The Physical Educator Vol. 76 • pp. 440–466 • 2019
https://doi.org/10.18666/TPE-2019-V76-I2-8837

PEDAGOGY

Study Habits and Learning Experiences of Undergraduate Students in a Physical Education Major Online Kinesiology Course

Takahiro Sato, Douglas W. Ellison, Emi Tsuda

Abstract

This study investigated undergraduate students' study habits and learning experiences in an online lifespan motor development course. The study was based on the theory of transactional distance. Seven undergraduate physical education majors enrolled in an online course at a Midwestern public university in the United States participated in this study. Data were collected via face-to-face interviews, e-mail communication, bulletin board discussion logs, computer-based quizzes and exams, and a research writing project. Four interrelated themes underpinned by the theory of transactional distance emerged. Data were interpreted through a constant comparative method including (a) transition from experiential to visual learning, (b) how to use a textbook in an online course, (c) computer-based test anxieties, and (d) social justice and diversity sensitivity. The ideal online course puts a set of student tasks (i.e., lectures, projects, and assignments) at the center of the course to constitute the learning experiences of students either independently

Takahiro Sato is an associate professor of Adapted Physical Education, School of Teaching, Learning, and Curriculum Studies, Kent State University. Douglas W. Ellison is an assistant professor of Physical Education, School of Teaching, Learning, and Curriculum Studies, Kent State University. Emi Tsuda is an assistant professor of Physical Education, College of Physical Activity and Sport Sciences, West Virginia University. Please send author correspondence to tsato@kent.edu

or collaboratively. Although the study was conducted in the context of the lifespan motor development online course, the recommendations can be applied across different content areas in the kinesiology field.

In the past decade, online learning has grown in popularity as a form of education being embraced at undergraduate and graduate levels. In the United States, approximately 5.5 million students took at least one online course in 2012 (U.S. Department of Education, 2014). This translates to nearly 33% of all students in higher education having enrolled in a minimum of one online course (Allen & Seaman, 2013).

In the field of kinesiology, numerous programs have transitioned to online platforms and have been developing places in the online education market (Bryan, 2014). This shift toward online courses has occurred primarily because of low enrollment in programs; more specifically, kinesiology programs have been identified as a "low completer" (i.e., they do not meet the requirements of the higher education institution) in the number of majors and content areas (e.g., physical education, sport management, athletic coaching, physiology, biomechanics, or motor behaviors; Bryan, 2014). Thus, modifying programs to an online format is often thought of as a catalyst that could attract more students in the academic majors.

Research suggests that online education can deliver outcomes similar to (Hollerbach & Mims, 2007; Navarro & Shoemaker, 1999) or greater than (e.g., Koory, 2003; Platt, Raile, & Yu, 2014) traditional face-to-face instruction. As with most educational practices, properly implemented online courses can positively affect student learning, while poorly implemented courses likely may not (Bernard et al., 2009). However, the effective approaches in online learning contexts have been revealed as distinctly different from the ones in face-to-face learning contexts. Thus, effective online education cannot be achieved simply through adapting the structure and modes of interactions of a face-to-face classroom environment; rather, cognitive expectations, instructional choices, and supportive practices need to be carefully reconsidered in online education (Peters, 2003). For example, in online learning, educators become facilitators at the center of an active learning environment, rather than the instructor of the content (Junco & Mastrodicasa, 2007). Because

of these differences, faculty and students in kinesiology often face frustration of transitions from face-to-face to online instruction. Therefore, while some researchers find online courses to be effective in promoting student achievement, other researchers have demonstrated better results from traditional face-to-face classes than online courses (Mentzer, Cryan, & Teclehaimanot, 2007).

However, considering the increased numbers of online courses, providing beneficial learning experiences and activities in online instruction is critical (Bryan, 2014). It has been claimed that the ideal online kinesiology course focuses on a set of student tasks (i.e., lectures, projects, and assignments) that constitute students' learning experiences in either independent or collaborative contexts (Carr-Chellman & Duchastel, 2000). Researchers have conducted studies examining effectiveness of online courses for undergraduate students (Sato & Haegele, 2018), graduate students, and in-service physical education teachers to deliver the contents of physical education/adapted physical education (PE/APE). These studies looked at participants' experiences (Sato, Haegele, & Foot, 2017b), participants' engagement (Sato & Haegele, 2017b), online course materials and content (Sato, Haegele, & Foot, 2017a), and graduate professional development (Sato & Haegele, 2017a) of those students. The results of these studies demonstrated that in-service physical education teachers had positive experiences of learning how to teach students with disabilities, and the online APE courses also helped participants store and access online reading materials and assessment tools (Sato et al., 2017a). The in-service teachers also believed that the online courses helped them develop strategies to improve the quality of APE classes at their own school districts (Sato et al., 2017b).

As such, research has begun to look at graduate students' and in-service physical education teachers' experiences in online coursework in APE contexts. However, few studies have looked at the effectiveness of online courses and materials or the experiences in online courses of undergraduate students outside of APE contexts. This is problematic because the findings in the prior studies in APE contexts with graduate students and in-service teachers may not be transferable to undergraduate students or other content areas in kinesiology (e.g., motor development, exercise sciences, biomechanics,

or physiology). Further, few guidelines regarding developing and implementing an appropriate educational experience for undergraduate students enrolled in online courses are available. Thus, experiences in other content areas with undergraduate students must be examined so that it can be determined if these content areas can be effectively and appropriately disseminated through online modalities (McFarlin, Weintraub, Breslin, Carpenter, & Strohacker, 2011).

Thus, this study investigated undergraduate students' study habits and learning experiences in an online lifespan motor development course. This course was selected because lifespan motor development is a common prerequisite for all kinesiology majors, and thus, the shift toward online education in this course affects a large number of undergraduate students in the kinesiology field. The research questions that guided the study included the following: What were undergraduate students' habits and experiences in the online lifespan motor development course? What are the differences between face-to-face instruction and online instruction? What learning strategies did the students utilize in the online lifespan motor development course?

