

A PRACTICAL GUIDE TO THE DEVELOPMENT OF AN ONLINE COURSE IN ADAPTED PHYSICAL EDUCATION

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Abstract

Preservice physical education students typically receive one course devoted to adapted physical education (Piletic & Davis, 2010). Research has demonstrated this to be insufficient preparation for the successful inclusion of students with disabilities in physical education. Conversely, increasing preservice training in adapted physical education has shown to result in more favorable teacher attitudes to inclusion and higher levels of confidence in the teachers' ability to effectively include students with disabilities. The online environment may be an effective setting for future courses in adapted physical education, offering greater flexibility for the learner and instructor, possible time and money savings, and is not as dependent on resources such as space and specialists of adapted physical education. However, to ensure effectiveness of online courses, evidence-based design and implementation principles must be adhered to. The purpose of this article is to present six principles that may aid an instructor of an online adapted physical education class to (1) establish clear goals and expectations for learners, (2) offer multiple representations of course content, (3) provide frequent opportunities for active learning, (4) deliver frequent and constructive feedback, (5) provide flexibility and choice in satisfying course objectives, and (6) be an source of guidance and support.

Keywords: adapted physical education, online education, physical education teacher education

Introduction

The vast majority of students with disabilities receive physical education services in the general setting (U.S. Government Accounting Office, 2010). However, research suggests numerous challenges affecting the success of students with disabilities in inclusive physical education (PE). Much of this research has focused on the perspective of the physical education teacher. Unfortunately, studies suggest GPE teachers do not feel their professional preparation and clinical experiences were adequate to

prepare them to include students with disabilities into their GPE programs (Hardin 2005; Hersman & Hodge, 2010; Jerlinder et al., 2010; Lijuan, Jing, & Lin, 2015). Although physical educators generally were positively disposed to inclusion as an educational philosophy, they had varying levels of success in achieving successful inclusion and encountered an array of challenges (Obrusnikova & Dillon, 2011). Prior experience with students with disabilities and robust academic preparation in working with students with disabilities all positively affect perceived success and attitudes of physical educators towards working with students with disabilities. Conversely, lack of in-service training, inadequate preparation and the type and severity of the disability negatively influence perceived success and attitudes towards inclusive physical education.

Students with disabilities have also had their perspective heard (Bredahl, 2013; Haegle & Sutherland, 2015; Hutzler & Levi, 2008; Spencer-Cavaliere & Watkinson, 2010) and have spoken of both positive and negative experience in inclusive physical education. Common positive themes included gaining social benefits and successfully participating in class activities. Unfortunately, many students with disabilities also spoke of the negative physical education experiences including experiencing isolation, bullying and unsuccessful participation. Of particular interest was that students with disabilities discussed the importance of the physical educator. Physical educators with positive attitudes towards inclusion, who facilitated social inclusion and who were willing to make modifications to accommodate students with disabilities were often perceived as the most critical factor in ensuring successful experiences of students with disabilities in inclusive physical education (Block & Obrusnikova, 2007; Haegle & Sutherland, 2015). Clearly continued development of physical education teacher preparation focusing on including students with disabilities is imperative.

Typically, preservice physical education programs require one introductory course devoted to adapted physical education (APE). In a 2010 study, Piletic and Davis examined the existence of an introduction to adapted physical education course for physical education/teacher education (PETE) preparation programs using a sample of 129 colleges/

universities from 41 states. Sixty-nine percent of responding programs indicated that only one course in APE was offered to trainee teachers. The credit load for the required APE course was typically 3 hours for most university programs. The main content areas, defined as those receiving greater than 5 hours of lecture time, were (a) disabilities, (b) instruction and motivation strategies, (c) physical fitness, motor skills and motor development, and (d) modifications. Conversely, the least amount of lecture time was spent on (a) consulting in APE, (b) curriculum development, (c) legislation and history, (d) social and cognitive delays of students with disabilities, (e) assessment, (f) behavior management, and (g) writing Individual Education Plans (IEPs), Individual Family Service Plan (IFSPs), and Individual Transition Plans (ITPs). A practicum experience was offered by 84% of the participating college/universities. Block, Kwon and Healy (2016) questioned whether one introductory adapted physical education class provided enough information to truly prepare future physical educators to provide effect instruction and successfully include students with disabilities in general physical education. Unfortunately, there may be limited space (e.g. number of maximum credits allowed) in the PETE program to add more information on inclusion strategies in existing adapted coursework or add new inclusion-specific coursework.

Online learning may provide a means for providing extra coursework in adapted physical education for preservice physical educators. Valian and Emami (2013) reviewed a number of benefits that online education presents. Firstly, online education offers greater flexibility than traditional face-to-face teaching; the learner can adapt online coursework to fit their schedules and preferences. Secondly, online education may save time and money for the learner; the time and cost commuting is eliminated and tuition costs often lower. Thirdly, online education has a number of logistical advantages as the restrictions associated with traditional face-to-face education; for example, paucity of space in classrooms, dependency on local resources, such as availability of facilities (Valian & Emami, 2013). Moreover, online education provides availability of a wide variety of online learning tools and unlimited accessibility to the class content. Finally, open forums and discussion boards in the online setting support student collaboration, particularly for students who are hesitant to participate in discussions in face-to-face classes.

