income between \$20,000–39,000, 6.7% reported a family income between \$40,000–59,000, and

6.7% reported a family income over \$60,000. The demographic findings are consistent with research showing online nontraditional students come from a minority group or from a lower socio-economic background (Wladis, Conway, & Hachey, 2015; Xu & Jaggars, 2013). Specific descriptive information divided by control and experimental groups is below (see Table 3).

Table 3

Frequencies and Percentages of Selected Categorical Demographics

	Full Sample		Text		P2P		Overlay		Voice Over	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Gender										
Female	54	60.0	14	63.6	16	69.6	10	43.5	14	63.6
Male	36	40.0	8	36.4	7	30.4	13	56.5	8	36.4
Ethnicity										
Caucasian	59	65.6	16	72.7	10	43.5	15	65.2	18	81.8
Hispanic	8	8.9	2	9.1	1	4.3	4	17.4	1	4.5
African American	19	21.1	3	13.6	10	43.5	3	13.0	3	13.6
Asian or Pacific Islander	4	4.4	1	4.5	2	8.7	1	4.3		
Age										
18-23	19	21.1	4	18.2	6	26.1	5	21.7	4	18.2
24-29	22	24.4	6	27.3	5	21.7	7	30.4	4	18.2
30-39	35	38.9	9	40.9	8	34.8	9	39.1	9	40.9
40-49	10	11.1	2	9.1	4	17.4	2	8.7	2	9.1
50-59	3	3.3	1	4.5					2	9.1
60-69	1	1.1							1	4.5

(Continued)

	Full Sample		Text		P2P		Overlay		Voice Over	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Family Income										
< \$10,000	39	43.3	7	31.8	11	47.8	10	43.5	11	50.0
\$10,000-19,999	23	25.6	7	31.8	5	21.7	6	26.1	5	22.7
\$20,000-39,999	16	17.8	2	9.1	4	17.4	5	21.7	5	22.7
\$40,000-59,999	6	6.7	2	9.1	2	8.7	2	8.7		
\$60,000+	6	6.7	4	18.2	1	4.3			1	4.5

Setting

The college site where the study was conducted was chosen for convenience and because it serves nontraditional undergraduate students in online classes (Pontes & Pontes, 2012). The college is accredited by the Accrediting Commission of Career Schools and Colleges (ACCSC) organization. This is a nonprofit, career-focused college with an open admissions policy and belongs to a family of colleges that offer residential and fully online degree programs, with locations in Utah, California, Idaho, and Arizona. An open admissions policy focuses on being adult friendly and attracts applicants who might not have been in an academic setting for several years and might be first time or returning college students (Stone, 2016).

The course used in this study was within the School of Graphic Arts program. The course was a 100 level graphic design course, fully online, and taught in the Canvas learning management system. Associate and bachelor's-level students take this course, which is required to earn an associate or bachelor's degree in graphic arts. This course focused on beginning image editing. Assignments, assessments, and discussions required students to create, recreate, and edit images for the web and print, photo retouching and

restoration, image compositing, and poster design. Upon completion of the course, students were expected to demonstrate “nondestructive editing” principles and create a variety of layouts applying the key principles and elements of design.

The course was four weeks in length. Each week, the instructors expected students to participate in a discussion forum, complete assignments, assessments, and watch a weekly four-hour screencast lecture. Each week’s discussion assignment was worth 60 points, accounting for 18% of the students’ final grade. In order to earn the 60 points, students needed to write an initial post of at least 150 words with one citation. The students needed to make the initial post by that Wednesday night, at 11:59 PM Mountain Time. Student had to respond to two fellow students by that Saturday night, at 11:59 PM Mountain Time. I used four sections of this course for the intervention.

Unique instructors facilitated each course section. The instructors had worked at the college for at least a year; were proficient in Canvas, the learning management system (LMS); and had taught the selected course prior to the study’s implementation. All of the instructors held master’s degrees within the graphic, web, or visual communications field with at least five years of professional experience. All were part-time (adjunct) instructors. Table 4 outlines the discussion intervention that each instructor implemented in their course section.

Table 4

Instructors' Course Section Assignments

Course Title	Instructor	Discussion Prompt Format
Course_Title_Section_00 (Past session)	Instructor A	Text-based discussion prompt
Course_Title_Section_01	Instructor B	Voice-over presentation discussion prompt
Course_Title_Section_02	Instructor C	Picture-in-picture discussion prompt
Course_Title_Section_03	Instructor D	Overlay mode discussion prompt

The independent variable in this study was the format of facilitation used for the asynchronous discussion prompt. There were four different levels of the independent variables: (1) voice-over presentation video, (2) picture-in-picture video, (3) overlay mode video, and (4) text-based. The voice-over presentation video format contained PowerPoint slides with the instructor provided a supplemental voice-over for the discussion prompt (Chen & Wu, 2015). The picture-in-picture video format overlaid the instructor's face via real-time video with the lecture slides. The overlay mode video showed the instructor's face while he/she spoke about a topic, and the slides placed behind the instructor. The text-based format contained a text-based dialogue from the instructor. For all four of the courses, each weekly discussion prompt used the same verbiage. Examples of each format of facilitation and the discussion script are in Appendix E.

Instrumentation

The dependent variables for this study were the three elements of the CoI (Arbaugh et al., 2008), final grades, and the number of discussion posts made. In

addition to data collected on the dependent variables, data regarding students' demographics and video time watched/times viewed was collected to examine if there were potential covariates that needed to be controlled. There was no indication of strong relationships between demographics, time in which videos were watched, and key outcomes, precluding the need to control for them in subsequent analyses.

Student demographic information. I collected student information via the student demographic survey in the pretest survey during Week 1 of the course. The student demographic survey asked students 20 questions about their educational and personal background (see Appendix C). The following demographic information was collected: "state or country the student lives in," "year in school," "degree program enrolled in," "full-time or part-time enrollment," "part-time or full-time work," "caring for an ill family member," "marital status," "number of children and how old," "family income level," "GPA," "sex," "age," "prior online class experience," "type of telephone," "Internet access at home," "devices," "number of courses taken each session," and "race or ethnic." The majority of participants were first year students ($n = 82$, 91.1%), and were working towards an Associate's degree ($n = 73$, 81.1%). Most of the participants reported having only a cellphone ($n = 76$, 84.4%), and all but three participants (3.3%) had some type of internet access at home. All participants reporting owning some type of electronic device (i.e., cellphone, tablet, laptop), and many reported having multiple devices. I used this data to describe the sample and ensure homogeneity among groups in terms of gender.

Community of inquiry questionnaire. For Question Two, the dependent variables were the three elements of the CoI, including CP (e.g., triggering event,

exploration, integration, and resolution), SP (e.g., emotional expression, open communication, and group cohesion), and TP (e.g., instructional management, building understanding, and direct instruction). I used the CoI survey to assess these variables (Arbaugh et al., 2008). Students took the CoI framework survey as a pretest (i.e., control variable for Question 2) as well as a posttest (i.e., dependent variable for Question 2) (Arbaugh et al., 2008). The CoI framework informed the dependent variable identified for each question (see Table 5).

The CoI framework survey contained 34 items with three subscales to measure the three presences (social, cognitive, and teaching) (Garrison et al., 2014). The SP subscale consists of nine questions, the CP subscale consists of 12 questions, and the TP subscale consists of 13 questions. The participants answered the questions on a 5-point Likert scale (i.e., 1 = *strongly disagree*, 2 = *disagree*, 3 = *neutral*, 4 = *agree*, 5 = *strongly agree*). A higher score for each subscale demonstrated a stronger sense of social, cognitive, and teaching presence (Arbaugh et al., 2008). Mean responses were calculated for the 34 items. The score range for the entire scale was 2.90 to 3.63 (Swan et al., 2008).

The CoI survey instrument is free to use and attribution is required for published research using this instrument (Richardson et al., 2011). Several researchers have confirmed that the CoI an instrument is valid and can be used with the higher education population (Horzum & Uyanik, 2015; Kozan & Richardson, 2014; Lee, 2014; Arbaugh et al., 2008; Swan et al., 2008). Arbaugh et al. (2008) found the instrument to be reliable with a Cronbach's alpha values of 0.91 for TP, 0.91 for SP, and 0.95 for CP. The reliability for the current study was in the high range ($\alpha > .90$) across all subscales.

Reliabilities coefficient values (Cronbach's α) were: TP = .96 (pre) and .95 (post); SP = .92 (pre) and .95 (post); and CP = .95 (pre) and .97 (post).

Final grade. The CoI survey measured cognitive learning from a self-report measure (Carrallo, 1994). Cognitive learning is often measured self-reports, and a valid measurement for adult learners. However, grades are one of the most common measures of cognitive learning used in research (Dumont, 1996). As such, the final grade in the online course was also used as a valid measure of learning and served as the dependent variable for Question Three (Richmond et al., 1987; Rockinson-Szapkiw, 2012b). The maximum number of points earned in the online graphic design undergraduate course was 1000 and the minimum number was zero. The grading scale for this course was: 105.5–94% A; 93.9–90% A-; 89.9–87% B+; 86.9–84% B; 83.9–80% B-; 79.9–77% C+; 76.9–74% C; 73.9–70% C-; 69.9–67% D+; 66.9–64% D; 63.9–60% D-; 59.9–0% F.

Participation variables. Students more active in the discussion responses show a stronger sense of community or SP through their increased level of engagement (Rovai & Ponton, 2005); thus, the mean number of discussion posts each student made to the weekly discussion forum served as a dependent variable for Question One. This is similar to the work of Kovanović, Gašević, Joksimović, Hatala, and Adesope (2015); Lust, Elen, and Clarebout (2013); and Valle and Duffy (2009). By data mining students' discussion activity after the instructor's initial asynchronous video-based discussion prompt (i.e., voice-over presentation, picture-in-picture, and overlay mode) or text-based discussion prompt, I investigated whether there was a significant difference in the number the student posts based on the specific video or text-based discussion prompt. If a significant difference was found, it was my intention to use this variable as a potential

covariate in the other analyses. However, as discussed in Chapter 4, there was no significant difference in students’ number of posts across groups. Table 5 connects each research question to the dependent variables with the theoretical construct of CoI that is used.

Table 5

Dependent variables with Theoretical Construct of COI

Research Question	Variable	Theoretical construct(s)
1	# of Posts	CP, SP, TP
2	CP, SP, TP	CP, SP, TP
3	Final grade	CP

Self-reporting questionnaire variables. Finally, for each of the three course sections using a specific video-based discussion prompt (i.e., voice-over presentation, picture-in-picture, and overlay mode), the variables listed in Table 6 were collected from a self-reporting questionnaire students completed in Week 4. By data mining from the online teaching interface, the students’ usage of initial asynchronous, video-based discussion prompt (i.e., voice-over presentation, picture-in-picture, and overlay mode), I investigated whether there was a significant difference in number of views, and time watched based on the specific video-based discussion prompt. I also verified that each participant spent time watching the videos. This analysis was conducted to ensure treatment fidelity; that is, that each level of the independent variable was implemented as planned and in a comparable manner to all participants.

Table 6

Self-Reporting Questionnaire Variables

#	Type	Code	Name	Description
1	Clustering Variables	UV	UniqueViews	Unique views per video
2		TW	TimeWatched	Time watched per video

Procedures/Data Collection

I met with the department dean at the research site to request formal permission to conduct the study. Once the college granted permission, I obtained approval from the University of Memphis Institutional Review Board (IRB). The department dean assigned instructors to the course by based on availability and qualifications. The researcher then randomly assigned each course a treatment or control group.

I met virtually with the instructors to discuss the study and plans for the study. I and department dean informed instructors about the study and asked if they would be willing to participate voluntarily in the study. A detailed explanation of how to prepare and implement the discussion intervention was provided to ensure treatment fidelity. In addition, to ensure fidelity, I created the videos using the same script for each level of the intervention for each weekly discussion post. To create the videos, I used a green screen, backdrop, clamps to hold the green screen, and photography lighting as well as the following applications Adobe Creative Cloud®: Photoshop®, Premier®, and After Effects®. Each week's discussion board prompt video was approximately two minutes long because research conducted by Guo, Kim, and Rubin (2014) found that videos under three minutes had the highest level of student engagement. Guo et al. (2014) also found that instructors who speak quickly with high enthusiasm were the most engaging for

students. Thus, in all videos produced words were spoken at a conversation pace with an uplifting tone.

The weekend before the course started, the three different videos for the weekly discussion prompts with the same wording and script for treatment fidelity purposes were recorded and then uploaded to YouTube™. YouTube™ is well known to students, and this college currently uses this medium to house each week's live lecture. The YouTube™ video player is currently the most commonly used web application for hosting and viewing online lectures (Shin, Berthouzoz, & Durand, 2015). Storing these video and audio files on YouTube™ ensured the fidelity of the treatment and that students watched or listened to the prompts. The weekly videos were unlisted to prevent third parties from viewing the videos. The Canvas LMS embedded the video into the discussion forums (see Figure 5). The instructors also emailed the video to students at the start of the week and placed in the announcements to ensure that students saw and watched their weekly video discussion prompt.

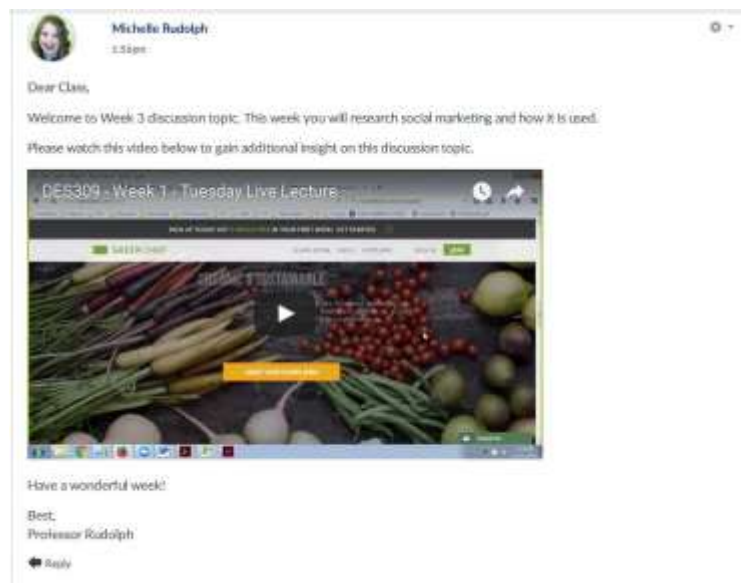


Figure 4. Example of voice-over discussion prompt video embedded into the Canvas LMS (Rudolph, 2017).

Study Implementation and Data Collection

On Monday of Week 1, instructors sent out an email, made a course announcement, and discussed the study during the live lecture. An email and course announcement contained a direct link to the consent document. Students who digitally signed the consent form received the CoI survey instrument and demographic survey to complete via the host, Qualtrics. Students were informed that their instructor did not have access to the individual survey results nor the survey results contained any identifiable information, such as name or e-mail. After students completed the pretest, they received a thank-you response. Students received a final survey to complete in Week 4. At the beginning of Week 4, each instructor sent out an email asking students to complete the posttest survey; and each instructor sent one email reminder.

At the end of Week 4, each instructor provided me with an Excel document that contained each student's final grade that consented to be part of this study. Also, included on this Excel document was the average number of posts each student made for each week's discussion topic. I imported this data into Statistical Package for the Social Sciences (SPSS) for analysis. I also exported demographic, pretest, and posttest data from Qualtrics and imported into SPSS for analysis.

Data Analysis

For Research Question One, a one-way ANOVA was used to examine if the number of discussion posts made by students was significant different across groups. ANOVAs are used to test for significant differences in continuous variables (i.e., number of posts) across two or more groups (i.e., teaching method; Anova, 2002). I used the same analysis for Question Three to examine whether there was a significant difference

in student's final grade among the groups. A significance level of .05 is commonly used in social science research (Gall, Gall, & Borg, 2007), and used to make a decision of whether or not to reject or fail to reject the null hypothesis. The effect size that was reported is partial eta squared, which was interpreted using Cohen's (1988) conventions set forth for interpreting effect size. The interpretation is based on thresholds of .01 for a small effect, .06 for a moderate effect, and .14 for a large effect (Cohen, 1988, p. 284–287).

I conducted assumption testing prior to conducting the ANOVA, and assessed normality using the mean to standard deviation ratio, skewness, and kurtosis. I used boxplots to determine whether there were any extreme outliers in each group. To determine homogeneity of variance, I conducted a Levene's test.

The statistical procedure most well suited for research Question Two was a one-way multivariate analysis of covariance (MANCOVA), as a MANCOVA is appropriate to use with multiple related dependent variables and a covariate (Bernard, 2012). A MANCOVA is a multivariate analysis of variance in which dependent variables "are initially adjusted for differences in one or more covariates to reduce error "noise" when error(s) associated with the covariate is removed" (French et al., 2008, p. 3).

Prior to conducting a MANCOVA, I performed assumption testing. The assumption of univariate normality assumes that the population distributions are normal. Normality was assessed through histograms and by conducting normality tests, including the Kolmogorov-Smirnov tests.

Multivariate normality was examined using Mahalanobis distance. The data's Mahalanobis distance value was compared against the critical value outlined in a chi-square critical value chart found in statistical texts.

The assumptions of multicollinearity and singularity were checked by creating correlation matrices. A MANOVA is most robust when the dependent variables were moderately correlated. When correlations are low or not significant, separate univariate analyses need to be run. Conversely, multicollinearity is an issue when correlation coefficient values are above significant and high, .8 or .9. When multicollinearity exists, it is usually preferable to collapse the variables into a single measure. Neither were of concern.

The assumption of linearity assumes that the relationship among variables was linear. I examined this using scatter plots. The presence of a straight line indicated linearity. Evaluate variance using Levene's Test for Equality of Variance, where a significance level larger than .05 indicates that equal variance can be assumed.

Box's M was checked to examine the tenability of this assumption of homogeneity of covariance. In SPSS, this is part of the MANOVA output.

SPSS was the statistical analysis software used in this research. Table 7 demonstrates the relationship between research questions, hypothesis, variables, and statistical procedures.

Table 7

Research Questions, Hypothesis, Instruments, Theoretical Construct of COI, and Statistical Procedures

Research Questions	Hypothesis	IV	DV	Theoretical Construct of COI	Statistical Procedures
1	H ₁ 1	Type of Discussion Prompt	ANDP	CP SP TP	Analysis of Variance (ANOVA)
2	H ₁ 2-H ₁ 2.3	Type of Discussion Prompt	CP SP TP	CP SP TP	MANCOVA
3	H ₁ 3	Type of Discussion Prompt	Final Grade	CP	ANOVA

Summary

This chapter introduced the research method and design used in this study. This chapter also described, in detail, the study's participants, setting instrumentation, procedures, statistical analysis procedures, limitations, and biases.

Chapter 4

Results

This chapter outlines the statistical findings from the data collected from this study. Results indicated that none of the research questions showed a significant difference in discussion post frequency, CoI, or final grades based on the format of facilitation (i.e., text-only control vs. asynchronous video treatments—voice-over presentation, picture-in-picture, or overlay mode) used for weekly discussion prompts. Nonsignificant results were also discovered for the difference in number of views and time watched based on the specific video-based discussion prompt.

Sample Descriptive Statistics

The final sample consisted of 90 participants. There were relatively equal numbers of participants in each group, including Picture-in-Picture ($n = 23$), Overlay ($n = 23$), Voice Only ($n = 22$) and Text Only ($n = 22$). Chapter 3 provided detailed descriptive statistics of demographic information disaggregated by group. The full demographic and experience data is listed in Appendix I.

Results

Research question one. A one-way analysis of variance (ANOVA) test was conducted to test for differences in number of posts by the groups and to answer the following research question: Is there a statistically significant difference in online, nontraditional undergraduate students' participation in the discussion forum (i.e., average number of posts) based on the format of facilitation (i.e., text-only control vs. asynchronous video treatments—voice-over presentation, picture-in-picture, or overlay

mode) used for weekly discussion prompts for their online courses? Table 8 demonstrates the mean and standard deviations disaggregated by groups.

Table 8

Average Student Posts by Instruction Method (N = 90)

	<i>n</i>	<i>M</i>	<i>SD</i>
Group			
Text Only	22	7.05	2.95
Picture in Picture	23	6.04	3.02
Overlay	23	7.04	2.88
Voice Over	22	6.59	2.77

Prior to running the ANOVA, preliminary analyses were conducted to assess the assumptions of the ANOVA, specifically including assessment of normality and homogeneity of variance. Histograms and the Kolmogorov-Smirnov (K-S) test of normality were used to assess the distribution of number of posts in each group. Histograms demonstrated that the data was positively skewed. The results of the K-S test also indicated significant deviation from true normality for each group, $ps < .001$. However, examination of more liberal indicators of normality, such as the Mean to SD ratio, skewness, and kurtosis, indicate that number of posts was sufficiently normal to meet the assumptions of the ANOVA test, which is known to be robust enough to tolerate some deviations from true normality (Tabachnick & Fidell, 2007).

Levene's test was used to assess for homogeneity of variance. Levene's test was not significant, $p = .838$, indicating that variance across comparison groups was comparable. Thus, I continued by conducting the ANOVA. Results of the ANOVA indicated that there was not a significant difference across groups, $F(3, 90) = .61$, $p =$

.611, $\eta^2 = .021$, indicating that the number of posts made could not be differentiated by group.

Research question two. A multivariate analysis of covariance variance (MANCOVA) test was conducted to answer the following research question: Does the format of facilitation (i.e., text-only control vs. asynchronous video treatments—voice-over presentation, picture-in-picture, or overlay mode) used for weekly discussion prompts in the online courses influence online, nontraditional undergraduate students’ cognitive, teaching, and social presence while controlling for the CoI pretest? Means and standard deviations of pre- and posttest scores are outlined below in Table 9.

Table 9a

Pre and Post CoI Scores by Instruction Type

	Text (<i>n</i> = 22)		P2P (<i>n</i> = 23)		O (<i>n</i> = 23)		VO (<i>n</i> = 22)	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
TP Pre	3.78	.40	3.36	1.08	3.61	.93	3.36	.79
TP Post	3.96	.12	3.39	1.19	3.78	.83	3.57	.92
SP Pre	3.47	.68	3.18	1.01	3.48	.76	3.14	.98
SP Post	3.57	.60	3.06	1.16	3.58	.89	3.30	1.07
CP Pre	3.61	.50	3.22	1.13	3.61	.62	3.10	.87
CP Post	3.76	.40	3.24	1.19	3.62	.90	3.26	1.05

Note. Within, between, and interaction effects all non-significant, $ps > .05$; TP = Teaching Presence; SP = Social Presence; CP = Cognitive Presence

Table 9b

Estimated Marginal Means of Posttest Scores by Group

	<i>EM</i>	<i>SE</i>
Teacher Presence		
Text	3.97	.19
P2P	3.39	.18
O	3.76	.18
VO	3.58	.19
Social Presence		
Text	3.56	.20
P2P	3.08	.19
O	3.53	.19
VO	3.34	.20
Cognitive Presence		
Text	3.75	.20
P2P	3.26	.19
O	3.56	.19
VO	3.32	.20

Note. EM = Estimated Mean; SE = Standard Error

Prior to conducting the primary, I reviewed the analyses to assess the assumption of normality of all CoI scales at both pre and posttest. To examine normality, K-S tests and histograms as well as more liberal metrics of normality were examined as identified by Tabachnick and Fidell (2007). Critical values for skewness were considered -1.0 and +1.0, and critical values for kurtosis were considered -2.0 to +2.0 (Tabachnick, & Fidell, 2013). The results of the K-S test and examination of the histograms indicated significant deviation from true normality for all groups, for pre and posttest, respectively. Examination of more liberal indicators of normality, such as the Mean to SD ration, skewness, and kurtosis, across groups and variables suggested some violation of

normality. A MANCOVA is robust against some violation in normality leading to the decision to continue with the parametric analysis.

I assessed the assumption of linearity using Pearson's Product Moment correlations (see Table 10). Results indicated that all variables were significantly related, $p < .001$. The magnitude of observed relationships, however, did not indicate concern for multicollinearity, $r_s < .900$, suggesting that the decision to conduct a MANCOVA was appropriate.

Table 10

Pearson's Product Moment Correlations among CoI Items for Pre and Post

	Teacher Presence	Social Presence
Pre		
Social Presence	.416 ***	
Cognitive Presence	.557 ***	.766 ***
Post		
Social Presence	.857 ***	
Cognitive Presence	.867 ***	.864 ***

Note. *** $p < .001$

Multivariate homogeneity of variance for the MANCOVA model was examined using Box's M test, which indicated significant heterogeneity of covariances, $F(18, 26025) = 5.25, p < .001$. Further evaluation of homogeneity was assessed using Levene's test, which also indicated significant violations in homogeneity of variance for TP ($p = .002$) and CP ($p = .022$). Taken together, these results suggested that variability within groups tended to differ across groups, thus, potentially making between group differences difficult to detect using parametric analyses. Thus, to account for this, deviations of normality, nonparametric equivalencies were used to confirm the results of parametric analysis.

Examination of the MANVOCA models, indicated that the only covariate that was significant was SP pretest scores, $F(3, 81) = 5.57, p = .002, \eta^2 = .171$. Pretest scores for TP and CP were not significant covariate, $p > .05$. Examination of the multivariate effect of group was not significant, $F(3, 81) = .960, p = .474, \eta^2 = .034$, suggesting that there was no difference in posttest scores by group for any of the CoI measures. Since the overall multivariate effect was not significant, individual pair wise comparisons were not examined. The results of nonparametric analysis also yielded no significant differences, providing additional support to the notion that CoI scores did not significantly differ by group. A summary of the estimated marginal means outlined in Table 11 below.

Table 11

Estimated Marginal Means of Posttest CoI Scores by Group

	<i>M</i>	<i>SE</i>
Teacher Presence		
Text Only	3.97	.19
Picture in Picture	3.39	.18
Overlay	3.76	.18
Voice Over	3.58	.19
Social Presence		
Text Only	3.56	.20
Picture in Picture	3.08	.19
Overlay	3.53	.19
Voice Over	3.34	.20

(Continued)

Table 12

Estimated Marginal Means of Posttest CoI Scores by Group

	<i>M</i>	<i>SE</i>
Cognitive Presence		
Text Only	3.75	.20
Picture in Picture	3.26	.19
Overlay	3.56	.19
Voice Over	3.32	.20

Research question three. A one-way analysis of variance (ANOVA) test was also conducted to answer the following research question: Is there a statistically significant difference in the online, nontraditional undergraduate student’s final grade based on the format of facilitation (i.e., text-only control vs. asynchronous video treatments—voice-over presentation, picture-in-picture, or overlay mode) format used for weekly discussion prompts for their online courses?

Prior to running the ANOVA, I conducted preliminary analyses to assess the assumptions, including assessment of normality and homogeneity of variance. Histograms and the Kolmogorov-Smirnov (K-S) test of normality were used to assess the distribution of final grade across groups. The results of the K-S test and histogram indicated significant deviation from true normality across groups. The amount of deviation from true normality was within the expectable limit and the ANOVA was robust against these minor violations (Tabachnick & Fidell, 2007).

Levene's test was used to assess for homogeneity of variance. For the current model, Levene's test was not significant, $p = .184$, indicating that variance across comparison groups was comparable. Descriptive statistics disaggregated by group are presented in Table 12. A one-way ANOVA was conducted to test for differences in final grades by instruction method, yielding nonsignificant differences, $F(3, 90) = .896$, $p = .447$, $\eta^2 = .030$, indicating that there were no significant differences found across groups in the final grade.

Table 13

Final Grade by Group (N = 90)

	n	M	SD
Group			
Text Only	22	80.38	23.96
Picture-in-Picture	23	68.99	29.97
Overlay	23	78.41	22.06
Voice Over	22	75.72	23.30

Additional Analysis

In order to examine the fidelity of treatment, I assessed for differences in amount of times the video was watched by each group. A one-way ANOVA was conducted. The overall effect of group was significant, $F(2, 65) = 1.75$, $p = .047$, $\eta^2 = .089$; however, post hoc comparisons failed to find significant group differences, all $p > .80$. This suggests that while group appeared to account for some differences in amount of times the video was watched, this effect appeared too weak to be able to locate specific

between group differences. A summary of the time each group watched the videos is shown in Figure 5.

