Fall 1-7-2022

Effective Online Instruction Through the Community of Inquiry Framework: An Exploratory Study in Kinesiology

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Recommended Citation

Kim, Gi Cheol, "Effective Online Instruction Through the Community of Inquiry Framework: An Exploratory Study in Kinesiology." Dissertation, Georgia State University, 2022.
doi: https://doi.org/10.57709/26851946

ACCEPTANCE

This dissertation, EFFECTIVE ONLINE INSTRUCTION THROUGH THE COMMUNITY OF INQUIRY FRAMEWORK: AN EXPLORATORY STUDY IN KINESIOLOGY, by GI-CHEOL KIM, was prepared under the direction of the candidate's Dissertation Advisory Committee. It is accepted by the committee members in partial fulfillment of the requirements for the degree, Doctor of Philosophy, in the College of Education & Human Development, Georgia State University.

The Dissertation Advisory Committee and the student's Department Chairperson, as representatives of the faculty, certify that this dissertation has met all standards of excellence and scholarship as determined by the faculty.

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Kim, G. & Gurvitch, R. (2019). Mixed methods case study on instructional dynamic in online kinesiology courses. *2019 AIESEP International Conference Book of Abstracts*. 87-88. International Association for Physical Education in Higher Education.

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EFFECTIVE ONLINE INSTRUCTION THROUGH THE COMMUNITY OF INQUIRY FRAMEWORK: AN EXPLORATORY STUDY IN KINESIOLOGY

by

GI-CHEOL KIM

Under the Direction of Rachel Gurvitch, Ed.D.

ABSTRACT

Background: During the previous decade, online education has become an increasingly popular form of instruction in higher education and has displayed a greater growth rate. The proliferation of online course delivery demonstrates the undeniable impact that this teaching modality has on the realm of higher education including kinesiology. As educators in the field of kinesiology begin implementing online education in various forms, they face several challenges including technological issues and pedagogical concerns. However, online education currently receives very little attention in kinesiology literature, and discipline-specific online pedagogy is still quite rare.

Purpose: The purpose of this study is to examine online kinesiology courses. The community of inquiry model (CoI; Garrison, Archer, & Anderson, 2000) serves as the theoretical framework

for this study. The following research questions guide this study: (a) What are the instructors' intentions toward successful online teaching? (b) How are the content components organized within the learning management system? and (c) What are students' perceptions on their online learning experience?

Method: This study adopted a multiple case study approach within a mixed-methods design in order to investigate online kinesiology courses. Six instructors and 79 students who were enrolled in the online courses participated in this study. Data were collected using the community of inquiry survey (Arbaugh et al., 2008), Learning Management System (LMS) analysis, and semi-structured interviews.

Results: According to instructors' CoI survey scores, the instructional intentions to the aspects of teaching and cognitive presence were high, whereas social presence remained at a low level. Across all six courses, instructors planned for different types of learning activities that initiated a diverse range of students' engagement levels. According to the LMS analysis, the expository category represents the largest portion of these learning activities followed by the active learning and interactive learning. In terms of student survey results, students expressed a positive learning perception within their online learning experience.

Discussion: This study provides initial evidence to support the need for training and mentoring of higher education professors in designing online instructional settings. It is important for instructors to recognize the value of students' engagement within their online instructional settings, and design specific expository learning activities that lead to active and interactive learning.

INDEX WORDS: online education, online teaching, online learning, learning management system, community of inquiry model, kinesiology

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A Dissertation

Presented in Partial Fulfillment of Requirements for the

Degree of

Doctor of Philosophy

in

Physical Education Teacher Education

in

Department of Kinesiology and Health

in

the College of Education & Human Development

Georgia State University

Atlanta, GA

2021

ACKNOWLEDGMENTS

First of all, I thank God for all of His intervening in my life for His grace.

I would like to thank Dr. Gurvitch for her tremendous support and guidance. It was only possible with her constant support for me to finish my doctorate successfully. I would also like to thank Dr. Lund for her support. Every time I got stuck in the process, she has come along and saved the day. Also, I wanted to thank my other dissertation committees, Drs. Metzler and Shapiro, for their valuable insight on this project. It was my privilege to such great scholars in my advisory team. Also, I am so much grateful to the instructors in KH department who participated in my study.

I would like to acknowledge the contributions of my friends and colleagues in our HPE program. I thank Jay and Marcel for the time we have shared together. The conversations we had help me become a better researcher and educator. Lena, Melvin, and Andy exceedingly helped me settle down without entitlement. I also wanted to say thank to Mason, Casey, Kacie, Angela, Yonggi, and Wellington for their cooperation.

Lastly, I owe a great debt to my family. Their patience, support, and unconditional love were my major motivation during my times in the program.

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1 ONLINE EDUCATION RESEARCH ADOPTING THE COMMUNITY OF INQUIRY FRAMEWORK: A SYSTEMATIC REVIEW

Introduction

COVID- 19 era changed many aspects in the way people used to shop, communicate, or study (among the many other different contexts). In education, higher education institutions and public and private schools all over the US (and in many parts of the world), adopted the online learning environments almost overnight. Research suggests that even prior to the COVID-19 out-break, more than 20 million students were studying in online environments in US higher education (Seaman, Allen, & Seaman, 2018). The idea of online education has expanded and is no longer considered as a limited time trend in education.

Similar to the common practice in general and higher education, the field of Kinesiology has also adopted online education ranging from a single online course up to a complete online program. In 2013, the Board of Directors of American Kinesiology Association acknowledged this trend and chose online education as the focus of its annual workshop with the title of "The Future of Teaching and Learning in Online World" (Graber & Chodzko-Zajko, 2014). In the following year, a monograph covering issues from the workshop was released in *Kinesiology Review*. Despite delayed attention compared to other disciplines, this monograph reflected the status of online education in Kinesiology programs. Bennett and Green (2001) noted that, like many other educational fields, Kinesiology had been subjected to the adoption of online education practices. As a result, educators began implementing online education in various forms, from online methods courses (Jung & Gilson, 2014), to sections within a Kinesiology program (Mahar, Hall, Delp, & Morrow, 2014; Roth, 2014; Rudisill, 2014), full online programs (Bryan, 2014), and even an online doctoral degree program (Gill, Brown, & Reifsteck, 2014).

These fast-approaching opportunities for online education presented several pedagogical and technological challenges. While instructional technology (IT) individuals could address technology-related challenges, the pedagogical dimension of teaching in an online learning environment is much more challenging. The pedagogical content knowledge has been, and still is, the sole responsibility of the course instructor. The practice of effective online teaching, however, is only in its initial development stages, and there are very few empirical studies that investigate online education in Kinesiology and could be used as a theoretical foundation for the day-to-day practice (Shea & Bidjerano, 2009).

Community of Inquiry

Although in its development stages, research on effectiveness of online education practices suggested a few theoretical models that support the teaching and research of online educational practice (Siemens, 2004). One of these models is the Community of Inquiry (CoI; Garrison, Anderson, & Archer, 2000), which is the most widely used model for a range of purposes in education literature (Bozkurt et al., 2015). Built upon the social constructivist perspective to learning, the model offers a theoretical framework for online educational environments. The CoI model outlines critical dimensions that influence student-learning experiences in an online environment. Specifically, the CoI model suggests three key components of learning—cognitive presence, social presence, and teaching presence—as contributors to an optimal design of educational experience. Cognitive presence is defined as the extent to which students can construct and confirm meaning through sustained reflection and discourse that focus on students' development of critical and higher-order thinking (Garrison, Anderson, & Archer, 2000). Cognitive presence is structured based on the following four phases of inquiry learning cycles: (a) triggering event

(problem conceptualization), (b) exploration (idea generation), (c) integration (knowledge synthesis), and (d) resolution (knowledge application and vicarious testing) (Garrison et al., 2000). Social presence refers to the development of social interactions among learning group individuals while maintaining a productive social climate. Social presence is measured by three dimensions: open communication, affective expression, and group cohesion. Teaching presence outlines the instructor's role before and during teaching, including course organization and design, direct instruction, and facilitation. Teaching presence is the key factor of student satisfaction, perceived learning and sense of community (Garrison & Arbaugh, 2007). Teaching presence includes three dimensions: instructional management, building understanding, and direct instruction.

CoI Study in Kinesiology

To date, there are only two manuscripts within the Kinesiology field that focus on the Community of Inquiry (CoI) conceptual framework. Hersman and Schroeder (2017) conducted an overview of the CoI framework and suggested instructional strategies that will foster student engagement levels within online adapted physical education courses. In the second manuscript, Martinez and Barnhill (2017) introduced the CoI in the context of the sport management course. The authors discussed the CoI framework as a guideline to enhance students' online learning experience and offered practical ideas for the online instructor (Martinez & Barnhill, 2017). Although both manuscripts focused on the CoI framework in online classes within the Kinesiology field, these studies discussed the CoI theory and its practical implementations only. To date, no specific CoI research studies have been published within the Kinesiology field.

Review Aim

In recent years the CoI framework contributed to development of many online courses and programs and was used as the conceptual model for hundreds of research studies (Anderson, 2017; Richardson et al., 2012). CoI originated as a framework for assessing the quality of online learning experiences, especially in an inquiry-based learning context. Soon after, researchers and practitioners had extensively utilized CoI in online teaching projects, and as a result, it became a popular, versatile model of online teaching and learning. Such universal applicability led to its application in learning experiences, course design, and theoretical framework guiding research on online education (Anderson & Dron, 2011; Swan & Ice, 2010). Consequently, several CoI related studies have been accumulated despite its short history. The initial purpose of this review was to comprehend issues and trends related to online teaching and learning in higher education level as it relates to the CoI framework. It was also expected that such an overview may epitomize future research in Kinesiology. Since it may hardly be achieved in one review project, the authors of this study narrowed the scope of this review by focusing on educational research in online higher education that adopted the CoI framework. Specifically, the following research questions guided this review: (a) What are the characteristics of the online higher education studies? (b) Which instructional aspects were examined? and, (c) Which learning variables were examined?

Method

This study adopted a systematic review method which included the collection, analysis, synthesis, and presentation of research findings and conclusions based on numerous studies (Fink et al., 2013). In doing so, it was critical to use explicit, rigorous, and transparent proce-

dures at each stage of the process. Therefore, the present review followed the process recommended by Cooper, Hedges, and Valentine (2009), to reduce bias and ensure reliability. It included the following eight steps: (a) identification of the review aim, (b) selection of bibliographic database(s), (c) identification of search terms, (d) implementation of the search, (e) performance of an initial screening, (f) implementation of the review, (g) synthetization and interpretation of results, and (h) presentation of the review outcomes (Cooper et al., 2009).

Data Sources and Search Strategies

Four databases were selected to conduct the searching: Education Source, ERIC, PsycINFO, and SPORTDiscuss. These were selected due to their reputation as the most relevant databases in the fields of Instructional Design and Technology, and Kinesiology. To ensure a more comprehensive search, the authors selected several search terms (See Table 1-1). This search was implemented in the EBSCOhost research platform on April 15th, 2019 and resulted 97 entries. To refine the search, the authors limited the search to peer-reviewed articles published in academic journals in English between 2009 to 2019. The decision to use 2009 as the cutoff publication year was due to an earlier review on association between the CoI and student learning outcomes published in 2009 (Rourke & Kanuka, 2009). The new refined search yielded 39 journal manuscripts. However, after an initial screening of titles and abstracts, the authors observed that although focused on the CoI as its framework, some articles did not focus on instructional strategies or aspects. Therefore, the authors refined the inclusion criteria and looked for manuscripts that (a) were empirical research completed in higher education online settings, and (b) addressed both teaching and learning aspects. The refined search excluded an additional 25 studies, and 14 studies remained.

Along with electronic database search, the authors completed a manual search including articles that were listed on CoI website (https://coi.athabascau.ca/publications/coi-papers/). The CoI research team operates the website to disseminate findings and resources related to the CoI and updates the list of publications of the CoI related projects. Fifty-four academic journal articles were subjected to the initial screening which yielded 15 articles. Among these 15 articles, nine met the inclusion criteria and were included for further review. At the conclusion of the CoI literature search, the authors identified a total of 23 articles for this review. The overall search flow is depicted in Figure 1-1.

Data Extraction and Analysis

Authors coded themes related to online course instruction, learning, and quality of research. These themes included (a) education level (e.g., undergraduate, graduate, or professional development), (b) course setting (e.g., asynchronous, synchronous, or blended), (c) research method (e.g., design, data collection, instrument, etc.), (d) types of CoI components, (e) discipline-orientation (e.g., humanities, social sciences, natural sciences, formal sciences, or applied sciences), (f) learning outcome, and (g) instructional strategy. Data were extracted and analyzed using the designated data extraction spreadsheet.

Result

Research Question 1: Characteristics of Included Studies

A total of 23 studies were identified for inclusion in the review. All included studies were completed in higher education online courses whereas undergraduate level courses accounted for the largest portion of 14 studies, followed by 10 graduate-level. Only one study took place in a faculty development class (The total number of studies is greater than 23 due to two studies that mentioned both undergraduate and graduate setting; see Table 1-2 for summary).

All courses in this review were implemented in an online setting and classified as one of three delivery types: (a) synchronous course, (b) asynchronous course, or (c) blended course. The analysis revealed that asynchronous online course was the most common delivery type throughout the educational level, accounting for 72% of all delivery types.

An analysis of the included studies demonstrated that the majority of courses were in the field of Education, followed by Business, Engineering, Computer Science, Science, etc. This range of disciplines can be further categorized in four academic disciplines as suggested by Biglan (1973). Academic disciplines are divided into four categories concerning their ethnographic orientation and emphasis on application (see Table 1-3). Based on Biglan's classification (Biglan, 1973), studies in this review mostly identify as applied-soft science (similar to others within the Kinesiology field).

All included articles were original empirical research studies. Seventeen (out of 23) studies were quantitative. Only one study, Borup, West, and Graham (2012) adopted a qualitative approach collecting data via in-depth interview while five studies adopted a mixed-method approach (Hostetter, 2013; Ke, 2010; Nave, Ackerman, & Dori, 2017; Vaughan, 2010; Zydney, deNoyelles, & Seo, 2012).

All studies adopted the CoI framework and focused on all of its components or just on selected components. While the majority (17 studies) used CoI and all of its components, five studies specifically focused on the social presence only (Borup et al., 2012; Hostetter, 2013; Joksimović, Gašević, Kovanović, Riecke, & Hatala, 2015; Liu, Gomez, & Yen 2009; Mackey & Freyberg, 2010), and one study focused on cognitive presence (Kovanovi, Gaševi, Joksimovi, Hatala, and Adesope, 2015).

Research Question 2: The Instructional Aspect

The second research question focused on the instructional aspect. Each course represented embedded specific instructional methods or strategies. For each entry, authors coded characteristic features of instructional aspects, which affected the learning environment. This revealed that instructors used a wide variety of instructional methods and strategies. Among these instructional features, several categories emerged as described below.

The first category is Web 2.0 technology integration in online courses. As communication technology evolves, educators were eager to leverage it to provide better learning experiences so that technology received an increased presence in educational contexts. Especially, the advancement of Internet enabled more interactive and engaged communication so-called Web 2.0. Four studies (out of 23) examined the effects of technology applications on the CoI framework and student learning outcomes. The technology applications included new communication technologies such as: blogging (Yang, Quadir, Chen, & Miao, 2016), collaborative work through wiki (Daspit & D'Souza, 2012), video technology (Borup et al., 2012), and online games called Second Life (Pellas & Kazanidis, 2014). These studies revealed that the adoption of Web 2.0 technologies had an impact on CoI to some extent. According to Borup et al. (2012), video technologies helped students feel that their "instructors seem more real, present, and familiar," which contributed to an increased students' social presence (p. 195). In Pellas and Kazanidis's study (2014), the situational interest facilitated by the newly introduced technology was significant predictor of social presence.

The second category of studies specifically focused on online communication. Communication in an online setting differs from that in an ordinary classroom relying on unique modality, predominantly text-based communication. Five out of 23 studies investigated issues emphasizing

online communication. For example, Cho and Tobias (2016) focused on instructors' role in text-based discussion which is a popular activity for online courses. Similarly, Zydney et al. (2012) examined the effectiveness of clearly defined discussion protocol and found its significant influence on cognitive presence in a group level. Gutiérrez-Santiuste, Rodríguez-Sabiote, and Gallego-Arrufat (2015) compared different text communication tools (email, chatting, and discussion board) and concluded that discussion board has the advantage of enhancing social and teaching presence. Mackey and Freyberg (2010) compared various sensory inputs and found that the clarity in audio delivery affects online learning experience. All these studies mainly dealt with text-based communication pertinent to optimized communication in online settings and signified the importance of optimizing communication medium.

The largest category of studies related to instructional strategies is CoI course design. Although the CoI framework was not originally designed as a course design template, its use over the years has inspired instructors to adopt CoI principles in their practice (Garrison, 2011). A total of 10 studies out of 23 studies examined online courses that were designed to comply with the instructional guide of the CoI model (Akyol & Garrison, 2011; Hostetter, 2013; Joksimović et al., 2015; Joo, Lim, & Kim, 2011; Ke, 2010; Liu et al., 2009; Maddrell, Morrison, & Watson, 2017; Nave et al., 2017; Shea & Bidjerano, 2012; Vaughan, 2010). As an example, Hostetter's (2013) study investigated the social presence components within the CoI framework. Specifically, this study examined effect of social presence on students' learning in the writing assignment and revealed significant association between the two (Hostetter, 2013).