With such benefits, it has become increasingly popular for universities to utilize such a method of instruction to provide courses to preservice teachers (Beattie, Spooner, Jordan, Algozzine, & Spooner, 2002). In an array of teacher preparation courses, online education has been used and proved highly effective in preparing teachers. For example, in the area of special education, distance education has proved to be an effective solution for a paucity of qualified teachers (Knapczyk, Hew, Frey, & Wall-Marencik, 2005). Such teacher training has also benefited preservice teachers to learn inclusive teaching practices. Research by Andrews (2002) demonstrated how a web-enhanced, case-based model of instruction proved to be a powerful model for linking theory and knowledge with practice in teacher

education. Similarly, research on the effectiveness of a pre-service online course on a technology applications in education course proved to provide the student with independent and individualized learning, enhancing their responsibility and initiative towards learning; all in all, demonstrating the potential of online settings as a place to implement active learning environments (Vonderwell, 2003).

The purpose of this article is to outline best practices for the creation of an online APE course for preservice PE teachers.

Synchronous Versus Asynchronous Online Education

Broadly speaking, there are two models of online learning: (1) synchronous and (2) asynchronous. A *synchronous* model means all students and instructors are logged on at the same time and communicate directly and virtually with each other. A synchronous model includes live web-casts, chat rooms, application sharing, and white board sessions. This model offers valuable opportunities for student interaction, collaboration and enables questions to be asked in real-time (Harris, Mishra, & Koehler, 2009; Simonson, Smaldino, Albright, & Zvacek, 2012). Conversely, using an *asynchronous* model, learners take the pre-designed course that is often available 24 hours per day, 7 days a week. There are two basic asynchronous models: self-paced (students do the work completely at their own pace), and class-paced (students are given weekly readings and assignments, but they complete the work at their own pace during that week). In both models courses involve receiving information from pre-recorded videos or text-based learning. Students in asynchronous learning environments may also post messages to a discussion group. A primary advantage of this model is the flexibility it affords the learner. Asynchronous learning provides learners with more time to pace understanding (Harris, Mishra, & Koehler, 2009; Simonson et al., 2012). In an asynchronous learning environment the instructor also can provide rich learning experiences through the use of video clips that promote students learning.

Best Practices for the Online Environment

In a review of the learning effectiveness of online learning environments, Means, Bakia, and Murphy (2014) and Swan (2003), provide several strategies for instructors to improve the overall effectiveness of the online instruction. By combining what was known about computer-based learning and learning in higher education, Swan suggested instructors provide (a) clear goals and expectations for learners, (b) multiple representations of course content, (c) frequent opportunities for active learning, (d) frequent and constructive feedback, (e) flexibility and choice in satisfying course objectives, and (f) instructor guidance and support. By providing guided instruction in these categories, online learning instructors can increase the effectiveness of their online teaching. In the following paragraphs each of these topics is discussed in detail and suggestions for use with adapted physical education content is provided.

Clear Goals and Expectations for Learners

In order to maximize learning success, the goals and expectations of an online course need to be clearly defined. According to the research findings of Swan et al. (2000), substantial correlations exist between the simplicity, reliability, and consistency of course designs and students' perceived learning. In online classes, "clarity of meaning" is more important than in a synchronous environment because real-time cooperation is impossible among educators and learners. Consequently, Swan (2003) specified that formulating clear goals by instructors contribute to students' success in online learning. Learners have to adapt to consistent, transparent, and simple course structures (Swan, 2003). The S.M.A.R.T. goal strategy (*specific, measurable, assignable, realistic and time-related*), attributed to Doran (1981) and revived by Mayer (2003), can provide guidance for goal setting for online education. The idea emerged from business management and is now applied in many interdisciplinary practical settings. This practical approach can enhance instructors and learners' ability to formulate clear short- and long-term goals in order to ensure success in the online instructional setting. For example, note the specificity, measurability and realistic application of course goals/objectives of PE Central's Professional Development online module on "Visual supports for children with autism" (see www.pecentral.com for more information):

On completion of this course students will be able to:

1. Describe major characteristics associated with autism (as measured through a quiz)
2. Describe the unique learning styles, strengths, and deficits of children with autism that makes visual supports such a compelling teaching tool (as measured through a quiz)
3. Create visual supports including the following: (a) physical structure/boundaries, (b) schedules, (c) work systems/task organizer, (d) first/then board, and (e) countdown strips (as measured through work product)

Multiple Representations of Course Content

Within an online learning environment, regardless of the content or context, participants must be given access to material in a variety of ways. This variety of instruction allows for a greater connection to material; this connection supports the development of a greater literary understanding, divergent thinking, and more complex conceptual knowledge (Clark & Mayer, 2011; Mayer, 2009). Multiple representations also facilitate access for users with disabilities. By utilizing this concept of multiple representations of course content, preservice physical education teachers can get the theoretical knowledge needed to work with students with disabilities and develop the conceptual knowledge of how to make use of this model. Piletic and Davis (2010) show a need for practicum experience for developing teachers in regard to utilizing APE knowledge. While an online course does not directly give hands-on experience, it does foster the ability to build more conceptual awareness (Clark & Mayer, 2011; Mayer, 2009); which would lead to a more positive self-efficacy when faced with teaching students with disabilities. When used

in conjunction with a practicum experience (e.g., a public school internship in physical education, a university-based swim and gym program, volunteering for Special Olympics), an online class could give a strong, effective foundation for preservice physical education teachers.