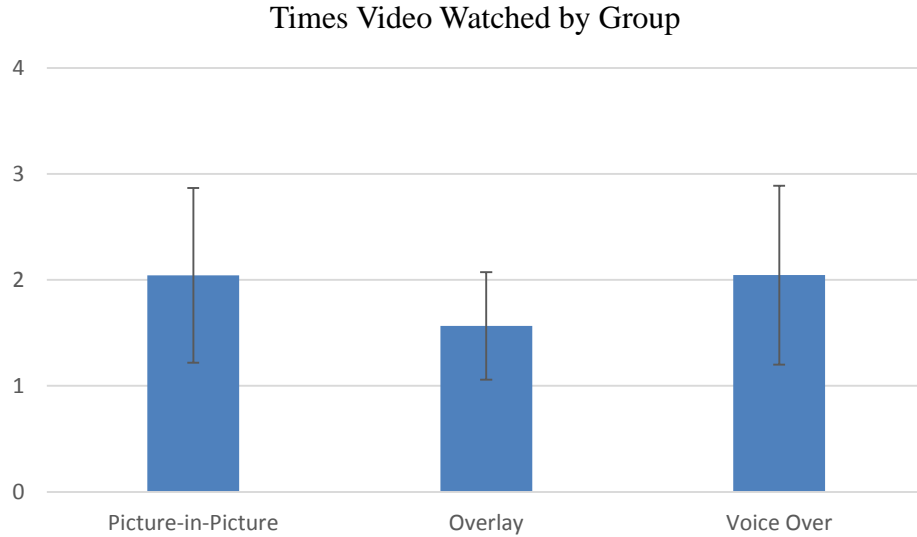


Figure 5. Means and Standard Deviations of Times Video Watched by Group.

Lastly, in order to assess for differences in the amount of the video watched by participants across group with a Pearson’s chi-square test was conducted (McHugh, 2013). There was not a significant difference in the amount of video watched across groups, $\chi^2 (2) = .498, p = .780$, Cramer’s $V = .086$, indicating that regardless of group, individuals tended to watch the whole video. While there were some limits in distribution across cells, the general trend indicated similar proportions across all groups. Table 13 shows a summary of these scores.

Table 14

Frequencies and Percentages of Amount of Video Watched by Group

Picture-in-Picture		Overlay		Voice Over	
<i>n</i>	%	<i>n</i>	%	<i>n</i>	%

Amount Watched						
Less than Whole Video	2	8.7	1	4.3	1	4.5
Whole Video	21	91.3	22	95.7	21	95.5

Summary

This chapter outlined the statistical findings from this study. Results failed to support the research hypotheses, evidenced by a series of non-significant findings. The following chapter will discuss the practical implications of these findings. Additionally, limitations and recommendations for practice and future research will be discussed.

Chapter 5

Discussion, Conclusion, and Recommendations

Introduction

This chapter provides a review and summary of the study conducted. This study compared online, nontraditional undergraduate students' participation levels, sense of CoI (i.e., social, teaching, and cognitive presence), and final grade based on the format of online discussion facilitation (i.e., text-only control vs. asynchronous video treatments—voice-over-presentation, picture-in-picture, or overlay mode) used by the instructor for weekly discussion prompts for online courses. This chapter includes six sections: (1) a discussion of the findings, (2) theoretical implications, (3) implications for practice, (4) limitations, (5) recommendations for future research, and (6) conclusion.

Discussion

The purpose of this quasi-experimental study was to compare online, nontraditional undergraduate students' social, teaching, and cognitive presence as well as participation levels and grades based on the format of online discussion facilitation (i.e., text-only control vs. asynchronous video treatments—voice-over-presentation, picture-in-picture, or overlay mode) used by the instructor for weekly discussion prompts in online courses. Both a posttest only, nonequivalent control group design and a pretest-posttest, nonequivalent control group design was used. The CoI framework informed the identification of the dependent variables including participation levels on a discussion forum, sense of CoI as measured by the CoI framework survey (Arbaugh et al., 2008), and final grades. This study consisted of four groups. One control group experienced the text-based weekly discussion prompts from the instructor in the online courses. Three

experimental groups each experienced one of the three types of weekly video discussion prompts (i.e., voice-over-presentation, picture-in-picture, or overlay mode). All prompts were identical in content and verbiage. The only difference among the prompts were the format. Each group was enrolled in the same course with identical curriculums.

I used a one-way ANOVA to examine differences in the group's participation levels and final grades. A one-way multivariate analysis of covariance (MANCOVA) was used to determine if any of the groups differed in their sense of social, cognitive, or teaching presence. The findings revealed there were no significant differences across groups for any of the dependent variables.

Research question one. The online, nontraditional undergraduate students' participation in the discussion forum (i.e., average number of posts) did not significantly differ based on the format of facilitation (i.e., text-only control vs. asynchronous video treatments—voice-over presentation, picture-in-picture, or overlay mode) used for weekly discussion prompts for the online courses. Students were required to make at least nine discussion posts over the course of three weeks. In all groups, students on average did not meet the minimum discussion post requirements of nine posts. The text-based group on average created 7.05 posts, picture-in-picture 6.04, overlay 7.04, and voiceover 6.59. This finding is similar to others. Fung (2004) noted that many students only posted the minimum criteria requirements for the discussion. Similar, Wise et al. (2012) and Murphy and Fortner (2014) found students were only motivated to do the minimum amount of discussion posts required to earn full points (Wise et al., 2012; Murphy & Fortner, 2014). Khine, Yeap, and Lok (2003) found that some students, even when required to respond to fellow classmates, did not.

A possible reason for not meeting minimum post requirements in this study could be that as long as the students made the initial posts they could still earn a low B in the discussion that week and could still earn an A in the course if all other assignments and assessments were completed. The response posts in the discussions were low stakes, often cited as a reason for lack of participation (Ding, Kim, & Orey, 2017). Another reason students might have posted less than the minimum requirement could be reflective of the limited time nontraditional students have. Discussion posts take a significant amount of time for students to read, interpret, and respond to (Cho & Tobias, 2016).

Having the needed time to learn and complete each week's tasks could be influenced by personal factors such as family obligations. Similar to the profile of nontraditional students in the literature, the participants were over the age of 22 years (Burke, 2016; Lindsey & Rice, 2015) and struggled to balance life roles (e.g., family and caregiving) (Burke, 2016; Shea & Bidjerano, 2014; Gilardi, 2011). Of students in this study, 78.8% were at least 24 years old, 40% of who were caring for a child under the age of six. Typically, nontraditional students are low income, which matches the findings of this study where 68.9% of students made under \$20,000 (McCormick, 2011). As a result, these nontraditional students could have socioeconomic, work, and family obligations that are barriers to their success in obtaining their degree (Davies & Williams, 2001). In addition, the nontraditional students in this study could have stressors from the balancing of several roles as a student, parent, employee, spouse, and other social obligations (Ward, 2012).

Due to these constraints, nontraditional students in this study probably had limited time to devote to their studies due to these obligations (Salvant, 2016). Time constraints

due to numerous school, family, and work responsibilities can greatly limit how successful a nontraditional student is in an online course regardless of instructor presence (Glazier, 2016), and unfortunately personal factors and responsibilities, which lie beyond a university's control, can significantly influence student success (Bernardo et al., 2016). Running into technology issues or lack of support systems to the help student with their needs can also inhibit student participation (Smart & Cappell, 2006).

Research has shown that the best way to counter individual factors that inhibit student success is to instructional support in the learning environment (Glazier, 2016). This can be accomplished by having the instructor's initial prompts and subsequent interaction within the discussion forums (Anderson, 2004). However, too much instructor interaction can inhibit student interaction. Thus, students' limited posting could also have been attributed to instructors' frequent postings, as the instructors in this study engaged with students in each discussion topic on at least 5 different days each week, per university policy. When instructor's posts are too frequent, students treat the discussion topic as a short essay assignment rather than an interactive exchange of ideas between students (Correia & Baran, 2010; Cho & Tobias, 2016). Numerous instructor posts did not result in an increase in student-to-student interaction (Zingaro & Oztok, 2012), meaningful learning, sense of CoI, or student satisfaction (Cho & Tobias, 2016). In fact, it may have inhibited it.

There is a continuous debate in research about how heavily involved instructors should be in the discussion topics. Given the time consuming process facilitating text-based discussions requires of an adjunct to read, answer students' questions, and asking probing questions to continue the discussion (Hew, 2015), the instructors' time might be

better spent responding to students' e-mails and grading feedback (Richardson et al., 2016), as these correspondences could help the students' feel satisfied with the course and develop a sense of CoI (Cho & Tobias, 2016).

Research question two. For Research Question Two, the results also indicated that the format of facilitation (i.e., text-only control vs. asynchronous video treatments—voice-over presentation, picture-in-picture, or overlay mode) used for weekly discussion prompts in the online courses did not influence online, nontraditional undergraduate students' sense of CoI (i.e., social, teaching, and cognitive). These findings add to the inconclusive results of past studies that examined the effects of different video formats have on each type of presence in the Community of Inquiry framework (Wang & Antonenko, 2017).

While most previous studies have found significances in at least one type of presence (e.g., TP, SP, CP; Cho & Tobias, 2016), there are a few studies where results were not significant as was the case in this study (Garrison et al., 2009; Ice et al., 2007; Lu, 2017). For example, Homer, Plass, and Blake (2008) found there was not a significant difference in cognitive or social presence when students were exposed to lectures that used a voice-over presentation compared to text-based only slides. Also, Pi and Hong (2017) found that the instructor's use of picture-in-picture video for lecture did not influence students' online classroom experience. From 27 student surveys, Jacobi (2017) found that the structured and relevant discussion prompts and required weekly postings were significant to student success rather than the format of the discussion. Therefore, simply using Garrison, Anderson, and Archer's (2000) Community of Inquiry

(COI) Model to develop effective online discussion prompts could have resulted in the similar results across groups in this study.

Research question three. Finally, the findings for Research Question Three were also not significant. There was not a statistically significant difference in the online, nontraditional undergraduate student's final grade based on the format of facilitation (i.e., text-only control vs. asynchronous video treatments—voice-over presentation, picture-in-picture, or overlay mode) format used for weekly discussion prompts for their online courses. This is consistent with some previous research. Limited studies that have found the use of the discussion forum does not necessarily have an effect on the student's final grade (Cho & Tobias, 2016).

Researchers have demonstrated that picture-in-picture video lectures did not improve students' grades, for learners' motivation to achieve the grade they wanted outweighed the preference of video format used (Kizilcec, Papadopoulos, & Sritanyaratana, 2014). Thus, students can be successful in an online class based on their motivation to achieve the grade they want to obtain (Akyol et al. 2011; Cochran et al., 2014 Garrison & Arbaugh, 2007; Kizilcec, Papadopoulos, & Sritanyaratana, 2015; Shea, 2006). It is possible that students in this study simply invested the needed time in the discussion topics and course assignments to complete the discussion requirements to earn their desired grade.

Type of content presented in the discussion board prompts provides an additional explanation for non-significant results. In studies where format demonstrated a significant effect, the instructor-generated video lectures (voice-over and Khan Style) demonstrated complex concepts such as algebra concepts. Format of instructor delivered

concept did influence students' learning and overall grade (Hegeman, 2015). In alignment with previous research demonstrating non-significant results, the initial discussion prompt in this study was an introduction to the discussion topic rather than explanation of complex topics. Perhaps the format of the prompt is influential only when an instructor overviews complex concepts for the discussion overview.

Additional Analysis

Amount of times the video was watched. In order to assess for differences in amount of times each group watched the video, a one-way ANOVA was conducted. The overall effect of each group was significant, however, post hoc comparisons failed to find significant group differences. This suggests that while each group appeared to account for some differences in amount of times the video was watched, this effect appeared too weak to be able to locate specific between group differences.

Video time watched. Lastly, in order to assess for differences in the amount of video watched by each group when the dependent variable is measured at a nominal level, crosstabulations with Pearson's chi-squared test were conducted (McHugh, 2013). There was not a significant effect on any group on amount of video watched, indicating that regardless of group, individuals tended to watch the video the same amount of time. While there was not a significant group, the findings showed that students viewed a considerable amount for all formats of facilitation (i.e., voice-over-presentation, picture-in-picture, or overlay mode).

These findings supported Lu's (2017) study that regardless of format of facilitation, students were drawn to the use of instructor-generated videos. Given that most students, regardless of group, watched the whole video that was under four minutes

long, could be evidence that students were interested and engaged in the content presented (Kim et al., 2014; Lu, 2017).

Theoretical Implications

As the review of literature for this study showed the many benefits discussion forums and formats used to deliver content in online courses can have for creating a sense of community, improving SP, TP, and CP (Akyol & Garrison, 2011; Borup et al., 2012; Liu & Yang, 2014; Zydney et al., 2012), it was expected that the format of facilitation (i.e., text-only control vs. asynchronous video treatments—voice-over presentation, picture-in-picture, or overlay mode) used for weekly discussion prompts for their online courses would influence students' CP, TP, and SP as well as grades and participation levels. For previous research found that students preferred the overlay mode over picture-in-picture presentations because students were drawn to the larger size of the instructor's image, the seamless overlay of the instructor video with the content, and the instructor's proximity to the slides (Bhat et al., 2015).

The use of the overlay video format, specifically, has had a significantly positive effect on students' perceived learning, CoI, and satisfaction in this study (Wang & Antonenko, 2017). A significant difference between results was also expected because the use all three videos types has a high level of media richness and naturalness (e.g., the degree of co-location, the degree of synchronicity, as well as the ability to see and convey facial expressions, the ability to see and convey body language and the ability to listen and convey speech) then the text based prompts (Chen & Wu, 2015; Kock, 2005). While a difference was expected, it did not occur.

Media naturalness theory provides a plausible explanation. All video formats of facilitation (i.e., voice-over-presentation, picture-in-picture, and overlay mode) incorporated parts of the five elements of natural communication, which is associated with more effective communication and positive results (Kock, 2011). Students could hear the instructor speak, were engaged by the instructor demonstrating, and in the picture-in-picture and overlay mode, could see the instructor's facial expressions and body language. Students will compensate for lack of naturalness when motivated. In this study grades were the motivating factor.

Implications

The findings from this study have several implications for educational practice. The results of this study indicate the development and use of instructor-generated videos for discussion board prompts does not automatically result in a higher level of student community, participation, or meaningful learning (Bakr, Massey, & Massa, 2016). When and why format effects student success thus needs to be explored further. The choice of what format of facilitation (i.e., voice-over-presentation, picture-in-picture, or overlay mode) each department uses needs to be determined based on who the learners are, what they are learning, and how they are learning (Barton et al., 2017). Potentially up to 78% of the students who participated in this study could be identified as millennials (people born between 1982 and 2000) (Barton et al., 2017). While this generation is native to watching videos online for entertainment, there may be a disconnect with watching videos for educational purposes (Arnold, 2017).

Since the findings from this study did not necessarily support the use of video prompts in discussion topics, it might not be advantageous to require or pressure faculty

to produce videos given the time, cost, and lack of increase in students' senses of CoI, meaningful learning, final grade, and course satisfaction (Cho & Tobias, 2016). Faculty time and energy may be better spent in integrating other effective instructional strategies in online classes.

The faculty involved in this study were adjuncts who worked part-time at the college, worked a full-time job at another location, were freelancers, and had family and other personal obligations. The course used for this study, Beginning Image Editing, is the first design course students take. As a result, additional time is required of the instructor to help students get up to speed on downloading the required software (Adobe Creative Cloud®), learning the requirement expectations of the course, and learning how to technically use the complex software application Photoshop®, and apply design theories (i.e., design elements and principles). Spending more time on assisting students with these or other tasks could help improve the course experience and result in meaningful student learning and retention rates (Scott & Danley-Scott, 2015). However, this is not to undercut the importance of discussion in online courses, for countless studies have demonstrated that text-based discussions are an effective for developing a sense of CoI (Phirangee, 2016).

Limitations

Several limitations to this study must be considered. A quasi-experiment by nature has limitations, and a true experimental study would have had better validity (O'Dwyer & Bernauer, 2013). The generalization of the results from this study is limited as the sample size was small. The study was limited to one course in the Graphic Arts department with a sample population of nontraditional students. Thus, results may not be

generalizable to traditional online students in different programs, at degree levels, in other areas of instruction, and with different demographics.

The nontraditional students in this study had numerous barriers and conflicts as they struggled to juggle shifting priorities between work, family, and school (Trautner, 2015). Attrition and lack of activity in the course (not logging in/completing any work) was a concern in this study as in the past. Some of the students in this study could have experienced *survey fatigue*. Survey fatigue is a result of being asked to frequently participate in surveys from a variety of sources (Roberts & Allen, 2015). The researcher asked students in all courses to complete several surveys for each course they take. The department also asked students to complete an instructor evaluation survey at the end of Week 4, as well as the institution and resources available. Then, specialized surveys are sometimes sent to students. Asking students to complete two additional surveys, regardless of incentive, might simply be asking too much from nontraditional students who struggle to balance their responsibilities outside of school. Porter stated, “The demand to participate in multiple surveys increases the respondent burden and results in suppressed response rates” (2004, p. 66).

Given the possibility of survey fatigue, another concern is the potential for careless responding from students, with on average 10–12% of undergraduate students have provided data results that indicate careless reporting (Meade & Craig, 2012). Another area of concern is who participates in the surveys based on the type of incentive offered. Students more driven by a fixed incentive would be more likely to participate; and research has found offering larger incentives sometimes did increase response rates (Singer, 2013). Another concern is some students might have completed the posttest

survey based on their personal viewpoints of the instructor. A study conducted by Ewing (2012) found that students who earned a passing grade were more likely to score their instructor high than students who earned a poor grade, this could have been carried over into the posttest survey.

Recommendations for Future Research

Administrators continue to push the use of instructor-generated videos in online classes. As of late 2017, videos can appear in course announcements, discussion posts, as embed lectures, within assignments, and are used to communicate feedback to students. Due to the limitations of this study, additional research is needed. A replication of this study should be conducted using nontraditional students to determine if a specific format of facilitation (i.e., text-only control vs. asynchronous video treatments—voice-over-presentation, picture-in-picture, or overlay mode), if any, is best (for improving non-traditional students sense of CoI and final grades). Then further research should be conducted to determine if the discussion forum is the best place for an instructor-generated video or if another area in the LMS would have a significant effect on students' sense of CoI and final grade.

A qualitative study should be conducted to answer the “how” or “why” questions asked to how specific formats of facilitation (i.e., voice-over-presentation, picture-in-picture, or overlay mode) help students' senses of CoI, and if the format of facilitation played a role in the students' final grade and discussion post frequency (Yin, 2003). A future study should also investigate the effects each specific format of facilitation has on improving retention. Conducting this study with different college departments, different

courses, without a synchronous lecture component, and at nonprofit public colleges as well as for-profit colleges should be explored.

In addition, a mixed methods study is advised to document the experience adjunct instructors go through to determine if the required time investment, acquisition of new knowledge, and access to the required software and hardware is significant enough to improve the students' experience, sense of CoI, and improve retention rates. Further research is also needed where students are exposed to all formats of facilitation each week and then given a questionnaire to determine which format of facilitation (i.e., text-only control vs. asynchronous video treatments—voice-over presentation, picture-in-picture, or overlay mode) they prefer most and why. This could help researchers, administrations, and faculty to better understand the format of facilitation students' prefer most in the discussion forums and why.

Conclusion

The purpose of this quasi-experimental study was to compare online, nontraditional undergraduate students' participation levels, sense of CoI (i.e., social, teaching, and cognitive presence), and final grade based on the format of online discussion facilitation (i.e., text-only control vs. asynchronous video treatments—voice-over-presentation, picture-in-picture, or overlay mode) used by the instructor for weekly discussion prompts for online courses. Results indicated that there was not a statistically significant difference regardless of format of facilitation in students' participation levels, sense of CoI, or final grade.

While the results of this study were not statistically significant, the use of videos in online and traditional based learning has become a standard part of education with

students expecting them as a dominant format of facilitation (Laaser & Toloza, 2017). Instructor-generated videos produce more interest and appeal than traditional text-based correspondence (Lu, 2017). Many LMS programs such as Blackboard, D2L, and Canvas offer built-in recording capabilities in the WYSIWYG (what you see is what you get) editor (see Figure 15). After the instructor or student hits the record button and shares their screen or camera, the video is housed within the LMS and easily embed into most of the pages in the course (e.g., announcements, lecture, discussion, and feedback). This makes it incredibly easy for instructors to use.

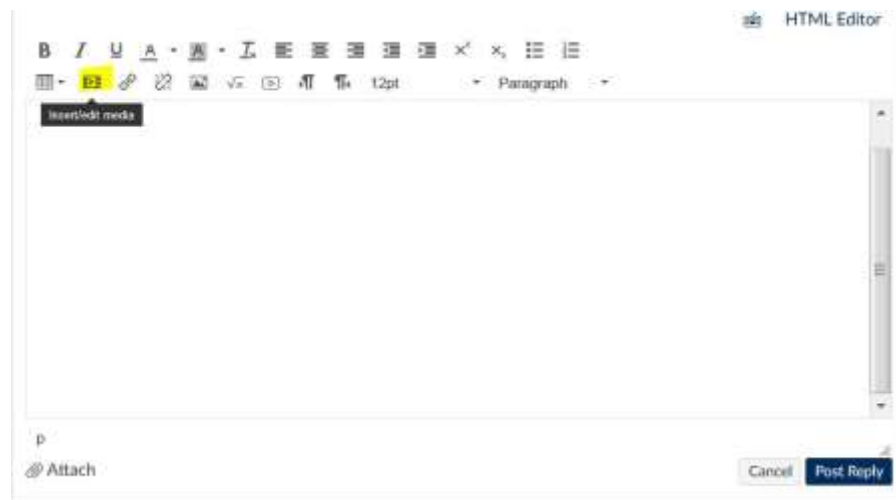


Figure 6. Recording/embedding video icon in the WYSIWYG editor (Rudolph, 2017).

As a result, the use of instructor-generated videos, regardless of format of facilitation, is not going away in the foreseeable future (Porter & Tiahart, 2016). Administrators need to continue to examine various video formats for facilitation and instruction in online courses, identifying effective uses. Continued research needs to explore ways not only ways to use video formats to improve student success, but also examine ways to assist instructors to embrace and incorporate instructor-generated videos.

Different formats of video facilitation can help instructors create a sense of community to connected students to their fellow classmates and instructor, can help address the physical and psychological distance, raise instructor immediacy, simulate students' interest, participation (Draus et al., 2014; Lu, 2017), and help establish a classroom environment where meaningful learning happens (Mandernach et al., 2006). However, at the end of 2017, the research remains limited and mixed. Further research is needed to see if the format of facilitation (i.e., text-based, voice-over-presentation, picture-in-picture, or overlay mode) influences online, nontraditional undergraduate students' sense of CoI, final grades, and discussion post frequency.

References

- Akcaoglu, M., & Lee, E. (2016). Increasing social presence in online learning through small group discussions. *The International Review of Research in Open and Distributed Learning, 17*(3).
- Akyol, Z., Vaughan, N., & Garrison, D. R. (2011). The impact of course duration on the development of a community of inquiry. *Interactive Learning Environments, 19*(3), 231-246.
- Akyol, Z., & Garrison, D. R. (2008, Dec.). The development of a community of inquiry over time in an online course: Understanding the progression and integration of social, cognitive and teaching presence. *Journal of Asynchronous Learning Networks, 12*(3-4), 3-22.
- Ali, A. Z. M., Samsudin, K., Hassan, M., & Sidek, S. F. (2011). Does screencast teaching software application needs narration for effective learning? *TOJET: The Turkish Online Journal of Educational Technology, 10*(3), 76-82.
- Ali, R., & Leeds, E. M. (2009). The impact of face-to-face orientation on online retention: A pilot study. *Online Journal of Distance Learning Administration, 12*(4).
- Aliaga, M., & Gunderson, B. (2002). *Interactive statistics*. Thousand Oaks, CA: SAGE Publications.
- Allen, I. E., Seaman, J., Poulin, R., & Straut, T. T. (2016). Online report card: Tracking online education in the United States. Retrieved from <http://onlinelearningconsortium.org/read/online-report-card-tracking-online-education-united-states-2015/>

- Allen, I. E., & Seaman, J. (2015). Grade level: Tracking online education in the United States. Retrieved from <http://www.onlinelearningsurvey.com/reports/gradelevel.pdf>
- Allen, M. S., Jane, M., & Labby, E. D. (2017). Effects of Simulated Student Interaction on Student Perceptions of Teaching Presence. *TxDLA Journal of Distance Learning, 1*(1), 1.
- An, H., Shin, S., & Lim, K. (2009). The effects of different instructor facilitation approaches on students' interactions during asynchronous online discussions. *Computers & Education, 53*(3), 749-760.
- Anderson, T. (2004). Towards a theory of online learning. *Theory and practice of online learning, 2*, 109-119.
- Anderson, T., Liam, R., Garrison, D. R., & Archer, W. (2001). Assessing teaching presence in a computer conferencing context. Retrieved from <http://actxelearning.pbworks.com/f/10.1.1.95.9117.pdf>
- Angelino, L., Williams, F., & Natvig, D. (2007, July). Strategies to engage online students and reduce attrition rates. *The Journal of Educators Online, 4*(2), 1-14.
- Anova, S. O. W. (2002). Analysis of Variance (ANOVA).
- Arbaugh, J. B. (2007). An empirical verification of the community of inquiry framework. *Journal of Asynchronous Learning Networks, 11*(1), 73-85.
- Arbaugh, J. B., Cleveland-Innes, M., Diaz, S. R., Garrison, D. R., Ice, P., Richardson, J. C., & Swan, K. P. (2008). Developing a community of inquiry instrument: Testing a measure of the community of inquiry framework using a multi-institutional sample. *The Internet and Higher Education, 11*(3), 133-136.

- Arend, B. (2009). Encouraging critical thinking in online threaded discussions. *Journal of Educators Online*, 6(1).
- Argyle, M. (1988). *Bodily Communication*. 2nd. London: Methuen.
- Arnold, S. (2016). Rethinking E-Learning Media: What Happens When Student "Like" Meets Professor "Me"? *International Association for Development of the Information Society*.
- Aslanian, C. B., & Clinefelter, D. L. (2004). *Online college students 2012: Comprehensive data on demands and preferences*. Louisville, KY: The Learning House, Inc.
- Bailey, T. L., & Brown, A. (2016). Online student services: Current practices and recommendations for implementation. *Journal of Educational Technology Systems*, 44(4), 450-462.
- Baker, J. D. (2004). An investigation of relationships among instructor immediacy and affective and cognitive learning in the online classroom. *The Internet and Higher Education*, 7(1), 1-13.
- Bakr, M. M., Massey, W. L., & Massa, H. M. (2016). Flipping a dental anatomy course: A retrospective study over four years. *Education Research International*, 2016.
- Barczyk, C. C., Hixon, E., Buckenmeyer, J., & Ralston-Berg, P. (2017). The Effect of Age and Employment on Students' Perceptions of Online Course Quality. *American Journal of Distance Education*, 31(3), 173-184.
- Bart, M. (Ed.). (2012, Feb.). Introduction. In *Faculty Focus: Special report: Online student engagement tools and strategies*. Madison, WI: Magna Publications.

- Bartlett, S. (2016). Online student engagement: Problems and potential solutions.
Retrieved from <https://smartech.gatech.edu/handle/1853/54525>
- Barton, E. T., Barton, E. A., Barton, S., Boyer, C. R., Brosnan, J., Hill, P., & Stafne, E. (2017). Using Technology to Enhance Extension Education and Outreach. *HortTechnology*, 27(2), 177-186.
- Bassani, P. B. S. (2011). Interpersonal exchanges in discussion forums: A study of learning communities in distance learning settings. *Computers & Education*, 56(4), 931-938.
- Bawa, P. (2016). Retention in online courses. *SAGE Open*, 6(1), 1-11,
doi:10.1177/2158244015621777
- Bernardo, A., Esteban, M., Fernández, E., Cervero, A., Tuero, E., & Solano, P. (2016). Comparison of personal, social and academic variables related to university drop-out and persistence. *Frontiers in Psychology*, 7, 1610.
doi:10.3389/fpsyg.2016.01610
- Berge, Z. L. (2002). Active, interactive, and reflective elearning. *The Quarterly Review of Distance Education*, 3(2), 181-190.
- Berger, J. B., Ramirez, G. B., & Lyons, S. (2012). Past to present: A historical look at retention. In A. Seidman (Ed.), *College student retention: Formula for student success* (2nd ed., pp. 7-34). Lanham, MD: Rowman & Littlefield.
- Bhat, S., Chinprutthiwong, P., & Perry, M. (2015, June). *Seeing the instructor in two video styles: Preferences and patterns*. Paper presented at the International Conference on Educational Data Mining, Madrid, Spain.