Studies included in the fourth category focused on instructional settings or administrative issues. Regardless of the course contents, an online course has certain instructional settings which also may affect student learning. Four studies were included in this category and dealt

with the effect of course duration (Akyol, Vaughan, & Garrison, 2011), cohort group assignment (Alman, Frey, & Tomer, 2012), online course log (Kovanović, Gašević, Joksimović, Hatala, & Adesope, 2015) and class size (Boston et al., 2009). For example, Alman et al. (2012) compared a group that was organized into a formal learning cohort and a control group. The finding revealed that the cohort group showed better learning attitudes and was more satisfied with the online course.

Research Question 3: The Learning Outcomes

The previous section revealed that online courses in this review incorporated various instructional strategies to enhance student learning in online settings. Indeed, student learning is an essential issue in educational research as represented by various learning outcomes measurements. The third research question, therefore, focused on types of learning outcomes in online higher education courses. After identifying learning variables, authors categorized variables according to two criteria: (a) whether a variable is reported by students themselves [subjective] or the external rater [objective]? (b) whether a learning outcome variable measures the learning process or the learning product? Hence, the learning outcome section is organized into 4 main sections: (a) subjective learning product, (b) objective learning product, (c) subjective learning process, and (d) objective learning process. Table 1-4 shows categories of online student learning.

Subjective learning product. In order to evaluate online students' experience, a survey had been a common methodology that asked respondents' perceptions. For instance, several studies requested students to specify the extent to which they were satisfied with the online course or report their opinions on their learning. A total of eight studies used this subjective approach to measure student learning, including course satisfaction (e.g., Akyol et al., 2011; Alman

et al., 2012; Cho & Tobias, 2016; Joo et al., 2011; Ke, 2010; Mackey & Freyberg, 2010; Maddrell et al., 2017), perceived learning (e.g., Mackey & Freyberg, 2010), and self-reported achievement (e.g., Cho & Tobias, 2016; Pellas & Kazanidis, 2014). Despite its limitation of validity, these subjective measurements were common for ease of use, and universality regardless of area.

Objective learning product. Others took a different approach, adopting a more objective evaluation of learning product. Typically, course grades points or exam scores were such a case since a course instructor determines these scores. These objective measurements were used in eight studies. Course grade was used in five studies (Daspit & D'Souza, 2012; Joksimović et al., 2015; Liu et al., 2009; Shea et al., 2011; Yang et al., 2016). Mackey and Freyberg's study (2010) used the exam score as a mean to measure students' cognitive learning. Two studies used scores of specific course activities to evaluate students' competence taught in the courses, such as discussion (Zydney et al., 2012) and persuasive writing (Hostetter, 2013). Although being conventional and typical measurements, these scores can represent different aspects of learning, such as overall achievement, a specific learning domain, or a competence.

Subjective learning process. Another way to measure learning relates to its process, rather than the learning product. Although learning processes do not constitute designated course learning objectives, they still mediate learning. These learning processes included retention in the course (Boston et al., 2009; Liu et al., 2009; Joo et al., 2011; Vaughan, 2010), higher-order thinking (Ke, 2010; Maddrell et al., 2017; Shea et al., 2011), attitude (Alman et al., 2012; Borup et al., 2012; Nave et al., 2017; Pellas & Kazanidis, 2014), self-regulation toward learning (Shea & Bidijerano, 2012), and metacognition (Akyol & Garrison, 2011). For example, Akyol and Garrison (2011) explored learner's metacognition in an online course that included the instructional

strategies based on the CoI model. To assess effects on metacognition, the study used the transcription analysis method, in which an assessor examines discussion posts and counted appearance of designated construct of metacognition construct. The analysis resulted in evident improvements in monitoring of cognition and regulation of cognition, and this implied the effectiveness of the CoI based course design on metacognition. There was, however, no analysis seeking statistical significance. It was also notable to verify theoretical cohesion between instruction strategies of the CoI and that of enhancing metacognition.

Objective learning process. Four studies utilized other types of data on learners' activities accumulated in learning management systems. Most online courses use any type of learning management system that yields profound data on learners' activities. Such data include learning tool use frequency (Gutiérrez-Santiuste et al., 2015), time spent on learning activity, (Cho & Tobias, 2016; Mackey & Freyberg, 2010), and overall log data (Kovanović et al., 2015). Especially, Kovanović and colleagues (2015) collected 200,000 counts of student log recordings from the Moodle database including both count and time on task. Adopting a learning analytics approach, this study identified six types of learning profiles and revealed the association between certain profile and higher cognitive presence.

Discussion

The purpose of this paper was to offer an overview on issues and trends related to online teaching and learning in higher education. This was accomplished through a systematic review of the literature analysis of educational research completed in higher online education settings that adopted the CoI as its framework. Through the analysis, the authors addressed the following research questions: (a) What are the characteristics of the online higher education studies? (b) Which instructional aspects were examined? and, (c) Which learning variables were examined?

The findings of this analysis described the characteristics of online higher education published articles during the review period. Results described that the majority of the courses included in this literature review were undergraduate level, asynchronous courses. While 60% of studies investigated undergraduate level online courses, the asynchronous delivery method setting was the most common of all (72% of all courses) regardless of the educational level. These findings are in line with other studies (Allen & Seaman, 2013; Seaman et al., 2018) that found similar characteristics which are reflecting the general trends in online higher education.

In the matter of academic disciplines, most reported studies were conducted in the areas of applied-soft science, such as Education or Business. Arbaugh and colleagues (2010) explored the disciplinary differences in perceptions of CoI elements and noted that "the emphasis on using inquiry to develop applicable knowledge suggests the possibility that the (CoI) framework may be more appropriate for disciplines such as education, health care, and business" (Arbaugh et al., 2010, p. 43). Similar to these disciplines, Kinesiology belongs to applied-soft science; therefore, the online instruction based on CoI model seems as pertinent approach to online Kinesiology courses (Hersman & Schroeder, 2017; Martinez & Barnhill, 2017). In addition, such courses have to take into consideration the uniqueness of the subdisciplines of Kinesiology.

Results from this study also considered types of research and found that the most common research methodology was quantitative analysis. It may not be as surprising because the CoI survey was the most frequent instrument utilized in these studies. Although results indicated that most studies covered all three components of CoI, it was noted that there was a special interest in the social presence component reflecting five studies that focused on the social aspect in online courses. The social presence component draws an increasing attention due to the fact that it tends

to be a built-in component in the face-to-face courses and be overlooked in an online environment. With that, and similar to Joksimović et al. (2015), results from this analysis reflect a growing appreciation for the social aspect of learning within the online environment.

The second research question attended to various instructional strategies and their effectiveness. Results of this analysis were categorized into four sections. The largest section includes studies that measured the effectiveness of the CoI framework as a guidance for course design. Considering the fact that CoI framework was invented for descriptive purposes and that instructors did not have specific guidance on how to use the CoI framework or online course structure during earlier days (Garrison et al., 2000), it is surprising to note that many studies implemented CoI as a course design and examined its outcomes. With the evolution of the CoI framework, the founders dealt with pragmatic concerns (e.g., Garrison, 2017; Vaughan, Cleveland-Innes, & Garrison, 2013) so that CoI evolved gradually from a descriptive framework into a design framework. Hence, it is possible that such transfer would result in additional studies of CoI implementation reflecting a variety of subject matters in the near future.

The second section included studies that measured the effectiveness of Web 2.0 technology integration into courses. An examination of emerging educational technology that leads to appropriate utilization is a perpetual topic of education technology. Interestingly, the technologies that were incorporated in the included studies came out much later than the CoI framework. Perhaps, due to the fact that there are no other theoretical frameworks pertaining to online education, CoI still looks germane to the current distance, blended, and online researchers and educators. Moreover, the technological advances in online education are inclined to collaborative intelligence and encourage meaningful online learning which is fundamental within the CoI framework.

Studies in the third section examined the effectiveness of communication modalities as integrated into online courses. Despite the prevalence of computer-mediated communication in higher education, the optimized usage of communications for online learning is limited. Research topics range from comparing distinctive communication types to examining meticulous treatments in communication including frequency, protocol, timing, tone, facilitation, etc. Online instructors have typically relied on text-based, asynchronous communication hence, communication is a critical part of any online instruction. Therefore, this is an important area of inquiry and future studies should focus on the effectiveness of communication in online courses.

The fourth section focused on the effectiveness of instructional settings as a mediating factor in the online courses. During the transfer of educational environments from the traditional face to face to the online medium, much of the other course components (grouping, class size, duration) remained the same. In many aspects, it behooves us to restructure the online educational setting to fit its different learning environment; however, that itself becomes a challenge. As creatures of habit, instructors tend to make very few modifications therefore, the studies included in this section piloted new settings along with adopting online instruction components. These are key questions that affect the quality of the online educational experience and should be examined further.

The third research question focused on students' learning outcomes in CoI based courses. Studies included in this review used various learning related measurements which were divided into four types: learning product-subjective, learning product-objective, learning process-subjective, and learning process-objective. Each of these measurements incorporated unique aspects of learning outcomes in an online context. In a previous literature review focusing on the learning

aspect in CoI based courses, Rourke and Kanuka (2009) pointed out the deficiency of valid assessments of student learning outcomes. That review found that only five of the 252 articles measured students' learning outcomes. It was concluded by the authors that despite the claim that CoI model fosters deep and meaningful learning in its theoretical assumption, it has limited empirical support (Rourke & Kanuka, 2009). In comparison to Rourke and Kanuka (2009), the present review recognized meaningful attentiveness to students' learning outcomes. Results from this analysis identified 23 studies that measured student learning aspects and revealed that the measurements included various aspects of learning. Perhaps the constructive critique of Rourke and Kanuka in 2009 inspired scholars to pay more attention to the research of learning aspects or simply researchers started to collect data on students' learning outcomes due to an increased push from upper administration in higher education settings.

Implications for Future Studies in Online Kinesiology

Considering the remarkable topics in the published literature on the area of CoI model and its implications to the field of Kinesiology, we must account for the few limitations. While the authors established the search parameters and searched for studies to include, some papers lacked clear information and lead to the possibility of comprised including decision. For example, some studies did not provide a clear description on the instructional strategy involved in the study. In addition, this review scope is limited to studies generated from the academic databases searched (Education Source, ERIC, PsycINFO, and SPORTDiscuss). It is possible that the authors missed papers that meet the including criteria if it was only listed in other databases.

Notwithstanding the limitations, this study conducted a review on issues pertinent to online education as reflected from published studies in the last decade. This review focused on

studies having CoI as its theoretical framework due to its extensive adoption in higher online education. In Kinesiology, we witness a growing trend of online teaching in operation in the past two decades (Bennett & Green, 2001; Finkenberg & Bowden 2000 as cited in Bennett & Green, 2001; Stinson, Stanbrough, & Butler, 1999 as cited in Bennett & Green, 2001; St. Pierre, 1998). However, research for effective online instruction in Kinesiology lags behind practice. Specifically, (a) the research in this topic is limited in volume; (b) existing studies remain scattered with few systematic review and theoretical framework to ground the research; and (c) there are few researchers with established research program in the area of online instruction in Kinesiology (Fletcher & Bullock, 2015; Kooiman & Sheehan, 2015; Kooiman, Sheehan, Wesolek, & Retegui, 2017).

In this regard, although articles in the present study focused on the association of teaching and learning in the general online educational settings, this study can provide fresh insights on instructional development in Kinesiology education and serve as a foundation for future research. For instance, this study can serve useful references on online education and its construct (as revealed in Figure 1-2) can present a conceptual model for intervention studies, which examine online courses utilizing CoI as the instructional model in any of the sub-discipline of kinesiology, and then, evaluate students' learning focusing on either the process or the product. Additionally, future studies can examine students' perspectives—or even instructors' perspectives—on the integration of CoI framework components in connection with the adopted online instruction strategies; or studies can explore the specific interaction of teaching presence, cognitive presence, and social presence within online Kinesiology courses.

Due to the COVID-19 influence, we see now, and will see a greater influence in the foreseeable future, significant increase of online learning opportunities across all levels of education

including physical education and Kinesiology. There is no better time than today to plan future studies that will focus on online Kinesiology courses and examine diverse topics identified in this review. These studies should advance our understanding and practice by exploring the epistemological and pedagogical unique differences of the subject matters of Kinesiology as it relates to online teaching environment.

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2 EFFECTIVE ONLINE INSTRUCTION THROUGH THE COMMUNITY OF INQUIRY FRAMEWORK: AN EXPLORATORY STUDY IN KINESIOLOGY

Introduction

During the previous decade, online education has become an increasingly popular form of course delivery method in higher education, displaying a greater growth rate these days (Allen & Seaman, 2011, 2015, 2018). Increasing numbers of institutions of higher education are moving toward greater reliance on distance learning options with a focus on online instruction (Allen & Seaman, 2005, 2007; Chauhan, 2014; Cavanaugh & Jacquemin, 2015; Gercek, Saleem, & Steel, 2016; Grundmann, Wielbo, & Tebbett, 2010; Hoskins & van Hooff, 2005). The proliferation of online course delivery demonstrates the undeniable impact that this teaching modality has on the realm of higher education (Allen & Seaman, 2005, 2007; Cavanaugh & Jacquemin, 2015; Myring, Bott, & Edwards, 2014; Weiland, 2015). Instead of merely being a suggested direction or a trend, online education has become an integral part of the current education. On top of that, the COVID-19 outbreak – which had a major impact in the U.S. starting March 2020 – changed educational environments across all disciplines and different institutions all over the world, seemingly overnight. The risks from the COVID-19 virus forced all educators to utilize various online medium regardless of their personal adoption of the innovation state, so no one can deny that online education goes mainstream.

According to the literature, there are several reasons that support the evident expansion of online learning in higher education. First, the use of online courses enables accessibility to a much larger number of students than in the traditional face-to-face educational system. Flexibility of time and location afforded by this alternative to traditional face-to-face instruction lowers the barrier to and maximizes accessibility of higher education, thus resulting in increased student

enrollment in online courses (Kerr, Rynearson, & Kerr, 2006; Moore, 2002). Allen and Seaman (2015) provided quantitative evidence for the pervasive nature of online education, noting that, as of a few years ago, there was already a "62.5% penetration rate for undergraduate-level courses" (p. 5). In 2017, the National Center for Education Statistics reported that 2,642,158 undergraduate and graduate students enrolled exclusively in distance education courses. Approximately 9.8% of those students (674,134 students), are enrolled in a public 2-year institutions, while 42.6% of those students (925,495), are enrolled in private institutions. (National Center for Education Statistics, 2017).

Second, the online instruction provides a better return on investment outcome. That is, an academic program can lower the cost by increasing online courses. Specifically, institutions of higher education have promoted online education in order to reduce institutional expenditures by allowing for larger class sizes (Chauhan, 2014; Grundmann, Wielbo, & Tebbett, 2010; Maloney, Nicklen, Rivers, Foo, Ooi, Reeves, Walsh, & Ilic, 2015; Osman, 2005; Song, Singleton, Hill, & Koh, 2004). Cost savings are also realized through the expanded use of adjunct faculty to staff the ever-increasing number of online course sections (Maloney et al., 2015). In order to obtain such financial benefits, more colleges and universities were planning to expand online instruction further. But all these recent studies measured the feasibility and preferability of online education while considering that the alternative of face to face, traditional model of education is always an option. The COVID-19 outbreak changed this basic assumption. Now, in addition to all research-based evidence, we learn that online education provides teaching and learning environments with the opportunity to stay viable, even at extreme times when attending traditional, face-to-face settings is simply not safe.

Online Instructional Settings in Kinesiology

Similar to the recent years common practice in general higher education, the field of kinesiology has also begun to invest in online educational settings. This initially began with a single online course, but eventually expanded to offer a complete online degree program. More than two decades ago, St. Pierre (1998) anticipated that online education would become a relevant component within kinesiology, despite the widespread notion that kinesiology, as the science of the muscular movement and bodily motion, did not seem like an ideal subject for online medium. Furthermore, Bennett and Green (2001) engaged in a debate about whether students learn well via online instruction, and what are the best ways for instructors to support it. Bennett and Green provided specific advice for creating kinesiology online courses in varied curriculum and subdisciplines and suggested that delivery systems be converted from traditional courses to online courses.

Thirteen years later, a monograph stemming from the 2014 American Kinesiology Association (AKA) Leadership Workshop, entitled "The Future of Teaching and Learning in an Online World," presented several manuscripts addressing online education in kinesiology programs. One of these papers stated that it is "apparent that the field of online education was expanding at such a dramatic speed that it would take a concerted effort to remain abreast of the most recent developments" (Graber & Chodzko-Zajko, 2014, p. 173). This series of manuscripts encompassed several different issues including best practices, transition to an online program, professional development, and multiple case studies in online education (Bryan, 2014; Chodzko-Zajko, 2014; Driska & Gould, 2014; Gill, Brown, & Reifsteck, 2014; Gilson & Jung, 2014; Graber & Chodzko-Zajko, 2014; Hanley, 2014; Jung & Gilson, 2014; Keiper & Kreider, 2014; Luke

& Morrissey, 2014; Luke & Luke, 2014; Mahar, Hall, Delp, & Morrow, 2014; Roth, 2014; Rudisill, 2014; Russell, Wadsworth, Hastie, & Rudisill, 2014).