The theory of transactional distance (Moore, 1997) underpins this study. It focuses on the physical distance between the teacher and students, which is inherent to distance learning. The theory explains that the physical distance between the teacher and students "leads to a communication gap, a psychological space of potential misunderstandings between the instructors and the learners" (Moore & Kearsley, 2005, p. 224). Further, it explains how teachers and students share "a transactional relation"; namely, the theory describes how they contribute to developing the learning experience and how they learn from each other (Rouse, 1991).

Transitioning from face-to-face to online course formats is challenging for teachers and students because their roles and responsibilities between these two learning contexts are significantly different (Anderson, Rourke, Garrison, & Archer, 2001). When transitioning from face-to-face to online learning contexts, teachers and students need to explore their new roles as teachers and learners (Dockter, 2016). Another challenge in online courses is the instructional materials and pedagogy a teacher uses. In the face-to-face

learning contexts, these play a role in the teaching process. However, in online courses, once materials have been uploaded to an online platform, teachers cannot always anticipate how students will interact with those materials; teachers do not know whether students read those reading materials, how students reacted to those readings, or how students' previous experiences influenced their understanding (Dockter, 2016). Therefore, in online teaching contexts, it is important that instructors bridge this "transactional distance" with students by using special teaching techniques (Moore & Kearsley, 2005).

Moore (1983, 2007) identifies three factors that determine the transactional distance: teachers, learners, and means of communication. Without any of these factors, no educational transaction occurs (Moore & Kearsley, 2005). Further, Moore (1983, 2007) identifies three variables that determine the level (high or low) of transactional distance: dialogue, structure, and learners' autonomy. Dialogue refers to what extent online course components can accommodate individual learners' needs (Moore & Kearsley, 2005), which also includes the instructional communication between teachers and students (Moore, 1993). Structure refers to the organization of the online course, such as delivery of the course (e.g., communication media and pedagogical approaches) and facilitation of dialogues between teachers and students (Moore, 1993). Learners' autonomy refers to learners' perceived sense of both independence and interdependence while they engage in the course. This intimately relates to a learner's sense of self-direction and self-determination, which are significantly influenced by the dialogues between instructors and students and the relationship between course materials and students (Giossos, Koutsouba, Lionarakis, & Skavantzos, 2009). Moore (2013) emphasizes the concept of learner's autonomy as a way of determining the transactional distance in the structure of the courses and dialogue dichotomy.

Collectively, the theory of transactional distance describes that teachers and learners participate in the shared experience of exploring a common world (Keegan, 1993). Learning happens through mutual sharing and negotiations between the teacher and learners. Further, the locus of control shifts from one to the others constantly through a feedback process, which Saba (2007) calls the "feedback

loop" (Gokool-Ramdoo, 2008). Learners who believe that the outcome of a situation is contingent on their own behaviors have a strong locus of control. Those who have a strong locus of control appear to have higher rates of task completion than those who have weaker locus of control (Parker, 2003). This is perceived to be a determinant of learners' self-efficacy and can have strong links with self-directed learning. Because of the inherent relatedness of the theory of transactional distance to online learning, this theory provides a critical underlying concept for understanding undergraduate students' online learning experiences.

Method

Research Design

This study adopted a descriptive-qualitative methodology using an explanatory case study design (Yin, 2003). Qualitative studies typically focus in depth on purposefully selected participants' perceptions, beliefs, or experiences, using relatively small samples, even a single case (n = 1; Patton, 2002). The main principle of the case study is to better understand complex educational and/or social phenomena and retain the holistic and meaningful particularities of real-life circumstances (Yin, 2003). Thus, an explanatory case study is appropriate for the purpose of this study, which explores undergraduate students' experiences in an online lifespan motor development course.

Settings

Participants were undergraduate students enrolled in an online lifespan motor development course at a Midwestern university in the United States. This is a mandatory course for several programs of study in the university. This online course prepares students to investigate the parameters of physical growth and development, continuing with motor skill acquisition, and progressing to correlates of motor development. While several sessions are offered in the semester, the participants of this study were selected from one session. Twenty-five students from different programs of study enrolled in this online lifespan motor development course, and the course was taught by the primary researcher. The course lasted 15 weeks, with 15 sessions each semester.

Participants

After the institutional review board from the primary researcher's institution approved the study, the study was initiated. Participants were contacted via e-mail by the primary researcher and were asked to voluntarily participate in this study. Seven students (5 females, 2 males; Katheryn, Nina, Ashley, Vicki, Katie, Zack, and Chuck) in the online course agreed to participate in the study. Pseudonyms were assigned to all participants for anonymity of the findings. While 25 students in this class studied areas such as exercise and physiology, special education, and occupational therapy, this study focused on physical education majors' learning experiences. Therefore, the primary researchers asked all seven students in this study, who were from a physical education major, about their learning experiences. Generally, the students in the physical education major are in the first or second year of the program, and those students often seek to enroll in the physical education teacher education program when they determine their major in their third year of the program. All participants provided permission for the researchers to use data from two interviews with the lead researcher, several assignments (e.g., bulletin board discussion logs and research writing projects), and e-mail communication. No participants had any experiences with online kinesiology-related courses prior to enrolling in the lifespan motor development course.

Data Collection

Data were collected from face-to-face interviews, e-mail communication, bulletin board discussion logs, computer-based quizzes and exams, and a research writing project. The theory of transactional distance (Moore, 1997) suggests course instructors should consider and provide learning opportunities that are not isolated events in time. Therefore, we believe that these data sources must connect what students have learned from learning experiences to the future.

Face-to-face open-ended interviews. According to Yin (2003), the researcher has two roles in conducting interviews: (a) to follow the interview case study protocol and (b) to ask the participants factual (conversational) questions. Using a face-to-face interview approach, the lead researcher asked participants factual questions

and their opinions of online content, technology, learning tools, and academic experiences associated with their perception of the online course. Examples of questions included (a) How do you describe your learning experiences and outcomes of online lifespan motor development course? (b) In what ways could online lifespan motor development courses serve your educational needs? (c) How did the amount of coursework in your online lifespan motor development compare with traditional in-class instruction? The questions were carefully worded, which ensured relevancy to the study (Yin, 2003). Two face-to-face interviews were conducted for 60 to 90 min per interview with each participant during her or his midterm and final exam weeks.