- Boling, E. C., Hough, M., Krinsky, H., Saleem, H., & Stevens, M. (2012). Cutting the distance in distance education: Perspectives on what promotes positive, online learning experiences. *The Internet and Higher Education, 15*(2), 118-126.
- Borup, J., Graham, C. R., & Velasquez, A. (2011). The use of asynchronous video communication to improve instructor immediacy and social presence in a blended learning environment. In A. Kitchenham (Ed.), *Blended learning across disciplines: Models for implementation* (pp. 38-57). Hershey, PA: IGI Global.
- Borup, J., West, R. E., & Graham, C. R. (2012). Improving online social presence through asynchronous video. *The Internet and Higher Education, 15*(3), 195-203.
- Borup, J., West, R. E., & Graham, C. R. (2013). The influence of asynchronous video communication on learner social presence: A narrative analysis of four cases. *Distance Education, 34*(1), 48-63.
- Borup, J., West, R. E., Thomas, R., & Graham, C. R. (2014). Examining the impact of video feedback on instructor social presence in blended courses. *The International Review of Research in Open and Distributed Learning, 15*(3), 232-256.
- Boston, W., Diaz, S., Gibson, A., Ice, P., Richardson, J., & Swan, K. (2009). An exploration of the relationship between indicators of the Community of Inquiry framework and retention in online programs. *Journal of Asynchronous Learning Networks, (13)*3, 67-83.
- Braun, I., Ritter, S., & Vasko, M. (2014). Inverted Classroom by Topic-A Study in Mathematics for Electrical Engineering Students. *iJEP, 4*(3), 11-17.

- Breivik, J. (2016). Critical thinking in online educational discussions measured as progress through inquiry phases: A discussion of the cognitive presence construct in the Community of Inquiry framework. *International Journal of E-Learning & Distance Education*, 32(1). Retrieved from <http://www.ijede.ca/index.php/jde/article/view/970/1618>
- Burke, K. (2016). *Assessing adult learner experience at Northern Stark University: An exploratory study* (Master's thesis). Merrimack College, North Andover, MA. Retrieved from http://scholarworks.merrimack.edu/soe_studentpub/22
- Campbell, D. T., & Stanley, J. C. (1963). *Experimental and quasi-experimental designs for research*. Boston, MA: Houghton Mifflin Company.
- Carr, S. (2000). As distance education comes of age, the challenge is keeping the students. *The Chronicle of Higher Education*, 46(23), A39-A41.
- Caspi, A., & Blau, I. (2008). Social presence in online discussion groups: Testing three conceptions and their relations to perceived learning. *Social Psychology of Education*, 11(3), 323-346.
- Cellini, S. R., & Goldin, C. (2014). Does federal student aid raise tuition? New evidence on for-profit colleges. *American Economic Journal: Economic Policy*, 6(4), 174-206.
- Chakraborty, M., & Nafukho, F. M. (2015). Strategies for virtual learning environments: Focusing on teaching presence and teaching immediacy. *Internet Learning*, 4(1), 2.
- Chauhan, J., & Goel, A. (2015, May). *An analysis of video lecture in MOOC*. Paper presented at the 11th International Conference, ICTERI, Lviv, Ukraine.

- Chen, C. M., & Wu, C. H. (2015, Jan.). Effects of different video lecture types on sustained attention, emotion, cognitive load, and learning performance. *Computers & Education, 80*, 108-121.
- Chen, H., Cohen, P., & Chen, S. (2010). How big is a big odds ratio? Interpreting the magnitudes of odds ratios in epidemiological studies. *Communications in Statistics–Simulation and Computation, 39*(4), 860-864.
- Cho, M. H., & Tobias, S. (2016). Should instructors require discussion in online courses? Effects of online discussion on community of inquiry, learner time, satisfaction, and achievement. *The International Review of Research in Open and Distributed Learning, 17*(2).
- Chorianopoulos, K., & Giannakos, M. N. (2013, June). Usability design for video lectures. In *Proceedings of the 11th European Conference on Interactive TV and Video* (pp. 163-164). ACM.
- Clinefelter, D. L. & Aslanian, C. B., (2016). *Online college students 2016: Comprehensive data on demands and preferences*. Louisville, KY: The Learning House, Inc.
- Clark, C. (2015). Comparing asynchronous and synchronous video versus text based discussions in an online teacher education course. *Online Learning Journal, 19*(3).
- Clark, R. (2004). What works in distance learning: Instructional strategies. In H. O’Neil (Ed.), *What works in distance learning: Guidelines* (pp. 25-40). Greenwich, CT: Information Age Publishers.

- Clark, R. C., & Mayer, R. E. (2016). *E-learning and the science of instruction: Proven guidelines for consumers and designers of multimedia learning*. Hoboken, NJ: John Wiley & Sons.
- Cobb, S. C. (2009). Social Presence and Online Learning: A Current View from a Research Perspective. *Journal of Interactive Online Learning*, 8(3), 241-254.
- Cochran, J. D., Campbell, S. M., Baker, H. M., & Leeds, E. M. (2013). The role of student characteristics in predicting retention in online courses. *Research in Higher Education*, 55(1), 27-48.
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ: Lawrence Erlbaum Associates.
- Conrad, O. (2015). *Community of Inquiry and video in higher education: Engaging students online* (Doctoral dissertation). California State University, Fullerton, CA. (1600912)
- Conway, K., Hachey, A., & Wladis, C. (2016). Assessing readiness for online education – Research models for identifying students at risk. *Online Learning*, 20(3), 97-109.
- Corrallo, S. (1994). The progress of a study identifying the speaking and communication skills of college graduates. In *1994 NCA summer conference proceedings and prepared remarks: Assessing college student competency in speech communication* (pp. 51-54). Annandale, VA: National Communication Association.

- Correia, A. P., & Baran, E. (2010). Lessons learned on facilitating asynchronous discussions for online learning. *Educação, Formação & Tecnologias-ISSN 1646-933X*, 3(1), 59-67.
- Costley, J. (2016). The effects of instructor control on critical thinking and social presence: Variations within three online asynchronous learning environments. *Journal of Educators Online*, 13(1), 109-171.
- Covelli, B. J. (2015). Incorporating asynchronous video discussion prompts to observe Community of Inquiry within online undergraduate courses. Governors State University, Chicago, IL. *All Capstone Projects*. 90. Retrieved from <http://opus.govst.edu/capstones/90>
- Cox, S., Black, J., Heney, J., & Keith, M. (2015). Promoting teacher presence: Strategies for effective and efficient feedback to student writing online. *Teaching English in the Two-Year College*, 42(4), 376. Retrieved from <http://www.ncte.org/library/NCTEFiles/Resources/Journals/TETYC/0424-may2015/TETYC0424Promoting.pdf>
- Crawford-Ferre, H. G., & Wiest, L. R. (2012). Effective online instruction in higher education. *Quarterly Review of Distance Education*, 13(1), 11.
- Crawley, A. (2012). *Supporting online students*. San Francisco, CA: Josey-Bass.
- Croxton, R. A. (2014). The role of interactivity in student satisfaction and persistence in online learning. *Journal of Online Learning and Teaching*, 10(2), 314.
- Daft, R. L., & Lengel, R. H. (1986). Organizational information requirements, media richness and structural design. *Management Science*, 32(5), 554-571.

- Davies, P., & Williams, J. (2001). For Me or Not for Me? Fragility and Risk in Mature Students' Decision-Making. *Higher Education Quarterly*, 55(2), 185-203.
- de Jong, S. (2016). *Seeing is believing. The use of online video in art classes and how it impacts the classroom dynamic* (Master's thesis). Radboud Universiteit Nijmegen, Nijmegen, Netherlands.
- Darabi, A., Arrastia, M. C., Nelson, D. W., Cornille, T., & Liang, X. (2011). Cognitive presence in asynchronous online learning: A comparison of four discussion strategies. *Journal of Computer Assisted Learning*, 27(3), 216-227.
- Das, S. (2012). Increasing instructor visibility in online courses through mini-videos and screencasting. In M. Bart (Ed.), *Online student engagement tools and strategies* (pp. 8-9). Retrieved from <https://www.minotstateu.edu/oit/documents/online-student-engagement-report.pdf#page=8>
- Davie, L. E., & Wells, R. (1991). Empowering the learner through computer-mediated communication. *American Journal of Distance Education*, 5(1), 15-23.
- Deming, D., Goldin, C., & Katz, L. (2013). For-profit colleges. *The Future of Children*, 23(1), 137-163.
- Dennen, V. P. (2005). From message posting to learning dialogues: Factors affecting learner participation in asynchronous discussion. *Distance Education*, 26(1), 127-148.
- Dennen, V. P., Darabi, A. A., & Smith, L. J. (2007). Instructor-learner interaction in online courses: The relative perceived importance of particular instructor actions on performance and satisfaction. *Distance Education*, 28(1), 65-79.

- Deslauriers, L, Schelew, E., & Wieman, C. (2011). Improved learning in a large-enrollment physics class. *science*, 332(6031), 862-864.
- De Vaus, D. (1993). *Research design in social research*. Thousand Oaks, CA: SAGE Publications.
- Dewey, J. (1933). *How we think: A restatement of the relation of reflective thinking to the educative process*. Lexington, MA: DC Heath and Company.
- Ding, L., Kim, C., & Orey, M. (2017). Studies of student engagement in gamified online discussions. *Computers & Education*, 115, 126-142.
- Draus, P. J., Curran, M. J., & Trempus, M. S. (2014). The influence of instructor-generated video content on student satisfaction with and engagement in asynchronous online classes. *Journal of Online Learning and Teaching*, 10(2), 240.
- Dumont, R. A. (1996). Teaching and learning in cyberspace. *IEEE Transactions on Professional Communication*, 39(4), 192-204.
- Dunlap, J. C., Verma, G., & Johnson, H. L. (2016). Presence + experience: A framework for the purposeful design of presence in online courses. *TechTrends*, 60(2), 145-151.
- Erdfelder, E., Faul, F., & Buchner, A. (1996). GPOWER: A general power analysis program. *Behavior research methods, instruments, & computers*, 28(1), 1-11.
- Esteban M., Bernardo A., & Rodríguez-Muñiz L. J. (2016). Permanencia en la universidad: la importancia de un buen comienzo. *Aula Abierta*, 44(1), 1-6.
- Ewing, A. M. (2012). Estimating the impact of relative expected grade on student evaluations of teachers. *Economics of Education Review*, 31(1), 141-154.

- Faul, F., Erdfelder, E., Lang, A. G., & Buchner, A. (2007). G* Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavior research methods*, 39(2), 175-191.
- Fenty, D., Messemer, J., & Rogers, E. (2016, June). Adult entrances and exits: What does retention literature inform us about urban adult higher educational participants and student success? Roundtable at Adult Education Research Conference 2016, Charlotte, NC.
- Ferdousi, B. (2016, March). *Addressing student retention and persistence issue in online classes*. Proceedings of the 2016 American Society for Engineering Education North Central Section Conference, Mt. Pleasant, MI.
- Fernandez, V., Simo, P., Castillo, D., & Sallan, J. M. (2014). Online discussion forums with embedded streamed videos on distance courses. *Journal of Technology and Science Education*, 4(1), 25-38.
- Fishman, R. (2015). *Community college online*. Retrieved from http://www.edcentral.org/wp-content/uploads/2015/02/Community_College_Online_2.13.2015.pdf
- Franklin, M. (2015). Keys to success in the online accounting classroom to maximize student retention. *Journal of Higher Education Theory and Practice*, 15(5), 36. Retrieved from http://t.www.na-businesspress.com/JHETP/FranklinM_Web15_5_.pdf
- French, A., Macedo, M., Poulsen, J., Waterson, T., & Yu, A. (2008). Multivariate analysis of variance (MANOVA). Retrieved from <http://userwww.sfsu.edu/efc/classes/biol710/manova/manovanewest.htm>

- Fung, Y. Y. (2004). Collaborative online learning: Interaction patterns and limiting factors. *Open Learning: The Journal of Open, Distance and e-Learning*, 19(2), 135-149.
- Gall, J., Gall, M., & Borg, W. (2005). *Applying educational research: A practical guide* (5th ed.). New York, NY: Longman.
- Gall, M. D., Gall, J. P., & Borg, W. R. (2014). *Applying educational research: How to read, do, and use research to solve problems of practice* (7th ed.). Boston, MA: Pearson Education.
- Garrison, D. R., Anderson, T., & Archer, W. (2000). Critical inquiry in a text-based environment: Computer conferencing in higher education. *The Internet and Higher Education*, 2(2), 87-105. Retrieved from http://auspace.athabascau.ca:8080/bitstream/2149/739/1/critical_inquiry_in_a_text.pdf
- Garrison, D. R., Anderson, T., & Archer, W. (2001). Critical thinking, cognitive presence, and computer conferencing in distance education. *American Journal of Distance Education*, 15(1), 7-23.
- Garrison, D. R., & Kanuka, H. (2004). Blended learning: Uncovering its transformative potential in higher education. *The Internet and Higher Education*, 7(2), 95-105.
- Garrison, D. R., & Cleveland-Innes, M. (2005). Facilitating cognitive presence in online learning: Interaction is not enough. *The American journal of distance education*, 19(3), 133-148.

- Garrison, D. R., & Arbaugh, J. B. (2007). Researching the Community of Inquiry framework: Review, issues, and future directions. *The Internet and Higher Education, 10*(3), 157-172.
- Garrison, D. R. (2007). Online community of inquiry review: Social, cognitive, and teaching presence issues. *Journal of Asynchronous Learning Networks, 11*(1), 61-72. Retrieved from <http://files.eric.ed.gov/fulltext/EJ842688.pdf>
- Garrison, D. R. (2009). Communities of inquiry in online learning. In P. L. Rogers, G. A. Berg, J. V. Boettcher, C. Howard, L. Justice, & K. D. Schenk (Eds.), *Encyclopedia of distance learning* (2nd ed., pp. 352-355). Hershey, PA: IGI Global.
- Garrison, D. R., Anderson, T., & Archer, W. (2010). The first decade of the Community of Inquiry framework: A retrospective. *The Internet and Higher Education, 13*(1), 5-9.
- Garrison, D. R. (2011). *E-learning in the 21st century*. New York, NY: Routledge.
- Gao, F., Zhang, T., & Franklin, T. (2013). Designing asynchronous online discussion environments: Recent progress and possible future directions. *British Journal of Educational Technology, 44*(3), 469-483.
- Gašević, D., Dawson, S., Rogers, T., & Gasevic, D. (2016). Learning analytics should not promote one size fits all: The effects of instructional conditions in predicting academic success. *The Internet and Higher Education, 28*, 68-84.
- Gibson, A. M., Ice, P., Mitchell, R., & Kupczynski, L. (2015). An inquiry into relationships between demographic factors and teaching, social, and cognitive presence. *Internet Learning, 1*(1), 2.

- Gilardi S. (2011). University life of non-traditional students: Engagement styles and impact on attrition. *Journal of Higher Education*, 82(1), 33-53, doi:10.1353/jhe.2011.0005
- Ginsberg, M. B., & Wlodkowski, R. J. (2009). *Diversity and motivation: Culturally responsive teaching in college*. Hoboken, NJ: John Wiley & Sons.
- Glazier, R. A. (2016). Building rapport to improve retention and success in online classes. *Journal of Political Science Education*, 12(4), 437-456.
- Golde, C. M. (2005). The role of the department and discipline in doctoral student attrition: Lessons from four departments. *The Journal of Higher Education*, 76(6), 669-700.
- Greenhouse, S. W., & Geisser, S. (1959). On methods in the analysis of profile data. *Psychometrika*, 24(2), 95-112.
- Gottschalk, L., & McEachern, S. (2010). The frustrated career: Casual employment in higher education. *Australian Universities' Review*, 52(1), 37.
- Griffiths, M. E., & Graham, C. R. (2009a). Using asynchronous video in online classes: Results from a pilot study. *International Journal of Instructional Technology and Distance Learning*, 6(3), 65-76.
- Griffiths, M. E., & Graham, C. R. (2009b). The potential of asynchronous video in online education. *Distance Learning*, 6(2), 13-23.
- Groen, J. F., Quigley, B., & Herry, Y. (2016). Examining the use of lecture capture technology: Implications for teaching and learning. *The Canadian Journal for the Scholarship of Teaching and Learning*, 7(1), 8.

- Guida, A. J., & Figuli, D. (2012). Higher education's gainful employment and 90/10 rules: Unintended "scarlet letters" for minority, low-income, and other at-risk students. *The University of Chicago Law Review*, 79(1), 131-158.
- Gunawardena, C. N., & Zittle, F. J. (1997). Social presence as a predictor of satisfaction within a computer-mediated conferencing environment. *American Journal of Distance Education*, 11(3), 8-26.
- Guo, P. J., Kim, J., & Rubin, R. (2014, March). How video production affects student engagement: An empirical study of MOOC videos. In *Proceedings of the first ACM conference on Learning@ scale conference* (pp. 41-50). ACM.
- Hachey, A. C., Conway, K. M., & Wladis, C. W. (2013). Community colleges and underappreciated assets: Using institutional data to promote success in online learning. *Online Journal of Distance Learning Administration*, 16(1).
- Hart, C. (2012). Factors associated with student persistence in an online program of study: A review of the literature. *Journal of Interactive Online Learning*, 11(1), 19-42.
- Hegeman, J. (2015). Using instructor-generated video lectures in online mathematics courses improves student learning. *Online Learning*, 19(3).
- Henri, F. (1992). Computer conferencing and content analysis. In A. R. Kaye (Ed.), *Collaborative learning through computer conferencing: The Najaden papers* (pp. 117-136). Berlin, Germany: Springer-Verlag.
- Herbert, M. (2006, Winter). Staying the course: A study in online student satisfaction and retention. *Online Journal of Distance Learning Administration*, 9(4).

- Hew, K. F., & Cheung, W. S. (2013). Audio-based versus text-based asynchronous online discussion: Two case studies. *Instructional Science*, 41(2), 365-380.
- Hew, K. F., & Hara, N. (2007). Empirical study of motivators and barriers of teacher online knowledge sharing. *Educational Technology Research and Development*, 55(6), 573.
- Hew, K. F. (2015). Student perceptions of peer versus instructor facilitation of asynchronous online discussions: Further findings from three cases. *Instructional Science*, 43(1), 19-38.
- Hixon, E., Ralston-Berg, P., Buckenmeyer, J., & Barczyk, C. (2016). The impact of previous online course experience on students' perceptions of quality. *Online Learning Journal*, 20(1).
- Holden, J. T., & Westfall, P. J.-L. (2010). *An instructional media selection guide for distance learning* (2nd ed.). Boston, MA: United States Distance Learning Association.
- Homer, B. D., Plass, J. L., & Blake, L. (2008). The effects of video on cognitive load and social presence in multimedia-learning. *Computers in Human Behavior*, 24(3), 786-797.
- Horzum, M. B., & Uyanik, G. K. (2015). An item response theory analysis of the Community of Inquiry Scale. *The International Review of Research in Open and Distributed Learning*, 16(2).
- Hoy, W. K., & Adams, C. M. (2015). *Quantitative research in education: A primer*. Thousand Oaks, CA: SAGE Publications.

- Hsieh, G., & Kocielnik, R. (2016, February). You get who you pay for: The impact of incentives on participation bias. In *Proceedings of the 19th ACM Conference on Computer-Supported Cooperative Work & Social Computing* (pp. 823-835). ACM.
- Hung, I. C., & Chen, N. S. (2017). Embodied interactive video lectures for improving learning comprehension and retention. *Computers & Education*.
- Ibrahim, M. (2012). Implications of designing instructional video using cognitive theory of multimedia learning. *Critical Questions in Education*, 3(2), 83-104. Retrieved from <http://files.eric.ed.gov/fulltext/EJ1047003.pdf>
- Ice, P., Gibson, A. M., Boston, W., & Becher, D. (2011). An exploration of differences between community of inquiry indicators in low and high disenrollment online courses. *Journal of Asynchronous Learning Networks*, 15(2), 44-69.
- Ilioudi, C., Giannakos, M. N., & Choriantopoulos, K. (2013, April). Investigating differences among the commonly used video lecture styles. In *Proceedings of the Workshop on Analytics on Video-based Learning (WAVE 2013)* (pp. 20-25), Leuven, Belgium.
- Inside Higher Ed. (2014). Higher education surveys. Retrieved from <https://www.insidehighered.com/surveys>
- Jacobi, L. (2017). The Structure of Discussions in an Online Communication Course: What Do Students Find Most Effective?. *Journal of University Teaching & Learning Practice*, 14(1), 11.

- Jaggars, S. S., Edgecombe, N., & Stacey, G. W. (2013). *Creating an effective online instructor presence*. New York, NY: Community College Research Center, Columbia University.
- Jakiel, L. B. (2016). The gainful employment rule and for-profit higher education in the United States. In M. Shah & C. S. Nair (Eds.), *A Global Perspective on Private Higher Education* (pp. 299-312). Cambridge, MA: Chandos Publishing.
- James, S., Swan, K., & Daston, C. (2015). Retention, progression and the taking of online courses. *Online Learning*, 20(2).
- Johnston, T. C. (2015). Lessons from MOOCs: Video lectures and peer assessment. *Academy of Educational Leadership Journal*, 19(2), 91.
- Jones, E. H. (2010). *Exploring common characteristics among community college students: Comparing online and traditional student success* (Doctoral dissertation). Appalachian State University, Boone, NC.
- Joyner, S. A., Fuller, M. B., Holzweiss, P. C., Henderson, S., & Young, R. (2014). The importance of student-instructor connections in graduate level online courses. *Journal of Online Learning and teaching*, 10(3), 436-445.
- Kanuka, H., & Anderson, T. (1998). Online social interchange, discord, and knowledge construction. *Journal of Distance Education*, 13(1).
- Kanuka, H., & Jugdev, K. (2006). Distance education MBA students: An investigation into the use of an orientation course to address academic and social integration issues. *Open Learning*, 21(2), 153-166.

- Kanuka, H. (2011). Interaction and the online distance classroom: Do instructional methods effect the quality of interaction? *Journal of Computing in Higher Education*, 23(2-3), 143-156.
- Kasworm, C. (2003). Adult meaning making in the undergraduate classroom. *Adult Education Quarterly*, 53(2), 81-98.
- Ke, F., & Kwak, D. (2013). Online learning across ethnicity and age: A study on learning interaction participation, perception, and learning satisfaction. *Computers & Education*, 61, 43-51.
- Kear, K. (2010, May). Social presence in online learning communities. In L. Dirckinck-Holmfeld, V. Hodgson, C. Jones, M. de Laat, D. McConnell, & T. Ryberg (Eds.). *Proceedings of the 7th International Conference on Networked Learning (NLC2010)* (pp. 541–548). Aalborg, Denmark.
- Keller, L. M. (2015). *Adjunct Faculty Engagement: Connections in Pursuit of Student Success in Community Colleges* (Doctoral dissertation, Northeastern University Boston).
- Kena, G., Musu-Gillette, L., Robinson, J., Wang, X., Rathbun, A., Zhang, J., & Velez, E. D. V. (2015). The Condition of Education 2015. NCES 2015-144. *National Center for Education Statistics*.
- Kasworm, C. E. (2003). Setting the stage: Adults in higher education. *New Directions for Student Services*, 2003(102), 3-10.
- Khine, M. S., Yeap, L. L., & Chin Lok, A. T. (2003). The quality of message ideas, thinking and interaction in an asynchronous CMC environment. *Educational Media International*, 40(1-2), 115-126.

- Kim, J., Guo, P. J., Seaton, D. T., Mitros, P., Gajos, K. Z., & Miller, R. C. (2014, March). Understanding in-video dropouts and interaction peaks in online lecture videos. In *Proceedings of the first ACM Conference on Learning@ Scale Conference* (pp. 31-40). Atlanta, GA: ACM.
- Kizilcec, R. F., Bailenson, J. N., & Gomez, C. J. (2015). The instructor's face in video instruction: Evidence from two large-scale field studies. *Journal of Educational Psychology, 107*(3), 724.
- Kock, N. (2005). Media richness or media naturalness? The evolution of our biological communication apparatus and its influence on our behavior toward e-communication tools. *IEEE transactions on professional communication, 48*(2), 117-130.
- Kock, N. (2011). Media naturalness theory: human evolution and behaviour towards. *Applied Evolutionary Psychology, 381*.
- Kovanović, V., Gašević, D., Joksimović, S., Hatala, M., & Adesope, O. (2015). Analytics of communities of inquiry: Effects of learning technology use on cognitive presence in asynchronous online discussions. *The Internet and Higher Education, 27*, 74-89.
- Kozan, K., & Richardson, J. C. (2014). New exploratory and confirmatory factor analysis insights into the Community of Inquiry Survey. *The Internet and Higher Education, 23*, 39-47. doi:<http://dx.doi.org/10.1016/j.iheduc.2014.06.002>
- Krosnick, R. P. (2015). *Videodoc: Combining videos and lecture notes for a better learning experience* (Doctoral dissertation). Massachusetts Institute of Technology, Cambridge, MA.

- Kuh, G. D., Cruce, T. M., Shoup, R., Kinzie, J., & Gonyea, R. M. (2008). Unmasking the effects of student engagement on first-year college grades and persistence. *The Journal of Higher Education, 79*(5), 540-563.
- Kuh, G. D., Kinzie, J., Schuh, J. H., & Whitt, E. J. (2011). *Student success in college: Creating conditions that matter*. Hoboken, NJ: John Wiley & Sons.
- Kuo, Y. C., Walker, A. E., Belland, B. R., & Schroder, K. E. (2013). A predictive study of student satisfaction in online education programs. *The International Review of Research in Open and Distributed Learning, 14*(1), 16-39.
- Kyei-Blankson, L., Ntuli, E., & Donnelly, H. (2016). Establishing the importance of interaction and presence to student learning in online environments. *World Journal of Educational Research, 3*(1), 48.
- Laaser, W., & Toloza, E. A. (2017). The Changing Role of the Educational Video in Higher Distance Education. *The International Review of Research in Open and Distributed Learning, 18*(2).
- Lambert, J. L., & Fisher, J. L. (2013). Community of Inquiry framework: Establishing community in an online course. *Journal of Interactive Online Learning, 12*(1), 1-16.
- Lee, S. M. (2014). The relationships between higher order thinking skills, cognitive density, and social presence in online learning. *The Internet and Higher Education, 21*, 41-52.
- Lehman, R. M., & Conceição, S.C.O. (2014). *Motivating and retaining online students*. San Francisco, CA: Jossey-Bass.

- Levy, Y., & Ellis, T. J. (2011). A guide for novice researchers on experimental and quasi-experimental studies in information systems research. *Interdisciplinary Journal of Information, Knowledge, and Management*, 6, 151-161.
- Lin, G. Y. (2004, Oct.). *Social presence questionnaire of online collaborative learning: Development and validity*. Paper presented at the 27th meeting of the Association for Educational Communications and Technology, Chicago, IL.
- Lindsey, N. S., & Rice, M. L. (2015). Interpersonal skills and education in the traditional and online classroom environments. *Journal of Interactive Online Learning*, 13(3), 126-136.
- Liu, S. Y., Gomez, J., & Yen, C. J. (2009). Community college online course retention and final grade: Predictability of social presence. *Journal of Interactive Online Learning*, 8(2), 165-182.
- Liu, C. J., & Yang, S. C. (2014). Using the Community of Inquiry Model to investigate students' knowledge construction in asynchronous online discussions. *Journal of Educational Computing Research*, 51(3), 327-354.
- Lo, A. W., Reeves, J., Jenkins, P., & Parkman, R. (2016). Retention initiatives for working adult students in accelerated programs. *Journal of Research in Innovative Teaching*, 9(1), 2-17.
- Lu, H. J. (2017). Sustainability of e-Learning Environment: Can Social Presence Be Enhanced by Multimedia? *International Journal of Information and Education Technology*, 7(4), 291.