The lead article by Mahar et al. (2014) provided a valuable background about online education in kinesiology. In this article, the authors conducted a survey asking the opinions of kinesiology departments' administrators regarding the state of online education. The survey focused on various items such as: (a) the number of degree programs and courses that were currently being offered, (b) information about financial support for online courses, (c) characteristics of online courses, (d) administrators' perceptions about the future of online course offerings in their department, and (e) concerns related to academic rigor. These results seemed to be consistent with the general trend of online education in higher education. Administrators in that study claimed that online education will also be a rising trend in kinesiology. According to this report, 76% of administrators indicated that they expected to have some (or many) online courses in the next 5–10 years at their institution, while only a few respondents indicated they expected to have no online courses. Therefore, it is evident that online delivery is already impacting the field of kinesiology and seems likely to expand. Furthermore, online education is common at the master's level. Results from Mahar et al. (2014) showed there were more master level programs that were fully online (n = 18) than undergraduate degree (n = 9) programs. This tendency is confirmed by several other studies. According to a study focusing on obstacles in attending graduate school, Belcher (1996) claims that current and potential graduate students preferred online courses due to potential schedule conflicts between work and course offerings (Anderson & Garrison, 1995; Mood, 1995). As Dubois (1996) noted, most distance students are working adults, and they are the "new majority" in higher education. Additionally, there has been a considerable amount of top-down support for expansion of online courses. According to Mahar et al. (2014), more than

85% of institutions provide funding to either faculty or departments to develop online offerings, which implies that the leadership of higher education institutions are promoting online education. Such financial support was awarded in several forms, such as direct payments/stipends (reported by 20 respondents), unspecified types of compensation (reported by ten respondents), competition for grants (reported by nine respondents), summer salaries (reported by three respondents), and stipends to attend online training courses (reported by two respondents). Another important concern was the rigor of the online instruction. Approximately 61% of the administrators expressed concerns related to the rigor of the online courses, indicating that academic rigor is a substantial concern among administrators. Nonetheless, 42% of the administrators reported that they did not feel that online courses were as rigorous as face-to-face classes, and 65% of them indicated that exams for online courses are not properly proctored.

Problem Statement

Educators in the field of kinesiology have already begun implementing online education in various forms, including online methods courses (Jung & Gilson, 2014), online sections within kinesiology programs (Roth, 2014; Rudisill, 2014), full online programs (Bryan, 2014), and even online doctoral degree programs (Gill, Brown, & Reifsteck, 2014). Such rapidly growing online education practices have faced several challenges in terms of technological issues and pedagogical concerns (Huang, 1997; Li & Irby, 2008). Most of the time, the technological issues can be addressed by instructional technology external experts; however, addressing the pedagogical dimensions of online teaching is much more challenging. The process of transition from the traditional form of instruction to online settings is the sole responsibility of the course instructor. Yet, the understanding of effective practice of online teaching and learning is only in its early developmental stages (Bochkareva, Buyanova, Vysotskaya, Golubnichiy, & Averyasov, 2018; Shea &

Bidjerano, 2009). There have been very few empirical studies that have investigated online education settings in kinesiology, and none could be used as theoretical foundation for our daily practice or the current research (Kooiman, Sheehan, Wesolek, & Retegui, 2017). In other words, this is the current situation of online kinesiology education where the implementation and real-world practice have already proceeded far without much of a theoretical body of knowledge derived from research. Therefore, research for thorough description of the action and contextual background of the real-world practice is required to keep theory abreast of burgeoning practices (Lawson, 2018). From this perspective, it may be possible to obtain and understand specific online kinesiology pedagogies as a result of a thorough examination of online teaching and learning. Presumably, such study would be exploratory in nature and consider the broad issues related to the educational process.

Thus far, online education has received very little attention in kinesiology literature, and discipline-specific online pedagogy is still quite rare. Therefore, there is a need to observe current practices (including best practices or common practice), examine the outcomes of these practices (process and product), and collect the stories of the stakeholders (students and instructors). It seems that a mixed-method approach would be an appropriate method for this quest (Teddlie & Tashakkori, 2009). Specifically, by including a qualitative approach, a study can investigate the achievements of students and systematically gather anecdotes from the online learning platform; and, by using a quantitative approach, a study can collect the abundant data resources and analyze them through established theoretical frameworks existing in the field of instructional design and technology. This two-track approach of mixed-methods may yield a data-driven description and authentic narrative which will eventually lead to a sound theoretical basis

for effective pedagogies. Therefore, this study explores instructors' intentions, instructional design, and students' perception in online courses within the field of kinesiology.

Theoretical Framework

The underlying theoretical framework for this study is the Community of Inquiry model (CoI; Garrison, Archer, & Anderson, 2000). The CoI model has identified essential elements for a successful online instruction system, and helps this study examine the quality of the online teaching and learning experience. The CoI model represents a process of creating a deep and meaningful learning experience through the development of three interdependent elements: social, cognitive, and teaching presence (Garrison, 2016). This model was originally developed to examine the online learning experiences of students in online courses that dominantly rely on text-based communication (Garrison, Archer, & Anderson, 2000). In online courses, specifically asynchronous online courses, there has always been a risk of learners becoming disengaged in the learning process as a result of the absence of any sort of direct social interaction with the instructor or classmates. The model was based upon constructivism and the philosophical perspectives of John Dewey, including his Practical Inquiry Model (Dewey as cited in Garrison, Anderson, & Archer, 2001). The CoI model remarked the concept that learners are a crucial part of the learning experience because they contribute to the perception of presence. Also, the CoI framework is known to be a useful foundation for online education (Quitadamo, Faiola, Johnson, & Kurtz, 2008). In several previous studies, online instructions aligned with principles and theories of the CoI framework for asynchronous online courses have been reported to be significantly correlated with higher levels of perceived learning (Kim, Kim, Khera, & Getman, 2014; Rovai, 2002; Shea, 2006; Shea, Sau Li, & Pickett, 2006). Particularly, the CoI model aims at students'

higher-order thinking, focusing on how to create a deep and meaningful online learning experience. The CoI model comprises the three interdependent elements (Akyol, 2012; Akyol & Garrison, 2008); these three are (a) social presence, (b) teaching presence, and (c) cognitive presence, as shown in Figure 2-1 (Garrison et al., 2000). This diagram illustrates how these three types of presences work together to help achieve the desired learning outcomes.

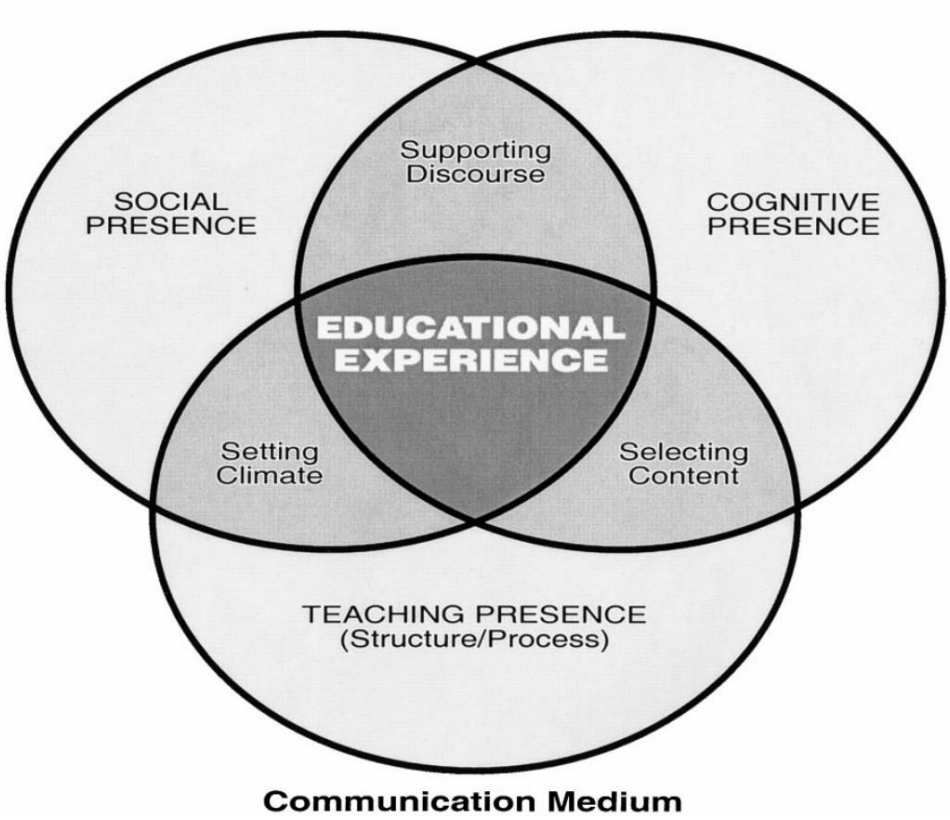

Figure 2-1. The Community of Inquiry Model (Garrison et al., 2000)

Social presence. Delivering content to students has always been one of the most important components of teaching, but the CoI model emphasizes that educators need to go beyond content delivery. The social presence component requires that instructors know their learners, and their learners' capabilities. This must include knowing who they are intellectually, who they are as actual people, and what their learners need (Edmundson, 2012). According to the social presence research, the failure to create a sense of community where students share educational

experiences, understand needs, and prior experiences, can have an effect on the learning experience, which, in turn, could have an impact on students' satisfaction, and levels of engagement (Joksimović, Gašević, Kovanović, Riecke, & Hatala, 2015). Social presence refers to the development of social interactions among individuals within a learning group while maintaining a productive social climate. Social presence is measured by three dimensions: (a) open communication, (b) affective expression, and (c) group cohesion.

Teaching presence. While the social interaction has been reported to be a significant contributor to effective educational experience, various researchers claim that the interaction is not a sufficient component by itself (Garrison & Cleveland-Innes, 2005; Randrianasolo, 2013). Researchers stated that learners need more than a simple interaction with each other in order to foster a positive educational experience. These researchers claim that the course instructor, the design of the course, and the course policy help foster a safe learning environment for the students. Teaching presence outlines the role of the instructor before and during teaching, including course organization and design, direct instruction, and facilitation. By properly supporting social presence, an instructor can help online learners avoid feeling disconnected and create the perception of community among the learning group (Thompson & MacDonald, 2005; Rovai, 2002). In order to carry out all the tasks, the online instructor needs to do several different things. These include the following: (a) make use of applications, (b) use of a communication medium, such as the learning management system or social applications, (c) they must do this within an educational context, which follows standards and instructional design best practices. For high-quality educational experience, teaching presence is the key factor for student satisfaction, perceived learning, and sense of community (Garrison & Arbaugh, 2007). Teaching presence includes three dimensions: instructional management, building understanding, and direct instruction.

Cognitive presence. Cognitive presence is defined as the extent to which students can construct and confirm meaning through sustained reflection and discourse (Garrison et al., 2000). Therefore, it is closely associated with development of critical thinking and higher-order learning and concerns this question: whether higher-order thinking, and discourse could be realized in an asynchronous, largely text-based educational environment? In this perspective, cognitive presence in an online environment helps students successfully move through the phases of inquiry. Cognitive presence has four phases: (a) triggering event (problem conceptualization), (b) exploration (idea generation), (c) integration (knowledge synthesis), and (d) resolution (knowledge application and vicarious testing). The literature suggests that online students rarely reach the advanced levels of inquiry and that teaching presence plays a critical role in facilitating cognitive presence (Garrison & Arbaugh, 2007; Richardson, Arbaugh, Cleveland-Innes, Ice, Swan & Garrison, 2012; Rourke & Kanuka, 2007). Specifically, cognitive presence is achieved by purposeful instructions, such as designing the task with clear outcome expectation, providing crucial information, and moving the discussion forward in a timely manner.

The interaction between the highly interdependent presences fosters a high-quality educational experience; hence, all the three presences are required to achieve successful online learning experience (Garrison et al., 2000; Garrison, 2017). Such interdependence and synergy illustrate why all three components of the CoI framework are important and why it is difficult to parse out which actions lead to the specific presence (Immordino-Yang & Damasio, 2007). Despite several attempts in the literature to focus on only one of the three types of presences, studies often end up describing the other two presences as well (Akyol et al., 2009; Garrison, Anderson, & Archer, 2010; Shea et al., 2014). For example, in the study of Shea and colleagues (2014), the authors focused on the teaching presence but also devoted significant attention to describing

the emotional and motivational aspects of the learners, stating that cognitive awareness is the key to develop meaningful learning experience.

The CoI framework has been useful as a conceptual construct for numerous studies examining online education and provided foundation for valuable empirical research in learning theory across multiple disciplines and in varied educational settings (Akyol & Garrison, 2011). Particularly in this study, the CoI model plays an important role helping this study accomplish its purpose. The primary goal of this study is to explore online courses in the field of kinesiology in a deeper level. With that being said, the CoI framework, which delineates successful online teaching and learning experience, identifies focal points to which the investigation of this study should pay attention. On top of that, the profound body of literature on online education has been accumulated for this theoretical model including pertaining measurement methods (e.g., Anderson et al., 2001; Arbaugh et al., 2008), that may enhance conceptualization of this study.

The Purpose of the Study and Research Questions

The imbalance between the pervasive practice of online learning and limited research on this topic certainly warranted this study. Hence, the author of this study purposed to explore online kinesiology courses so that we could better understand the process of implementing online instruction. To make this exploration feasible, the author focused on key constituents of education: instructors, students, and contents. This approach led to the development of the research questions that guided this study. The set of research questions was derived from the serial order of the logical operation of teaching (refer to a graphical conceptual model of the research questions as shown in Figure 2-2). As depicted in Figure 2-2, the operation began with instructional intention that influence an instructor's teaching practice in the given contextual environment. Normally, an instructor's intention results in specific design or organization of the contents. In

case of the online courses, a set of learning activities designed by the instructor constitutes the course content which is reflected in the course's learning management system. Subsequently, the content that is curated in a virtual classroom mediates students' learning experiences. Each aspect of this operation can be viewed in many different ways; therefore, the CoI framework has been utilized to clarify the instructors' intentions, the organizations of the content, and students' perceptions. To summarize, the purpose of this study was to explore online courses in the field of kinesiology through the CoI framework. The research questions guiding this study were:

1. What are the instructors' intentions toward successful online teaching?
2. How are the content components organized within the learning management system?
3. What are students' perceptions on their online learning experience?

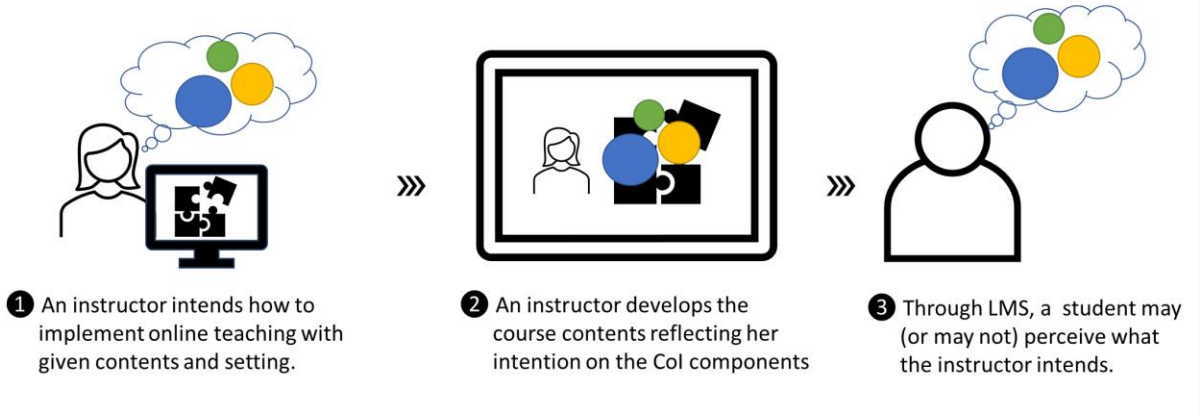

Figure 2-2. Graphical Conceptual Model of This Research

Definition of Terms

Community of Inquiry (CoI) model. A framework that reflects a collaborative-constructivist approach to learning by fusing individual construction of meaning and collaborative validation of understanding.

Teaching presence. The design, facilitation, and direction of cognitive and social processes for the purpose of realizing personally meaningful and educationally worthwhile learning outcomes (Anderson, Rourke, Garrison, & Archer, 2001).

Social presence. Social presence is defined as "The ability of participants to identify with the community (e.g., course of study), communicate purposefully in a trusting environment, and develop inter-personal relationships by way of projecting their individual personalities" (Garrison, 2009).

Cognitive presence. The extent to which learners are able to construct and confirm meaning through sustained reflection and discourse (Garrison, Anderson, & Archer, 2001).

*Kinesiology***.** Kinesiology is defined as "the academic discipline which involves the study of physical activity and its impact on health, society, and quality of life (The American Kinesiology Association, n.d.)." As a discipline, kinesiology draws on several sources of knowledge including knowledge gained from personal and corporate physical activity experiences, professional practices centered in physical activity, and knowledge gained through scholarly study and research of physical activity itself. The uniqueness of kinesiology as a discipline is its embrace and integration of a multi-dimensional study and application of physical activity—biological, medical, and health-related aspects, but also psychological, social-humanistic, and a variety of professional perspectives as well (The American Kinesiology Association, n.d.).