Bulletin board peer discussion log. Every other week bulletin board peer discussion logs were analyzed and student experiences of the online course explored.

Students used the online discussion to enhance their learning through sharing ideas and resources with peers, reflecting deeply on learning motor development content, and assessing multiple perspectives to expand their thinking and understanding of theory and practices (Agee & Smith, 2011). At the same time, it is important that the online course instructor respects different ways of approaching involvement in bulletin board discussions (Du, Zhang, Olinzock, & Adams, 2008). The online instructor's tasks, prompts, and feedback should be properly structured so that all students can engage in higher order thinking and critical thinking skills (Mauriano, 2006). The information exchanged in the online discussions should move beyond surface-level information (Agee & Smith, 2011).

For the purpose of the study, the questions of the bulletin board discussion logs were revised from the original versions developed by Yang and Cornelius (2004), Sato et al. (2017b), and Sato and Haegele (2017a). The answer for each question was limited to two paragraphs maximum (100–150 words) and was submitted as a bulletin board discussion post on the course webpage. Participants were also required to write comments and feedback on classmates' posts.

Computer-based quizzes and exams. Quizzes and exams were utilized as a way of evaluating the students' learning outcome of module content, taught every other week, of the lifespan motor development course. Three exams consisted of 40 items and five quizzes

consisted of 10 items including true and false, multiple choice, fill in the blank, short answer, and one essay. All answers were recorded on Microsoft Word documents and submitted through blackboard systems. Students were allowed 2 hr to complete exams and 1 hr to finish quizzes. The instructor graded the exams and quizzes manually, and students received feedback and comments, along with correct answers, on their exams and quizzes.

Research writing assignments. A motor development portfolio was used as a way of assessing undergraduate students' research writing skills within their online course. Students reviewed journal articles in the context of motor development. Instructors proofread and gave feedback for first and second drafts of literature reviews. Students also wrote about their experiences accessing an electronic library of data-based and practical journals, graphics, images, and/or video clips. They selected articles from journals such as the *Journal of Physical Education, Recreation and Dance*; *Strategies*; and *Research Quarterly for Exercise and Sport*. Students chose topics including the theory of motor development, skill analysis of motor development, developmental delays of students with disabilities, or exercise science and motor behavior. The instructor read the reports, provided feedback, and allowed undergraduate students to revise materials before they uploaded their final research writing assignments to the blackboard system. The reports of these research writing assignments demonstrated students' learning progress during their online course experiences.

Data Analysis

Data were interpreted through a constant comparative method (Boeije, 2010), which allowed themes to emerge. Data analyses were completed in seven steps. First, the first and second authors independently coded the first set of interviews to extract potentially meaningful pieces of data in the transcripts. For differences, they discussed the data until agreeing on the themes. Second, the first author analyzed the second set of interviews, the bulletin board peer discussion logs, and research writing assignments, and then the second author checked the findings. Third, the researchers conducted a second round of coding to detect key terms in the transcript data. Some codes were combined during this process, whereas others were split into subcategories (subthemes).

Fourth, two peer debriefers reviewed the codes to avoid potential researcher biases. Coded data from each participant were compared and similarities and differences in key terms identified. Fifth, the researchers examined the final codes and organized them into a hierarchical structure by individual and group coding percentage. Sixth, all data and definitions of key terms were sent back to all participants for a second round of member checking for final confirmation. Last, the researchers grouped the codes into thematic categories, which they then refined into recurring themes (Boeije, 2010).

Trustworthiness

Trustworthiness of the findings in the study were secured through triangulation, member checking, and peer debriefing. Triangulation involves the use of multiple resources for evaluating the accuracy of the data (Merriam, 1998). In this study, four data resources (i.e., face-to-face interviews, bulletin board discussion logs, computer-based quizzes and exams, and a research writing project) were utilized for triangulation. Member checking reduces the effect of subjective bias with participants being asked to acknowledge the accuracy of the data (Patton, 2002). In this study, the researcher sent copies of the analyzed themes from the assignments, online peer discussions, and transcribed interview data to the participants and asked them to verify the accuracy of the findings. Peer debriefing involves data analysis not only by the inquirer's implicit mind but also by a distinguished peer, who separately analyzes the data (Patton, 2002). In this study, two debriefers reviewed the codes from the transcribed interview data in the data analysis.

Results

Across the four data sources, four interrelated themes underpinned by the theory of transactional distance emerged (Moore, 1997). Those included (a) transition from experiential to visual learning, (b) how to use a textbook in an online course, (c) computer-based test anxieties, and (d) social justice and diversity sensitivity.

Transition From Experiential to Visual Learning

The first theme that emerged was the concerns in the transition from experiential to visual learning. All participants expressed

anxiety about transitioning from experiential to visual learning in the online course format. They were concerned about their instructor's visual use of video clips, photo images, and slideshow presentations in the lectures, written assignments, and discussion assignments. In the face-to-face courses, with which the participants had experience (i.e., the invasion games or the target games course), they had experiential learning opportunities in pedagogy, assessment, and evaluation of children's movements. Experiential learning can direct students' attention toward motor skills and relevant pedagogy on professional and resource relations (Knop, Tannehill, & O'Sullivan, 2001). One male participant, Zack, said,

> Differences of face-to-face and online kinesiology courses were that my course instructor helped [me] to assess what and how to observe children's motor skills during game courses. I think that kinetic learning experiences were helpful to gain knowledge and skills when I teach and coach motor skills [that were developmentally age appropriate for children]. (Interview)

Zack also said,

> Online course format was convenient, but I had to have good writing skills for explaining what and how to observe motor skills. I also did not receive instant feedback of how to teach and coach in [a] timely manner. I was afraid of making mistakes in online courses and I had to become an independent learner who could solve learning barriers in [an] online course. (Interview)