- Lust, G., Elen, J., & Clarebout, G. (2013). Regulation of tool-use within a blended course: Student differences and performance effects. *Computers & Education*, 60(1), 385-395.
- Ma'arop, A. H., & Embi, M. A. (2016). Implementation of blended learning in higher learning institutions: A review of literature. *International Education Studies*, 9(3), 41-52.
- Maddix, M. A. (2012). Generating and facilitating effective online learning through discussion. *Christian Education Journal*, 9(2), 372.
- Magda, A. J., Poulin, R., & Clinefelter, D. L. (2015). *Recruiting, orienting, & supporting online adjunct faculty: A survey of practices*. Louisville, KY: The Learning House.
- Mandernach, J., Register, L., & O'Donnell, C. (2015). Characteristics of adjunct faculty teaching online: Institutional implications. *Online Journal of Distance Learning Administration*, 18(1).
- Marra, R. M., Moore, J. L., & Klimczak, A. K. (2004). Content analysis of online discussion forums: A comparative analysis of protocols. *Educational Technology Research and Development*, 52(2), 23-40.
- Mason, R., & Kaye, T. (1990). Toward a new paradigm for distance education. In L. Harasim (Ed.), *Online Education: Perspectives on a New Environment* (pp. 15-38). New York, NY: Praeger.
- Mason, R. B. (2011). Student engagement with, and participation in, an e-forum. *Educational Technology & Society*, 14(2), 258-268.

- Mayer, R. E., & Moreno, R. (2003). Nine ways to reduce cognitive load in multimedia learning. *Educational Psychologist*, 38(1), 43-52. Retrieved from <http://portal.ou.nl/documents/25460761/0/Mayer+%26%20Moreno+2003+-+EPigxrG8CM.pdf>
- Mazzolini, M., & Maddison, S. (2007). When to jump in: The role of the instructor in online discussion forums. *Computers & Education*, 49(2), 193-213.
doi:10.1016/j.compedu.2005.06.011
- McCormick, M. (2011). A Study of Factors Related to Success for Nontraditional versus Traditional Aged Students at a Public Urban Community College.
- McGuire, B. F. (2016). Integrating the intangibles into asynchronous online instruction: strategies for improving interaction and social presence. *Journal of Effective Teaching*, 16(3), 62-75.
- McGuire, M. A. (2012). Subprime education: For-profit colleges and the problem with Title IV federal student aid. *Duke Law Journal*, 62(119), 119-160.
- McHugh, M. L. (2013). The chi-square test of independence. *Biochemia medica: Biochemia medica*, 23(2), 143-149.
- McKenna, L. (2015). The cost of an adjunct. *The Atlantic*.
- McKerlich, R., Riis, M., Anderson, T., & Eastman, B. (2011). Student perceptions of teaching presence, social presence and cognitive presence in a virtual world. *Journal of Online Learning and Teaching*, 7(3), 324.
- Meade, A. W., & Craig, S. B. (2012). Identifying careless responses in survey data. *Psychological methods*, 17(3), 437.

- Mechenbier, M. (2015). Contingent faculty and OWI. *Foundational practices of online writing instruction*, 227-250.
- Meyer, K. A. (2003). Face-to-face versus threaded discussions: The role of time and higher-order thinking. *Journal of Asynchronous Learning Networks*, 7(3), 55-6
- Mills, J. (2015). A conceptual framework for teaching statistics from a distance. *Journal of Effective Teaching*, 15(1), 59-68.
- Mills, J. J. (2016). A mixed methods approach to investigating cognitive load and cognitive presence in an online and face-to-face college algebra course (Doctoral dissertation). University of Kentucky, Lexington, KY. Retrieved from http://uknowledge.uky.edu/edsc_etds/8
- Moffett, J., & Mill, A. C. (2014). Evaluation of the flipped classroom approach in a veterinary professional skills course. *Advances in medical education and practice*, 5, 415.
- Morgan, T. (2011). Online classroom or community-in-the-making? Instructor conceptualizations and teaching presence in international online contexts. *Journal of Distance Education (Online)*, 25(1), 1.
- Moser, S., & Smith, P. (2015). Benefits of Synchronous Online Courses. *Association Supporting Computer Users in Education*.
- Mueller, B., Mandernach, B. J., & Sanderson, K. (2013). Adjunct versus full-time faculty: Comparison of student outcomes in the online classroom. *Journal of online learning and teaching*, 9(3), 341.
- Muijs, D. (2010). *Doing quantitative research in education with SPSS*. Thousand Oaks, CA: SAGE Publications.

- Muilenburg, M., & Berge, Z. L. (2006). A framework for designing questions for online learning. Retrieved from http://smcm.academia.edu/LinMuilenburg/Papers/440394/A_Framework_for_Designing_Questions_for_Online_Learning
- Murphy, C. A., & Fortner, R. A. (2014). Impact of instructor intervention on the quality and frequency of student discussion posts in a blended classroom. *Journal of Online Learning and Teaching, 10*(3), 337.
- Nandi, D., Hamilton, M., Harland, J., & Warburton, G. (2011, January). How active are students in online discussion forums?. In *Proceedings of the Thirteenth Australasian Computing Education Conference-Volume 114* (pp. 125-134). Australian Computer Society, Inc..
- Nandi, D., Hamilton, M., & Harland, J. (2015). What Factors Impact Student-Content Interaction in Fully Online Courses. *International Journal of Modern Education and Computer Science, 7*(7), 28.
- Neuhauser, C. (2002). Learning style and effectiveness of online and face-to-face instruction. *The American Journal of Distance Education, 16*(2), 99-113.
- Ni, A. Y. (2013). Comparing the effectiveness of classroom and online learning: Teaching research methods. *Journal of Public Affairs Education, 19*(2), 199-215.
- Nonis, S. A., & Fenner, G. H. (2012). An exploratory study of student motivations for taking online courses and learning outcomes. *Journal of Instructional Pedagogies, 7*, 2-13. Retrieved from <http://jupapadoc.startlogic.com/manuscripts/11933.pdf>

- O'Dwyer, L. M., & Bernauer, J. A. (2013). *Quantitative research for the qualitative researcher*. Thousand Oaks, CA: SAGE Publications.
- O'Flaherty, J., & Phillips, C. (2015). The use of flipped classrooms in higher education: A scoping review. *The Internet and Higher Education, 25*, 85-95.
- Oh, E. G., & Kim, H. S. (2016). Understanding cognitive engagement in online discussion: Use of a scaffolded, audio-based argumentation activity. *The International Review of Research in Open and Distributed Learning, 17*(5).
- Olesova, L., & Borup, J. (2016). Using audio and video feedback to increase instructor presence in asynchronous online courses. In S. D'Agustino (Ed.), *Creating teacher immediacy in online learning environments* (pp. 235-251). Hershey, PA: IGI Global.
- Olesova, L., Slavin, M., & Lim, J. (2016). Exploring the effect of scripted roles on cognitive presence in asynchronous online discussions. *Online Learning, 20*(4).
- Orlando, J. (2013). Start your class with a video welcome. *Online Classroom, 13*(12), 4.
Retrieved from <http://mathcs.duq.edu/~tobin/cv/Online.Classroom.13.12.pdf>
- Oztok, M., & Brett, C. (2011). Social presence and online learning: A review of research. *Journal of Distance Education, 25*(3).
- Palloff, R. M., & Pratt, K. (2007). *Building online learning communities*. San Francisco, CA: Jossey-Bass.
- Park, J. H., & Choi, H. J. (2009). Factors influencing adult learners' decision to drop out or persist in online learning. *Educational Technology & Society, 12*(4), 207-217.
- Parsad, B., Lewis, L., & Tice, P. (2008). *Distance education at degree-granting postsecondary institutions: 2006-2007*. Washington, DC: National Center for

Education Statistics, Institute of Education Sciences, U.S. Department of Education.

Pascarella, E. T., Smart, J. C., & Ethington, C. A. (1986). Long-term persistence of two-year college students. *Research in Higher Education*, 24(1), 47-71.

Pascarella, E. T., & Terenzini, P. T. (2005). *How college affects students* (Vol. 2). Hoboken, NJ: John Wiley & Sons.

Paquette, P. (2016). Instructing the instructors: Training instructors to use social presence cues in online courses. *Journal of Educators Online*, 13(1), 80-108.

Phirangee, K. (2016). Students' perceptions of learner-learner interactions that weaken a sense of community in an online learning environment. *Online Learning*, 20(4).

Phirangee, K., Demmans Epp, C., & Hewitt, J. (2016). Exploring the relationships between facilitation methods, students' sense of community, and their online behaviors. *Online Learning Journal*, 20(2), 134–154.

Pi, Z., Hong, J., & Yang, J. (2017). Effects of the instructor's pointing gestures on learning performance in video lectures. *British Journal of Educational Technology*, 48(4), 1020-1029.

Pontes, M. C., & Pontes, N. M. (2012). Enrollment in distance education classes is associated with fewer enrollment gaps among nontraditional undergraduate students in the US. *Journal of Asynchronous Learning Networks*, 16(1), 79-89.

Porter, J., & Tiaht, T. (2016). That's a Wrap: Evaluating Different Methods for Creating Video Lectures. *Business Education Innovation Journal*, 8(1), 56-66.

Powers, J. F. (2017). Open Source Micro Diplomas: New Credentials for New Learning.

- Ravenna, G. (2012). The effects of increased workloads on online instruction. *International Journal of Education, 4*(4).
- Reio, T. G., & Crim, S. J. (2013). Social presence and student satisfaction as predictors of online enrollment intent. *American Journal of Distance Education, 27*(2), 122-133. doi:10.1080/08923647.2013.775801
- Richardson, J.C., & Swan, K. (2003). Examining social presence in online courses in relation to students' perceived learning and satisfaction. *Journal of Asynchronous Learning Networks, 7*(1), 68-88.
- Richardson, J.C., Koehler, A., Besser, E., Caskurlu, S. Lim, J., & Mueller, C. (2015). Conceptualizing and investigating instructor presence in online learning environments. *International Review of Research in Open and Distributed Learning, 16*(3), 256-297.
- Richardson, J., Ice, P., Boston, W., Powell, K., & Gibson, A. (2011, June). Using the Community of Inquiry Framework survey for multi-level institutional evaluation and continuous quality improvement. In T. Bastiaens & M. Ebner, (Eds.), *EdMedia: World Conference on Educational Media and Technology, 2011*(1), 1968-1977, paper presented at ED-MEDIA 2011 – World Conference on Educational Multimedia, Hypermedia & Telecommunications, Lisbon, Portugal.
- Roberts, L. D., & Allen, P. J. (2015). Exploring ethical issues associated with using online surveys in educational research. *Educational Research and Evaluation, 21*(2), 95-108.

- Rockinson-Szapkiw, A. (2012). *Statistics guide*. Retrieved from <http://amandaszapkiw.com/elearning/statistics-guide/downloads/Statistics-Guide.pdf>
- Rockinson-Szapkiw, A. J. (2012a). A comparison of a multimedia wiki-based class text and a traditional textbook: Does type of text impact learning? *Journal of Applied Research in Higher Education*, 4(1), 58-71.
- Rockinson-Szapkiw, A. J. (2012b). Should online doctoral instructors adopt audio feedback as an instructional strategy? Preliminary evidence. *International Journal of Doctoral Studies*, 7(1), 245-258.
- Rockinson-Szapkiw, A. J. (2012c). The influence of computer-mediated communication systems on community. *E-Learning and Digital Media*, 9(1), 83-95.
- Rockinson-Szapkiw, A., Wendt, J., Whighting, M., & Nisbet, D. (2016). The predictive relationship among the Community of Inquiry framework, perceived learning and online, and graduate students' course grades in online synchronous and asynchronous courses. *The International Review of Research in Open and Distributed Learning*, 17(3).
- Rourke, L. Anderson, T., Garrison, D.R. & Archer, W. (2001). Assessing social presence in asynchronous text-based computer conferencing. *Journal of Distance Education*, 14(2).
- Rourke, L., & Kanuka, H. (2009). Learning in Communities of Inquiry: A review of the literature. *Journal of Distance Education*, 23(1), 19-48.
- Rovai, A. P. (2002a). Building sense of community at a distance. *The International Review of Research in Open and Distance Learning*, 3(1).

- Rovai, A. P. (2002b). Sense of community, perceived cognitive learning, and persistence in asynchronous learning networks. *Internet & Higher Education*, 5(4), 319.
- Rovai, A. P., & Ponton, M. K. (2005). An examination of sense of classroom community and learning among African American and Caucasian graduate students. *Journal of Asynchronous Learning Networks*, 9(3), 77-92.
- Rovai, A. P., & Wighting, M. J. (2005). Feelings of alienation and community among higher education students in a virtual classroom. *The Internet and Higher Education*, 8(2), 97-110.
- Rovai, A. P. (2007). Facilitating online discussions effectively. *The Internet and Higher Education*, 10(1), 77-88.
- Rovai, A. P., Baker, J. D., & Ponton, M. K. (2013). *Social science research design and statistics: A practitioner's guide to research methods and IBM SPSS*. Chesapeake, VA: Watertree Press LLC.
- Rubin, B., & Fernandes, R. (2013). Measuring the community in online classes. *Journal of Asynchronous Learning Networks*, 17(3), 115-136.
- Rubin, B., Fernandes, R., & Avgerinou, M. D. (2013). The effects of technology on the Community of Inquiry and satisfaction with online courses. *The Internet and Higher Education*, 17, 48-57.
- Ryan, R. S. (2013). The effect of online discussion forums on student learning and student perception of learning in a science course at the community college level (Doctoral dissertation). University of Southern Mississippi, Hattiesburg, MS. Retrieved from <http://aquila.usm.edu/dissertations/207>

- Salvant, A. (2016). *Identifying Barriers to Graduation for Nontraditional Students* (Doctoral dissertation, Walden University).
- Scott, G., & Danley-Scott, J. (2015). Two loops that need closing: Contingent faculty perceptions of outcomes assessment. *The Journal of General Education, 64*(1), 30-55.
- Shadish, W. R., Cook, T. D., & Campbell, D. T. (2002). *Experimental and quasi-experimental designs for generalized causal inference*. Boston, MA: Houghton, Mifflin and Company.
- Shaw, M. (2014). Factors contributing to satisfaction and retention in an online doctoral program. *Journal of Online Higher Education, 5*(5).
- Shea, P. J. (2006). A study of students' sense of learning community in online environments. *Journal of Asynchronous Learning Networks, 10*(1), 35-44.
Retrieved from http://www.sloan-c.org/publications/jaln/v10n1/v10n1_4shea_member.asp
- Shea, P., Li, C. S., & Pickett, A. (2006). A study of teaching presence and student sense of learning community in fully online and web-enhanced college courses. *The Internet and Higher Education, 9*(3), 175-190.
- Shea, P., & Bidjerano, T. (2009). Community of inquiry as a theoretical framework to foster "epistemic engagement" and "cognitive presence" in online education. *Computers & Education, 52*(3), 543-553.
- Shea, P., & Bidjerano, T. (2014). Does online learning impede degree completion? A national study of community college students. *Computers & Education, 75*, 103-111.

- Shin, H. V., Berthouzoz, F., Li, W., & Durand, F. (2015). Visual transcripts: lecture notes from blackboard-style lecture videos. *ACM Transactions on Graphics (TOG)*, 34(6), 240.
- Shook, B. L., Greer, M. J., & Campbell, S. (2013). Student perceptions of online instruction. *International Journal of Arts & Sciences*, 6(4), 337.
- Simkins, S., & Allen, S. (2000). Pretesting students to improve teaching and learning. *International Advances in Economic Research*, 6(1), 100-112.
- Simpson, O. (2013). Student retention in distance education: are we failing our students? *Open Learning: The Journal of Open, Distance and e-Learning*, 28(2), 105-119.
- Smart, K. L., & Cappel, J. J. (2006). Students' perceptions of online learning: A comparative study. *Journal of Information Technology Education*, 5(1), 20119.
- Singer, E., & Ye, C. (2013). The use and effects of incentives in surveys. *The ANNALS of the American Academy of Political and Social Science*, 645(1), 112-141.
- So, H.-J., & Brush, T. A. (2008). Student perceptions of collaborative learning, social presence and satisfaction in a blended learning environment: Relationships and critical factors. *Computers & Education*, 51(1), 318-336.
<http://dx.doi.org/10.1016/j.compedu.2007.05.009>
- Southall, J., Wason, H., & Avery, B. (2016). The transition to higher education for non-traditional, commuter students-a synthesis of recent literature to enhance understanding of their needs. *Student Engagement and Experience Journal*, 5(1).
- Southern Association of Colleges and Schools Commission on Colleges. (2012). *Principles of accreditation: Foundations for quality enhancement* (5th ed.). Decatur, GA: Author.

- Spector, J. M., Merrill, M. D., Elen, J., & Bishop, M. J. (Eds.). (2008). *Handbook of research on educational communications and technology*. New York, NY: Routledge.
- Stavredes, T. (2011, August). Developing cognitive, social, and teaching presence online. Presented at the 27th Annual Conference on Distance Teaching & Learning, Madison, WI.
- Sukamolson, S. (2010). *Fundamentals of quantitative research*. Retrieved from <https://pdfs.semanticscholar.org/336b/6928c8ee7f3fac6bbeb1e0e1769169c447f7.pdf>
- Sun, L., Gribbins, C., & Ferguson, I. T. (2014). Supplemental Multimedia Online Learning Tool (SMOLT) in Engineering Education.
- Sung, E., & Mayer, R. E. (2012). Five facets of social presence in online distance education. *Computers in Human Behavior*, 28(5), 1738-1747.
- Sutton, R. (2014). Unlearning the past: New foundations for online student retention. *Journal of Educators Online*, 11(3), n3.
- Sutton, R., Gannon-Cook, R. (2013, March). *More hard lessons learned*. Paper presented at SITE 2013, Society for Information Technology and Teacher Education, New Orleans, LA.
- Swan, K. (2001). Virtual interaction: Design factors affecting student satisfaction and perceived learning in asynchronous online courses. *Distance Education*, 22(2), 306-331.

- Swan, K., & Shih, L. F. (2005). On the nature and development of social presence in online course discussions. *Journal of Asynchronous Learning Networks*, 9(3), 115-136.
- Swan, K., Shea, P., Richardson, J., Ice, P., Garrison, D. R., Cleveland-Innes, M., & Arbaugh, J. B. (2008). Validating a measurement tool of presence in online communities of inquiry. *E-mentor*, 2(24), 1-12.
- Swanson, R. A., & Holton, E. F. (2005). *Research in organizations: Foundations and methods in inquiry*. Oakland, CA: Berrett-Koehler Publishers.
- Stone, T. E. (2016). Knowledge management and the mega-university: Engagement of the adult learner in the post-Gutenberg academy. *Knowledge Management and E-learning*, 11.
- Tabachnick, B. G., & Fidell, L. S. (2007). *Experimental designs using ANOVA*. Belmont, CA: Duxbury.
- Tabachnick, B. G., & Fidell, L. S. (2012). *Using Multivariate Statistics*. Pearson Education. *Boston, MA*.
- Tabachnick, B. G., and Fidell, L. S. (2013). *Using Multivariate Statistics , 6th ed.* Boston :Pearson.
- Thomas, M. C., & Macias-Moriarity, L. Z. (2014). Student knowledge and confidence in an elective clinical toxicology course using active-learning techniques. *American journal of pharmaceutical education*, 78(5), 95.
- Thomas, R. A., West, R. E., & Borup, J. (2017). An analysis of instructor social presence in online text and asynchronous video feedback comments. *The Internet and Higher Education*, 33, 61-73.

- Tinto, V. (1975). Dropout from higher education: A theoretical synthesis of recent research. *Review of Educational Research*, 45(1), 89-125.
- Tinto, V. (1987). *Leaving college: Rethinking the causes and cures of student attrition*. Chicago, IL: University of Chicago Press.
- Tinto, V. (1993). *Leaving college: Rethinking the causes and cures of student attrition* (2nd ed.). Chicago, IL: University of Chicago Press.
- Tinto, V. (1997). Classrooms as communities: Exploring the educational character of student persistence. *The Journal of Higher Education*, 68(6), 599-623.
- Tinto, V. (1998). Colleges as communities: Taking research on student persistence seriously. *The Review of Higher Education*, 21(2), 167-177.
- Trammell, B., & Aldrich, R. (2016). Undergraduate students' perspectives of essential instructor qualities. *Journal of the Scholarship of Teaching and Learning*, 16(1), 15-30.
- Trautner, A. (2015). Work-family-school conflict among non-traditional students.
- Tuna, T., Subhlok, J., Barker, L., Shah, S., Johnson, O., & Hovey, C. (2016). Indexed captioned searchable videos: A learning companion for STEM coursework. *Journal of Science Education and Technology*, 1-18.
- Tyler-Smith, K. (2006). Early attrition among first time elearners: A review of factors that contribute to drop-out, withdrawal and non-completion rates of adult learners undertaking elearning programmes. *Journal of Online Learning and Teaching*, 2(2), 73-85.

- Underdown, K., & Martin, J. (2016). Engaging the Online Student: Instructor-Created Video Content for the Online Classroom. *Journal of Instructional Research*, 5, 8-12.
- Vai, M., & Sosulski, K. (2015). *Essentials of online course design: A standards-based guide*. London, UK: Routledge.
- Valeri, L. (2015). Screencasting for Enhanced Teaching and Learning in Blended and Online Creative Writing Classes. *Writing & Pedagogy*, 7(1).
- Valle, R. d., Duffy, T. M. (2009). Online learning: Learner characteristics and their approaches to managing learning. *Instructional Science*, 37(2), 129-149.
- Van Doorn, J. R., & Van Doorn, J. D. (2014). The quest for knowledge transfer efficacy: Blended teaching, online and in-class, with consideration of learning typologies for non-traditional and traditional students. *Frontiers in Psychology*, 5.
- Van Wermeskerken, M., & van Gog, T. (2017). Seeing the instructor's face and gaze in demonstration video examples affects attention allocation but not learning. *Computers & Education*.
- Vargha, A., & Delaney, H. D. (1998). The Kruskal-Wallis test and stochastic homogeneity. *Journal of Educational and Behavioral Statistics*, 23(2), 170-192.
- Wallace, R. M. (2003). Online learning in higher education: A review of research on interactions among teachers and students. *Education, Communication & Information*, 3(2), 241-280.
- Walter, N., Ortbach, K., & Niehaves, B. (2015). Designing electronic feedback—Analyzing the effects of social presence on perceived feedback usefulness. *International Journal of Human-Computer Studies*, 76, 1-11.

- Wang, J., & Antonenko, P. D. (2017). Instructor presence in instructional video: Effects on visual attention, recall, and perceived learning. *Computers in Human Behavior, 71*, 79-89.
- Ward, D. (2012). *The Lived Experience of Non-traditional Students in the Occupational Science Program at Eastern Kentucky University* (Doctoral dissertation, Eastern Kentucky University).
- Wendt, J. L., & Rockinson-Szapkiw, A. J. (2014). The effect of online collaboration on middle school student science misconceptions as an aspect of science literacy. *Journal of Research in Science Teaching, 51*(9), 1103-1118.
- Wendt, J. L., & Rockinson-Szapkiw, A. J. (2015). The effect of online collaboration on adolescent sense of community in eighth-grade physical science. *Journal of Science Education and Technology, 24*(5), 671-683.
- Wise, A. F., Saghafian, M., & Padmanabhan, P. (2012). Towards more precise design guidance: Specifying and testing the functions of assigned student roles in online discussions. *Educational Technology Research and Development, 60*(1), 55-82.
- Wladis, C., Hachey, A. C., & Conway, K. M. (2015). The representation of minority, female, and non-traditional STEM majors in the online environment at community colleges: A nationally representative study. *Community College Review, 43*(1), 89-114.
- Wladis, C., Conway, K. M., & Hachey, A. C. (2015). The online STEM classroom—Who succeeds? An exploration of the impact of ethnicity, gender, and non-traditional student characteristics in the community college context. *Community College Review, 43*(2), pp. 142-164.

- Wladis, C., Conway, K. M., & Hachey, A. C. (2016). Assessing readiness for online education—research models for identifying students at risk. *Online Learning, 20*(3).
- Wladis, C., Conway, K., & Hachey, A. C. (2017). Using course-level factors as predictors of online course outcomes: a multi-level analysis at a US urban community college. *Studies in Higher Education, 42*(1), 184-200.
- Wojciechowski, A., & Palmer, L. B. (2005). Individual student characteristics: Can any be predictors of success in online classes. *Online Journal of Distance Learning Administration, 8*(2), 13.
- Wright, R. D. (Ed.). (2014). *Student-teacher Interaction in Online Learning Environments*. Hershey, PA: IGI Global.
- Wright, V. H., Marsh, G. E., & Miller, M. T. (1999). An Historical Analysis of Instructional Technology in Education.
- Xia, C., Fielder, J., & Siragusa, L. (2013). Achieving better peer interaction in online discussion forums: A reflective practitioner case study. *Issues in Educational Research, 23*(1), 97-113.
- Xu, D., & Jaggars, S. S. (2013). *Adaptability to online learning: Differences across types of students and academic subject areas*. CCRC Working Paper No. 54. New York, NY: Community College Research Center, Columbia University.
- Xu, D., & Jaggars, S. S. (2014). Performance gaps between online and face-to-face courses: Differences across types of students and academic subject areas. *The Journal of Higher Education, 85*(5), 633-659.

- Yang, J. C., Quadir, B., Chen, N. S., & Miao, Q. (2016). Effects of online presence on learning performance in a blog-based online course. *The Internet and Higher Education, 30*, 11-20.
- Yuen, A. H., Deng, L., & Fox, R. (2009). Use of WebCT in online and blended modes. *Interactive Technology and Smart Education, 6*(4), 254-260.
- Zhang, H., Lin, L., Zhan, Y., & Ren, Y. (2016). The impact of teaching presence on online engagement behaviors. *Journal of Educational Computing Research, 54*(7), 887-900.
- Zingaro, D., & Oztok, M. (2012). Interaction in an asynchronous online course: A synthesis of quantitative predictors. *Journal of Asynchronous Learning Networks, 16*(4), 71-82.
- Zydney, J. M., deNoyelles, A., & Kyeong-Ju Seo, K. (2012). Creating a community of inquiry in online environments: An exploratory study on the effect of a protocol on interactions within asynchronous discussions. *Computers & Education, 58*(1), 77-87. <http://dx.doi.org/10.1016/j.compedu.2011.07.009>

Appendix A

E-mail and course announcement that was sent to students by the instructor in Week 1.

Dear Class,

Week 1 survey –unique link based on group

You are invited to take part in a research study that will examine how different formats of instructor introduction to discussion prompts could increase students' participation levels, sense of community, and final grades in online courses.

Compensation: By completing the two surveys on time (one in Week 1 and one in Week 3-4) and earning at least 10% in the course, you will receive a \$20 Amazon gift card and be entered for a chance to win a \$100 gift card delivered to the e-mail address you provided in the survey at the end of Week 4.

UI Research Study

**Earn a \$20 Amazon Gift Card
AND a 1 out of 10 chance for a
\$100 Amazon Gift Card**



Appendix B

E-mail and course announcement that was sent to students by the instructor in Week 3 &

4.

Dear Class,

Good afternoon.

Thank you for completing Week 1 survey.

In order to earn the \$20 Amazon gift card and a chance at a \$100 Amazon gift card please complete the final survey about your experience in DES104:

Week 4 survey - unique link based on group

UI Research Study

**Earn a \$20 Amazon Gift Card
AND a 1 out of 10 chance for a
\$100 Amazon Gift Card**



Appendix C

Consent Form



You are invited to take part in a research study over the next four weeks that will examine how different formats of instructor introduction to discussion prompts could increase students' participation levels, sense of community, and final grades in online courses.

Michelle Rudolph, a doctoral candidate in the School of Education at the University of Memphis, is conducting this study. Michelle is also an adjunct instructor at Independence University.