Learning management system. A learning management system (LMS) is a software application for the administration, documentation, tracking, reporting, and delivery of educational courses. The learning management system concept emerged directly from e-Learning. By utilizing analytical data analyzing and reporting, LMSs can identify teaching and learning gaps. LMSs are focused on online learning delivery but support a range of uses, acting as a platform for

online content, including courses, both asynchronous based and synchronous based (Davis, Carmean, & Wagner, 2009).

Online learning. Learning that takes place using the Internet. This can include synchronous or asynchronous learning, learning management systems, interaction, broadcasts, and collaboration.

Synchronous. Occurring together and/or simultaneously. Interaction and communication happen in real time with participants all present at the same time.

Asynchronous. Interactions and communication that do not occur simultaneously for all participants in the process. Asynchronous courses offer the benefit of "anywhere and anytime learning," within the term of the course. An asynchronous course does not necessarily imply the ability of individual student to precede at their own pace.

Blended learning. This involves classes in which a portion of the traditional face-to-face instruction is replaced by web-based online learning. These are also known as hybrid or mixed-mode courses (Jameson, 2018).

Methods

The purpose of this study was to explore online kinesiology courses through the CoI framework. The author implemented a case study approach within a mixed-methods design in order to investigate the operations of online kinesiology courses in the authentic context. The case study design is known to enable deep and meaningful exploration of instructional dynamics in multiple courses (Powell et al., 2013). Hence, by adopting the case study design, this study was set to be a rigorous inquiry of issues relevant to the educational interactions occurring in the given context (Yin, 2014). The use of a mixed-methods approach provided robust data which allowed the researcher to make some reasonable inferences (Creswell, Clark, Gutmann, & Hanson,

2003; Johnson & Onwuegbuzie, 2004; Powell et al., 2013; Tashakkori & Creswell, 2007a, 2007b). For specific modes of a mixed-methods study, this research used a parallel (or simultaneous) design, which involved the various study phases to occur simultaneously. In the methodology, qualitative and quantitative inquiry were complementing each other. Quantitative analysis was the primary type of evidence used for describing the instructors' intentions, students' perceptions, and online leaning processes. Meanwhile, qualitative data offered further exploration and clarification regarding the deeper meanings and finer nuances (Teddlie & Tashakkori, 2009).

Participants

The participant pool consisted of instructors who were teaching and their students who were taking online undergraduate level courses in the Health and Physical Education program at a public university located in the Southeastern United States (See Table 2-1 for details). Course instructors and their students were asked to volunteer to participate in this study. All courses utilized the iCollege learning management system which has both synchronous and asynchronous interaction capability.

Table 2-1. Participating Instructors

Instructor's Pseudonym	Course Taught	Rank	Is s/he tenured faculty?	Has s/he taught any of online course before?	Has s/he taught the content before?
Audrey	Course A	Ph.D. student	No	Yes	Yes
Abigail	Course B	Ph.D. student	No	No	Yes
Kevin	Course C	Full Professor	Yes	Yes	Yes
Mia	Course D	Clinical Professor	Yes	No	Yes
Jeff	Course E	Part Time Instructor	No	Yes	Yes

Victoria	Course F	Assistant Professor	Yes	No	No

Data Collection

Data were collected from six separate online courses, all offered within the same program. There were the following three data sources: (a) CoI survey (Arbaugh et al., 2008), (b) course content on LMS and (c) semi-structured interviews with instructors.

Community of Inquiry survey. Arbaugh et al. (2008) developed the CoI survey instrument (See Appendix A) to measure the perceptions of students about their educational experience, based on the construct of the CoI framework. This instrument had been previously tested for construct validity and reliability (Swan et al., 2008), and used to measure student perspectives on the effectiveness of online courses (Stenbom, 2018). The CoI survey instrument contains 34 items related to the three main elements of the CoI framework. All survey items were based upon a 5-point Likert scale, which ranged from "Strongly Agree" to "Strongly Disagree." For this study, student participants were asked to reflect upon their experience as students in the specific online course and respond to the CoI survey. The survey was given near the end of the semester.

In order to examine the instructors' perception of their own online courses, the author requested instructors to respond to a modified CoI survey (See Appendix B). While the original CoI survey questions were designed to measure the perceptions of students regarding their online learning experience, the instructor version of the CoI survey (Stenbom, 2018) was designed and used to ask the instructor questions related to his/her intentions and aspirations as relevant to the CoI elements within the online course they taught. The survey was administrated via online using Qualtrics survey system (Available at https://www.qualtrics.com). Once responses were collected in the survey repository, the data were reviewed and cleaned prior to analysis.

Course content on LMS. All online courses included in the study adopted the same learning management system. As such, all learning activities and course materials were automatically collected and used for the analysis in this study. In order to be able to include all course material and communication as data in this research, the researcher requested the course instructors to allow the researcher to enter their LMS session as an auditor.

Semi-structured interview. The researcher interviewed six instructors, individually, at the end of the semester. Each interview was semi-structured, which allowed the flexibility to follow topical trajectories in the conversation that might stray from the guidelines (Roulston, 2010). The purpose of the interview was (a) to examine instructors' online teaching experiences regarding overall impression, expectation, effectiveness, subject matter instruction, and interaction and (b) to capture the instructors' rationale for including specific teaching activities in the course (see Appendix D). In doing so, the author tried to explore instructors' intentions and reflections on the course and the engagement patterns of their students, as well. The interviews took place via an online video call service named WebEx and continued for about an hour. All interviews were recorded and transcribed for a later analysis.

Procedure

Upon the approval from the dissertation advisory committee, the researcher submitted an application to the Institutional Review Board. Once approval was conferred, data collection commenced. The author contacted seven course instructors to explain the project and recruited them to participate in the study. Out of seven requested for participation, six instructors volunteered their participation in this study. Instructors were asked to add the researcher as an auditor to their course LMS session. Being an auditor in each one of these courses enabled the researcher the op-

portunity to explore the course and collect specific LMS data. Thereafter, the researcher distributed the CoI online survey to instructors and their students who were enrolled in the corresponding courses. Following the survey, the researcher scheduled interviews with instructors.

Ethical Considerations

Before embarking on this study, the Institutional Review Board reviewed and approved the research methodology, study design, and consent waivers. The researcher paid careful attention to the potential risk to participants. Participants were asked to volunteer their participation in the study. Participants were told that they could stop their participation at any time. The results were anonymous, so there was no way for the researcher or instructor to be able to tie individual responses back to a single student. All responses were kept confidential and stored on password-protected, university-managed information systems. There was no risk of harm for participating or not participating in this study.

Data Analysis

Quantitative analysis. Data for quantitative analysis were collected from the CoI instrument on Qualtrics Survey System. Collected survey responses were exported to a spread sheet form for analysis. If a response had done incompletely, it was excluded from the repository during the cleaning process, and then missing data were eliminated from analysis. In addition to incomplete response, a response answered in a straight-line or a pattern was excluded. The IBM SPSS statistical software version 26 was used for the statistical analysis. As a preliminary step in the data analysis, descriptive statistics were used with CoI scores and its three subscales representing respondents' perceptions toward online teaching or learning. One-way Analysis of variance (ANOVA) was used to compare instructors' scores and students' scores. It was also used for the comparison among subscales of the CoI for each group.

LMS analysis. In order to examine the content of online kinesiology courses, data on the courses' LMS sessions were collected. This included course materials, such as syllabi, textbooks, different types of documents, videos, and webpages. All evidence of learning activities embedded in the LMS were collected as well. All course materials and learning activities presented in each one of these courses were considered as content to be analyzed in this study. Therefore, the unit of the analysis was a discrete entry which represented a subject matter content. To analyze the course content data, the researcher identified learning activities and categorized them based on functional similarity. In specific, the researcher classified these learning activities together with those that share common attributes. For further analysis, learning activities were classified based on the taxonomy suggested by Means et al. (2009). In their meta-analysis study, Means et al. (2009) summarized existing literature focusing on common characteristics of online learning processes. They identified notable variables that characterize online instructions and suggested a taxonomy of three online learning activities, including *expository, active, and interactive learning* as defined in Table 2-2.

Table 2-2. Definitions of Three Types of Online Learning (Means et al., 2009)

Term	Definition	Example
Expository learning	Digital devices transmit knowledge	lecture, textbook
Active learning	The learner builds knowledge through manipulation of digital artifacts	assignment, online drill
Interactive learning	The learner builds knowledge through collaborative interaction with others	team project, discussion

Qualitative analysis. Qualitative data were analyzed using an inductive coding approach (Patton, 2014). Transcriptions of interview recordings were managed with QSR International's NVivo 10 software program. Thematic analysis (Braun & Clarke, 2006) was used to identify recurring themes, events, and patterns in the qualitative data (Patton, 2014; Lofland, 2009). This

analysis of qualitative data used an inductive approach through which newly emerging themes were identified and categorized (Patton, 2014). In doing so, the researcher used the constant comparative method (Glaser, 1965; Strauss & Corbin, 1998) in which themes and subcategories were continuously compared and revised as new themes and categories emerged from the transcriptions. As a next step, the researcher applied pattern matching analysis (Yin, 2009; 2014) in which patterns from each course could be compared. (Themes were established using a thematic framework.)

Data integration. In this study, data integration involved connecting quantitative results to qualitative findings as a sequential exploratory strategy (Creswell et al., 2003). Data integration took place repeatedly, during collection, analysis and interpretation, or in a combination of places (Creswell et al., 2003; Johnson & Onwuegbuzie, 2004). The quantitative analysis was performed to measure key variables on perceptions of online courses. During the semester, the researcher analyzed course content as organized on the LMS to investigate characteristics of online courses. It was followed by qualitative analysis semi-structured interviews. When analyzing interview data, different interview transcripts from instructors were combined and then analyzed together based on a within-method triangulation procedure (Denzin, 2009). This phase also involved connecting the quantitative findings with the themes that emerged through the qualitative analysis. Findings from different sources were considered in relation to each other after the data were analyzed by each method. After the completion of quantitative and qualitative analysis, findings from each type of analysis were triangulated for interpretation, using between-methods triangulation (Moran-Ellis et al., 2006; Morse & Niehaus, 2016). As a triangulation method, this integration strategy verified findings from different analyses or disclose contrasting findings (Patton, 2014).

Results

The first section of results includes descriptive summaries of the circumstance surrounding this research and the courses' contextual information. This information provides the institutional contexts for the courses that were included as a focus of this investigation. Subsequent results are organized by data sources and contingent analyses as follows: results from quantitative analysis, LMS analysis, and qualitative analysis.

Contextual Facts of the Course Instruction and Learning: The Impact of the COVID-19

As the World Health Organization declared the COVID-19 a global pandemic on March 11, 2020, the program in which this study was conducted had to create distance-learning opportunities to enable students to complete the 2019–2020 academic year like all other institutions of higher education. Therefore, all participating students might have experienced challenges emerging from the unplanned, rapid, and uncertain change of daily life. Also, the instructors who took responsibility for quality learning faced challenges since limited information on best practices was available to guide such abrupt transitions within higher education settings. While few courses in the program were implemented online already, most course instructors had to change their course modality, dramatically transitioning from the traditional face-to-face instruction to predominantly distance learning where teaching is provided remotely on digital platforms.

Several concerns were associated with the online learning in the COVID-19 era, such as the lack of options for students to determine whether they want to take online courses or not, the lack of access to free technology resources and internet services on campus due to social distancing, a lack of motivation to learn; the new course workload, adapting to unfamiliar technology for first time online student users and uncertainty about the future among others (Armstrong-

Mensah et al., 2020). It is clear that the COVID-19 pandemic had an impact on the way educators, across all levels, practice their craft. Therefore, since data collection for this study occurred during Summer, 2020, it is legitimate to say that the courses included in this study have been affected by the pandemic to some extent. However, the effects of the global pandemic outbreak were not the focus of this study. It was unclear how much or in which aspects the pandemic outbreak influenced the process of the course operation or the research procedure of this study. Therefore, the author acknowledged and considered the impact of the pandemic outbreak through the findings of this study.

A total of six courses served at the center of this investigation – all of which were undergraduate level kinesiology courses. The researcher examined syllabi of these courses and found that each course covered different aspects of the body of knowledge as part of the discipline (Table 2-3).

Table 2-3. The List of Courses

Title	Quotes from Course Description	Has it been taught online before?
Dance (Course A)	*"This course introduces a variety of dance forms that individuals can participate in over their lifespan. … Emphasis will be placed on teaching methodology, skill development, and learning sequences."*	No
Fitness and Physical Activity (Course B)	*"This course introduces the foundations and components of health-related fitness and physical activity, developmentally appropriate health-related fitness content, and the assessment …"*	No
Motor Learning and Development (Course C)	*"Students gain knowledge of motor learning and development principles. Topics include ... Emphasis is on the practical application of concepts to the teaching of motor skills."*	No

Movement Sciences for Practitioners (Course D)	*"Students will learn foundational sciences underlying human movement and examine the systems, factors and principles involved in human development. Concepts will be applied to practitioners in the areas of physical activity specialists in diverse settings ..."*	No
Sexuality Education for P-12-CTW (Course E)	*"Students participate in class discussion, skill training, and skill applications which incorporate current national and state standards for school-based sexuality education. "*	Yes
Skill Themes and Movement Concepts (Course F)	*"Students will develop knowledge and skills to plan, implement, and assess health-related physical activities, skill themes, and fundamental movement skills …. Emphasis will be placed on the ability to teach a progression of tasks ..."*	No

In terms of the setting of the learning environment, all six courses were conducted as an asynchronous online environment, which were free from the constraints of time and place. Notably, only one of them had been taught previously online. Meanwhile, the other five courses had never been taught in the distance setting prior to this study and had to be transformed to online due to the social distancing protocol mandated by the University administration.

Results from Quantitative Analysis

Quantitative data source of this study was CoI survey results. CoI survey results were analyzed by descriptive analysis. Additionally, one way ANOVA was adopted to compare figures from different groups or subscales. A total of six instructors and their six different online courses were the focus of this study. The participating instructors and all students taught by these instructors were asked to respond to the survey. Among the collected responses in the Qualtrics system, 14 responses were excluded in the data cleaning phase (13 for incomplete responding and one for

straight-lining). Six instructor responses and 79 student responses were included in the final analysis for this study. Student participants have enrolled in the program for the range of one through six years, with an average of 2.96 years. Overall response rate was 58.52 percent (See Table 2-4 for breakdown for each course).

Table 2-4. Response Rate of Student Participants by Courses

Course	Class Size	Number of Participants	Response Rate	Number of Excluded Responses (Reason)
Course A	15	11	73.33%	2 (incomple responses)
Course B	25	18	72.00%	3 (incomple responses)
Course C	28	13	46.43%	3 (incomple responses) 1 (straight-lined response)
Course D	19	9	47.37%	2 (incomple responses)
Course E	31	19	61.29%	1 (incomple responses)
Course F	17	9	52.94%	2 (incomple responses)
Overall	135	79	58.52%	14

Results gained from the CoI instrument are reported in an aggregated form by presenting instructors and students' scores across all courses as presented in Table 2-5. The detailed scores by courses across all items in the questionnaire can be found in Appendix E; Appendix E also includes the total responses to the options attached to each survey item on the CoI survey as a whole. Each score ranges from one to five, one indicates strongly disagree while five strongly agree. The overall CoI score represents the extent to which a respondent perceives the notion of the model. Specifically, the first sub-scale of teaching presence (TP) reflects the perception on

the instructor's ability to accomplish educationally worthwhile learning outcomes. Social presence (SP) reflects the perception of students' ability to engage in the course socially and emotionally. The third element cognitive present (CP) reflects the extent to which student constructs meaningful learning through the online learning process.

Six instructors' CoI scores revealed that instructors viewed TP as the highest with a mean of 4 and the CP closely after with a mean of 3.8. However, the instructors viewed the SP lower than the other subscales with only 2.9. According to ANOVA, instructors' SP was found to be significantly lower than instructor TP and CP, F (2,15) = 5.678, p = .0145.

The results from students' CoI survey demonstrated a similar trend to the instructors' survey results. The students' expressed favorable perceptions towards TP with a score of 4.1 and very closely after to CP with a score of 4.0. However, students' SP scores were lower than the other two presences with only 3.7. According to the ANOVA test, F (2, 234) = 7.69, $p < .001$ this difference was found to be a significant difference.

In the comparison between instructor-group and student-group, a similarity was found in that both groups reported the highest scores in TP followed by CP and SP respectively. SP scores were the lowest for each group. However, instructor SP score was lower than Student SP at a significant level, F (1, 83) = 7.825, p = .006.

Table 2-5. Descriptive Statistics of the Survey Results

Group	Mean of TP (SD)	Mean of SP (SD)	Mean of CP (SD)	Mean of CoI (SD)
Instructor (N = 6)	4.0 (0.37)	2.9 (0.76)	3.8 (0.63)	3.6 (0.48)
Student (N = 79)	4.1 (0.70)	3.7 (0.67)	4.0 (0.56)	4.0 (0.56)

Results of Course LMS Analysis

To analyze course contents, this study focused on LMS, particularly investigating instructors' organization of contents. The researcher probed the virtual classrooms and identified all course contents. For the purpose of this section, the unit of the analysis was a discrete entry, which conveys or was related to subject matter content. As a result, there were 265 instructional entries across six courses over the duration of the courses. Each item was coded based on the title given by the instructor in the initial analysis.