Another participant, Katheryn, posted and shared that she had some challenges with video analysis of locomotor and object control skill assessment:

> I had to assess and evaluate elementary children's locomotor and object control skills through watching video clips. I am [a] kinetic learner, so I can move and change my standing positions, find appropriate positions (standing or knee down), and evaluate children's motor skills, but in video clips, I could review and evaluate their performance from only one

> angle. That was a challenge. The benefit of video clips, I could rewind and forward using slow motion analysis. (Bulletin Board)

Katheryn felt that face-to-face and online course formats had advantages and disadvantages. She also mentioned, "I should not compare pros and cons with face-to-face and online courses, but it was important that the instructor had clear expectations and predicted our learning outcomes from this online course" (E-Mail Communication). She believed that the physical separation of learners and teachers profoundly affects teaching and learning.

How to Use a Textbook in an Online Course

The second theme that emerged was the changes in using a textbook in an online course. Participants struggled to use the course textbook in the online course, because the instructor did not follow learning goals, key components, and terminology from the textbook, because he believed that the textbook was not designed for an online course format. The students believed that the textbook may become less effective in an online course than in a lecture course. However, participants relied on the textbooks for test preparation, research writing projects, or video assessment analysis. In contrast, the students appreciated that the instructor uploaded several supplemental reading materials (practical teaching articles of how to teach children motor skills from the *Journal of Physical Education, Recreation, and Dance* and *Strategies*) that helped their learning. Vicki explained,

> I had a hard time [using the] motor development textbook, because in face-to-face courses, [the] instructor could stop their lectures and re-explain the concepts. This means that he or she could check for understanding based on observing students' facial expressions, but in this online course, the instructor could not do [that]. (Discussion Log)

Vicki also had concerns about her online course:

> I could not ask questions about chapter contents to [the] online course instructor. Then, I kept reading and problems were remaining and unsolved. I was less motivated to read the textbooks. On the other hand, supplemental reading

> materials were great, because they included short, concise charts and graphs that were helpful for my learning experiences. (Interview)

Vicki felt that the textbook was not designed for the online course. She believed that supplemental reading materials or open-access reading materials are helpful for online courses. Similarly, Chuck explained,

> I used the textbook when I had to work on quizzes, exams, and research writing projects. I used it, because I did not want to miss any information on quizzes and exams as well as research projects. I think our textbook was difficult to use in the online course, because kinesiology courses must be practical, but the textbook was written in the forms of history, model, and theory. I feel PowerPoint lectures already covered [that] information. I am less motivated to read [a] textbook in the online course, but again I [used] it, because of my exam, quizzes, and research projects. (Interview)

Chuck also said, "If I understood concepts and terminology from reading the textbooks, I do not think I [would] need [the] course instructor" (Interview). In this interview, he suggested that the online course instructor may need to decide if students should achieve similar or different learning goals and objectives in online and face-to-face courses. Another participant, Ashley, was concerned that students would have lower academic writing skills if the course instructor did not require them to read the textbook, because she believes that reading would result in improving writing skills. She said, "I think I [improved] my writing skills through reading the textbook. I am sure that many students struggle to overcome their low academic writing skills" (Interview).

Computer-Based Test Anxieties

The third theme that emerged was the students' anxieties of computer-based tests. Students were extremely nervous about taking midterm online exams. They had debilitating text anxiety with symptoms including an inability to concentrate, a fast heartbeat, and headaches. They also had difficulty controlling calm breathing and positive thoughts while they were taking exams, because they tended

to overanalyze questions. When the students wanted to ask questions to the course instructor, they did not know how to formulate their questions. Nina said,

> When I was taking online exams, I was allowed to use my notes and textbooks, but when I saw the exam format, there were true and false questions, matching, [fill in the blanks], short answers, and essay questions. I had to demonstrate my memory skills, critical thinking, and application of knowledge. (Interview)

Nina said that it was difficult to answer some questions of online exams:

> That was tough and I was nervous about answering questions, especially short answers and essay question. These questions were 25% to 30% of [the] total grade. I had extra pressure that I had to answer them correctly, but when I was answering, I was not sure my answers were in a right track or not. I wanted to ask the course instructor, but I had to submit it before the deadline, so I was unable to do. This was quite a challenge of [the] online course that I did not know how to control my anxiety. (Interview)

Nina overanalyzed some short-answer questions and lost a few points from the answers. She said, "It did not mean that I did not know, but my anxiety and nervousness negatively caused my test results" (Interview). She learned that it would be helpful if the course instructor posted exam-taking tips for completing an online test successfully. Another participant, Katie, said,

> I struggled to manage time periods. I only had two hours to complete exams. It depends on how fast I executed questions. I felt that short-answer and essay questions would take more time, I wanted to reread sentences and make some edits before the submission. That made me more anxious and nervous during the exams. One exam covered five to six different chapters and the course instructor showed me to use textbooks and PowerPoints, but if I began to use them, I would lose time, and would not be able to answer some questions. That was tough. (Interview)

Katie explained that the time limit during the online exams caused her anxiety. Upon reviewing her test results, she noticed that she repeatedly rephrased definitions of terminology on a few occasions in the essay question.