This informed consent outlines the facts, implications, and consequences of the research study. Upon reading, understanding, and digitally signing this document, you are giving consent to participate in the research study. Please read this form carefully and ask any questions you may have before agreeing to take part in the study.

What the study is about: This study aims to provide evidence concerning which format of facilitation strategy used is the most effective as the instructor's initial discussion post when introducing students to each week's discussion topic.

What I will ask you to do: If you agree to be in this study, you'll need to complete four surveys over the next four weeks. As well as release your final grade and total discussion post frequency to the researcher, Michelle Rudolph, to use in this study. Your name and e-mail will not be listed in the dissertation.

- The first survey must be done by Saturday of Week 1 at 11:59 PM MT. You will complete the Community of Inquiry (CoI) survey based on the most recent online course you have completed (not this course).
- A demographic survey

- At the start of Week 4, you will be asked to complete the same CoI survey based on your experiences in DES104 - Beginning Image Editing.

The whole survey will take about 30 minutes to complete.

Risks and benefits: I do not anticipate any risks to you participating in this study beyond those encountered in day-to-day life.

The benefit to participating in this study is possibly being exposed to a different format of facilitation that could influence your sense of Community of Inquiry, participation, and final grade.

Compensation: By completing the four surveys on time (Two in Week 1 and two in Week 4) and earning at least 10% in the course, you will receive a \$20 Amazon gift card and a one in ten chance to win a \$100 Amazon gift card delivered to the e-mail address you provide in the survey at the end of Week 4.

Your answers will be confidential. The records of this study will be kept private. Any sort of report we make public will not include any information that will make it possible to identify you.

Research records will be kept in a password-protected file on a password-protected computer that only the researcher, Michelle Rudolph, will have access to.

Taking part is voluntary: Taking part in this study is completely voluntary and optional.

Your instructor will not know if you participate in this study. Your decision whether or not to participate will not affect your current or future relations with Independence University. The researcher will use a setting in Qualtrics to anonymize your ISP address.

How to withdraw from the study: If you choose to take part, you are free to withdraw at any time. If you withdraw, your data will not be used in the study and you will not receive the \$20 Amazon gift card and a one in ten chance to win a \$100 Amazon gift card.

You can contact the researcher, Michelle Rudolph, at michelle.rudolph@independence.edu or (406) 788-3305 to withdraw. You can also contact the researcher's faculty advisor, Dr. Amanda J. Rockinson-Szapkiw at rcknsnsz@memphis.edu.

If you have questions: If you have any questions or concerns regarding this study, you are encouraged to contact the Administrator for the Institutional Review Board for the Protection of Human Subjects, via e-mail at irb@memphis.edu or by phone at 901-678-2705.

You can also contact the Dean of Graphics Arts at Independence University, Hollie Knechtel, at Hollie.Knechtel@independence.edu.

Please notify the researcher if you would like a copy of this survey for your records.

Statement of Consent: I have read and understand the description of the study and contents of this document. I have had an opportunity to ask questions and have all my questions answered. **I hereby acknowledge the above and give my voluntary consent for participation in this study and to release my final grade and total discussion posts made to the researcher, Michelle Rudolph. I understand that I must be 18 years or older to digitally sign this informed consent and participate in this study.** I understand that should I have any questions about this research and its conduct, I should contact researcher, Michelle Rudolph, at michelle.rudolph@independence.edu or (406) 788-3305. If I have any questions or concerns regarding this study, I will contact the Administrator for the Institutional Review Board for the Protection of Human Subjects, via e-mail at irb@memphis.edu or by phone at 901-678-2705.

By digitally indicating yes you agree to participate in this study.

Do you agree to participate in this study?

Yes

No

Appendix D

Pretest Survey

Please answer the following 19 questions about your educational and personal background.

1. E-mail Address
2. Gender
 - a. Male
 - b. Female
 - c. Custom
3. Ethnicity
 - a. Caucasian
 - b. African American
 - c. Hispanic
 - d. Asian or Pacific Islander
 - e. American Indian or Native Alaskan
 - f. Muslim
4. Age
 - a. 18-23
 - b. 24-29
 - c. 30-39
 - d. 40-49
 - e. 50-59
 - f. 60-69
 - g. 70+

5. Marital status
 - a. Single
 - b. Married
 - c. Separated
 - d. Divorced
 - e. Widowed
6. Work status
 - a. I am currently not employed
 - b. I work part time
 - c. I work full time
7. Year in college
 - a. Freshman
 - b. Sophomore
 - c. Junior
 - d. Senior
8. Enrollment status
 - a. Part time
 - b. Full time
9. Degree program enrolled in
 - a. Associate's degree in Graphic Arts
 - b. Bachelor of Science Degree in Graphic Arts

10. How many courses do you take each session?
- a. 1
 - b. 2
 - c. 3
11. How many online classes have you taken before this course?
- a. 1
 - b. 2
 - c. 3
 - d. 4
 - e. 5
 - f. 6
 - g. 7
 - h. 8
 - i. 9
 - j. 10+
12. Family income level
- a. Less than \$10,000/yr
 - b. \$10,000-19,999/yr
 - c. \$20,000-39,999/yr
 - d. \$40,000-59,999/yr
 - e. \$60,000/yr or more

13. GPA
- a. Under 1.0
 - b. 1.0 - 1.49
 - c. 1.5 - 1.99
 - d. 2.0 - 2.49
 - e. 2.5 - 2.99
 - f. 3.0 - 3.49
 - g. 3.5 - 4.0
14. Are you caring for an ill family member?
- a. Yes
 - b. No
15. How many children under 18 are you in your family?
- a. 0
 - b. 1
 - c. 2
 - d. 3
 - e. 4+
16. How many children in your family are under the age of 6?
- a. 0
 - b. 1
 - c. 2
 - d. 3
 - e. 4+

17. Type of telephone
 - a. Cellphone only
 - b. Landline only
 - c. Both
 - d. Neither
18. Internet access at home
 - a. Yes
 - b. No
 - c. Using cellphone hotspot only
19. Select ALL of the devices you own
 - a. One laptop
 - b. More than one computer
 - c. Cellphone
 - d. Tablet

Please answer the following questions about your experience in your past course.

Scale for all questions:

1 = strongly disagree

2 = disagree

3 = neutral

4 = agree

5 = strongly agree

Teaching Presence	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
The instructor clearly communicated important course topics.					
The instructor clearly communicated important course goals.					
The instructor provided clear instructions on how to participate in course learning activities.					
The instructor clearly communicated important due dates/time frames for learning activities.					
The instructor was helpful in identifying areas of agreement and disagreement on course topics that helped me to learn.					
The instructor was helpful in guiding the class towards understanding course topics in a way that helped me clarify my thinking.					
The instructor helped to keep course participants engaged and participating in productive dialogue.					
The instructor helped keep the course participants on task in a way that helped me to learn.					
The instructor encouraged course participants to explore new concepts in this course.					
Instructor actions reinforced the development of a sense of community among course					

participants.					
The instructor helped to focus discussion on relevant issues in a way that helped me to learn.					
The instructor provided feedback that helped me understand my strengths and weaknesses.					
The instructor provided feedback in a timely fashion.					

Please answer the following questions about your experience in your past course.

Scale for all questions:

1 = strongly disagree

2 = disagree

3 = neutral

4 = agree

5 = strongly agree

Social Presence	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Getting to know other course participants gave me a sense of belonging in the course.					
I was able to form distinct impressions of some course participants.					
Online or web-based communication is an excellent medium for social interaction.					
I felt comfortable conversing through the online medium.					
I felt comfortable participating in the course					

discussions.					
I felt comfortable interacting with other course participants.					
I felt comfortable disagreeing with other course participants while still maintaining a sense of trust.					
I felt that my point of view was acknowledged by other course participants.					
Online discussions help me to develop a sense of collaboration.					

Please answer the following questions about your experience in your past course.

Scale for all questions:

1 = strongly disagree

2 = disagree

3 = neutral

4 = agree

5 = strongly agree

Cognitive Presence	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Problems posed increased my interest in course issues.					
Course activities piqued my curiosity.					
I felt motivated to explore content related questions.					
I utilized a variety of information sources to explore problems posed in this course.					
Brainstorming and finding relevant information helped me resolve content related					

questions.					
Online discussions were valuable in helping me appreciate different perspectives.					
Combining new information helped me answer questions raised in course activities.					
Learning activities helped me construct explanations/solutions.					
Reflection on course content and discussions helped me understand fundamental concepts in this class.					
I can describe ways to test and apply the knowledge created in this course.					
I have developed solutions to course problems that can be applied in practice.					
I can apply the knowledge created in this course to my work or other non-class related activities.					

Appendix E

Posttest Survey

1. E-mail Address
2. What state do you live in?

Please answer the following questions about your experience in your past course.

Scale for all questions:

1 = strongly disagree

2 = disagree

3 = neutral

4 = agree

5 = strongly agree

Teaching Presence	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
The instructor clearly communicated important course topics.					
The instructor clearly communicated important course goals.					
The instructor provided clear instructions on how to participate in course learning activities.					
The instructor clearly communicated important due dates/time frames for learning activities.					
The instructor was helpful in identifying areas of agreement and disagreement on course topics that helped me to learn.					
The instructor was helpful in guiding the class towards understanding course topics					

in a way that helped me clarify my thinking.					
The instructor helped to keep course participants engaged and participating in productive dialogue.					
The instructor helped keep the course participants on task in a way that helped me to learn.					
The instructor encouraged course participants to explore new concepts in this course.					
Instructor actions reinforced the development of a sense of community among course participants.					
The instructor helped to focus discussion on relevant issues in a way that helped me to learn.					
The instructor provided feedback that helped me understand my strengths and weaknesses.					
The instructor provided feedback in a timely fashion.					

Please answer the following questions about your experience in your past course.

Scale for all questions:

1 = strongly disagree

2 = disagree

3 = neutral

4 = agree

5 = strongly agree

Social Presence	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Getting to know other course participants gave me a sense of belonging in the course.					
I was able to form distinct impressions of some course participants.					
Online or web-based communication is an excellent medium for social interaction.					
I felt comfortable conversing through the online medium.					
I felt comfortable participating in the course discussions.					
I felt comfortable interacting with other course participants.					
I felt comfortable disagreeing with other course participants while still maintaining a sense of trust.					
I felt that my point of view was acknowledged by other course participants.					
Online discussions help me to develop a sense of collaboration.					

Please answer the following questions about your experience in your past course.

Scale for all questions:

1 = strongly disagree

2 = disagree

3 = neutral

4 = agree

5 = strongly agree

Cognitive Presence	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Problems posed increased my interest in course issues.					
Course activities piqued my curiosity.					
I felt motivated to explore content related questions.					
I utilized a variety of information sources to explore problems posed in this course.					
Brainstorming and finding relevant information helped me resolve content related questions.					
Online discussions were valuable in helping me appreciate different perspectives.					
Combining new information helped me answer questions raised in course activities.					
Learning activities helped me construct explanations/solutions.					
Reflection on course content and discussions helped me understand					

fundamental concepts in this class.					
I can describe ways to test and apply the knowledge created in this course.					
I have developed solutions to course problems that can be applied in practice.					
I can apply the knowledge created in this course to my work or other non-class related activities.					

4. On average how many times did you watch each week's initial discussion post video?
 - a. 0
 - b. 1
 - c. 2
 - d. 3+

5. On average how long did you watch each week's video?
 - a. Thirty seconds
 - b. One minute
 - c. One minute and thirty seconds
 - d. Two minutes
 - e. Two minutes and thirty seconds
 - f. The whole video

Appendix F

Discussion scripts used for the initial discussion post in Weeks 1-3.

The first post for each week is what appeared in the initial discussion post for video treatments—voice-over-presentation, picture-in-picture, or overlay mode). The second post was the script that was used for creating each of the video treatments.

Discussion 1: Photoshop

Dear Class,

Welcome to Week 1 Discussion: Photoshop!

Before making your initial discussion post please watch this brief video (2:30) about this week's discussion topic.

<iframe width="560" height="315" src="uniquelink" frameborder="0" allowfullscreen></iframe>

I look forward to reading your discussion posts about the controversy of retouching images.

Best,

Professor X

Dear Class,

Welcome to Week 1 Discussion: Photoshop!

A few years ago, the only way for people to retouch images was through Photoshop or using a similar application. Now with the advancements of cellphones, we now have built in retouching filters within our phone's cameras and if we really want to get fancy, we

can applications like Instagram, Google Photos, and Adobe Photoshop Express. Many of these applications can be downloaded for free.

With so many free applications on our cell phones have we lost the natural beauty that comes from unedited image? Could the wide spread access to free image editing application be the cause of why image editing has become so popular to the everyday person?

Magazine and other media outlets have been editing their images for decades. Common retouching techniques are making people skinnier, removing blemishes, adding more hair, increasing chest or bottom size, and skin tone and changing out body parts!

Now in 2017, any person who has access to a smartphone with a data plan can download an image editing application for free. The question becomes how much alternation through image editing is too much? The article you will read for this discussion dives into the impact retouching can have on men's and women's body image.

As you write this week's discussion topic reflect on if you edit any images you have taken. What were they of? What did you edit and did you share these online? Why didn't you post the original image?

I look forward to reading your discussion posts about the controversy of retouching images.

Best,

Professor X

Discussion 2: Software tools as they apply to design

Dear Class,

Welcome to Week 2 Discussion: Software tools as they apply to design!

Before making your initial discussion post please watch this brief video (3:52) about this week's discussion topic.

<iframe width="560" height="315" src="uniquelink" frameborder="0" allowfullscreen></iframe>

I look forward to reading or watching your "how to" tutorial, why you chose that tool, and how designers use this tool in the "real world".

Best,

Professor X

Discussion 2: Software tools as they apply to design

Dear Class,

Welcome to Week 2 Discussion: Software tools as they apply to design

As a designer you might be working in Photoshop on a daily basis. The tools you use will vary depending on what you are trying to do to the pixels in the image. In this week's discussion you will pick one tool or skill that is important for designers to know how to use and create a tutorial to help fellow classmates learn more about this tool.

Photoshop has hundreds of tools. Some of the most common tools designers uses are: selection, masking, the brush tool, adjustment layers, the clone stamp, using layers, blend modes, transformation, and cropping.

Selection:

There are several tools that allow you to select a variety of pixels that you can then edit (color, move, resize, or delete the pixels).

Masking:

This tool allows you to show or hide pixels.

Brush Tool:

This tool is used for masking, adjustment layers, as well as painting and illustration.

Adjustment Layers:

This tool allows you to change the pixel's color or tone.

Clone Stamp:

This tool allows you to sample pixels from one part of an image and paint those pixels onto another part of an image.

Layers:

This is a key tool that allows designers to organize each layer.

Blend Modes:

You can blend several layers together using different settings and filters.

Transformation:

This tool allows you to re-size, distort, transform, and warp your images

Cropping:

This tool allows you to trim parts of an image and change the aspect ratio.

For this discussion you have the choice of writing a text-based step-by-step tutorial that is at least 300 words or using a screencast application like Jing to create a tutorial demonstrating the tool in less than five minutes. The choice is up to you, however, ask yourself how you think your fellow classmates would learn how to use this

tool best. Is it by writing out step-by-step instructions or by showing a person how to do the steps in Photoshop?

I look forward to reading or watching your "how to" tutorial, why you chose that tool, and how designers use this tool in the "real world".

Best,

Professor X

Discussion 3: Designers who use rastors in their artwork

Dear Class,

Welcome to Week 3 Discussion: Designers who use rastors in their artwork

Before making your initial discussion post please watch this brief video (2:12) about this week's discussion topic.

<iframe width="560" height="315" src="uniquelink" frameborder="0" allowfullscreen></iframe>

I look forward to reading the pros and cons of using video editing features in Photoshop and how you would use the video editing tools.

Best,

Professor X

Discussion 3: Designers who use rastors in their artwork

Dear Class,

Welcome to Week 3 Discussion: Designers who use rastors in their artwork

In addition to taking photographs a designer might also want to capture video. The majority of modern digital cameras have video recording capabilities, as do smart

phones. However, not every designer might have access to the whole Adobe Cloud Suite or know how to use Adobe Premiere and After Effects. As a result, Adobe has introduced a video-editing feature within Photoshop.

Designers can stitch video clips together, trim and edit videos, improve playback experience, and change the speed (speed up to slow down) the video. Commonly used motion effects are: pan, zoom, rotate, and transform. Designers can use filters and masks to enhance the colors and lighting in their video(s).

Photoshop's video editing capabilities are limited. Adobe Premier and After Effects have advanced filters, tools, and panels that are not available within Photoshop. The video editing feature in Photoshop only has basic audio editing capabilities (mute, adjust volume, and fade in and out.). The designer would need to import the video into iMovie or Windows Movie Maker if he/she wanted to edit the audio on the video.

I look forward to reading the pros and cons of using video editing features in Photoshop and how you would use the video editing tools.

Best,

Professor X

Appendix G

Institutional Review Board Approval Letter – University of Memphis



Institutional Review Board
Office of Sponsored Programs
University of Memphis
315 Admin Bldg
Memphis, TN 38152-3370

Oct 26, 2017

PI Name: Michelle Rudolph
Co-Investigators:
Advisor and/or Co-PI: Amanda Rockinson-Szapkiw
Submission Type: Initial
Title: Michelle Rudolph Dissertation
IRB ID: #PRO-FY2018-106

Expedited Approval: Oct 20, 2017
Expiration: Oct 20, 2018

Approval of this project is given with the following obligations:

1. This IRB approval has an expiration date, an approved renewal must be in effect to continue the project prior to that date. If approval is not obtained, the human consent form(s) and recruiting material(s) are no longer valid and any research activities involving human subjects must stop.
2. When the project is finished or terminated, a completion form must be submitted.
3. No change may be made in the approved protocol without prior board approval.

Thank you,
James P. Whelan, Ph.D.
Institutional Review Board Chair
The University of Memphis.

Appendix H

Support Letter – Impendence University

PD2 - Michelle Rudolph's Dissertation



Date: 2/20/2017

Submitted by: Michelle Rudolph

Cross-checked by: Hollie Knechtel

Introduction: The purpose of this quasi-experimental study is to compare online, non-traditional undergraduate students' participation levels, sense of Community of Inquiry (CoI) (i.e., social, teaching, and cognitive presence), and final grade based on the communication format (i.e., text-only control vs. asynchronous video treatments—voice-over-presentation, picture-in-picture, or overlay mode) used for weekly discussion prompts for their online courses.

Problem: There is a gap in the literature about what is the most effective video type to use in an online class that will increase the student's three Community of Inquiry (CoI) presences (i.e., social, teaching, and cognitive presence). Research is also needed to determine which video treatment type (voice-over-presentation, picture-in-picture, or overlay mode) students will watch most/longest and if there is any impact on the student's final grade and discussion post frequency compared to text-based only discussion communications from the instructor.

Background Information: Students continue to fail or drop out of college courses. Years of research have shown the "best" learning experience comes down to the students' interaction and community with instructors and peers (Dunlap & Lowenthal, 2014). While colleges will not be able to retain every student – administrators should continue to look for ways to increase teaching and social presence in online classes.

Return on Investment (ROI) and/or Financial Impact: Determining if the use of video in the discussion topic increases the student's social, cognitive, and teaching presence. Then, if a specific type of video treatment (voice-over-presentation, picture-in-picture, or overlay mode) has a significant impact on the student's grade, post frequency, as well as if students watch the video and for how long.

Measures of Merit (Outcomes and/or Metrics): Community of Inquiry survey, demographic survey, final grades, discussion post frequency, and watch/view time.

Request: Access to four courses within the Graphics Arts Department that are the same courses, over two to three mods (Mod 4-6)

Before Mod 4, I would need a copy of the course that will be used for this study to become familiar with the course content. Before Week 1 starts for Mod 4, I would write the text-based script the instructor will use as the initial discussion post for each week's discussion topic.

During Week 1 of Mod 4, I will work with the course instructor to invite students via an email and course announcement to participate in the study. Students will be informed about what the

Appendix I

Full Sample Descriptives

	Full Sample		Text		P2P		Overlay		Voice Over	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Group										
Text	22	24.4								
P2P	23	25.6								
Overlay	23	25.6								
Voice Over	22	24.4								
State										
Alabama	2	2.3			2	8.7				
Arizona	1	1.1	1	4.5						
California	6	6.8			1	4.3	3	13.6	2	9.5
Delaware	2	2.3			1	4.3			1	4.8
Florida	5	5.7			2	8.7	2	9.1	1	4.8
Georgia	4	4.5	1	4.5	1	4.3	1	4.5	1	4.8
Idaho	1	1.1	1	4.5						
Illinois	6	6.8			2	8.7	2	9.1	2	9.5
Indiana	1	1.1	1	4.5						
Kansas	1	1.1			1	4.3				
Kentucky	2	2.3			1	4.3	1	4.5		
Louisiana	3	3.4					1	4.5	2	9.5
Maryland	1	1.1			1	4.3				

Massachusetts	1	1.1					1	4.5		
Michigan	3	3.4					2	9.1	1	4.8
Mississippi	1	1.1							1	4.8
Missouri	4	4.5	2	9.1			1	4.5	1	4.8
Nebraska	1	1.1			1	4.3				
New Jersey	1	1.1					1	4.5		
New York	4	4.5			2	8.7			2	9.5
North Carolina	7	8.0	2	9.1	1	4.3	2	9.1	2	9.5
Ohio	6	6.8	3	13.6	2	8.7	1	4.5		
Oregon	1	1.1					1	4.5		
Pennsylvania	3	3.4	3	13.6						
South Carolina	1	1.1					1	4.5		
Tennessee	3	3.4	1	4.5	1	4.3			1	4.8
Texas	6	6.8	3	13.6	2	8.7			1	4.8
Utah	6	6.8	2	9.1	2	8.7	1	4.5	1	4.8
Virginia	2	2.3	1	4.5					1	4.8
Washington	3	3.4	1	4.5			1	4.5	1	4.8

Gender

Female	54	60.0	14	63.6	16	69.6	10	43.5	14	63.6
Male	36	40.0	8	36.4	7	30.4	13	56.5	8	36.4

Ethnicity

Caucasian	59	65.6	16	72.7	10	43.5	15	65.2	18	81.8
Hispanic	8	8.9	2	9.1	1	4.3	4	17.4	1	4.5
African American	19	21.1	3	13.6	10	43.5	3	13.0	3	13.6
Asian or Pacific Islander	4	4.4	1	4.5	2	8.7	1	4.3		

Age										
18-23	19	21.1	4	18.2	6	26.1	5	21.7	4	18.2
24-29	22	24.4	6	27.3	5	21.7	7	30.4	4	18.2
30-39	35	38.9	9	40.9	8	34.8	9	39.1	9	40.9
40-49	10	11.1	2	9.1	4	17.4	2	8.7	2	9.1
50-59	3	3.3	1	4.5					2	9.1
60-69	1	1.1							1	4.5
Marital Status										
Single	56	62.2	14	63.6	16	69.6	12	52.2	14	63.6
Married	23	25.6	7	31.8	6	26.1	8	34.8	2	9.1
Divorced/Separated	11	12.2	1	4.5	1	4.3	3	13.0	6	27.3
Work Status										
Not Working	48	53.3	10	45.5	13	56.5	11	47.8	14	63.6
Part Time	19	21.1	3	13.6	5	21.7	6	26.1	5	22.7
Full Time	23	25.6	9	40.9	5	21.7	6	26.1	3	13.6
Year in School										
First Year	82	91.1	22	100.0	19	82.6	22	95.7	19	86.4
Sophomore	7	7.8			4	17.4			3	13.6
Junior	1	1.1					1	4.3		
Program										
Associates	73	81.1	17	77.3	20	87.0	16	69.6	20	90.9
Bachelor's	17	18.9	5	22.7	3	13.0	7	30.4	2	9.1

Family Income										
< \$10,000	39	43.3	7	31.8	11	47.8	10	43.5	11	50.0
\$10,000-19,999	23	25.6	7	31.8	5	21.7	6	26.1	5	22.7
\$20,000-39,999	16	17.8	2	9.1	4	17.4	5	21.7	5	22.7
\$40,000-59,999	6	6.7	2	9.1	2	8.7	2	8.7		
\$60,000+	6	6.7	4	18.2	1	4.3			1	4.5
Caring for Ill Family Member										
No	84	93.3	22	100.0	22	95.7	21	91.3	19	86.4
Yes	6	6.7			1	4.3	2	8.7	3	13.6
Phone										
Landline Only	4	4.4					1	4.3	3	13.6
Cellphone Only	76	84.4	19	86.4	21	91.3	19	82.6	17	77.3
Both	10	11.1	3	13.6	2	8.7	3	13.0	2	9.1
Internet at Home										
No	3	3.3	2	9.1					1	4.5
Yes	80	88.9	17	77.3	22	95.7	23	100.0	18	81.8
Yes, Hotspot only	7	7.8	3	13.6	1	4.3			3	13.6
Devices										
Cellphone	3	3.3	1	4.5					2	9.1
Cellphone, Tablet	1	1.1					1	4.3		
More than one computer	6	6.7	2	9.1	2	8.7	1	4.3	1	4.5
More than one computer, Cellphone, Tablet	18	20.0	4	18.2	4	17.4	5	21.7	5	22.7

One laptop, Cellphone	3	3.3			2	8.7	1	4.3		
One laptop, Cellphone, Tablet	38	42.2	7	31.8	12	52.2	11	47.8	8	36.4
One laptop, More than one computer, Cellphone, Tablet	17	18.9	8	36.4	2	8.7	2	8.7	5	22.7
One laptop, Tablet	4	4.4			1	4.3	2	8.7	1	4.5

	Full Sample (<i>N</i> = 90)				Text (<i>n</i> = 22)				Picture-in-Picture (<i>n</i> = 23)				Overlay (<i>n</i> = 23)				Voice Over (<i>n</i> = 22)			
	<i>M</i>	<i>SD</i>	Min	Max	<i>M</i>	<i>SD</i>	Min	Max	<i>M</i>	<i>SD</i>	Min	Max	<i>M</i>	<i>SD</i>	Min	Max	<i>M</i>	<i>SD</i>	Min	Max
Courses	1.87	.54	1	3	1.77	.53	1	3	1.96	.71	1	3	1.87	.55	1	3	1.86	.35	1	2
Online Courses	3.70	2.02	1	10	3.36	1.81	1	10	4.13	2.60	1	10	3.52	1.86	1	10	3.77	1.74	1	10
Children Under 18	1.48	1.40	0	4	2.00	1.45	0	4	1.52	1.44	0	4	1.39	1.41	0	4	1.00	1.20	0	4
Children Under 6	.56	.82	0	4	.73	.77	0	2	.61	.94	0	3	.39	.58	0	2	.50	.96	0	4

Note. Groups did not significantly differ in terms of observed proportions, all *ps* > .05