Having all instructional entries identified, it emerged that many of them revealed similarities in their way of contributing to students' learning. The researcher classified these instructional entries together with those that shared common attributes. Specifically, the researcher grouped the entries together considering functional similarity as detailed in Table 2-6.

Table 2-6. Results of LMS Analysis

Code	Count (Percentage)	Examples
TX	69 (26.0%)	Chapter, Textbook
PT	35 (13.2%)	PPT, Slides, Presentation without narration
VD	28 (10.6%)	Lecture, Video, Narrated slides (created by the instructor)
V2	7 (2.6%)	Video (as a supplemental resource)
QZ	18 (6.8%)	Quiz
Q2	3 (1.1%)	Mid term exam, Final exam

A1	47 (17.7%)	Activity, Assignment, Case study, Log, Review questions (paperwork assignments involving no instructional support)
A2	27 (10.2%)	Project, Reflection, Lab (culminating assignments; paperwork assignments that require the instructors additional guidance)
GU	3 (1.1%)	Group work, Group assignment
D1	8 (3.0%)	Discussion (posting of one's own work and replying to classmates)
D2	16 (6.0%)	Q & A discussion
SC	6 (2.3%)	Synchronous meeting, Synchronous session

According to the categorization based on the scheme in Table 2-4, the most frequent learning activity entry was TX of 69 times (26%). This was followed by A1 with 47 counts (17.7%) and then PT with 35 counts (13.2%). The type of learning activities that required no students' action, such as TX, PT, VD, and V2, accounted for 52.5% of the total, which was almost half of all entries. This second half of the entire instructional entries consisted of QZ, Q2, A1, A2, GU, D1, D2, and SC, accounting for 47.5%. This required students' to be engaged in the given activities to some extent as intended by the instructors. Notably, there were six entries (2.3 %) of optional synchronous meetings which students could participate in, although all the courses included in this study were asynchronous. There was only one activity where students were requested to work together as a group in responding to the instructional guidelines.

Results from Qualitative Analysis

The individual interviews with the six instructors provided an in-depth look into the instructors' intention process. The qualitative analysis of the interview data is organized under the

following themes: (a) My approach to teaching online is convenient, consistent rhythm, (b) I understand it's important, but not in my course, (c) It sets my course apart, and (d) It may not be ideal but still has its own merit.

My approach to teaching online is convenient, consistent rhythm. As teaching and learning processes occur at a distance and asynchronously (at different times), effective design of the learning management system becomes a critical part of online teaching (Garrison, 2017). Similarly, in the current study, instructors taught asynchronous online courses, while expressing their initial desire to be clear with the course's content organization so that their students could navigate through the course content without a hassle, as expressed by Abigail:

> I organized everything by week, I guess. I just thought that would be easier. Not only for me keeping everything, but they could just go to that week and click on everything they would need right there. (Abigail)

Another instructor, Mia, shared a similar desire to provide a convenient learning experience for her students by stating:

> Ease of access, easy navigation. That was my goal. Just from a structure standpoint, I wanted it to flow, so that all they needed to do is simply start at the very top within the content, and then work their way down, work their way through it. I tried to make it convenient. (Mia)

Interview data supported the notion that all instructors wanted to be clear with the direction and guidance to their students since they believed it would facilitate students' commitment to course learning. Kevin, one of the instructors, revealed a similar perspective when giving an application assignment in which students were likely to be autonomous to accomplish their own learning. As stated by Kevin:

> So, I try to provide some guidance for some of that. Because I felt otherwise students would wait until the very end and would do it at eleven o'clock at night and expect everybody else to be working at eleven o'clock at night. That's not how everybody works. That's what I try to do, much more clear guidelines for students. (Kevin)

It seems that Kevin had a low expectation for students' disposition toward completing an assignment within a timely manner in the online learning environment. Kevin may have developed his lower expectations from online students based on personal experience, observation of online students or his personal teaching style; regardless, it was agreed by all instructors that clear and detailed direction was highly regarded in their online courses.

In addition to being clear and organized, Victoria had maintained a specific pattern of learning activities throughout the semester; hence, in her classes students could follow the same work routine every week. Victoria considered the notion of being consistent as essential, and added:

> My approach to all the online learning and really all my courses is to create a consistent rhythm. I use this idea of rhythm. I just think that keeping it simple and, you know, consistent throughout the whole semester. Especially in this context that was the way to go. (Victoria)

Victoria advocated the idea of "being consistent" in many ways with her belief that an instructor's consistency "supports students' success" and that it can be "a tenet of their socialization into the course."

I understand it's important but not in my course. Similar to the results from the quantitative analysis, the qualitative results demonstrated that the instructors recognized the value of the social aspect to the teaching and learning process, to a very limited extent. For example, one of

the instructors stated that the "social aspect of learning is an important component" and the other indicated that "it is always an added benefit." Victoria indicated that "a lot of people sort of read the research on online learning and, you know, developing community and creating conversations." However, the results emphasize that embedding social aspects within online learning activities is limited. The quick need to transform the traditional, face-to-face course to online modality, led Mia to admit that she "had to eliminate some of the group activities typically done in a lecture. That was something that I had to remove for the move [to] fully online." (Mia) While Mia found herself in a need to remove content in order to fit the online learning modality, Kevin added two different group assignments to his course, hoping to capitalize on the need to increase the collaborative nature within the online learning environment. Despite the considerable amount of work regarding the 8-week course period, the outcome was not as rewarding as reflected by Kevin:

> I think the literature says I should think it's important, but I haven't figured out how to make that meaningful rather than just busy work. I find that I haven't figured out yet how to make social interaction in online asynchronous learning meaningful. (Kevin)

The majority of instructors hesitated to include the social aspect of learning and seemed to be doubtful of its worth. Audrey revealed a mixed opinion stating that the social aspect "is always an added benefit" but at the same time appeared dubious, admitting that "I don't know that it's ever for me." This was because Audrey's desire was to remain faithful to her main objective which was to teach the given content to students. She added:

> If we can get it, great. But what I need to do is I have the opportunity to really make sure that their content is the number one goal, so that's definitely more what I focus on." (Audrey)

Although she revealed mixed feelings about the social aspect of learning, partly positive and partly negative, there were opportunities in her course for students to interact among others to some extent. It certainly was not prioritized over the course contents. Meanwhile, Victoria did not include any social interaction among students. Victoria was more concerned about the nature of the course contents and explained further underlying instructional intentions.

> The content knowledge course is sort of individual. For just a pure content knowledge course, I don't see it as quite valuable. I think the course dictates the level of engaging community that I'd be willing to promote in this class. (Victoria)

Overall, instructors commonly acknowledged the importance of SP in general. However, they did not have clear ideas of how to help students recognize SP in their online learning meaningfully and relevantly. In that sense, the reflection on adopting group assignments came across as a notable way to think about the worth of the social aspect of learning.

> I learned that group work is not effective; students have to do the work individually. When I did a group assignment, the students instead of learning and discussing it, just divided it up and answered a third of the assignment each. So, they were in groups of three and they just divided the assignment into thirds and didn't bother reading or learning with the other person they were responding to. Yeah. So, in the end, they only learned a third of the content of that group assignment instead of the whole. (Kevin)

It sets my course apart. Since the field of kinesiology does not remain restricted within theoretical endeavors or scholarly study and it has a great relevance to practices, critical thinking or higher-order learning has been an important issue of teaching and learning in the discipline (AKA, 2010, 2014). Instructors in this study seemed to recognize this issue with their course instructions. For example, Mia indicated that “a unique component of [her class was] that every

topic was not just theory, but it has been taken in theory lecture, based on some type of real-world application." Although the subject matter of her course was mainly scientific, she appeared to keep a bigger purpose in mind, and this idea was reflected on her course syllabus and her expectation of her students as she described:

> My whole purpose was to try to take these concepts and integrate them into something that's holistic. As they learn these topics and these concepts, the goal was for them to start integrating them into the activity that they chose, and try to expand their understanding of the movement, then also the way that they would teach it and explain. (Mia)

Other instructors in this study also had tried to promote higher-order thinking in their course instruction. One approach that was frequently noted on the LMS data were the use of open-ended and higher-level thinking questions in quizzes and paperwork assignments. In order to facilitate higher-order thinking skills, instructors adopted various strategies; and, this set apart each course from others. This included reflection activities, portfolio development, video recording, and types of culminating projects. It was noteworthy that instructors commonly indicated a struggle in advancing students' cognitive learning toward higher levels in an online environment. For example, Victoria tried to facilitate students' learning through focusing on the contents and feasible learning activities, as stated:

> They had to learn the content without participating in it. I think that the assignments geared themselves toward encouraging student interaction with what they were supposed to learn. (Victoria)

When asked to compare the online teaching experience with the previous in-person instruction, Jeff acknowledged the difficulty of engaging students in online learning:

> So, face to face, even my lectures, I have a lot of built-in activities within the lectures. That was just really difficult, obviously, with delivering fully online lectures. So, that was the component that I had to eliminate. I had a few little things that they could do and kept the things that they could do with themselves. (Jeff)

The transition from the traditional in-person classroom to online learning environment caused a significant change so that it became harder for instructors to facilitate meaningful learning. Additionally, the limitations caused by the pandemic outbreak made online instruction even more complicated as Kevin reflected:

> The students had an idea of how the activity should be performed, and then they could do it either by themselves or with whoever they were living with close to them, making sure to socially distance safely from. (Kevin)

It may not be ideal but still has its own merit. The field of kinesiology set itself apart from other areas for its consideration of physical movement of the human body. As such, half of the courses in this study were designed to engage students in different types of physical activities, such as fitness exercise, dance, and fundamental movement skills. Abigail described how to teach activities via online:

> This course is unique, because you are doing a lot of actual physical activity. What I had to do first in the summer was to figure out activities and they could do themselves at home with very minimal equipment and then also making sure that they were doing activities. They could record somehow, like our video themselves doing. So, then they could send them to me so that I knew that they were actually participating in the physical activity and not just, you know, making something up saying they did it. That was, I guess, where I had to be creative about it. (Abigail)

Teaching physical activities online was apparently a big issue of online instruction in kinesiology, since the physical distance hindered what had been normally possible. Instructors in this study utilized video communication technologies to aid this issue, and interestingly, one instructor, Audrey, saw a notable change in the way of instruction. She indicated that she was "really excited with how it went and how they seemed to handle the format that it was in. I think it does help that it was dance and probably not everybody was excited to be dancing in many ways (chuckle)." Specifically, the new version of instruction adjusted to the online environment might be seen as effective from a different angle, as Audrey pointed out:

> What I will say is with this online version, I think my students got more feedback from me and personal feedback and specific feedback than probably any classes ever had from me before. Because if you think about it, when I was teaching dance, a lot of time, it's gonna be a group feedback. And I'd go individually to these students here and there. But there's no way that I can ever get all, you know, thirty students every day for every single dance. (Audrey)

Her online course probably missed some advantages by moving to the online modality, but it seemed to be effective for students to "achieve the skill of whatever dance a lot better than if we were in-person class."

Discussion

Given the rapid expansion of online learning in the field of kinesiology and the relative paucity of empirical research on this topic, this study intended to explore online kinesiology courses through the CoI framework. To this end, the author investigated six different online courses in the Health and Physical Education program at a public university located in the southeastern US and collected data from multiple sources, focusing on critical aspects of a successful

online learning experience as described in the CoI model. The results of the present study are discussed in respect to the research questions that guided this study: (a) What are the instructors' intentions toward successful online teaching, (b) How are the content components organized within the learning management system, and (c) What are students' perceptions of their online learning experience? In each subsection, the findings elicited from different analyses were interpreted and summarized to directly answer the three research questions. Then, these were discussed in detail in relation to the existing literature in the field of kinesiology or learning technology.

Instructors' Intentions toward Successful Online Teaching

Typically, it is the course instructor who takes the lead and initiates the learning process in a specific course, regardless of its teaching modalities, such as face-to-face, online, or hybrid (Means et al., 2009). In that regard, the understanding of the instructional intentions was a critical issue in this study. In order to investigate instructional intentions, the survey and semi-structured interview data were collected and analyzed.

Results from the instructors' CoI survey scores revealed higher levels of instructional intentions to the aspects of teaching presence and cognitive presence, whereas social presence remained at a low level. Such results, the lower level of advocacy on social presence, were consistent with the findings from subsequent semi-structured interviews with the participating instructors. As indicated in the analytical themes related to the social presence within the online learning environment, instructors recognized that the social presence could be advantageous to the learning process in a general sense. They, however, did not make a clear commitment to the integration of the social presence within their online teaching environment. The interview data results demonstrated that instructors probably did not have the adequate practical knowledge to

implement social presence within their online courses, in spite of the appreciation to the social presence's contribution to a quality student learning experience. The shift from the traditional face-to-face teaching to online teaching following the COVID-19 outbreak required instructors to re-conceptualize their courses. Therefore, they prioritized delivering content and supporting students in their learning, which are essentially the teaching presence and the cognitive presence aspects of the CoI framework. These results demonstrated the notion that instructors reverted to the basic teaching skills they mastered while teaching within a face-to-face learning environment. Presumably, instructors did not have opportunities to develop these pedagogy skills in promoting the social presence aspects within online settings, since the integration of the social presence was not required within the face-to-face environment. Otherwise, it was plausible that instructors developed these pedagogy skills when teaching in the face-to-face settings; however, these skills did not properly transition to the online teaching and learning environment. The results of the current study suggest a slightly different outcome from Vladimirschi's (2013) study. Vladimirschi (2013) studied online instructors' perceptions in two different institutions using the modified CoI survey similarly to the present study. According to her results, there was no significant difference across the three presences (Vladimirschi, 2013).

The qualitative findings complemented and refined the survey results by unveiling the instructors' specific ideas of how to optimize students' online learning. The interview data indicated that instructors recognized and utilized a variety of instructional methods to accommodate the very challenging reality in higher education settings following the COVID-19 outbreak. Looking across all instructors, it was apparent that initially all instructors operated similarly when considering the shift to online instruction. All of them perceived that the pre-implementation phase—which encompassed the preparation, including conceptualizing a course, developing

the body of content, and designing learning experience—became pivotal in their pedagogy of online instruction. This was similar to Stern's (2004) case study that found that online instructors required a higher degree of investment during the pre-implementation phase when compared with the face-to-face instructors. However, as the learning processes advanced and required deeper levels of comprehension and understanding, the idiosyncrasies of each instructor and instruction in the specific course emerged. At the foundation of the learning process, all instructors operated similarly with the conceptualization of the teaching presence. As learning progressed, instructors subsequently differed in their ways to structure the learning experiences as revealed from the current study data. The tendency found in this study is consistent with the findings from de la Varre and colleagues' (2011) work. In their study, online instructors' perspectives on teaching online were examined using a qualitative method within the CoI framework (de la Varre et al., 2011). Similar to the current study, results from the de la Varre and colleagues' study (2011) revealed that online instructors put emphasis on setting the climate for learning, teaching the content directly, and designing instruction, which was identical across the participants. However, the instructors in de la Varre et al.'s study (2011) demonstrated their unique teaching styles adopting diverse instructional strategies and trying to facilitate discourses to be deep and rich.

Content Components Organization Within the Learning Management System

The investigation of online instruction requires a different approach than that of conventional classroom instruction due to its distinctive procedures. Specifically, online courses are created and delivered within the learning management system (LMS) through which instructors and students communicate. In addition, all relevant course information such as course content, learning activities, and student engagement patterns are automatically collected within the LMS. Therefore, the analysis of LMS data was an essential component to the investigation of the

online teaching and learning processes. Since the analysis of the course LMS was a key component within the current research, all content activities within the six online courses were collected, categorized, and analyzed. Through the LMS analysis, it became discernable how instructors organized their course content and how students engaged in the course as a consequence. Results from this study found that across all the online kinesiology courses, instructors planned for different types of learning activities which involved a range of students' commitment levels. Across all courses, a total of 265 instructional learning activities were identified and then categorized into 12 unique categories. The analysis of students' engagement across the learning activities demonstrated that approximately half (52.5%) of the learning activities were activities that did not require students' active engagement, other than simply consuming knowledge passively. The other half (47.5%) of learning activities required students to actively engage in specific learning activities. Out of 47.5%, more than half of them (35.1%) were learning activities which required students to react to artifacts, such as quizzes, worksheets, or activities, whereas the other 12.4% required students to interact with other student colleagues or with the course instructor.

The results from this study suggested considering grouping these learning activities into three all-encompassing categories. The largest category, which accounted for 52.5% of learning activities, included the activities that exposed learners to content knowledge via readings (i.e., textbook, articles, presentation slides), watching video generated by the instructor, or watching video produced by a third party. Regardless of the type of learning activities, the common denominator within this category seems that the learners are not required to engage actively in the learning process; therefore, learners can be considered remaining as passive learners. For these learning activities, the learners are not required to produce any artifact and the instructors within these courses do not have any measure of holding the students accountable. Consequently, all

learning activities within this category represent, what Onyesolo et al. (2013) suggest, *cognitive dumping* with minimal expectations for students' engagement levels. This result is similar to Means et al. (2009) that suggests the term of *expository learning* to refer to a sort of learning activities in which a digital device plays a major role in transmitting knowledge.