Social Justice and Diversity Sensitivity

The fourth theme that emerged was students' concerns about social justice and diversity sensitivity (what and how to communicate with other classmates) in the online course. They reported their concerns because they did not know anything about their classmates' ethnicity, culture, geographical location, and academic backgrounds. They were afraid that they may offend others by positing their own norms and opinions about motor skills, sport, culture, and behavior based on their backgrounds. One example in the discussion board was that Chuck unintentionally posted his comment about stereotypes regarding White- and African American–dominant sports. Chuck and other participants felt that undergraduate students must be sensitive to social justice and diversity issues, or otherwise they might unintentionally disrespect others' equity and equality and adversely affect other classmates' feelings and emotions in the online course. Chuck explained,

> I posted in the discussion board that African American athletes have natural skills of power, agility, and strength. My post [included] my stereotype viewpoints. One of [my] female classmates pointed out that my comments were not culturally sensitive. I realized that that female classmate was African American, I recognized based on her first name. It is hard to identify who read my posts and comments. I was too sensitive and did not want to be rude to others' emotions. (E-Mail Communication)

Chuck agreed that he had limited social justice and diversity context-specific knowledge of African American students. Katheryn also said,

> In online course, I had to understand something invisible behind the scene of online courses. I never knew or understood my classmates' appearance, academic backgrounds, majors, and communication patterns. I had to assess students' gender,

> academic majors, and cultural backgrounds. No one told me about how to become sensitive. (Interview)

Katheryn also explained,

> I had to analyze my classmates and used my imagination before replying [to] my classmates' posts. That was quite [challenging]. I had to try to see something invisible about other classmates. Online or cyber communications were [a] very unique format compared to face-to-face situation. I started to think about how to respect human diversity from this course. (Interview)

In the writing assignments, participants were required to answer, for example, the question, "You are a physical education teacher. You teach fitness. One of your boy students is an international student from the Middle East and practices Ramadan (not allowed to eat and drink in a daily fast from sunrise [Sahur] to sunset [Iftar], which lasts between 28 and 30 consecutive days). How do you treat this student? Do you require him to participate in fitness activities? If he does not, what grade (A, B, C, D, F) do you give?" Participants studied this controversial case using online research, an e-reserve library search, and state educational law and regulations from the state department of education website. Zack described,

> It was difficult to answer these questions in [a] writing assignment. I felt that there were no right and wrong answers, but I had to explain my justification and rationale of why I took actions. I think these questions were so important, but I began to think about how the online course instructor responded. I checked many websites, read articles, and did research studies. I think social justice and diversity topics were so important for this course. I thought that this course is about motor skills and analysis. I think it is more than that. (Interview)

Zack explained that the lifespan motor development course consisted of scientific learning components such as kinetic terminology, physical and physiological growth, and a medical model. However, he felt that it was important for the online course instructor to

provide assignments that required students to demonstrate critical thinking in the course.

Discussion

This study investigated undergraduate students' study habits and learning experiences in an online lifespan motor development course. Four themes emerged across the four data sources: (a) transition from experiential to visual learning, (b) how to use a textbook in an online course, (c) computer-based test anxieties, and (d) social justice and diversity sensitivity.

Reconstructing the Roles of Teachers and Learners Is Essential

The first theme, transition from experiential to visual learning, illustrated that the students had difficulties transitioning from experiential learners to visual learners, and they felt that they were left to determine their new role as the online learners and how to perform that role within the online space. In previous face-to-face kinesiology courses, these students had experiential learning (e.g., assessing other students' game performance) that helped them connect with the subject matter in ways that cannot be done through textbooks or lectures alone (Wright, 2000). Plus, the students had a clearer sense of the roles that teachers and students should play in face-to-face courses than they had in the online course. These physical education majors agreed that the online course included four components: (a) *performance*: views, estimated minutes watched, subscriber; (b) *engagement*: audience, retention, comments, shares, and favorites; (c) *demographics:* geographies; and (d) *discovery:* location or sources in motor skills and chapter introductory video clips, slideshow presentations, and images.

Based on the theory of transactional distance, when the online course instructor includes multimedia in online teaching, the transactional distance can get higher (Moore, 2013). For example, in this study, the instructor (primary researcher) believed that implementing short chapter introduction videos into the online lifespan motor development course seemed useful at decreasing the distance with students. However, prerecorded videos increased the distance between online course instructor and students because online course teaching was highly structured and included minimal teacher–learner dialogue (Moore, 2013).

Korkut, Dornberger, Diwanji, Simon, and Marki (2015) suggest that visual images and videos can be connected to online course assignments. Students can rewatch the same video many times while taking notes. In addition, the use of video and images for reviewing, analyzing, and discussing critical aspects of motor skills can facilitate an expansion of experiential learning and professional (coaches, instructors, and therapists) vision (Lewis, Moore, & Nang, 2015). In fact, the students in this study found that the video assessment analysis assignment helped them improve their video-reflective practices and observational skill development. The objective of this practice was for the students to understand why they screen and monitor a child's gross motor skills the way they do, to shake off any constraints to video assessment, and to produce new perspectives into students' learning experiences (Palloff & Pratt, 2009).

Use of a Textbook Needs to Be Reconsidered

The second theme, how to use the textbook in an online course, showed that all participants in the study were uncertain about how to use their textbooks in the online course. They relied on the online course instructor's slideshows and supplemental materials more than the textbook as sources of knowledge (Murden & Gillespie, 1997). This might have been because they did not have sufficient time to complete the reading tasks or did not have the skill to do so (Clump, Bauer, & Bradley, 2004).

The students perceived that they would learn more in an online course module when the textbook was not the central element (Marek & Christopher, 2011). They only tended to skim through their textbook at least once a week. They acknowledged that the online course would be more enjoyable and less difficult if supplemental readings were the main source of course content, as opposed to a traditional textbook. When distance increases between online course instructors and students, students may choose not to read textbooks because (a) they lack interest in the class, (b) they may have had bad experiences with past online general required courses, (c) they may believe that reading the textbook is not worth their effort, or (d) they may not have developed good strategies for reading and using textbooks in online courses (Moore, 2013). The theory of transactional distance claims that in the face-to-face class, providing students with opportunities to ask questions or to see other students asking

questions can decrease the relational distance between teacher and student (Dockter, 2016). However, in the online learning environment, those opportunities are lacking, which results in an increased transactional distance between the instructor and students.