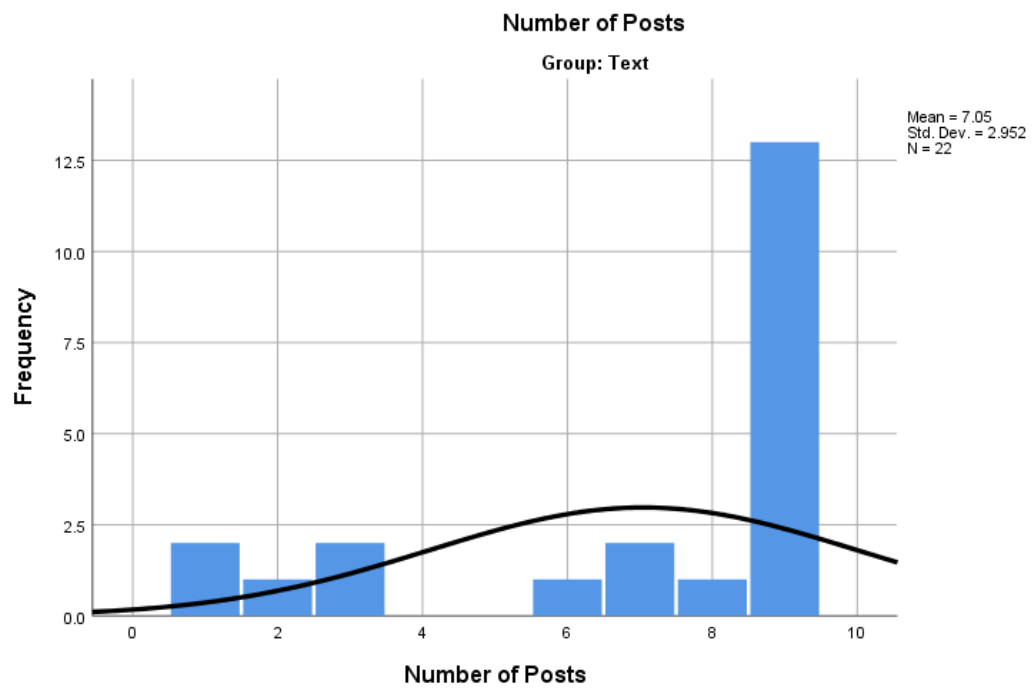
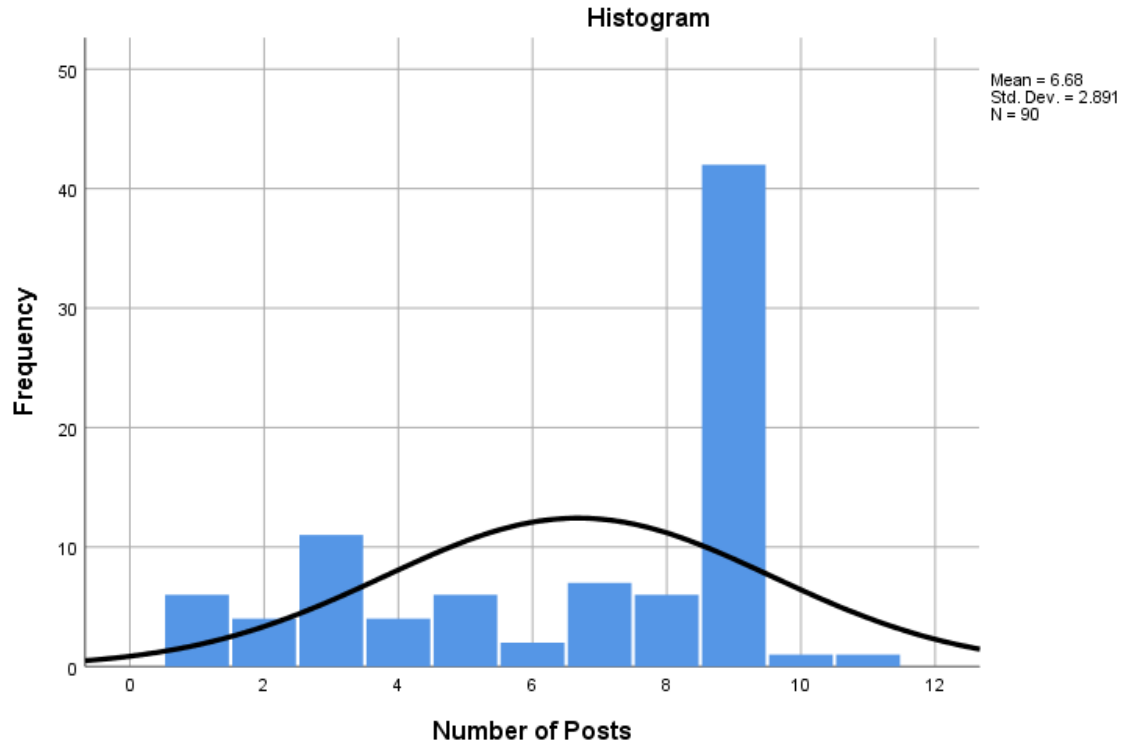
Appendix J

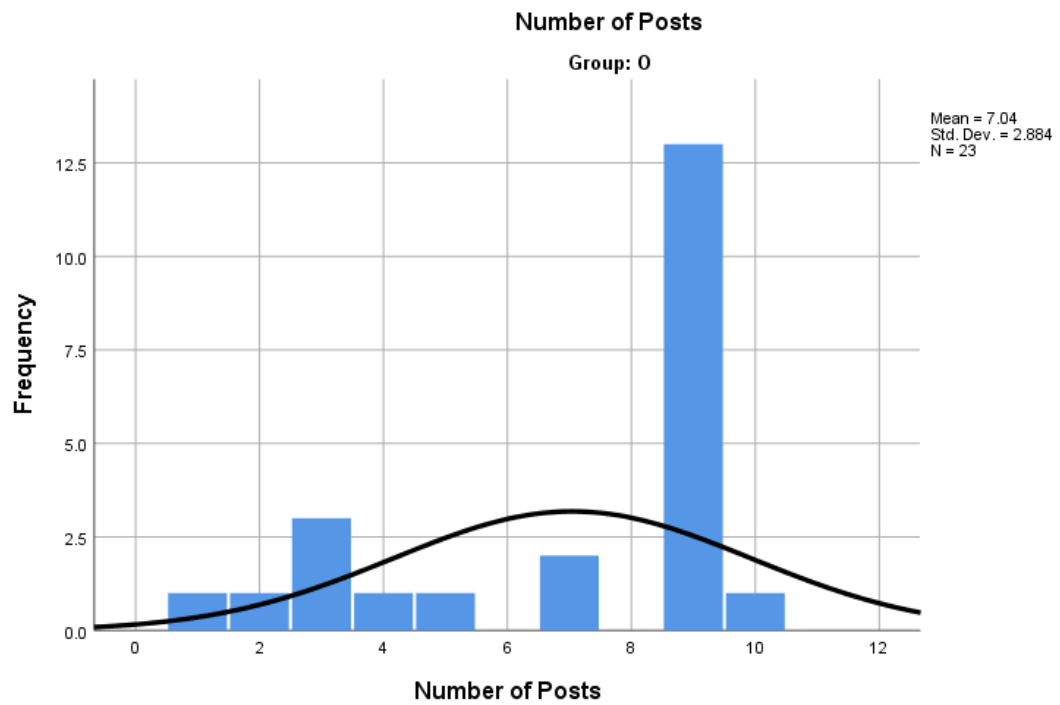
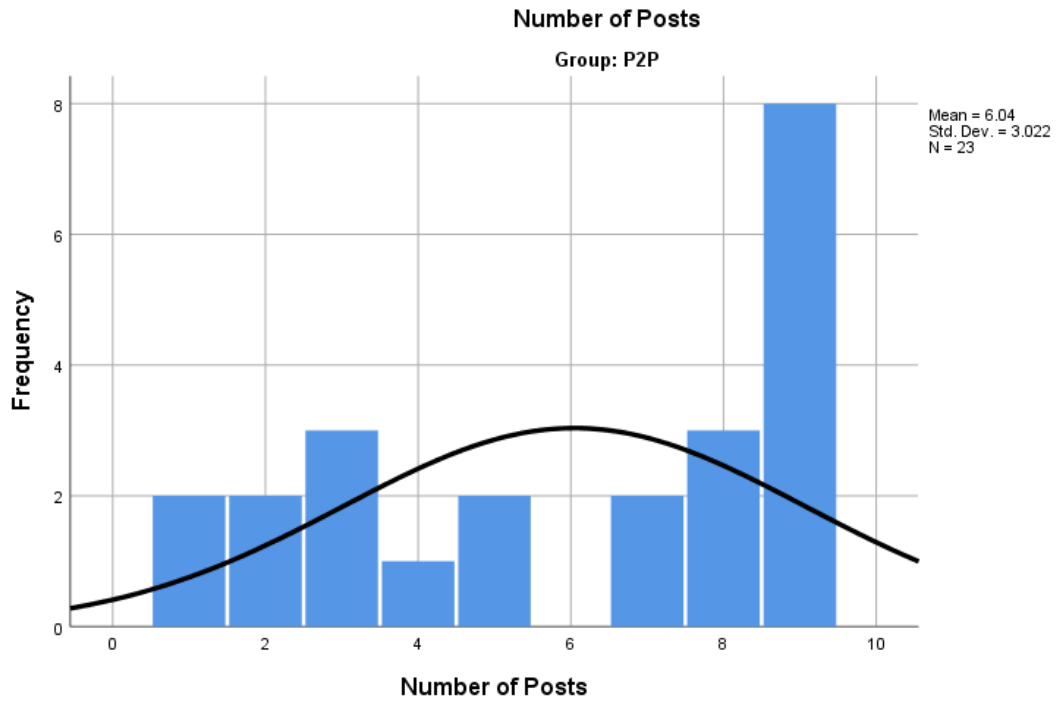
Summary of Continuous Variables

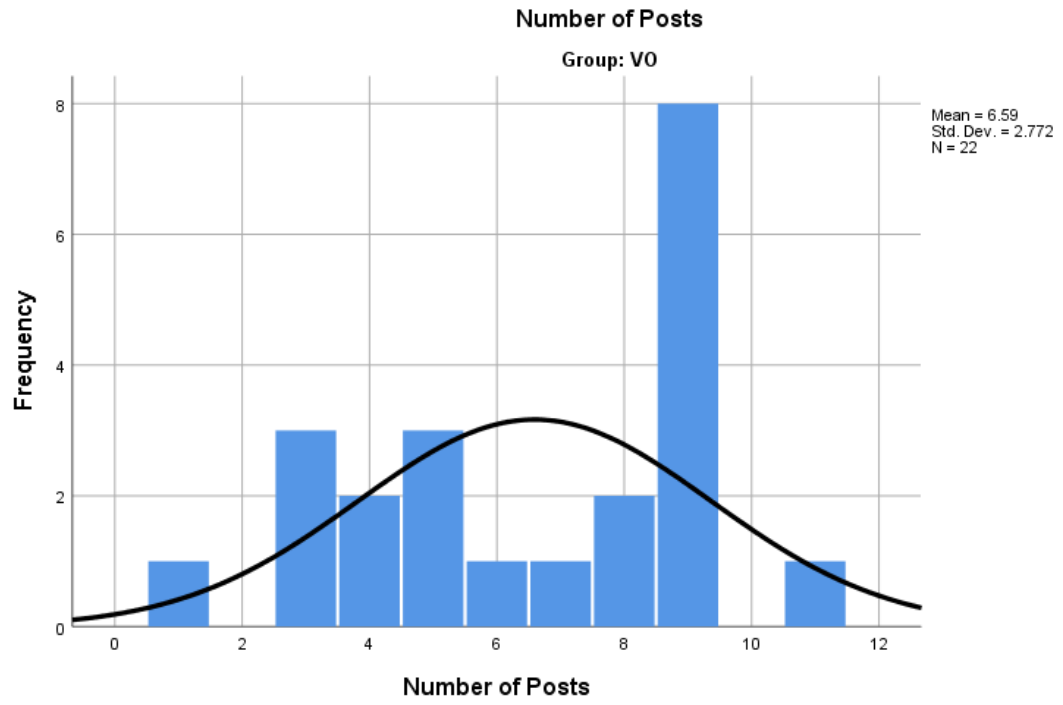
	<i>n</i>	<i>M</i>	<i>SD</i>	Min	Max
Courses	90	1.87	.54	1	3
Online Courses	90	3.70	2.02	1	10
Number of Children Under 18	90	1.48	1.40	0	4
Number of Children Under 6	90	.56	.82	0	4

Appendix K

Average Number of Posts



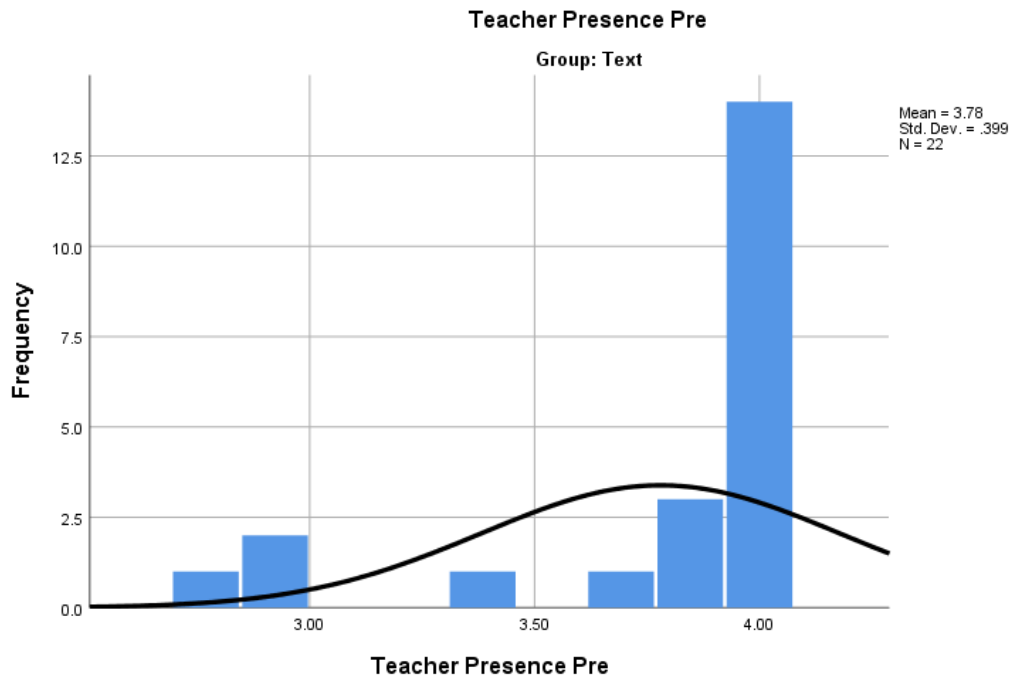
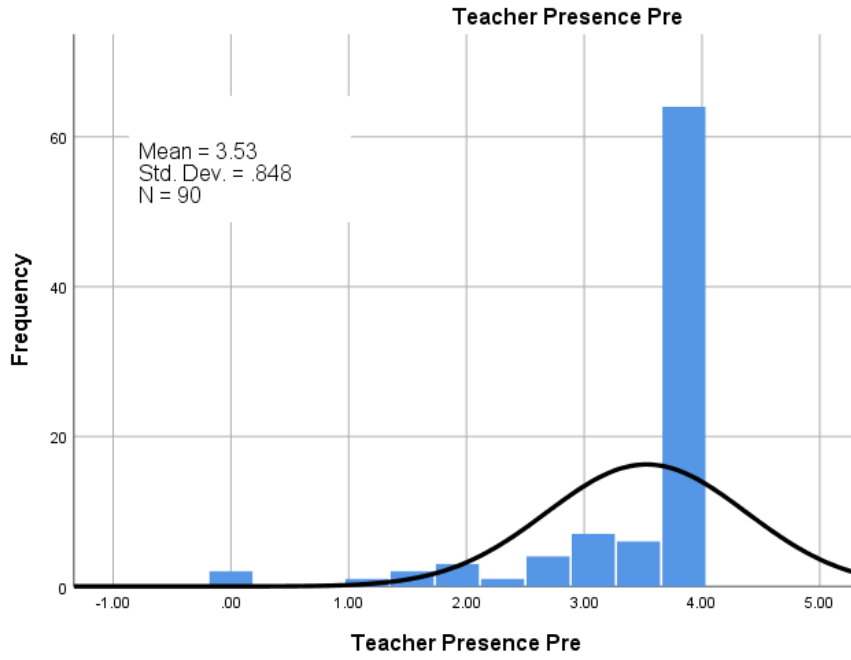


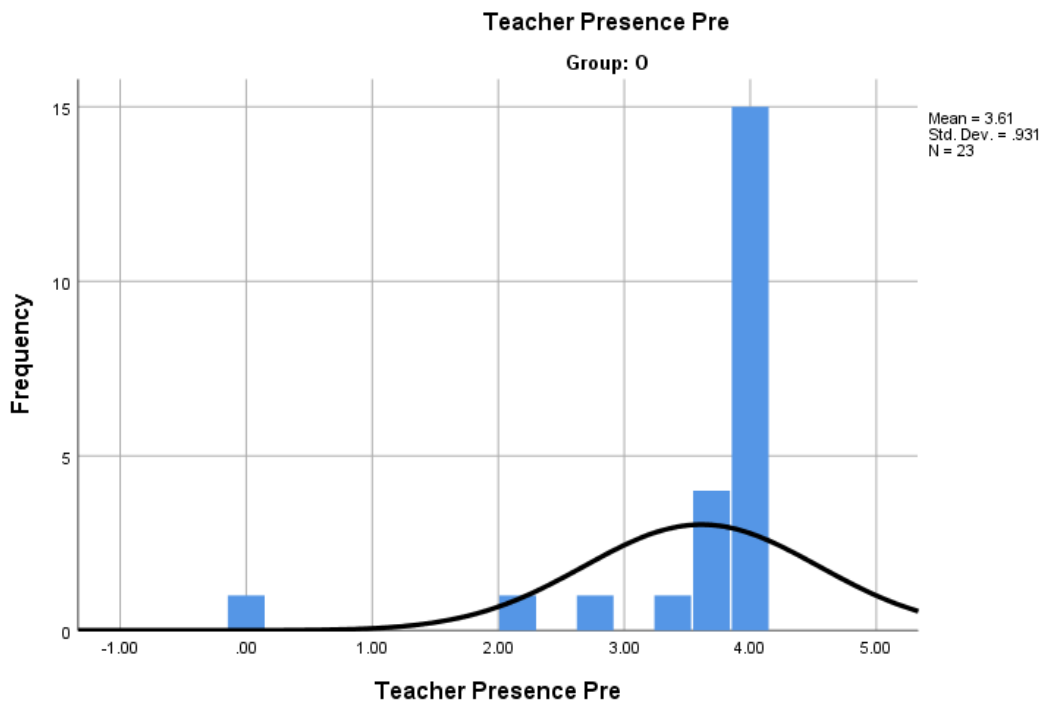
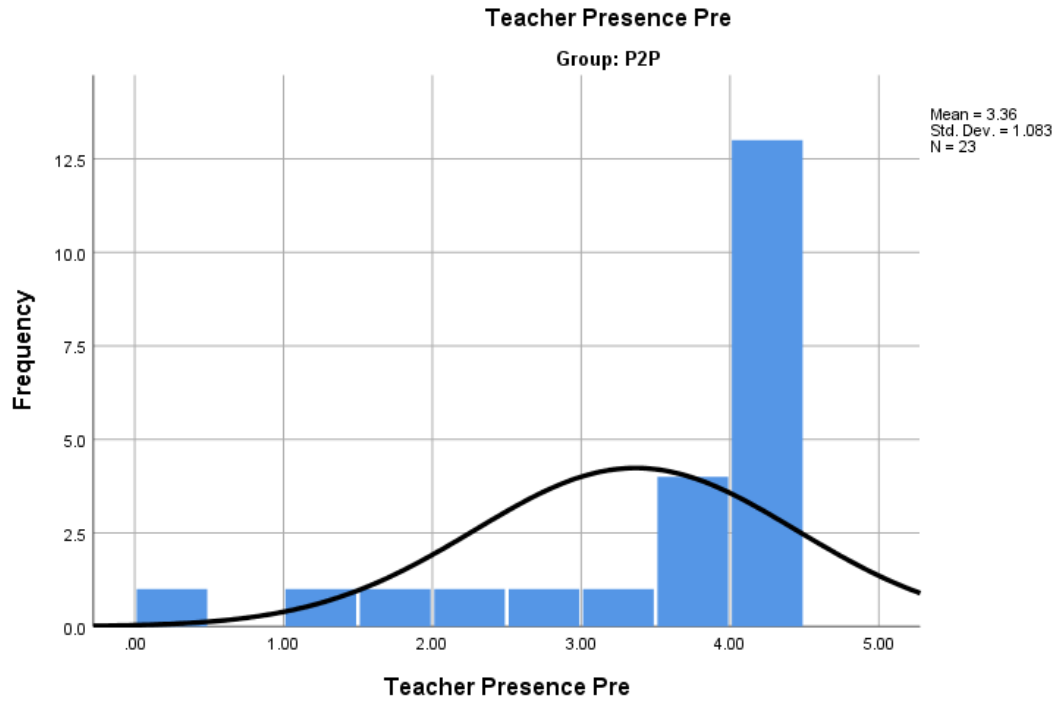


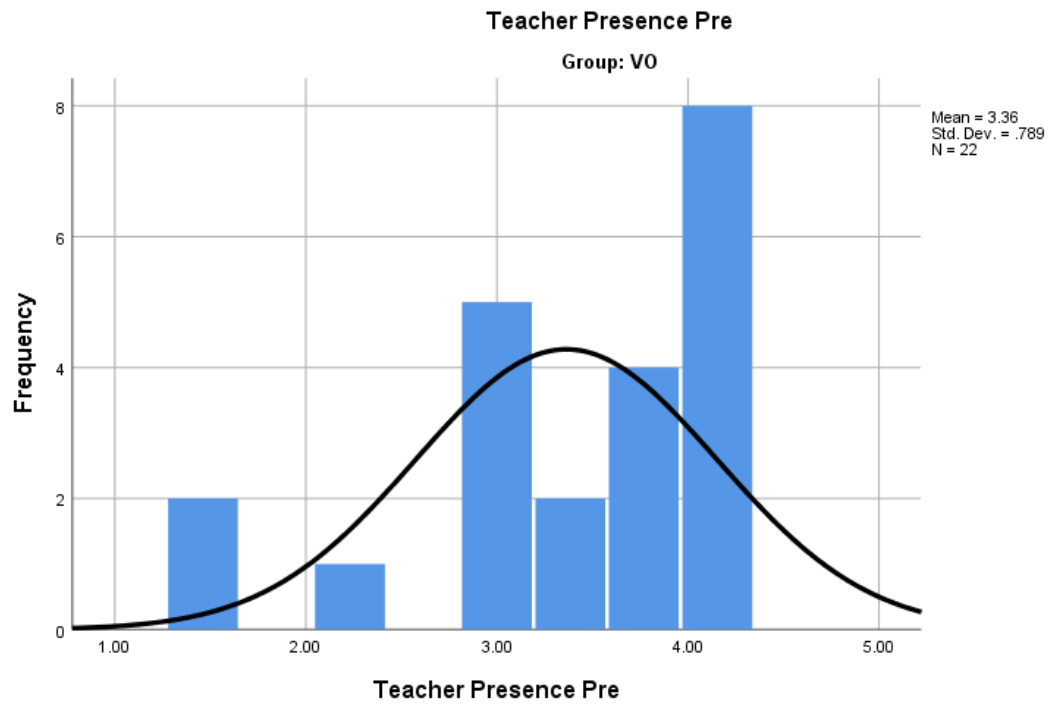
Appendix L

CoI Histograms Assumption of Normality

Teaching Presence Pretest



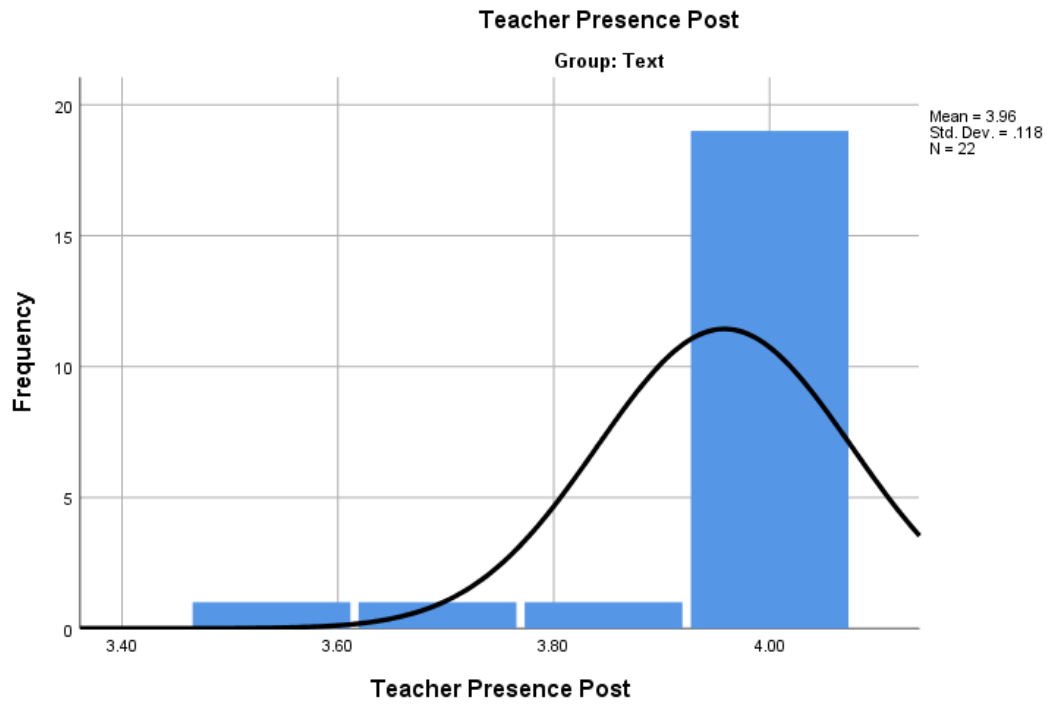
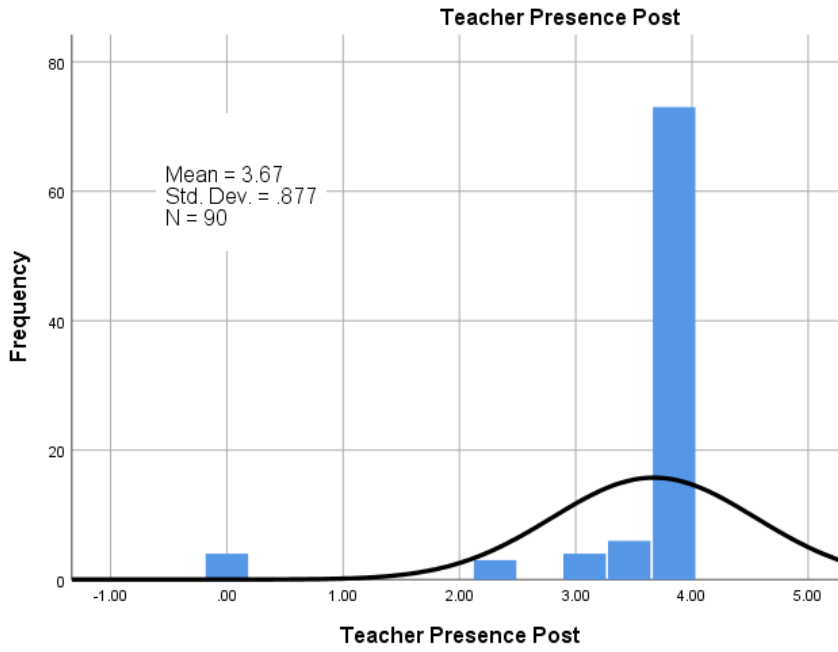