The second category that represents 35.1% of the total learning activities includes all learning activities that hold students accountable for their learning. In this category, learners must be active learners as they are required to demonstrate an interaction with the presented or shared content. As opposed to the expository category, in this category the learner must establish a proof of interaction to satisfy the accountability requirement. This proof of interaction is essentially the learners' digital footprint within the learning environment. The learners' need to establish a digital footprint within the online learning environment encourages them to feel the tangible requirement to contribute to their own learning. Means et al. (2009) identified such online learning activities and referred to them as *active learning* in which "a learner constructs knowledge through the interactions with digital artifacts (i.e., assignments online)."

The third category is the smallest one representing only 12.4% of all the learning activities. This category includes the higher-level, interaction-type activities, which necessarily includes interaction with other students and / or the course instructors. These activities, such as group projects or discussion boards, encourage a more dynamic and higher level of interaction within the learning environment, resulting in higher level of learner engagement within the learning process. Similarly, in their study Means et al. (2009) suggest the *interactive learning* concept which emphasizes the connections and knowledge the learners build through collaborative interactions with others.

Results from the current study echo earlier studies (Zhang, 2005, 2009), which recommend that online instructional environments include high levels of student engagement opportunities, leading to better satisfaction, perceived learning, achievement, and perseverance among students (Gray & DiLoreto, 2016; Oyarzun et al., 2018; Shackelford & Maxwell, 2012; Smyth, 2011). Similar to Means et al.'s framework, results from this study demonstrated the three categories (expository, active, and interactive) but were slightly partial towards the expository learning category. The expository category represents learning experiences where a digital device transmits the knowledge (Means et al., 2009), or as this study suggests, viewing it as cognitive dumping learning experience. Perhaps, it is worth designing a course with maximal integration impact across all three learning categories in which each expository learning activity is followed up with an active or interactive learning activity. This decision on how to fine-tune learning activities should be guided by the idea of what constitutes student learning in the given content. The results of this study also demonstrate the presence of the interactive learning category, but its effectiveness remains questionable because of its limited number of learning activities. The findings in the LMS analysis of the learning management system delineate the way instructors taught online kinesiology courses; therefore, it is worth investing efforts to studying and optimizing this process for the benefit of the overall quality of teaching and learning in the online environment.

Students' Perceptions on the Online Learning Experience

Given the investigation into instructors' intentions and their approach toward teaching online, it was essential to understand students' perceptions of their online learning experience. This was implemented by administering a student survey using the CoI instrument (Arbaugh et al., 2008). Results from this study indicated that the mean of students' overall CoI scores was 4.0

(*SD* = .56) on a 5-point Likert scale. Therefore, it is suggested that the students in this study expressed a rather positive learning experience within their online courses. When considering the different subscales, students' scores demonstrated a similar pattern to what has been expressed by their instructors. The analysis of students' perceptions revealed that students experienced higher levels of teaching presence and cognitive presence within their online courses, whereas they experienced slightly lower levels of social presence (*M* = 3.7, *SD* = .67).

It was notable that students' social presence score was still high enough despite the instructors' apparent low intention. This can be explained by the inclusion of learning activities that embrace social interactions, such as discussion or group assignments. In other words, although the instructors did not advocate or intend to focus on the social presence, they included some learning activities which were perceived by their students as social presence in nature; although, it was still lower than the other subscales. In addition, it is possible that the students arranged for an independent channel of communication (i.e., group me, hangout, texting) that contributed to their perception of a higher social presence component within the specific course; however, it was not originally intended or created by the course instructor, nor was it part of the LMS data included in this study.

Implications

In the previous section, the findings of the present study were summarized and discussed regarding the existing body of knowledge. The following section outlines several implications that emerged from the findings of this study. These implications reflect on the question of how this study's findings can contribute to better teaching and learning practices within online instructional settings.

The first implication focuses on the importance of students' engagement levels within online instructional settings and the instructors' roles in embedding these opportunities within their online courses. Specifically, when developing the online course, instructors typically consider their courses as the summation of content instructional units that need to be covered. When the instructors' view on teaching is limited by the sole need to cover the content, while ignoring the more inclusive teaching and learning processes, there is an increased risk of compromised student learning outcomes. The data from the current study demonstrated the importance of the integration of diverse learning activities across the expository, active, and interactive categories within the online instructional settings. Specifically, data from the LMS analysis revealed that more than half (52%) of the learning activities, across all courses, represented the expository category. Since the learning activities within the expository category are limited to simple acts of transmitting knowledge and lack the important component of requiring students' digital footprint (i.e., accountability measure), it is questionable whether the dominant expository learning can optimize student learning experiences. Hence, it is advised that instructors consider utilizing diverse learning activities purposefully. In specific, it is recommended that instructors reflect and acknowledge the fact that students' engagement is a key component within the students' learning process. In this regard, instructors should strive to increase the number of learning activities within the active and interactive categories in order to maximize the integration impact across the three categories of learning activities.

This integration across the three categories of learning activities does not necessarily calls for equal portions among these learning categories. In fact, the expository learning category lays the foundation for active or interactive categories; therefore, each learning activity within the expository category, for example, a request to read a book chapter or review presentation slides,

should be followed by more advanced learning categories such as active or interactive learning to ensure students' engagement. Ideally, instructors will be mindful of the integration of learning activities that they design and include within their courses, making sure that students are introduced to the content (i.e., expository) and provided with follow-up activities that demand evidence of learners' engagements and hold them accountable for achieving learning outcomes (i.e., active and/or interactive).

The second implication focuses on the need to support the social presence manifestation within online instructional settings. In this study, each of six online instructors revealed their intentions toward online instruction through different channels, including a survey, an interview, and an observation. One of the consistent tendencies was the low account of the social presence within online learning. The CoI framework advocates the importance of social presence in a successful online learning experience (Annand 2011; Garrison et al., 2000), and literature in online education in recent years has focused on the value of the social presence within the online learning environment (Gray & DiLoreto, 2016; Oyarzun et al., 2018; Shackelford & Maxwell, 2012; Smyth, 2011). However, it is important to remain tolerant when regarding courses with low social presence as poor in quality. Despite the research support to the importance of the three presences within the online courses, it is recommended to allow instructors to remain flexible regarding the best pedagogy to support their course's learning outcomes. In other words, the choice of excluding or decreasing the account of social presence may not always be problematic if the decision is consistent with other circumstances, such as course learning outcomes, the nature of the content, complementing pedagogy through which students are held accountable for their learning, etc. However, in the current study, data revealed several instances where instructors

compromised the integration of social presence due to their lack of pedagogical skills. In one instance, the instructor had to exclude the student group activities that she planned for face-to-face settings; or in another case, the instructor adopted group assignments but was doubtful regarding their effectiveness since her observation about students' engagement turned out to be extraneous from her intention. Therefore, there is evidence that supports the need to invest and advance the practical knowledge on how to integrate and implement social presence aspects within the online instructional settings.

The third implication targets the importance of professional development for the betterment of online instruction. Regardless of the teaching modality, instructors are encouraged and expected to develop their pedagogy skills through practical experience. However, the old adage by John Dewey (1933), "We do not learn from experience, we learn from reflecting on experience," gives us insight on the important role of reflection in the development of instructional skills. The analysis of instruction in this study included data from several sources (i.e., instructors' survey responses and interviews, LMS data, students' survey responses) which demonstrated a comprehensive approach that enabled meaningful reflection. Utilizing the CoI as the guiding framework for this analysis resulted in information related to specific aspects within online instructional settings. Specifically, the analytic approach adopted for this study yielded valuable instructional diagnostic information, which provided instructors with ideas of whether the aspects of online teaching were harmonious with other aspects or how to improve their instruction in the future. By doing so, it can serve not only as a research purpose but also as a professional development purpose as well.

Limitation

As has been noted above, this study serves as a meaningful contribution to the understanding of the current status of online teaching and learning in the field of kinesiology. However, upon considering its impact on instructional settings, several limitations should be acknowledged. The limitations concern the transferability and generalizability of the findings. The current study relied on various sources that complement each other. Each data source (e.g., interview transcriptions, CoI survey results, or LMS analysis results) has been initially reviewed and analyzed separately. Subsequently, these sources of evidence were triangulated to allow the results to reflect the range of evidence which capitalize the advantage of mixed-method inquiry (Yin, 2014). However, methodological concerns such as sampling strategy, sample size, and the validation of instrument affected the transferability and generalizability of the findings.

Sampling strategy. The online courses (and therefore, the course instructors) were recruited based on the researcher's purposeful decisions in selecting appropriate and representative courses for the purpose of the study (i.e., online kinesiology courses). Within each identified course, only the students who volunteered by responding to the survey were included in the study as participants. Therefore, participants formed a group of individuals who were open to share their perceptions and LMS data, which can be considered as a convenience sampling strategy.

Sample size. Students' response rate of 58.52 % to the CoI survey was found to be sufficient to demonstrate a trend within these courses. However, due to the nature of this study, only six courses (and six course instructors) were examined. Regarding that, quantitative results should be interpreted with caution.

Validation of instruments. The modified version of the CoI instrument for measuring instructors' perspective is not statistically validated, although there are multiple studies that focus

on the validation of the original version (e.g., Arbaugh et al., 2008; Carlon et al., 2012; Swam et al., 2008; Wei et al., 2020; Yu & Richardson, 2015). It is worthy to mention that the modified instructor version of the CoI instrument satisfied face validity as it had been utilized by multiple scholars in the area of distance education (e.g., Vladimirschi, 2013, Stenbom, 2018).

Given that this study was situated within the exploratory nature of research, the findings drawn from this study were by no means conclusive or decisive. However, this study made a novel attempt to examine the operational processes of online instruction by adopting a multiple-case-study design with a mixed-method approach. This study has been successful in describing and documenting the instructional processes, which leads to a better understanding of the matters of online teaching and learning in kinesiology in spite of the limitations described above.

Recommendations for Future Research

With the acknowledgment of the limitations, several recommendations and lead-ups for future studies are shared. The first recommendation for a future study is to address the methodological limitations to enhance the credibility of the findings. Specifically, a follow-up study should address the sampling strategy issue by adopting more specific criteria for the recruitment of online instructors (e.g., specific number of years, a certain level of online teaching experiences, expertise in a designated content area, and purposeful selection of courses from the sub-disciplines in kinesiology). By doing so, researchers will minimize the sources of variability and will be able to focus on specific characteristics of the online instruction. A different study can replicate the methodology of the present study but include a bigger population size or study a different context. The current study has been designed as exploratory in nature; therefore, future replication studies should seek to expand and confirm the findings in a more decisive manner.

An additional recommendation for future study is to expand the range of evidence. Although the current study encompassed diverse sources of data, there are several missing pieces in which future research needs to explore further. The current study explored instructor-student communication mainly through the LMS. However, there was possibly another independent communication channel, such as email, text message, social network services, or other communication technologies. Therefore, the inclusion of these communication channels would be worthwhile for the follow-up study. In addition, future research needs to include students as key informants to better understand the consequences of different online teaching interventions. The current study relied on the survey method to investigate students' perceptions, which has been supported by other data sources, such as LMS data. The instructional aspects of online kinesiology courses – the ways that instructors conceptualize, design, and implement their instruction – were well explored through the present study; therefore, the deeper investigation on students' end in a similar context has merit.

Conclusion

The area of kinesiology has been utilizing the online teaching and learning modality since the early 1980s (St. Pierre, 1998). The research endeavor that examined the topic of online instructional settings in kinesiology spanned over a few decades. However, not much had accumulated regarding the fact that there was no teaching and learning theory that explained the phenomenon or that guided its implication. With that said, the present study can be considered as contributing to the existing body of knowledge by making a unique case of empirical research that embraces the instructors' intentions, the operation of online teaching, and students' perceptions. The analysis of the quantitative and qualitative data reveals that instructors appeared to agree with the notion of teaching presence and cognitive presences as suggested in the CoI

framework. It was also found that instructors have less favorable perceptions supporting the social presence. Regardless, these instructors' perceptions were found to be reflected through the ways they designed their online courses as revealed in LMS analysis. The purpose of this study was neither to simply describe what has happened nor to make a judgment of one better than one other. With the inferences from the evidence, the findings were not treated as definitive but rather, were more likely to be clues that are worthy of further investigation.

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APPENDICES

Appendix A: Community of Inquiry Survey for Students

Community of Inquiry Survey Instrument

Teaching Presence

Design & Organization

1. The instructor clearly communicated important course topics.

2. The instructor clearly communicated important course goals.

3. The instructor provided clear instructions on how to participate in course learning activities.

4. The instructor clearly communicated important due dates/time frames for learning activities.

Facilitation

5. The instructor was helpful in identifying areas of agreement and disagreement on course topics that helped me to learn.

6. The instructor was helpful in guiding the class towards understanding course topics in a way that helped me clarify my thinking.

7. The instructor helped to keep course participants engaged and participating in productive dialogue.

8. The instructor helped keep the course participants on task in a way that helped me to learn.

9. The instructor encouraged course participants to explore new concepts in this course.

10. Instructor actions reinforced the development of a sense of community among course participants.

Direct Instruction

11. The instructor helped to focus discussion on relevant issues in a way that helped me to learn.

12. The instructor provided feedback that helped me understand my strengths and weaknesses relative to the course's goals and objectives.

13. The instructor provided feedback in a timely fashion.

Social Presence

Affective expression

14. Getting to know other course participants gave me a sense of belonging in the course.

15. I was able to form distinct impressions of some course participants.

16. Online or web-based communication is an excellent medium for social interaction.

Open communication
17. I felt comfortable conversing through the online medium.

18. I felt comfortable participating in the course discussions.

19. I felt comfortable interacting with other course participants.

Group cohesion
20. I felt comfortable disagreeing with other course participants while still maintaining a sense of trust.

21. I felt that my point of view was acknowledged by other course participants.

22. Online discussions help me to develop a sense of collaboration.

Cognitive Presence

Triggering event
23. Problems posed increased my interest in course issues.

24. Course activities piqued my curiosity.

25. I felt motivated to explore content related questions.

Exploration
26. I utilized a variety of information sources to explore problems posed in this course.

27. Brainstorming and finding relevant information helped me resolve content related questions.

28. Online discussions were valuable in helping me appreciate different perspectives.

Integration
29. Combining new information helped me answer questions raised in course activities.

30. *Learning activities helped me construct explanations/solutions.*

31. Reflection on course content and discussions helped me understand fundamental concepts in this class.

Resolution
32. I can describe ways to test and apply the knowledge created in this course.

33. I have developed solutions to course problems that can be applied in practice.

34. I can apply the knowledge created in this course to my work or other non-class related activities.

5-point Likert-type scale
1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree

Appendix B: Community of Inquiry Survey for Instructors

Community of Inquiry Survey Instrument

Teaching Presence

Design & Organization

1. I clearly communicated important course topics.

2. I clearly communicated important course goals.

3. I provided clear instructions on how to participate in course learning activities.

4. I clearly communicated important due dates/time frames for learning activities.

Facilitation

5. I helped students identify areas of agreement and disagreement on course topics that helped students to learn.

6. I helped in guiding the class towards understanding course topics in a way that helped students clarify their thinking.

7. I helped to keep students engaged and participating in productive dialogue.

8. I helped keep the students on task in a way that helped them to learn.

9. I encouraged students to explore new concepts in this course.

10. I reinforced the development of a sense of community among students.

Direct Instruction

11. I helped to focus discussion on relevant issues in a way that helped me to learn.

12. I provided feedback that helped me understand my strengths and weaknesses relative to the course's goals and objectives.

13. I provided feedback in a timely fashion.

Social Presence

Affective expression

14. I led students to know other students in order to let them feel sense of belonging in the course.

15. I led students to form distinct impressions of some students.

16. I used online or web-based communication as a medium for social interaction.

Open communication
17. I supported students to feel comfortable conversing through the online medium.

18. I supported students to feel comfortable participating in the course discussions.

19. I supported students to feel comfortable interacting with other students.

Group cohesion
20. I supported students to feel comfortable disagreeing with other students while still maintaining a sense of trust.

21. I supported students to feel that my point of view was acknowledged by other students.

22. I facilitated online discussions to let student to develop a sense of collaboration.

Cognitive Presence

Triggering event
23. I posed probing questions to increase students' interest in course issues.

24. I designed course activities activating students' curiosity.

25. I motivated students to explore content related questions.

Exploration
26. I encouraged and guided students to utilize a variety of information sources to explore problems posed in this course.

27. I encouraged and guided students to find relevant information to resolve content related questions.

28. I facilitated online discussions for helping students appreciate and value different perspectives.

Integration
29. I encouraged students to combine new information for answering questions raised in course activities.

30. I designed l*earning activities to help students construct explanations/solutions.*

31. I facilitated reflection and discussions to help students understand fundamental concepts in this class.

Resolution

32. I guided students to be able to describe ways to test and apply the knowledge created in this course.

33. I guided students to be able to develop solutions to course problems that can be applied in practice.

34. I guided students to be able to apply the knowledge created in this course to my work or other non-class related activities.