Hence, it is crucial for instructors of online courses to use technologies and active learning techniques to engage students and promote learning. Further, in online learning environments, instructors need to consider the use and the role of textbooks in facilitating students' learning (Murden & Gillespie, 1997). In general, undergraduate students are more likely to complete their readings if the instructor has them take a quiz or exam to check for their understanding, rather than telling them that they would benefit professionally from the knowledge in the textbook (Marek & Christopher, 2011). In fact, one study indicated that a third of the undergraduate students completed the required readings and showed a lack of intrinsic motivation for reading textbooks in online courses (Clump et al., 2004). Thus, in online courses, developing systems that make students accountable of their learning is critical.

Different Options for Exams Are Recommended for Different Learning Styles

The students felt that online exams were intimidating. They wrestled with a concerning fear during the exams without having anyone to share their feelings with (Clair, 2015). Test anxiety comprises affective (psychological arousal and emotionality), cognitive (worry), and behavioral (procrastination and avoidance) components, which together may interfere with academic achievement (Zeidner, 1998). These anxiety components adversely affected individuals and impaired their performance when they used a computer system (Schult & McIntosh, 2004).

Moreover, in this study, the instructor used only a standard format of the online exams with a 2-hr time limit. The students were allowed to take the exams when they felt ready to take them, and thus, the students had a freedom to determine when to take the exams (Hartley & Nicholls, 2008). However, the number of memory retrieval cues available to students declined, and this offset any performance gains (context-dependent memory effect). It is common that instructors of online courses fail to realize the value of developing multiple ways that students can access the exams of online courses

(Dockter, 2016). Hence, instructors' effective communication and providing multiple ways for assessing students' understanding could increase students' learning (Moore, 1993).

Understanding of Social Justice and Diversity Sensitivity Need to Be Addressed

Through the online platform, these physical education majors learned the concepts of social justice, diversity, leadership, and civic engagement by participating in the writing assignment and bulletin board discussion and communication. They believed partnering up with classmates from different cultural backgrounds (e.g., race, ethnicity, and gender) to support each other's learning through sharing perspectives, clarifying questions, and sharing responsibilities (i.e., partner-sharing learning) enhanced their own learning (Ukpokodu, 2008). However, some students explained that they faced challenges related to social justice and diversity sensitivity through the online course. This is not surprising considering some students have not been exposed to wide variety of social justice and diversity issues nor have they cultivated the cognitive and relational abilities necessary for identifying and interpreting key experiences that become essential to their learning (Guthrie & McCracken, 2010).

Related to these challenges, online courses are especially challenging because students typically do not know each other (Oblinger, Barone, & Hawkins, 2001). In addition, typically there is no single checklist for evaluating students' learning outcomes through their viewpoints, values, and needs of the online course. Therefore, providing opportunities for students to critically reflect their assumptions and beliefs is essential in online learning contexts (Mezirow, 2000). Specifically, the online technologies (e.g., the form of social networks or blackboard, e-library) and available resources (e.g., open-access resources, videos) to be accessed throughout the semester need to be reconsidered (Guthrie & McCracken, 2010).

Overall, the students faced some challenges in transitional learning experiences from experiential (i.e., face-to-face instruction) to visual (i.e., online instruction) learning including the use of the textbook, anxiety of online exams and quizzes, and the lack of social interactions. However, the participants believed that the online courses helped them learn to use new technologies and online supplemental reading materials (how to access and store) that

would help their future teaching and coaching. Further, the students believed that the online courses helped them develop their time management skills, critical thinking skills, and application of their knowledge and skills to future teaching and coaching settings. As the theory of transactional distance describes, the findings of this study further support the transactional relation between teachers and students in online learning environments (Rouse, 1991).

Recommendations

The undergraduate students in this study faced new challenges and experiences in the online lifespan motor development course. The students raised several concerns. Based on those concerns, four recommendations for enhancing the quality of online course experiences for undergraduate students are given.

First, the online course should adopt learner-centered activities, such as group activities. As one of the students pointed out, experiential activities play a critical role for students' learning. Thus, adopting learner-centered activities that students can physically engage in would help them to understand course content (Kaifi, Mujtaba, & Williams, 2009). Further, with these types of experiential activities (a group assessment of motor skill analysis), students could determine how to work together within their group (Hannafin, Hannafin, & Gabbitas, 2009). By exchanging ideas as they progress through the exercise, they can understand course material more thoroughly and develop meaningful engagements with peers.

Second, instructors who teach online courses should provide extensive feedback or guidance before students take exams. As the students explained, they faced anxieties when taking quizzes and exams in the online setting. Further, they described that additional guidance could be helpful. Thus, providing extensive feedback and/or guidance before students take quizzes and exams is recommended.

Third, instructors should consider providing students options on testing environment, such as either online or in a classroom. In the study, the students explained their emotional challenges of taking quizzes or exams online. Considering that students' performance could be better when they experience normal emotion than when they are under pressure, providing different options of the test environment could create an inclusive environment for different types of learners.

Last, instructors of online courses should provide opportunities for students to collaborate with other students and reflect on it (Palloff & Pratt, 2009). As reported, the students face challenges relative to social justice and diversity among their peers in the study. Sujo de Montes, Oran, and Willis (2002) suggested, "As online courses become more culturally diverse . . . it is not safe to ignore issues of race, ethnicity, and power, because the students are not physically visible" (p. 268). Thus, instructors in online courses should pay attention to social justice and diversity aspects in courses within the context of technologies.

Conclusions

The results and subsequent recommendations in this study are intended to improve students' learning during online courses. This study found that the instructor needs to explain how students could improve on assignments. Students believed that feedback is a useful tool that develops cognitive understanding, motivation, engagement, and interpersonal connections (Mandermach, Gonzales, & Garrett, 2014). It not only helps students learn online, but also keeps them motivated, engaged, and connected to the online course. The ideal online kinesiology course focuses on a set of student tasks (i.e., lectures, projects, and assignments) that constitute the learning experiences of the students either independently and/or collaboratively (Carr-Chellman & Duchastel, 2000). Although the study was conducted in the context of the lifespan motor development online course, the recommendations are applicable across different content areas in the kinesiology field.