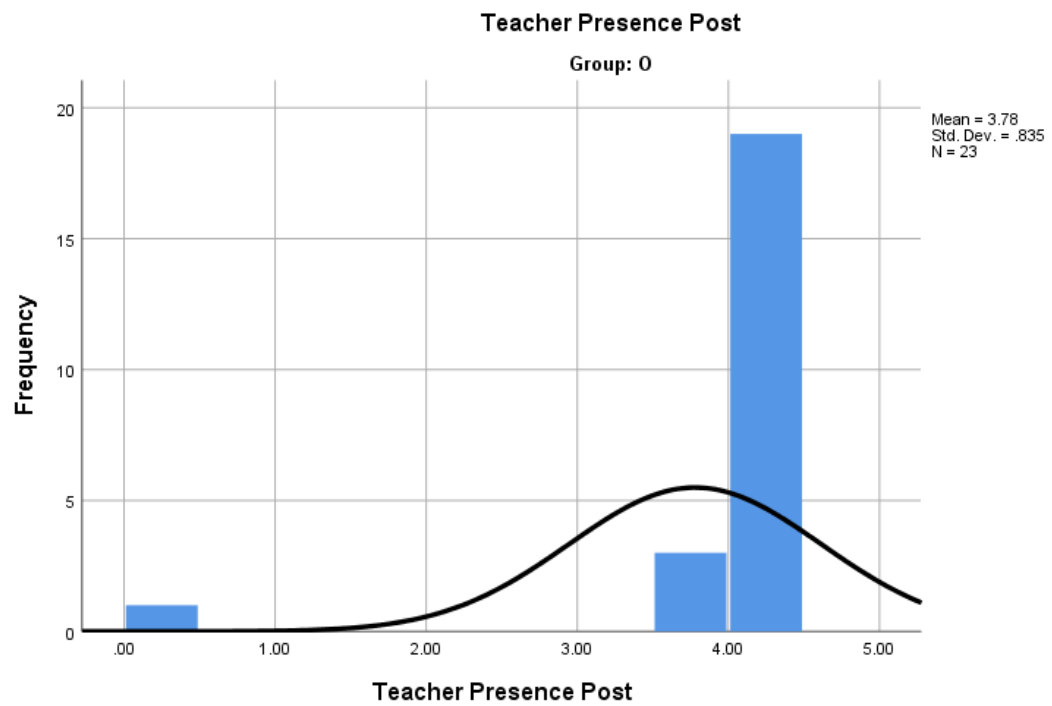
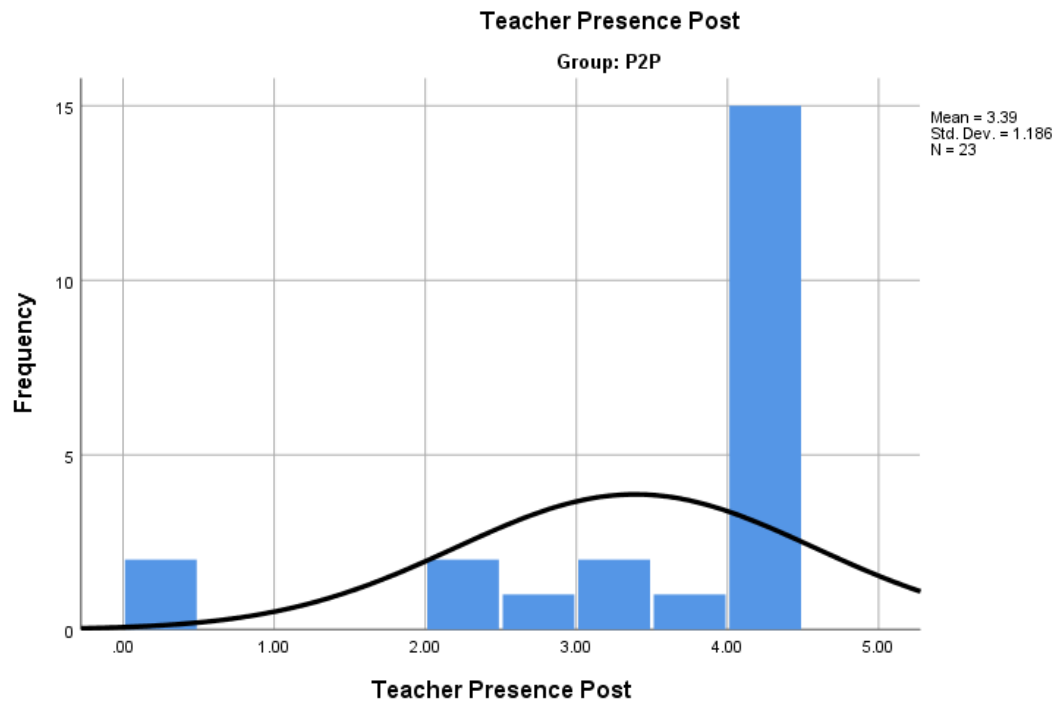


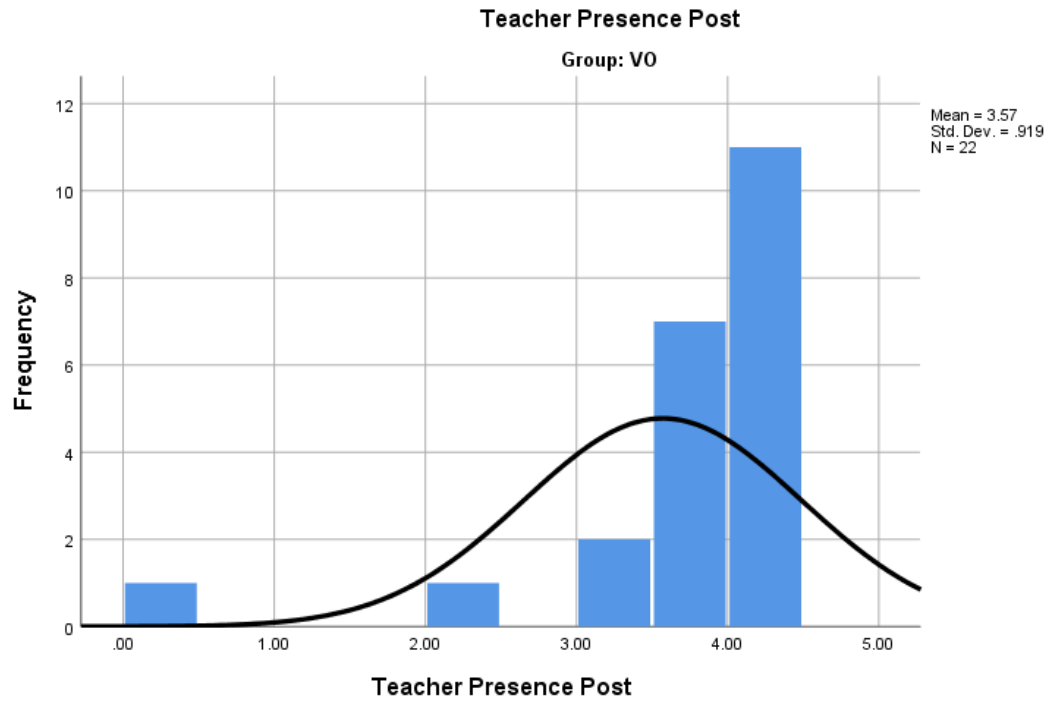
Appendix L

CoI Histograms Assumption of Normality

Teaching Presence Posttest



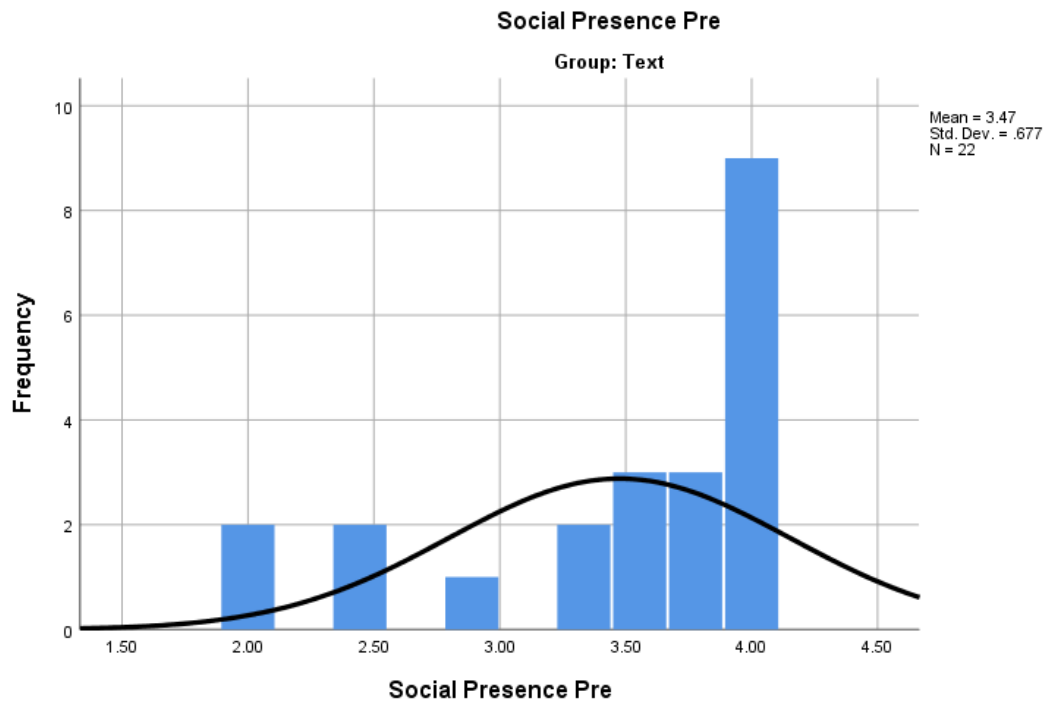
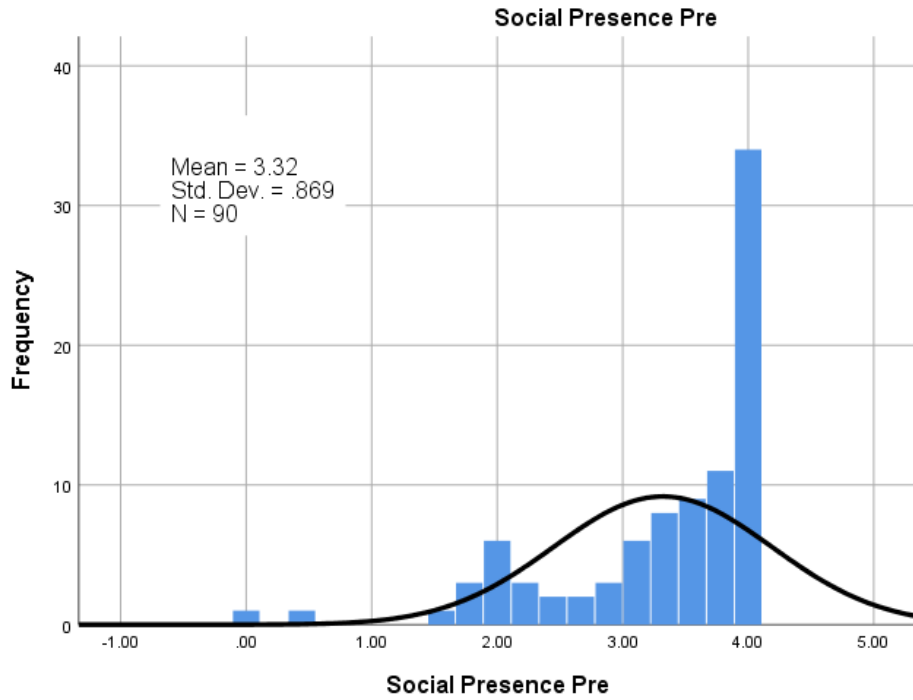


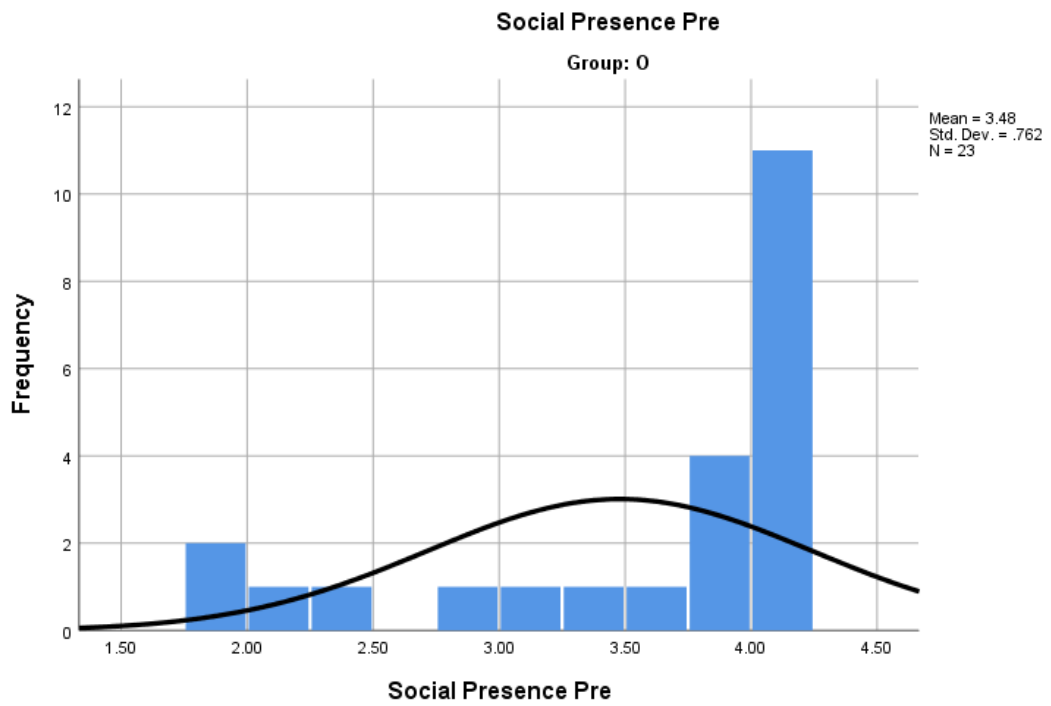
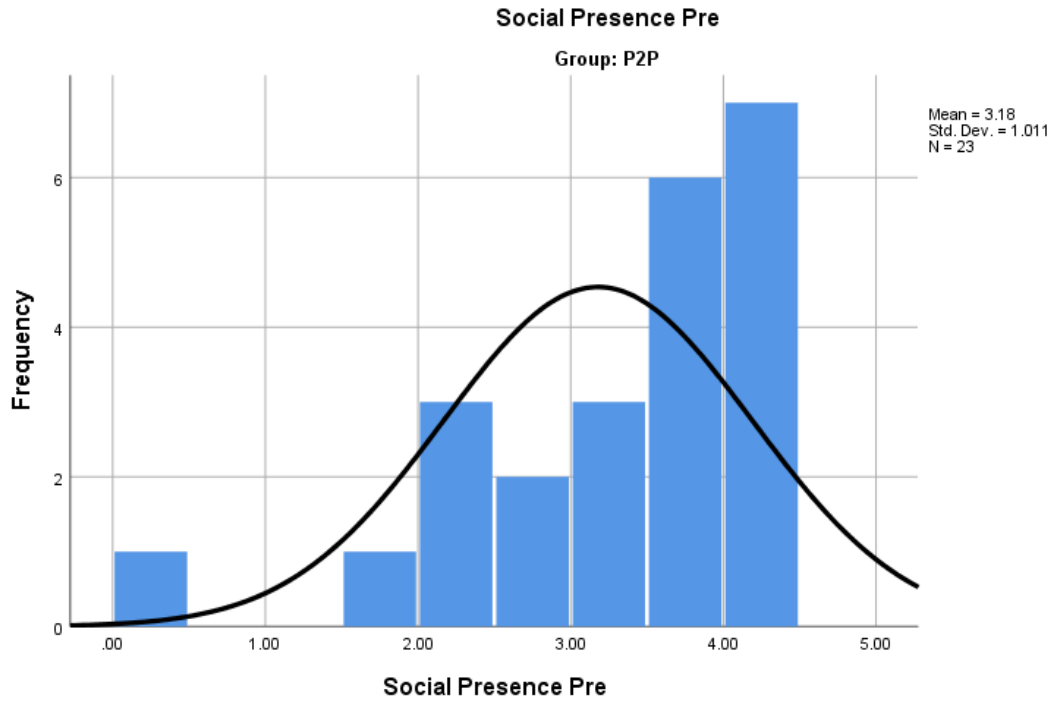


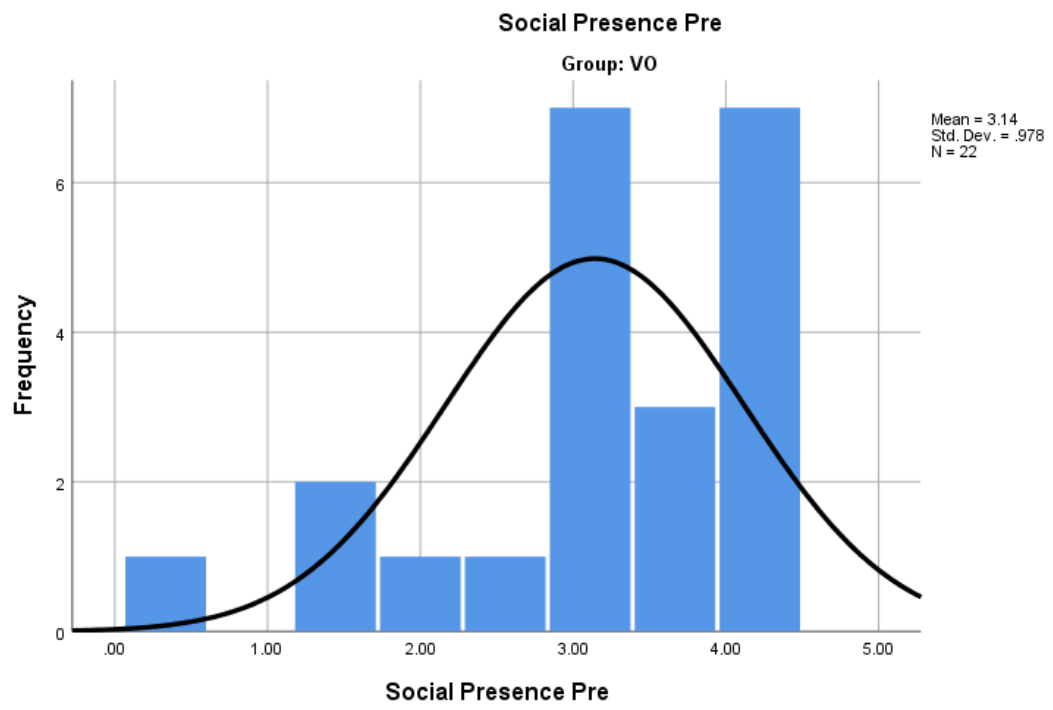
Appendix L

CoI Histograms Assumption of Normality

Social Presence Pretest



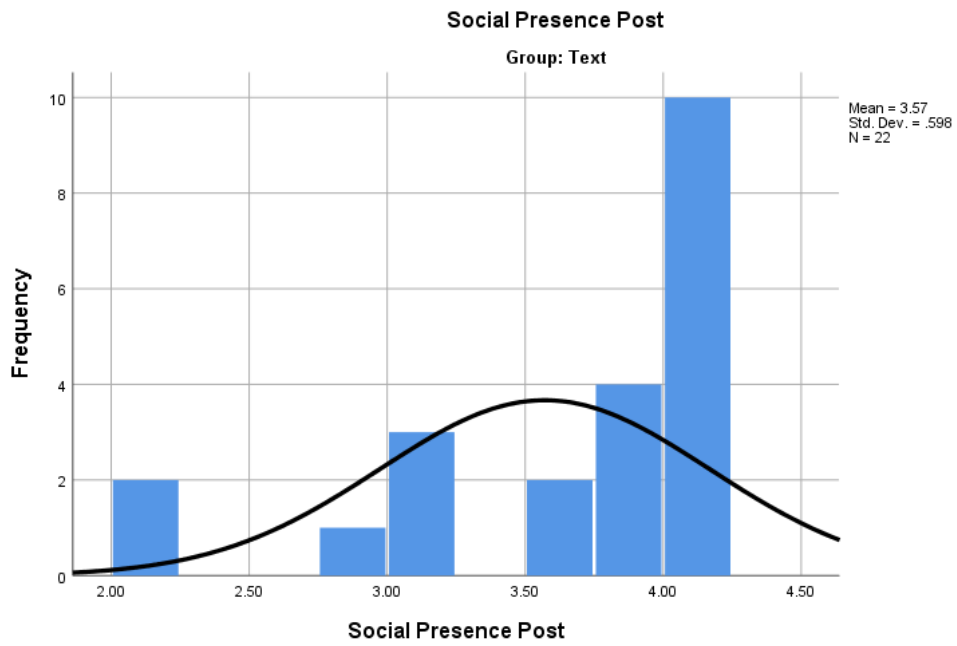
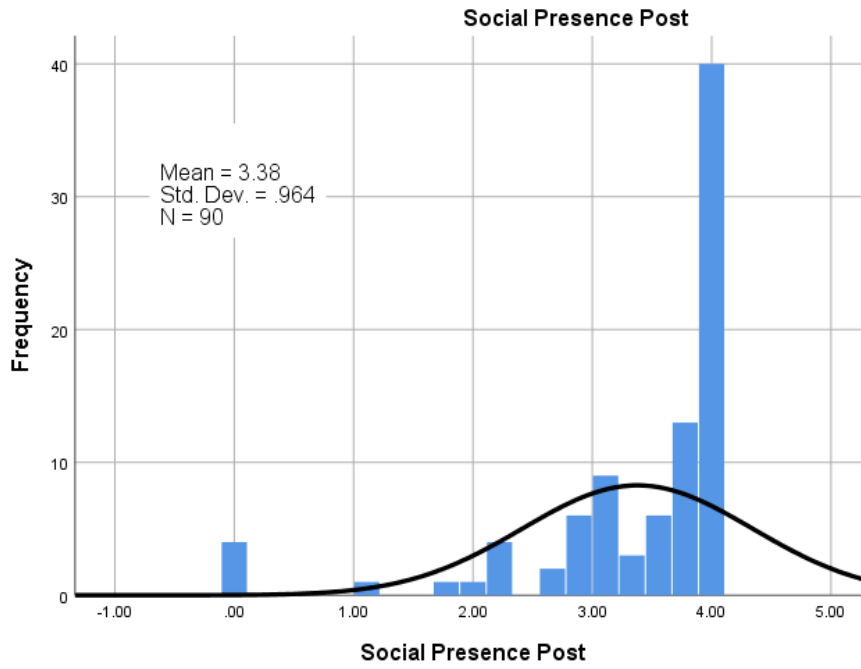


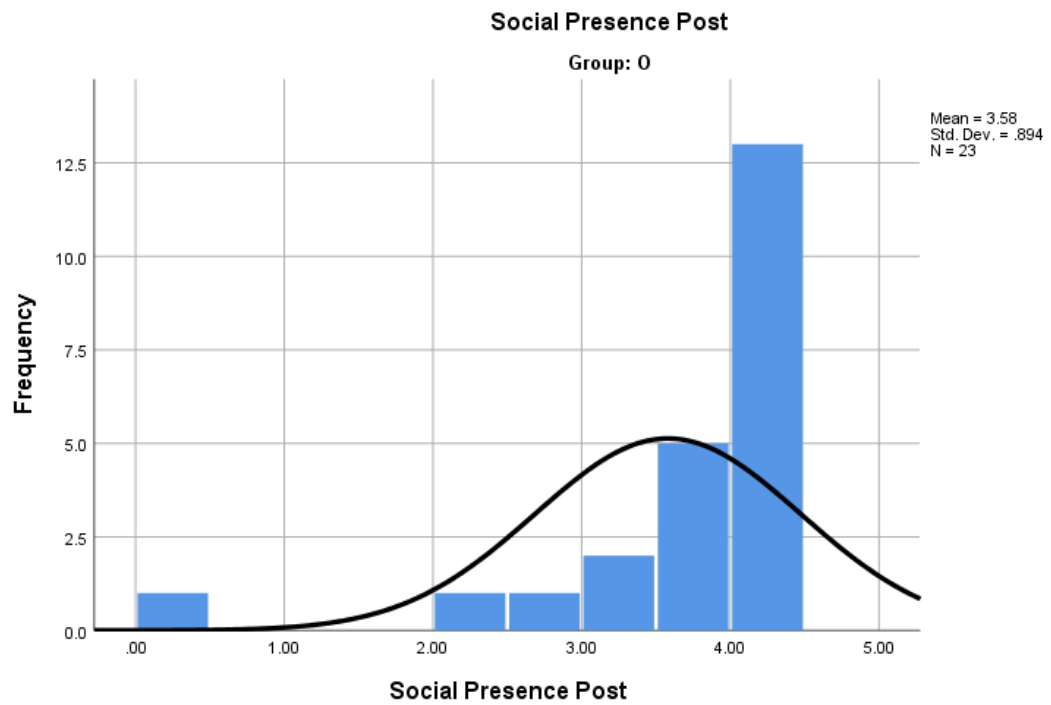
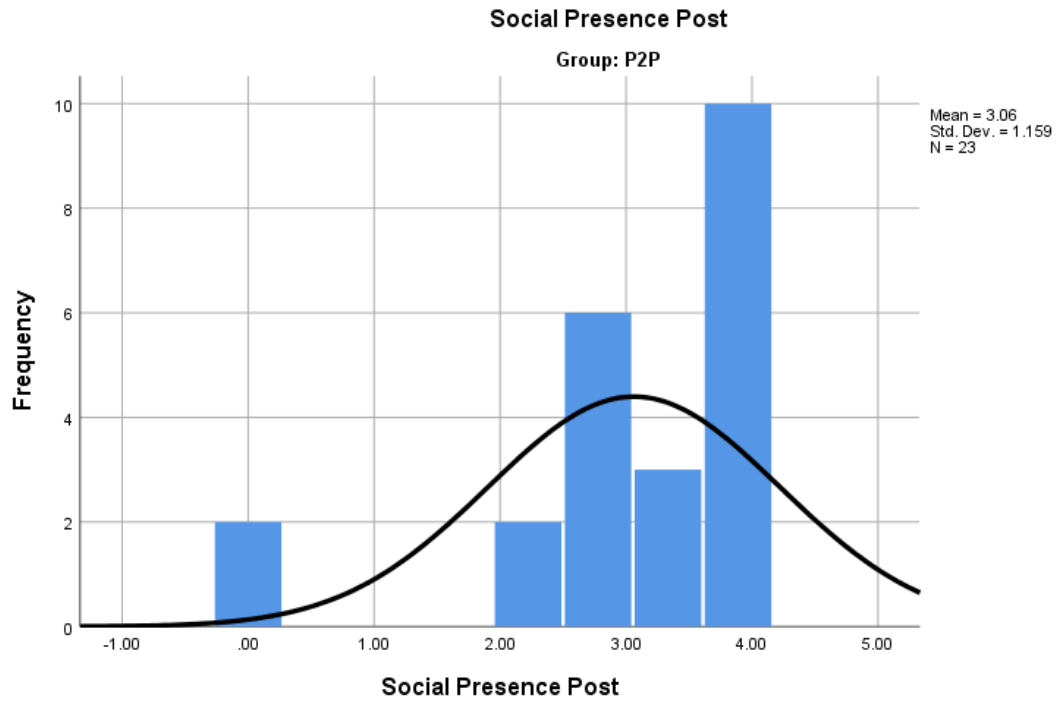