5-point Likert-type scale

1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree

Appendix C: Interview Questions for Students

Semi-Structured Interview Protocol

Hello, _____ (student name).

my name is _____. The purpose of this interview is to learn about your experience as a student in your _____ (Name of the course here) during this past _____semester. This interview should take about 30-minutes and I will audio record. Please feel free to speak openly, there are no wrong answers here. Please do not reveal anyone else's identity during this interview. Also, please let me know if you have questions for me now or during any step throughout the interview.

Question # 1 - *(General Opening Question)*

- The KH _____ (insert the name of the course) has been taught as an online course this past summer. Is this your first time taking an online course? first time at GSU or first time ever?
    - If you took an online course(s) before, how would you describe that learning experience?

Question # 2 *(Organization - Teaching Presence)*

- Do you feel your instructor (place the specific name of the course instructor appropriate for this course) was organized in this course? Can you provide an example of why or why not?

Question # 3 *(Facilitation - Teaching presence)*

- Do you feel your instructor (insert the name) kept you engaged in the course in a way that helped you learn? Please support your answer with an example of why or why not.

Question # 4 *(Direct instruction - Teaching presence)*

- Have you received instructor's specific feedback that helped you understand your own strengths and weaknesses as it related to the specific course's learning outcomes?

Question # 5 *(Affective expression - Social Presence)*

- Were you able to develop connections with some of your peers taking the class with you? Have you met these students prior to this course?

Question # 6 *(Open communication - Social presence)*

- Did you have group discussion opportunities embedded in your course? Were you able to actively participate in these discussions? Why or why not?

Question # 7 *(Group Cohesion - Social presence)*

- Do you feel that the peer interaction you had in this course helped you develop a sense of collaboration with your peers? Please explain.

Question # 8 *(Triggering event - Cognitive Presence)*

- Was the course content presented in a way that caused you to want to learn more? Please explain.

Question # 9 *(Exploration - Cognitive Presence)*

- How did you expand your knowledge / or information beyond what was presented by the course instructor? Can you share an example?

Question # 10 *(Integration - Cognitive Presence)*

- Do you feel that the learning activities utilized by your course instructor helped you understand the fundamental concepts in this course? Please explain or give examples.

Question # 11 *(Resolution - Cognitive Presence)*

- Have you found this course relevant to your career goals? Do you think you will be able to use the content or skills learned in this course in your future as a professional or in life in general?

Question # 12 - *(General Closing)*

- Do you have a recommendation to offer the new student who will be enrolled in an online course in our program?

Thank you so much for your time, patience, and detailed responses to my questions. I will be contacting you again shortly to clarify any ambiguities in this interview if necessary and I will send you a copy of the interview transcript for review and confirmation of the information transcribed. Have a pleasant day.

Appendix D: Interview Questions for Instructors

Semi-Structured Interview Protocol (Instructor)

Date…….

Time…….

Location……

Interviewer……

Interviewee Identifier……

Hello, Dr./Mr./Ms./_____ (Faculty member name).

My name is _____. The purpose of this interview is to learn about your experience as the instructor of _____ (Name of the course here) during this past _____ semester. This interview should take about 30-minutes and I will audio record. Please feel free to speak openly, there are no wrong answers here. Please do not reveal anyone else's identity during this interview. Also, please let me know if you have questions for me now or during any step throughout the interview.

Question #1. *Opening*

- Please share overall impression on your online teaching experience.
- Have you ever taught this course as an online course prior to this semester?
    - If yes, how do you describe your prior experience with teaching online?
    - If not, how did you feel prior to the start of the semester when you learned this course will have to be offered as an online course?

Question #2. *Organization - Teaching Presence*

- How did you organize (or design) the course content for this course?
- What was the most important aspect you wished to maintain as you transferred the f2f course content to the online setting?
- What was the least important aspect to maintain throughout the transfer process?

Question #3. *Facilitation - Teaching presence*

- Was students' level of engagement an important consideration for you during this course? Do you feel you encouraged student engagement? Give an example.
- Can you share an example of a "less engaged" student and? how you address his/her behavior?

Question #4. *Direct instruction - Teaching presence*

- Do you consider motivating students to learn part of your teaching responsibilities as an instructor in this online course?
    - If yes, can you share an example of how you motivated your student to engage with the course content?
    - If no, can you explain why you do not view the motivation of your student to learn as an important component of your online course?

Question #5. *Affective expression - Social Presence*

- Do you view social interaction among your students in the class important?
    - If yes, can you think about an example of how you encourage social interaction between students in your online class?
    - If not, why social interaction is not an important component in your course?

Question #6. *Open communication - Social presence*

- Do you view the communication with your students as an important component of the learning experience in your course?
    - If yes, can you share how you foster an open communication with students in your course?
    - If not, why is the communication with your students not considered an important component?

Question #7. *Group Cohesion - Social presence*

- Did you facilitate opportunities for students' collaboration in your course?
    - If yes, can you share an example of such an opportunity in your course?
    - If no, can you explain why students' collaboration is not an important component in your course?

Question #8. *Triggering event - Cognitive Presence*

- Do you think that students' interest is a necessary component for success in your course?
    - Were you able to design course activities that will foster students' interest in the course content?

Question #9. *Exploration - Cognitive Presence*

- Did you encourage students to expand their knowledge / skills beyond what you presented in the different course modules?
    - How did you help your students utilize a variety of information sources to explore the content?

Question #10. *Integration - Cognitive Presence*

- Was it important for you to foster your students' ability to construct their own understanding of fundamental concepts in your course?

Question #11. *Resolution - Cognitive Presence*

- Do you consider your course content to be relevant to your students required professional skill set?
    - If yes, can you help connect between the learning in your course and the professional skills they will be applying on the job?

Question #12. *General Closing*

- What assistance / training you could use in better ensuring that they can deliver a quality online teaching?
- If you had a choice to teach the same content in either f2f or online, what will be your preferred method? why?
- Do you have a recommendation to offer a faculty member who will be assigned to teach this course in an online format in the future?
- Do you have a recommendation to offer someone, as you did, who will have to transfer f2f course contents to an online setting?

Thank you so much for your time, patience, and detailed responses to my questions.

I will be contacting you again shortly to clarify any ambiguities in this interview if necessary and I will send you a copy of the interview transcript for review and confirmation of the information transcribed. Have a pleasant day.

Appendix E: Full Results of CoI Survey

Instructor CoI Survey Results

Item Number	*Stem*	*Strongly Agree*	*Agree*	*Neutral*	*Disagree*	*Strongly Disagree*
Q01	I clearly communicated important course topics.	2	4	0	0	0
Q02	I clearly communicated important course goals.	1	5	0	0	0
Q03	I provided clear instructions on how to participate in course learning activities.	3	3	0	0	0
Q04	I clearly communicated important due dates/time frames for learning activities.	4	2	0	0	0
Q05	I helped students identify areas of agreement and disagreement on course topics that helped them to learn.	0	4	1	1	0
Q06	I guided the class towards understanding course topics in a way that helped students clarify their thinking.	0	5	1	0	0
Q07	I kept students engaged and participating in productive dialogue.	0	3	1	2	0
Q08	I kept students on task in a way that they helped them to learn.	1	4	1	0	0
Q09	I encouraged students to explore new concepts in this course.	2	4	0	0	0
Q10	I reinforced the development of a sense of community among course participants.	1	2	1	2	0
Q11	I kept discussion focused on relevant issues in a way that helped students to learn.	0	4	0	1	1
Q12	I provided feedback that helped students understand their strengths and weaknesses relative to the course goals and objectives.	2	4	0	0	0
Q13	I provided feedback in a timely fashion.	3	1	2	0	0

Q14	I helped students to know one another in order to let them feel sense of belonging in the course.	1	1	2	2	0
Q15	I helped students form distinct impressions of some of other students.	0	2	0	4	0
Q16	I believed online or web-based communication was an excellent medium for social interaction.	0	1	3	2	0
Q17	I helped students to feel comfortable conversing through the online medium.	0	2	2	2	0
Q18	I helped students to feel comfortable participating in the course discussions.	0	2	2	2	0
Q19	I helped students to feel comfortable interacting with other students.	0	1	3	2	0
Q20	I helped students to feel comfortable disagreeing with others while still maintaining a sense of trust.	0	1	3	2	0
Q21	I helped students to feel that their point of view was acknowledged by other students.	0	1	3	2	0
Q22	I facilitated online discussions to let student to develop a sense of collaboration.	0	2	2	2	0
Q23	I posed probing questions to increase students' interest in course issues.	1	2	2	1	0
Q24	I designed course activities to activate student's curiosity.	1	4	0	1	0
Q25	I motivated students to explore content related questions.	0	5	1	0	0
Q26	I encouraged and guided students to utilize a variety of information sources to explore problems posed in this course.	2	2	1	1	0
Q27	I encouraged and guided students to find relevant	2	2	1	1	0

	information to resolve content related questions.					
Q28	I facilitated online discussions for helping students appreciate and value different perspectives.	0	2	1	3	0
Q29	I taught students to combine new information for answering questions raised in course activities.	1	5	0	0	0
Q30	I designed learning activities to help students construct explanations/solutions.	3	3	0	0	0
Q31	I facilitated reflection and discussions to help students understand fundamental concepts in this class.	2	3	0	1	0
Q32	I taught students to describe ways to test and apply the knowledge created in this course.	1	4	0	1	0
Q33	I taught students to develop solutions to course problems that can be applied in practice.	1	4	1	0	0
Q34	I taught students to apply the knowledge created in this course to my work or other non-class related activities.	1	4	1	0	0

Student CoI Survey Results

Item Number	*Stem*	*Strongly Agree*	*Agree*	*Neutral*	*Disagree*	*Strongly Disagree*
Q01	The instructor clearly communicated important course topics.	35	30	12	2	0
Q02	The instructor clearly communicated important course goals.	39	21	16	3	0
Q03	The instructor provided clear instructions on how to participate in course learning activities.	37	20	17	4	1
Q04	The instructor clearly communicated important due dates/time frames for learning activities.	42	22	12	2	1
Q05	The instructor was helpful in identifying areas of agreement and disagreement on course topics that helped me to learn.	29	34	16	0	0
Q06	The instructor was helpful in guiding the class towards understanding course topics in a way that helped me clarify my thinking.	31	30	9	8	1
Q07	The instructor helped to keep course participants engaged and participating in productive dialogue.	28	29	19	1	2
Q08	The instructor helped keep the course participants on task in a way that helped me to learn.	28	34	13	2	2
Q09	The instructor encouraged course participants to explore new concepts in this course.	26	33	18	1	1
Q10	Instructor actions reinforced the development of a sense of community among course participants.	32	26	17	3	1
Q11	The instructor helped to focus discussion on relevant issues in a way that helped me to learn.	29	30	15	5	0

Q12	The instructor provided feedback that helped me understand my strengths and weaknesses relative to the courses goals and objectives.	25	34	13	4	3
Q13	The instructor provided feedback in a timely fashion.	33	29	13	4	0
Q14	Getting to know other course participants gave me a sense of belonging in the course.	14	32	25	5	3
Q15	I was able to form distinct impressions of some course participants.	16	23	33	3	4
Q16	Online or web-based communication is an excellent medium for social interaction.	12	30	27	8	2
Q17	I felt comfortable conversing through the online medium.	13	40	22	2	2
Q18	I felt comfortable participating in the course discussions.	23	36	17	2	1
Q19	I felt comfortable interacting with other course participants.	19	35	21	3	1
Q20	I felt comfortable disagreeing with other course participants while still maintaining a sense of trust.	13	41	16	6	3
Q21	I felt that my point of view was acknowledged by other course participants.	19	33	22	4	1
Q22	Online discussions help me to develop a sense of collaboration.	9	37	24	8	1
Q23	Problems posed increased my interest in course issues.	15	37	23	4	0
Q24	Course activities piqued my curiosity.	21	35	20	3	0
Q25	I felt motivated to explore content related questions.	23	34	17	5	0
Q26	I utilized a variety of information sources to explore problems posed in this course.	27	33	18	1	0
Q27	Brainstorming and finding relevant information helped me resolve content related questions.	20	40	18	1	0

Q28	Online discussions were valuable in helping me appreciate different perspectives.	17	31	23	4	4
Q29	Combining new information helped me answer questions raised in course activities.	29	33	15	1	1
Q30	Learning activities helped me construct explanations/solutions.	25	35	17	2	0
Q31	Reflection on course content and discussions helped me understand fundamental concepts in this class.	23	30	23	3	0
Q32	I can describe ways to test and apply the knowledge created in this course.	21	43	13	2	0
Q33	I have developed solutions to course problems that can be applied in practice.	19	43	16	1	0
Q34	I can apply the knowledge created in this course to my work or other non-class related activities.	24	39	14	2	0

Appendix F: Descriptive Statistics of Student CoI Results

Course		TP	SP	CP	COI-All
A	Mean	4.37	4.30	4.08	4.25
(N=11)	Std. Deviation	(0.26)	(0.36)	(0.40)	(0.30)
B	Mean	3.74	3.57	3.68	3.67
(N=19)	Std. Deviation	(0.67)	(0.49)	(0.59)	(0.47)
C	Mean	3.25	2.94	3.72	3.30
(N=9)	Std. Deviation	(0.15)	(0.45)	(0.17)	(0.23)
D	Mean	4.70	3.89	4.46	4.35
(N=9)	Std. Deviation	(0.20)	(0.34)	(0.39)	(0.24)
E	Mean	4.20	3.57	3.90	3.89
(N=18)	Std. Deviation	(0.86)	(0.85)	(0.64)	(0.70)
F	Mean	4.47	4.02	4.24	4.24
(N=13)	Std. Deviation	(0.32)	(0.53)	(0.48)	(0.37)
Total	Mean	4.11	3.71	3.97	3.93
(N=79)	Std. Deviation	(0.70)	(0.67)	(0.56)	(0.56)

Appendix G: Internal Review Board Approval Letter

INSTITUTIONAL REVIEW BOARD

Mail: P.O. Box 3999
Atlanta, Georgia 30302-3999
Phone:404/413-3500

In Person: 3rd Floor
58 Edgewood
FWA: 00000129

April 30, 2020

Principal Investigator: Rachel Gurewicz

Key Personnel: Gurewicz, Rachel; Kim, Gi Cheol; Metzler, Michael

Study Department: Kinesiology & Health

Study Title: An Explorative Case Study on Instruction-Learning Alignment in Online Courses in Kinesiology

Review Type: Exempt Amendment

IRB Number: H19407

Reference Number: 360043

Approval Date: 02/26/2020

Status Check Due By: 02/25/2023

Amendment Effective Date: 04/28/2020

The Georgia State University Institutional Review Board reviewed and **approved** the amendment to your above referenced Study.

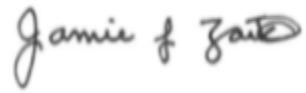
This amendment is approved for the following modifications:

- 1. We decided to change the title from "An Explorative Case Study on Instruction-Learning Alignment in Online Courses in Kinesiology" to "An Exploratory Case Study on Online Kinesiology Courses." 2. We would like to add one more data collection method. It is a semi-structured interview with students who enrolled in the online courses in kinesiology discipline. The interview will be individual interviews, be conducted via virtual online meeting using the GSU WebEx system, and take approximately 30 minutes. We designed and added the interview protocol for student interviews (please see the attached documents). As disseminating the informed consent, we will ask for research participation and responding to either or both of the online survey and the interview.3. We revised the interview protocol for instructors, which already has existed in the original plan. The revised questions are much consistent with the theoretical framework (the community of inquiry model) that we adopt for guiding this project.

The amendment does not alter the approval period which is listed above and a status update must be submitted at least 30 days before the due date if research is to continue beyond that time frame. Any unanticipated problems resulting from participation in this study must be reported to the IRB through the Unanticipated Problem form.

For more information, visit our website at www.gsu.edu/irb.

Sincerely,



Jamie Zaikov, IRB Member

Appendix H: Informed Consent

Georgia State University

Department of Kinesiology and Health

Informed Consent

Title: An Exploratory Case Study on Online Kinesiology Courses

Principal Investigator: Dr. Rachel Gurvitch (Gurewicz)

Co-Investigator: Dr. Michael Metzler

Student Principal Investigator: Gi-cheol Kim

Sponsor: Georgia State University Center for Excellence in Teaching and Learning (CETL)

Procedures

The purpose of this study is to examine the instructor-students alignment in online courses. You are invited because you teach an online course at Georgia State University. About six instructors will be asked to be in this study. If you choose to be in the study, you will take a 34-item online survey that asks about your online course experience (estimate time for survey completion is 15 minutes). In addition, you will also be asked to virtually meet for a semi-structured interview (Estimate time for interview completion is 30 minutes). The video conference call interview will focus on your course experiences and thoughts about the class. The video conference call interview will be recorded and conducted on a day of your choosing within the month of April and May 2020. Lastly, we will ask to access your Learning Management System (icollege online classroom) and collect data, such as Students' assignment submission, grades, contents existing the online learning management system (icollege), syllabus, etc. Hence, researchers request you to add them as auditors in your class.

Voluntary Participation and Withdrawal

It is up to you to be in this study. You do not have to be in this study. If you decide to be in the study and change your mind later, you can drop out. You may skip or stop answering questions at any time. Whatever you choose, you will not lose any benefits due to you.