References

Agee, J., & Smith, S. U. (2011). Online discussion in a doctoral research course: 'Like a text by many authors'. *Studies in Continuing Education, 33*, 301–319. https://doi.org/10.1080/0158037X.2010.515574

Allen, I. E., & Seaman, J. (2013). *Changing course: Ten years of tracking online education in the United States*. Retrieved from the Babson Survey Research Group website: http://www.onlinelearningsurvey.com/reports/changingcourse.pdf

Anderson, T., Rourke, L., Garrison, D., & Archer, W. (2001). Assessing teaching presence in a computer conferencing context. *Journal of Asynchronous Learning, 5,* 1–17.

Bernard, R. M., Abrami, P. C., Borokhovski, E., Wade, A., Tamim, R., Surkes, M. A., & Bethel, E. C. (2009). A meta-analysis of three interaction treatments in distance education. *Review of Educational Research, 79*, 1243–1289. https://doi.org/10.3102/0034654309333844

Boeije, H. R. (2010). *Analysis in qualitative research*. London, United Kingdom: Sage.

Bryan, C. (2014). Approaches to delivering online programs in kinesiology. *Kinesiology Review, 3*, 200–208. https://doi.org/10.1123/kr.2014-0056

Carr-Chellman, A., & Duchastel, P. (2000). The ideal online course. *British Journal of Educational Technology, 31*, 229–241. https://doi.org/10.1111/1467-8535.00154

Clair, D. (2015). A simple suggestion for reducing first-time online student anxiety. *MERLOT Journal of Online Learning and Teaching, 11*(1), 129–135.

Clump, M. A., Bauer, H., & Bradley, C. (2004). The extent to which psychology students read textbooks: A multiple class analysis of reading across the psychology curriculum. *Journal of Instructional Psychology, 31,* 227–232.

Dockter, J. (2016). The problem of teaching presence in transactional theories of distance education. *Computer and Composition, 40,* 73–86. https://doi.org/10.1016/j.compcom.2016.03.009

Du, J., Zhang, K., Olinzock, A., & Adams, J. (2008). Graduate students' perspectives on the meaningful nature of online discussion. *Journal of Interactive Learning Research, 19*(1), 21–36.

Giossos, Y., Koutsouba, M., Lionarakis, A., & Skavantzos, K. (2009). Reconsidering Moore's transactional distance theory. *European Journal of Open, Distance, and E-Learning, 2009*(2), 1–6. Retrieved from http://www.eurodl.org/?p=archives&year=2009&halfyear=2

Gokool-Ramdoo, S. (2008). Beyond the theoretical impasse: Extending the applications of transactional distance theory. *International Review of Research in Open and Distance Learning, 9*(3), 1–17. https://doi.org/10.19173/irrodl.v9i3.541

Guthrie, K. L., & McCracken, H. (2010). Teaching and learning social justice through online service-learning courses. *International Review of Research in Open and Distance Learning, 11*(3), 78–94. https://doi.org/10.19173/irrodl.v11i3.894

Hannafin, M. J., Hannafin, K., & Gabbitas, B. (2009). Re-examining cognition during student-centered, Web-based learning. *Educational Technology, Research, and Development, 57,* 767–785. https://doi.org/10.1007/s11423-009-9117-x

Hartley, J., & Nicholls, L. (2008). Time of day, exam performance, and new technology. *British Journal of Educational Technology, 39*, 555–558. https://doi.org/10.1111/j.1467-8535.2007.00768.x

Hollerbach, K., & Mims, B. (2007). Choosing wisely: A comparison of online, televised, and face-to-face instructional methods on knowledge acquisition of broadcast audience concepts. *Journalism and Mass Communication Educator, 62,* 176–189. https://doi.org/10.1177/107769580706200205

Junco, R., & Mastrodicasa, J. (2007). *Connecting to the Net generation: What higher education professionals need to know about today's students.* Washington, DC: NASPA.

Kaifi, B., Mujtaba, B., & Williams, A. (2009). Online college education for computer-savvy students: A study of perceptions and needs. *Journal of College Teaching and Learning, 6,* 1–16.

Keegan, D. (Ed.). (1993). *Theoretical principles of distance education.* London, United Kingdom: Routledge.

Knop, N., Tannehill, D., & O'Sullivan, M. (2001). Making a difference for urban youths. *Journal of Physical Education, Recreation, and Dance, 72*(7), 38–45. https://doi.org/10.1080/07303084.2001.10605785

Koory, M. A. (2003). Differences in learning outcomes for the online and F2F versions of "An Introduction to Shakespere." *Journal of Asynchronous Learning Networks, 7,* 18–35.

Korkut, S., Dornberger, R., Diwanji, P., Simon, B., & Marki, M. (2015). Success factors of online learning videos. *International Journal of Interactive Mobile Technologies, 9*(4), 17–22. https://doi.org/10.3991/ijim.v9i4.4460

Lewis, A., Moore, C., & Nang, C. (2015). Using video of student–client interactions to engage students in reflection and peer review. *Journal of University Teaching and Learning Practice, 12*(4), 1–18.

Mandermach, B. J., Gonzales, R. M., & Garrett, A. L. (2006). An examination of online instructor presence via threaded discussion participation. *Journal of Online Learning and Teaching, 2*, 248–260.

Marek, P., & Christopher, A. N. (2011). What happened to first "R"? Students' perceptions of the role of textbooks in psychology courses. *Teaching of Psychology, 38*, 237–242. https://doi.org/10.1177/0098628311421319

Mauriano, P. (2006). Looking for critical thinking in online threaded discussions. *E-Journal of Instructional Science and Technology, 9*(2), 1–18.

McFarlin, B. K., Weintraub, R. J., Breslin, W., Carpenter, K. C., & Strohacker, K. (2011). Designing online learning modules in kinesiology. *Educational Technology and Society, 14*, 278–284.

Mentzer, G. A., Cryan, J., & Teclehaimanot, B. (2007). Two peas in a pod? A comparison of face-to-face and Web based classrooms. *Journal of Technology and Teacher Education, 15*, 233–246.