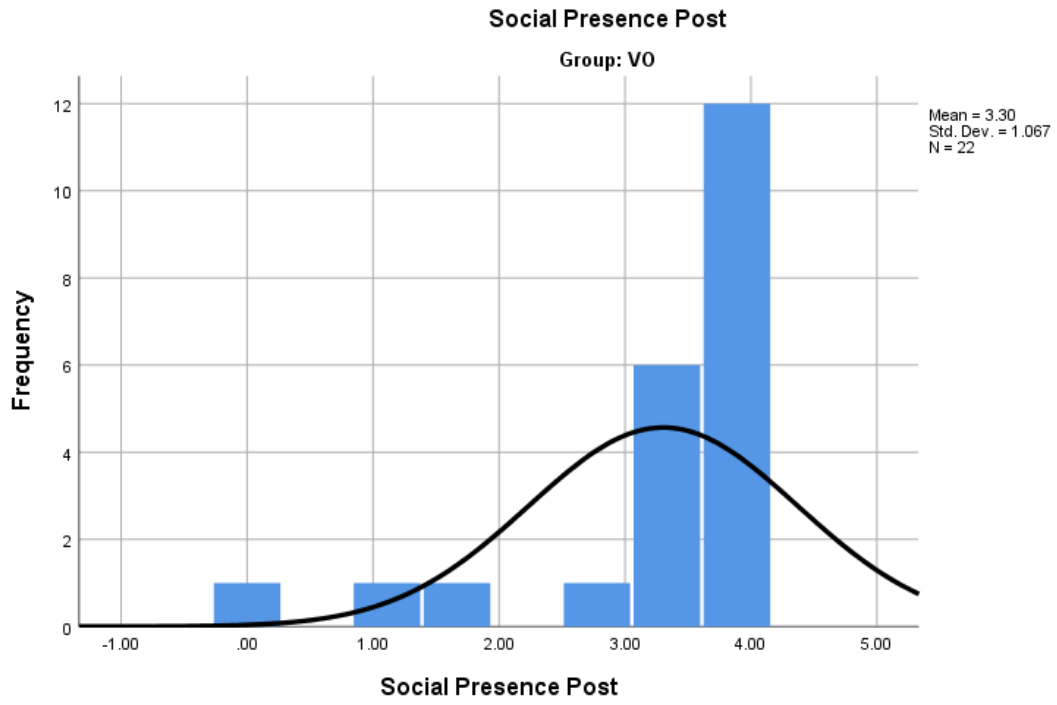
Appendix L

CoI Histograms Assumption of Normality

Social Presence Posttest



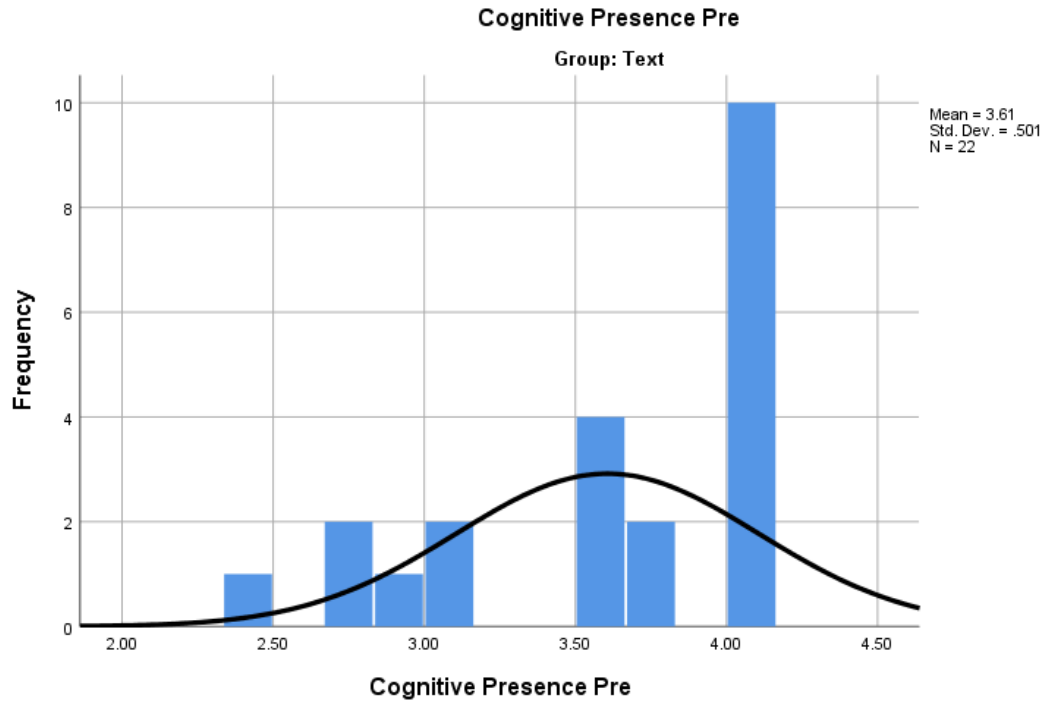
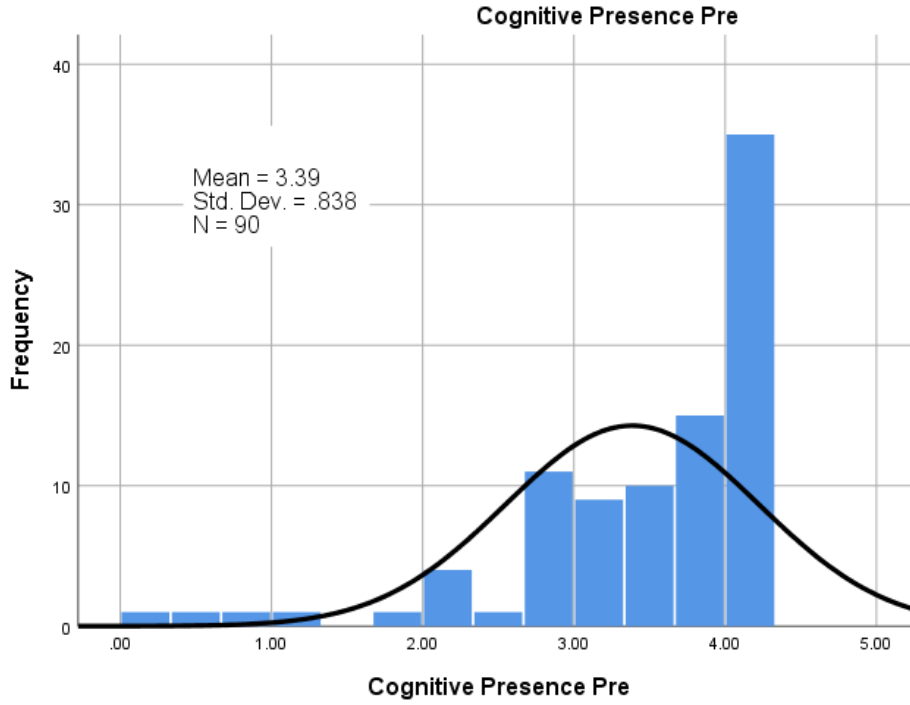


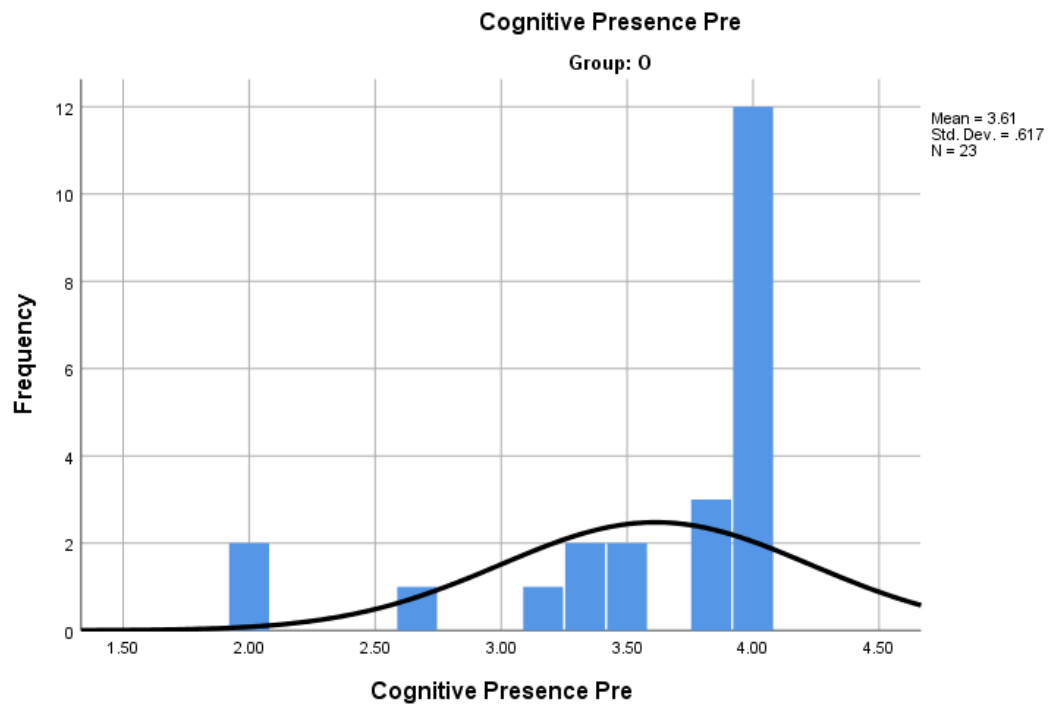
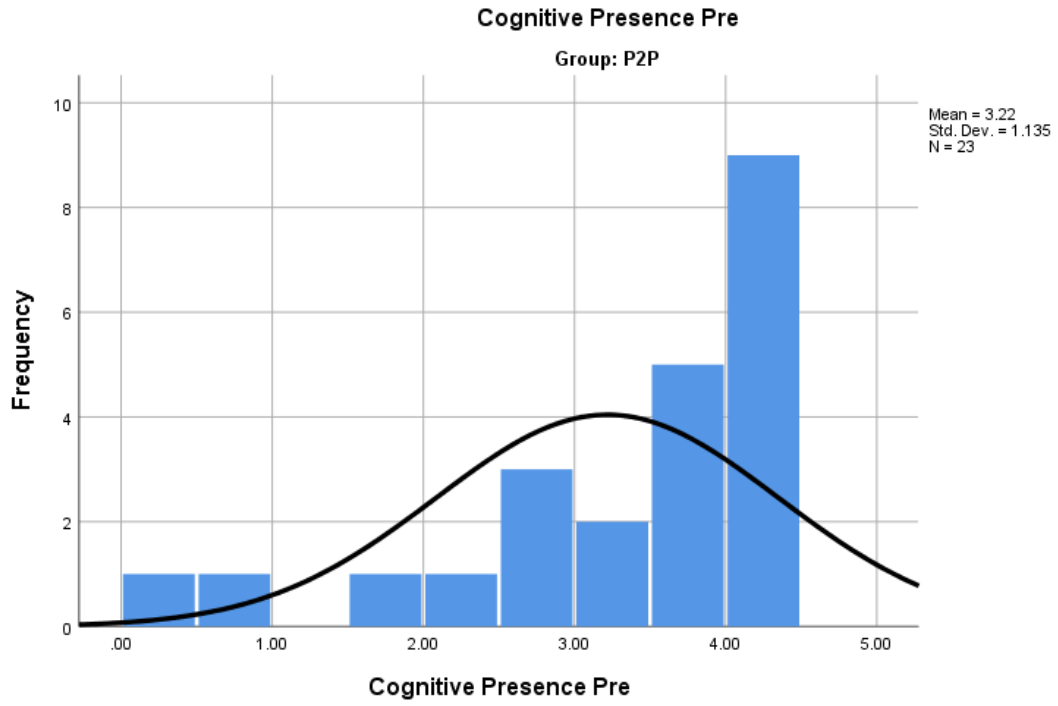


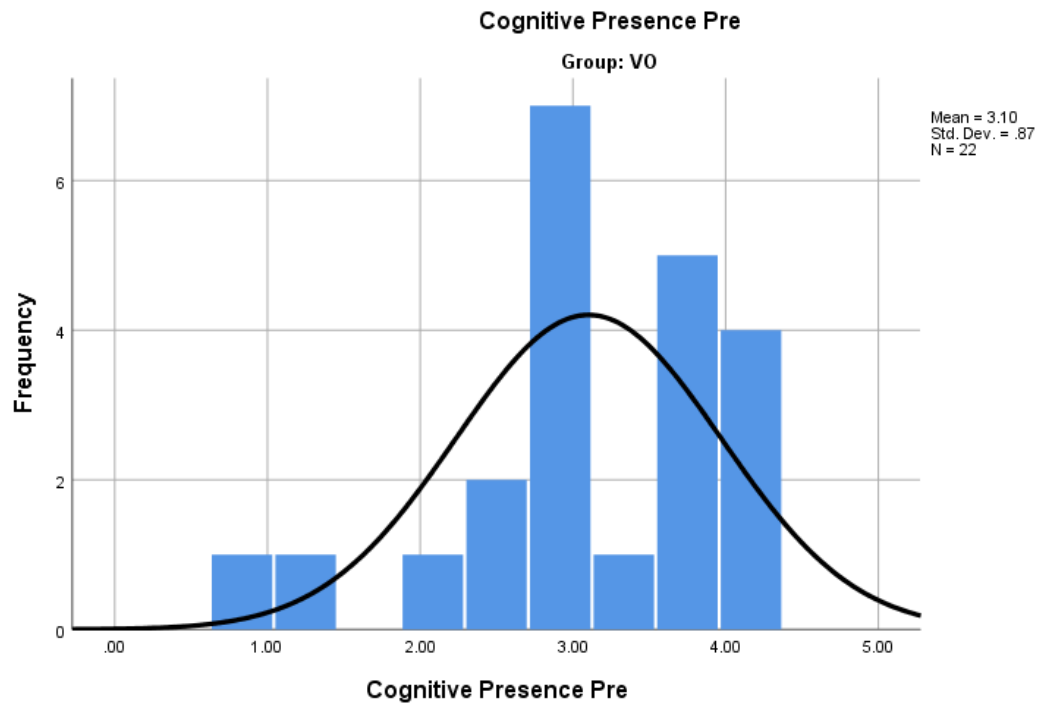
Appendix L

CoI Histograms Assumption of Normality

Cognitive Presence Pretest



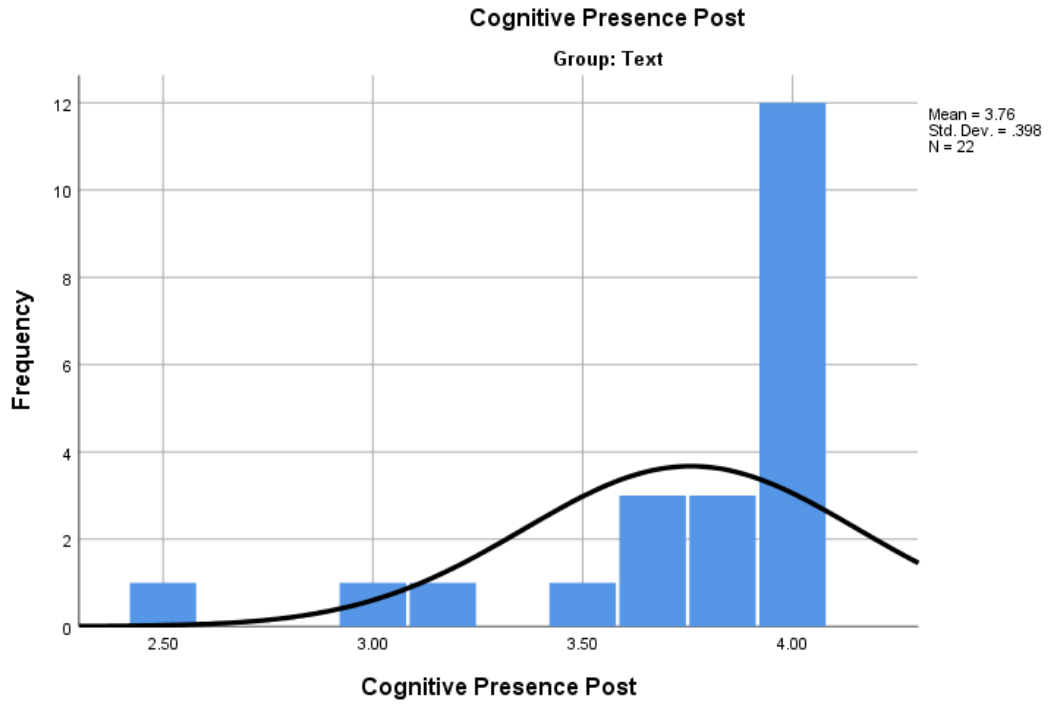
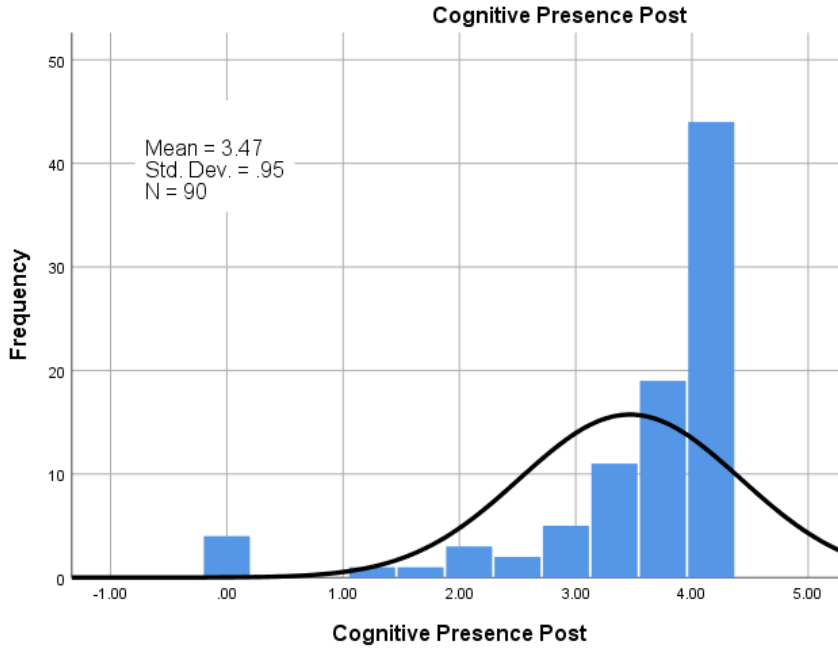


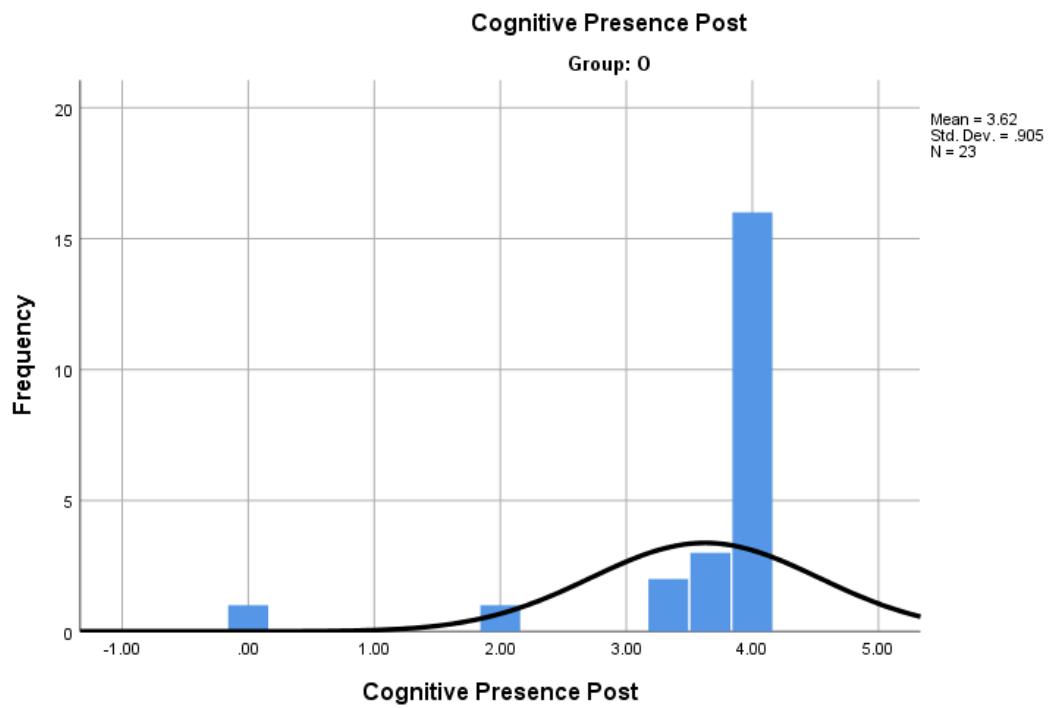
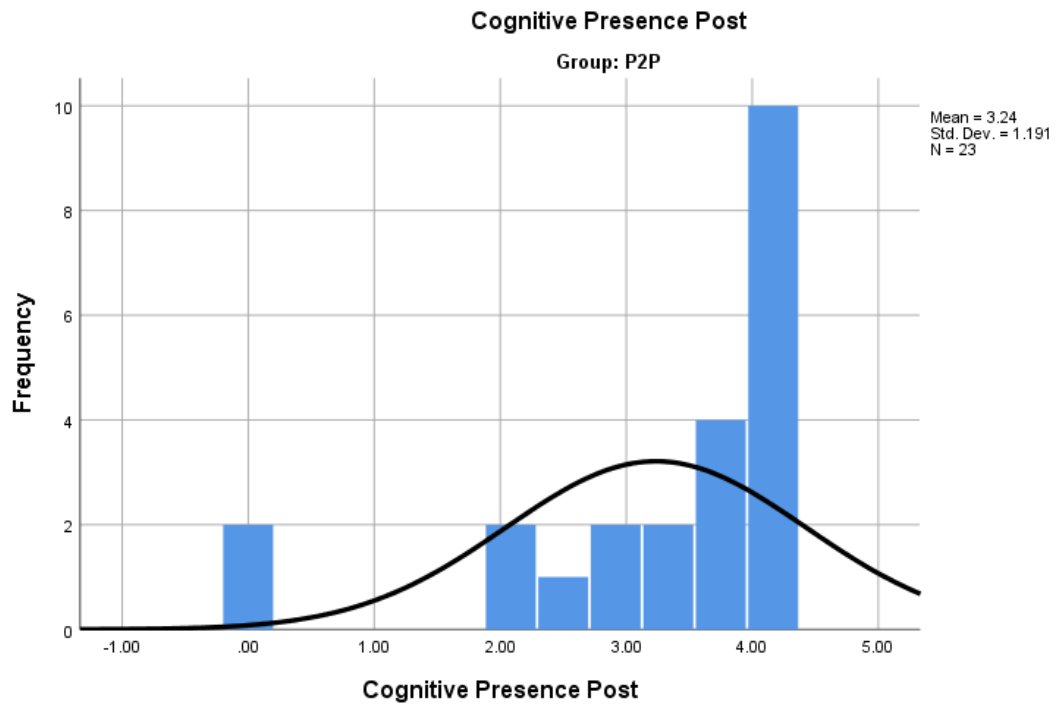


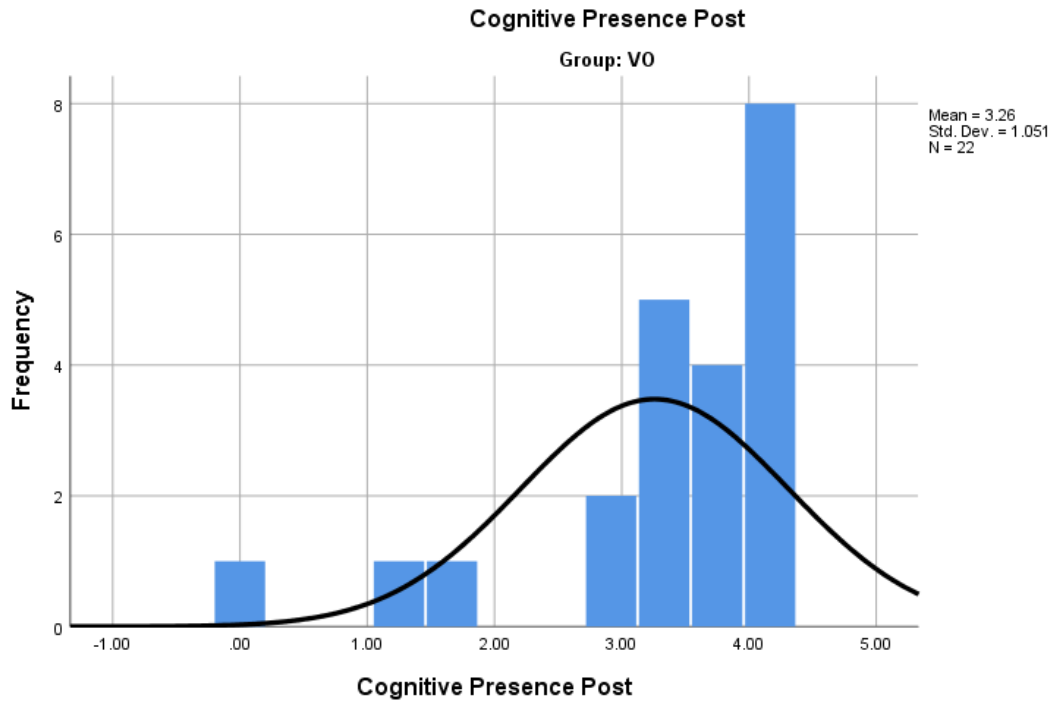
Appendix L

CoI Histograms Assumption of Normality

Cognitive Presence Posttest







Appendix M

Item Analysis of CoI Items (Post)

	Text (<i>n</i> = 22)		P2P (<i>n</i> = 23)		Overlay (<i>n</i> = 23)		Voice Over (<i>n</i> = 22)		
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Teacher Presence									
The instructor clearly communicated important course topics.	4.00	.00	3.48	1.24	3.74	.92	3.64	.90	
The instructor clearly communicated important course goals.	4.00	.00	3.48	1.24	3.83	.83	3.64	.90	
The instructor provided clear instructions on how to participate in course learning activities.	4.00	.00	3.48	1.24	3.83	.83	3.64	.90	
The instructor clearly communicated important due dates/time frames for learning activities.	3.91	.43	3.39	1.41	3.83	.83	3.64	.90	
The instructor was helpful in identifying areas of agreement and disagreement on course topics that helped me to learn.	3.91	.43	3.30	1.43	3.74	.92	3.55	1.06	
The instructor was helpful in guiding the class towards understanding course topics in a way that helped me clarify my thinking.	3.91	.43	3.22	1.44	3.83	.83	3.50	1.06	
The instructor helped to keep course participants engaged and participating in productive dialogue.	4.00	.00	3.57	1.20	3.74	.92	3.55	1.06	
The instructor helped keep the course participants on task in a way that helped	4.00	.00	3.30	1.29	3.83	.83	3.45	1.06	

me to learn.

The instructor encouraged course participants to explore new concepts in this course. 4.00 .00 3.30 1.29 3.83 .83 3.45 1.06

Instructor actions reinforced the development of a sense of community among course participants. 3.91 .43 3.35 1.34 3.65 .98 3.59 .91

The instructor helped to focus discussion on relevant issues in a way that helped me to learn. 4.00 .00 3.43 1.31 3.83 .83 3.64 .90

The instructor provided feedback that helped me understand my strengths and weaknesses. 3.82 .59 3.35 1.34 3.74 .92 3.45 1.06

The instructor provided feedback in a timely fashion. 4.00 .00 3.39 1.27 3.74 .92 3.68 .89

Social Presence

Getting to know other course participants gave me a sense of belonging in the course. 3.41 1.01 2.83 1.50 3.48 1.08 3.45 1.06

I was able to form distinct impressions of some course participants. 3.55 .86 2.87 1.46 3.74 .92 3.18 1.26

Online or web-based communication is an excellent medium for social interaction. 3.45 .91 2.83 1.50 3.74 .92 3.05 1.21

I felt comfortable conversing through the online medium. 3.73 .70 3.13 1.32 3.48 1.08 3.36 1.18

I felt comfortable participating in the course discussions. 3.82 .59 3.26 1.36 3.61 1.08 3.27 1.16

I felt comfortable interacting with other course participants. 3.73 .70 3.17 1.37 3.65 .98 3.41 1.05

I felt comfortable disagreeing with other 3.36 .95 3.09 1.38 3.39 1.12 3.32 1.17

course participants while still maintaining a sense of trust.

I felt that my point of view was acknowledged by other course participants. 3.55 .86 3.13 1.32 3.48 1.08 3.32 1.17

Online discussions help me to develop a sense of collaboration. 3.55 .86 3.26 1.36 3.65 .98 3.36 1.05

Cognitive Presence

Problems posed increased my interest in course issues. 3.36 1.09 2.91 1.38 3.39 1.12 3.14 1.25

Course activities piqued my curiosity. 3.73 .70 3.13 1.46 3.65 .98 3.18 1.26

I felt motivated to explore content related questions. 3.91 .43 3.35 1.34 3.74 .92 3.41 .91

I utilized a variety of information sources to explore problems posed in this course. 3.73 .70 3.00 1.38 3.74 .92 3.23 1.15

Brainstorming and finding relevant information helped me resolve content related questions. 3.82 .59 3.30 1.29 3.74 .92 3.23 1.15

Online discussions were valuable in helping me appreciate different perspectives. 3.64 .79 3.13 1.32 3.57 1.04 3.18 1.14

Combining new information helped me answer questions raised in course activities. 3.82 .59 3.30 1.29 3.65 .98 3.32 1.17

Learning activities helped me construct explanations/solutions. 3.82 .59 3.30 1.29 3.65 .98 3.36 1.18

Reflection on course content and discussions helped me understand fundamental concepts in this class. 3.73 .70 3.26 1.36 3.74 .92 3.18 1.14

I can describe ways to test and apply the 3.73 .70 3.43 1.31 3.48 1.08 3.09 1.23

knowledge created in this course.

I have developed solutions to course problems that can be applied in practice.	4.00	.00	3.22	1.31	3.57	1.04	3.41	1.05
--	------	-----	------	------	------	------	------	------

I can apply the knowledge created in this course to my work or other non-class related activities.	3.82	.59	3.48	1.24	3.57	1.04	3.36	1.18
--	------	-----	------	------	------	------	------	------