Contact Information

Contact Dr. Rachel Gurvitch at 404-413-8374 and rgurvitch@gsu.edu if you have questions, concerns, or complaints about this study.

Consent

If you agree to be in this research and be audio recorded, please click the continue button.

Georgia State University

Department of Kinesiology and Health

Informed Consent

Title: An Exploratory Case Study on Online Kinesiology Courses

Principal Investigator: Dr. Rachel Gurvitch (Gurewicz)

Co-Investigator: Dr. Michael Metzler

Student Principal Investigator: Gi-cheol Kim

Sponsor: Georgia State University Center for Excellence in Teaching and Learning (CETL)

Procedures

The purpose of this study is to evaluate the instructor-students alignment in online courses. You are invited because you take an online course at Georgia State University. About two hundred students will be asked to be in this study. If you choose to be in the study, you will take a 34-item online survey that asks about your online course experience (estimate time for survey completion is 15 minutes). Your responses on the survey will not be shared with your instructors. In addition, you will also be asked to virtually meet for a semi-structured interview (estimate time for interview completion is 30 minutes). The video conference call interview will focus on your course experiences and thoughts about the class. The video conference call interview will be recorded and conducted on a day of your choosing within the month of April and May 2020. Lastly, we will ask your instructor for a permission to access the Learning Management System (icollege online classroom) data, such as log-in history, assignment submission, discussion posting, etc.

Voluntary Participation and Withdrawal

It is up to you to be in this study. You do not have to be in this study. If you decide to be in the study and change your mind later, you can drop out. You may skip or stop answering questions at any time. Whatever you choose, you will not lose any benefits due to you.

Contact information

Contact Dr. Rachel Gurvitch at 404-413-8374 and rgurvitch@gsu.edu if you have questions, concerns, or complaints about this study.

Consent

If you agree to be in this research, please click the continue button.

Appendix I: Tables and Figures for Chapter 1

Table 1-1. Search Terms

Phases	Terms
S1	"community of inquiry" OR "cognitive presence" OR "teaching presence" OR "social presence":TI, AB, KW
S2	"student learning" OR "learning outcome*" OR "learning process*"
S3	S1 AND S2

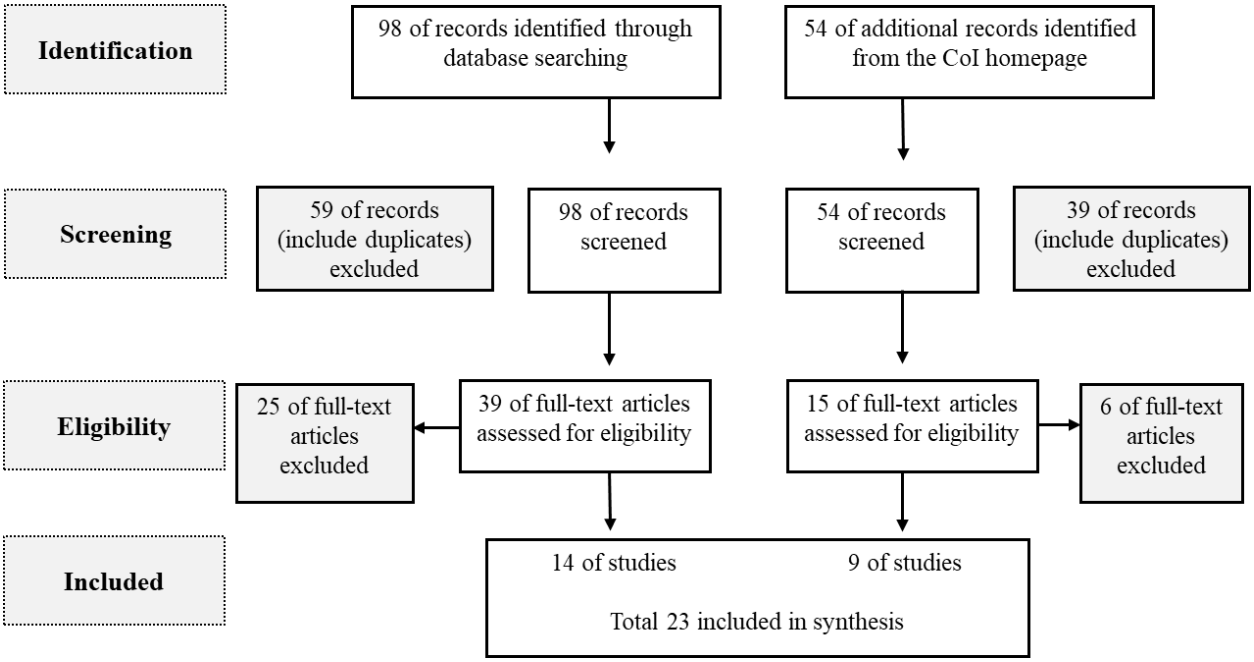


Figure 1-1. Search Flow

Table 1-2. Types of Online Courses by Educational Level

Educational Level	Asynchronous	Synchro-nous	Blended	Total
Undergraduate	9	2	3	14
Graduate	8	1	1	10
Professional Development	1	0	0	1
Total	18	3	4	25

Table 1-3. Distribution of Academic Disciplines

Category	Definition	Frequency
Pure-Hard	Cumulative; atomistic (crystalline/tree-like); concerned with universals; resulting in discovery/explanation	Mathematics: 1 Sciences: 1 (Total: 2)
Applied-Hard	Purposive; pragmatic (know-how via hard knowledge); concerned with mastery of physical environment; resulting in products/techniques	Engineering: 2 Computer Science: 2 Medical: 1 (Total: 5)
Pure-Soft	Reiterative; holistic (organic/river-like); concerned with particulars; resulting in understanding/interpretation	Social Sciences: 1 (Total: 1)
Applied-Soft	Functional; utilitarian (know-how via soft knowledge); concerned with enhancement of [semi-] professional practice; resulting in protocols/procedures	Education: 6 Business: 3 Nursing: 1 (Total: 10)

Sources: Arbaugh et al. (2010), Becher (1994), Biglan (1973), and Neumann et al. (2002)

Table 1-4 Categories of Learning Outcomes

	Learning process	**Learning product**
Subjective	meta-cognition, engagement, efficacy, self-regulation	satisfaction, perceived learning, self-reported achievement
Objective	time spent on task, frequency of tool use, number of postings, enrollment	grade point, exam score, assignment score, higher order thinking in SOLO* taxonomy

* Structure of Observed Learning Outcomes

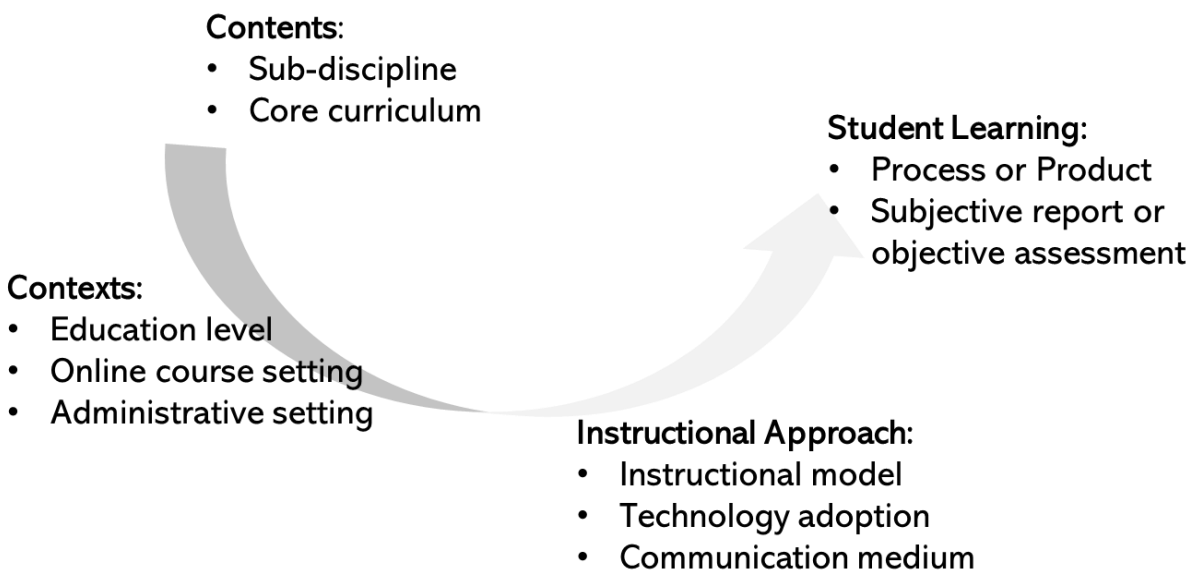


Figure 1-2. Conceptual Framework for Online Kinesiology Study

Appendix J: Summary of Papers in the Systematic Review

Author	*Education Level*	*Setting*	*COI Assessment*	*Components*	*Subject Area*	*Article Type*	*Learning Outcomes*	*Instructional Features*
Akyol & Garrison, 2011	Graduate	asynchronous	Content Analysis	All	Education	Quantitative	meta cog	COI, meta
Akyol, Vaughan, & Garrison, 2011	Graduate	synchronous	Content Analysis, CoI Survey	All	Education	Quantitative	satisfaction, perceived learning	length
Alman, Frey, & Tomer, 2012	Graduate	blended	CoI survey	All	Science	Quantitative	Attitudes and perceived satisfaction of students	organized formal learning cohort group vs. none
Borup, West, & Graham, 2012	Undergraduate	asynchronous	interview (analyze transcript via COI)	Social presence	Education	Qualitative	positive disposition	video tech
Boston et al., 2009	Undergraduate	asynchronous	CoI survey	All	not specified	Quantitative	Retention	large population size, coi
Cho & Tobias, 2016	Undergraduate	asynchronous	CoI survey	All	not specified	Quantitative	Learner time, satisfaction, achievement.	online discussion with/without instructor participant vs. no discussion

Daspit & D'Souza, 2012	Undergraduate	blended	CoI survey	All	Business	Mixed	General learning objectives.	on-line tool, a wiki, to a blended-learning course
Gutiérrez-Santiuste et al., 2015	Undergraduate	synchronous	CoI survey (modified)	All	not specified	Quantitative	Tool use frequency	finding correlations between the three elements / tools-chat, email, forum
Hostetter, 2013	Undergraduate	asynchronous	CoI survey	Social presence	not specified	Mixed	Classroom assessment technique measure	predict learning outcome by social presence
Joksimović et al., 2015	Graduate	asynchronous	Content Analysis	Social presence, Teaching presence	Computer	Quantitative	grade	high TP, low TP classes comparison
Joo, Lim, & Kim, 2011	Graduate	asynchronous	CoI survey	All	Computer	Quantitative	satisfaction, persistence	SEM, ease of use, usefulness, coi
Ke, 2010	Undergraduate, Professional Development	asynchronous	Content Analysis, CoI Survey	All	Nursing, Education, Business	Mixed	satisfaction, learning stages (Deep vs. Surface), sense of community	COI, online discussion, experienced teachers
Kovanovi et al., 2015	Graduate	asynchronous	Content Analysis, CoI Survey	Cognitive presence	Engineering	Quantitative	cognition	learner characters, clustering, analytics

Liu, Gomez, & Yen, 2009	Undergraduate	asynchronous	not COI survey, another SP instrument (108)	Social presence	Mathematics, Science, Business, English, History, and Psychology	Quantitative	Grade, retention	SP
Mackey & Freyberg, 2010	Undergraduate & Graduate	asynchronous	Others	Social presence	Engineering	Quantitative	Time spent on learning, exam score (cognitive learning) and satisfaction (affective)	loss of visual, audio, and satellite connection
Maddrell, Morrison, & Watson, 2017	Graduate	blended	CoI survey	All	Education	Quantitative	per-learning, satisfy, SOLO	Learning for COI (negative)
Nave, Ackerman, & Dori, 2017	Professional Development	asynchronous	Content Analysis, CoI Survey	All	Medical	Mixed	attitude	coi discourse
Pellas & Kazanidis, 2014	Undergraduate	synchronous	CoI survey	All	Social study, Computer, Economics, Engineering	Quantitative	Interest, com efficacy, aca-self-concept	Second life
Shea & Bidjerano, 2012	Undergraduate	blended	CoI survey	All	not specified	Quantitative	Self-regulation	xx, suggesting learning presence
Shea et al., 2011	Undergraduate	asynchronous	Content Analysis	All	Business	Quantitative	Higher order thinking (SOLO taxonomy), grade	SOLO taxonomy

Vaughan, 2010	Undergrad-uate	blended	CoI survey, inter-view	all	not specified	Mixed	engagement	Inquiry Through Blended Learning (ITBL) program
Yang et al., 2016	Graduate	asyn-chro-nous	CoI survey	All	not specified	Quantita-tive	grade, perceived learning	blog, predict learning
Zydney, deNoyelles, & Seo, 2012	Graduate	asyn-chro-nous	Content Analysis, interview	All	Education	Mixed	discussion score	online protocol vs. non

Appendix K: The Papers Included in the Systematic Review

Akyol, Z., & Garrison, D. R. (2011). Assessing metacognition in an online community of inquiry. *The Internet and Higher Education*, *14*(3), 183–190. https://doi.org/10.1016/j.iheduc.2011.01.005

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. https://doi.org/10.1080/10494820902809147

Alman, S., Frey, B., & Tomer, C. (2012). Social and Cognitive Presence as Factors in Learning and Student Retention: An Investigation of the Cohort Model in an iSchool Setting. *Journal of Education for Library & Information Science*, *53*(4), 290–302.

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. https://doi.org/10.1016/j.iheduc.2011.11.001

Boston, W., Diaz, S. R., Gibson, A. M., 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.

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. *International Review of Research in Open and Distributed Learning*, *17*(2), 123–140.

Daspit, J. J., & D'Souza, D. E. (2012). Using the community of inquiry framework to introduce wiki environments in blended-learning pedagogies: Evidence from a business capstone

course. *Academy of Management Learning & Education*, *11*(4), 666–683. https://doi.org/10.5465/amle.2010.0154

Gutiérrez-Santiuste, E., Rodríguez-Sabiote, C., & Gallego-Arrufat, M.-J. (2015). Cognitive presence through social and teaching presence in communities of inquiry: A correlational–predictive study. *Australasian Journal of Educational Technology*, *31*(3), 349–362. https://doi.org/10.14742/ajet.1666

Hostetter, C. (2013). Community Matters: Social Presence and Learning Outcomes. *Journal of the Scholarship of Teaching and Learning*, *13*(1), 77–86.

Joksimović, S., Gašević, D., Kovanović, V., Riecke, B. E., & Hatala, M. (2015). Social presence in online discussions as a process predictor of academic performance. *Journal of Computer Assisted Learning*, *31*(6), 638–654. https://doi.org/10.1111/jcal.12107

Joo, Y. J., Lim, K. Y., & Kim, E. K. (2011). Online university students' satisfaction and persistence: Examining perceived level of presence, usefulness and ease of use as predictors in a structural model. *Computers & Education*, *57*(2), 1654–1664. https://doi.org/10.1016/j.compedu.2011.02.008

Ke, F. (2010). Examining online teaching, cognitive, and social presence for adult students. *Computers & Education*, *55*(2), 808–820. https://doi.org/10.1016/j.compedu.2010.03.013

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. https://doi.org/10.1016/j.iheduc.2015.06.002

Liu, Y. S., 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.

Mackey, K. R. M., & Freyberg, D. L. (2010). The Effect of Social Presence on Affective and Cognitive Learning in an International Engineering Course Taught via Distance Learning. *Journal of Engineering Education*, *99*(1), 23–34.

Maddrell, J. A., Morrison, G. R., & Watson, G. S. (2017). Presence and learning in a community of inquiry. *Distance Education*, *38*(2), 245–258. https://doi.org/10.1080/01587919.2017.1322062

Nave, R., Ackerman, R., & Dori, Y. J. (2017). Medical Community of Inquiry: A Diagnostic Tool for Learning, Assessment, and Research. *Interdisciplinary Journal of E-Skills and Lifelong Learning*, *13*, 001–017. https://doi.org/10.28945/3632

Pellas, N., & Kazanidis, I. (2014). The impact of computer self-efficacy, situational interest and academic self-concept in virtual communities of inquiry during the distance learning procedures through Second Life. *World Wide Web*, *17*(4), 695–722. https://doi.org/10.1007/s11280-013-0266-9

Shea, P., & Bidjerano, T. (2012). Learning presence as a moderator in the community of inquiry model. *Computers & Education*, *59*(2), 316–326. https://doi.org/10.1016/j.compedu.2012.01.011

Shea, P., Gozza-Cohen, M., Uzuner, S., Mehta, R., Valtcheva, A. V., Hayes, S., & Vickers, J. (2011). The Community of Inquiry framework meets the SOLO taxonomy: A process-product model of online learning. *Educational Media International*, *48*(2), 101–113. https://doi.org/10.1080/09523987.2011.576514

Vaughan, N. D. (2010). A blended community of inquiry approach: Linking student engagement and course redesign. *The Internet and Higher Education*, *13*(1), 60–65. https://doi.org/10.1016/j.iheduc.2009.10.007

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. https://doi.org/10.1016/j.iheduc.2016.04.002

Zydney, J. M., deNoyelles, A., & 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. https://doi.org/10.1016/j.compedu.2011.07.009