Merriam, S. B. (1998). *Qualitative research and case study applications in education.* San Francisco, CA: Jossey-Bass.

Mezirow, J. (2000). Learning to think like an adult: Core concepts of transformation theory. In J. Mezirow & Associates (Eds.), *Learning as transformation: Critical perspectives on a theory in progress* (pp. 3–33). San Francisco, CA: Jossey-Bass.

Moore, M. (1983). The individual adult learner. In M. Tight (Ed.), *Education for adults* (pp. 153–168). London, United Kingdom: Croom Helm.

Moore, M. G. (1993). Theory of transactional distance. In D. Keegan (Series Ed.), *Routledge Studies in Distance Education. Theoretical principles of distance education* (pp. 22–38). New York, NY: Routledge.

Moore, M. (1997). Theory of transactional distance. In M. Moore (Ed.), *Handbook of distance education* (pp. 89–108). Mahwah, NJ: Erlbaum.

Moore, M. (2007). The theory of transactional distance. In M. G. Moore (Ed.), *Handbook of distance education* (pp. 89–205). Mahwah, NJ: Lawrence Erlbaum.

Moore, M. G. (2013). The theory of transactional distance. In M. G. Moore (Ed.), *Handbook of distance education* (3rd ed., pp. 66–85). New York, NY: Routledge. https://doi.org/10.4324/9780203803738.ch5

Moore, M., & Kearsley, G. (2005). *Distance education: A systems view* (2nd ed.). Belmont, CA: Thomson Wadsworth.
Murden, T., & Gillespie, C. S. (1997). The role of textbooks and reading in content area classrooms: What are teachers and students saying? In W. M. Linek & E. G. Sturtevant (Eds.), *Exploring literacy* (pp. 85–96). Pittsburg, KS: College Reading Association.
Navarro, P., & Shoemaker, J. (1999). The power of cyber learning: An empirical test. *Journal of Computing in Higher Education, 11*(1), 29–57. https://doi.org/10.1007/BF02940841
Oblinger, D., Barone, C. A., & Hawkins, B. L. (2001). Distributed education and its challenges: An overview. Washington, DC: American Council on Education and EDUCAUSE.
Palloff, R. M., & Pratt, K. (2009). *Assessing the online learner: Resources and strategies for faculty*. San Francisco, CA: John Wiley & Sons.
Parker, A. (2003). Identifying predictors of academic persistence in distance education. *USDLA Journal, 17*(1). Retrieved from http://www.usdla.org/html/journal/JAN03_Issue/article06.html
Patton, M. (2002). *Qualitative research and evaluation methods* (3rd ed.) Thousand Oaks, CA: Sage.
Peters, O. (2003). Learning with new media in distance education. In M. G. Moore & W. G. Anderson (Eds.), *Handbook of distance education* (pp. 87–112). Mahwah, NJ: Erlbaum.
Platt, C. A., Raile, A. N. W., & Yu, N. (2014). Virtually the same? Student perceptions of the equivalence of online classes vs. face-to-face classes. *Journal of Online Learning and Teaching, 10,* 489–503. http://jolt.merlot.org/vol10no3/Platt_0914.pdf
Rouse, R. (1991). Mexican migration and the social space of postmodernism. *Diaspora, 1,* 8–23. https://doi.org/10.1353/dsp.1991.0011
Saba, F. (2007). A system approach in theory building. In M. G. Moore (Ed.), *Handbook of distance education.* (pp. 43–57). Mahwah, NJ: Lawrence Erlbaum.
Sato, T., & Haegele, J. A. (2017a). Physical educators' engagement of online adapted physical education graduate courses. *Professional Development in Education, 44,* 272–286. https://doi.org/10.1080/19415257.2017.1288651
Sato, T., & Haegele, J. A. (2017b). Professional development in adapted physical education with graduate web-based professional learning. *Physical Education & Sport Pedagogy, 22*, 618–631. https://doi.org/10.1080/17408989.2017.1310832

Sato, T., & Haegele, J. A. (2018). Undergraduate kinesiology students' experiences in online motor development course. *Online Learning, 22*, 271–288.
Sato, T., Haegele, J. A., & Foot, R. (2017a). Andragogy theory: Overview and implications for online graduate coursework in adapted physical education. *Quest, 69*, 453–466. https://doi.org/10.1080/00336297.2017.1284679
Sato, T., Haegele, J. A., & Foot, R. (2017b). In-service physical educators' experiences of an online adapted physical education endorsement program. *Adapted Physical Activity Quarterly, 34*, 162–178. https://doi.org/10.1123/apaq.2016-0002
Schult, C. A., & McIntosh, J. L. (2004). Employing computer-administered exams in general psychology: Student anxiety and expectations. *Teaching of Psychology, 31,* 209–211. https://doi.org/10.1207/s15328023top3103_7
Sujo de Montes, L. E., Oran, S. M., & Willis, E. M. (2002). Power, language, and identity: Voices from an online course. *Computers and Composition, 19,* 251–271. https://doi.org/10.1016/S8755-4615(02)00127-5
Ukpokodu, O. N. (2008). Teachers' reflections on pedagogies that enhance learning in an online course on teaching for equity and social justice. *Journal of Interactive Online Learning, 7(*3), 227–255.
U.S. Department of Education. (2014). *Enrollment in distance education courses, by state: Fall 2012* (NCES 2014-023). Retrieved from http://nces.ed.gov
Wright, M. C. (2000). Getting more out of less: The benefits of short-term experiential learning in undergraduate sociology courses. *Teaching Sociology, 28,* 116–126. https://doi.org/10.2307/1319259
Yang, Y., & Cornelius, L. F. (2004). *Students' perceptions towards the quality of online education: A qualitative approach*. Retrieved from ERID database. https://eric.ed.gov/?id=ED485012
Yin, R. K. (2003). *Case study research design and methods* (3rd ed.). Thousand Oaks, CA: Sage.
Zeidner, M. (1998). *Test anxiety: The state of the art.* New York, NY: Plenum Press.