By providing the contextual knowledge of APE content in a multiple of ways, preservice teachers are provided opportunities to generalize their understanding to more than one setting. In the traditional learning environment, instruction is often constricted to what the instructor can deliver in any given classroom. While in the online environment, an instructor can offer a verbal lecture and visual slideshow, as a traditional class, as well as refer students to additional content around the topic area such as websites and YouTube videos. For example, instructors can share with students' links to videos on medical treatments for cerebral palsy from doctors and therapists followed by videos of cerebral palsy sports and adapted physical education strategies for children with cerebral palsy. The professor can then facilitate online discussions with the class on how to best provide appropriate physical education and sports opportunities for children with cerebral palsy. This material affords a multitude of examples in a variety of ways that cannot be provided within the constraints of a class period; thus allowing the asynchronous online learning environment to build a deeper contextual knowledge instead of simply a technical knowledge. For example, Kwon (2014) provided video examples of practicing physical educators making modifications in different team sports to accommodate students with physical and visual impairments, which in turn led to multiple online class discussions and sharing amongst students on thoughts about accommodations.

Frequent Opportunities for Active Learning

Active learning is an instructional strategy in which students "learn by doing." Through this process students engage in higher-order thinking (e.g., analysis, synthesis, and evaluation), which allows them to assimilate, apply, and retain newly acquired information (Austin & Mescia, 2004). Examples of active learning activities may include case studies, debates, discussion boards, electronic portfolios, interactive games, online presentations, peer-reviewed projects, reflective journals, study groups, surveys, online assessments, and website design (Phillips, 2005). Healy (2015) provided regular feedback via discussion boards and personal communication when helping his online students master peer tutoring techniques used to include students with disabilities. As students engage in these activities, they transition from being passive learners to a self-directed learner who take responsibility for their own learning. Instructors transition from being authoritarian experts to facilitators or coaches. Content-driven lectures become shared inquiries amongst students and instructor (Zwirn, 2005). While the main focus of active learning is to engage students in higher-order thinking, evidence supports active learning as a means to accommodate a variety of learning styles, enhance motivation, and promote student achievement (Austin & Mescia, 2004). To enhance active learning opportunities, Swan (2003) notes the importance

of establishing (a) social presence, (b) virtual learning communities, (c) user-interface interactions, and (d) vicarious interaction.

Social presence is defined as “the degree of feeling, perception, and reaction to another intellectual entity in the computer-mediated communication environment” (Tu & McIsaac, 2002, p. 146). It has shown to predict perceived learning outcomes (Russo & Benson, 2005; Zhan & Mei, 2013) and enhance student satisfaction (Gunawardena & Zittle, 1997; So & Brush, 2008; Zhan & Mei, 2013). Conversely, the lack of social presence has shown to impede teacher effectiveness, lower affective learning (Gunawardena & Zittle 1997; Weinell et al., 2011; Whipp & Lorentz, 2009) and increase frustration (Garrison, Cleveland-Innes, & Fung, 2010; Ke, 2010). For example, Kwon created an online module to help preservice physical educators in Korea to understand how to make modifications to team sports. As part of her online program she created a discussion board and asked for participants to post and respond to peers’ posting on the discussion board. The use of the discussion board created a social presence and fostered more active learning by all participants.

Virtual learning communities are groups of learners who collaborate on a related topic, expand their knowledge, and work towards a common goal. Through technology, community members have opportunities to connect with one another from a variety of sites, distances, and locations (Kowch & Schwier, 1997). For virtual learning communities to operate effectively, students must demonstrate a degree of comfort and understanding of technology and user-interface interactions. For example, Healy (2015) created a podcast that was simple for users to use and understand. Similarly, he made himself available and provided timely support to participants as they progressed through their various online assignments.

User-Interface interaction is defined as the communication between the student and the technology used to implement online learning. Well-designed course interfaces, prerequisite orientations (Hillman, Willis, & Gunawardena, 1994), tutorials, “Getting Started” guides, face-to-face, phone, and/or email support (Gunn, 2002) and course “wizards” (Sax, 2002) have shown to enhance online learning. In APE courses, this could be as simple as creating a step-by-step guide to the interface with videos showing how to access key aspects of the program.

Vicarious interaction is the process in which a student actively observes and processes both sides of a direct interaction; i.e., teacher-student interaction (Swan, 2003). Studies have shown that direct interaction in online discussion is not necessary for all students. Association could provide an atmosphere where learners observe and actively process the interactions of others. Sutton (2001) suggests that vicarious interactions may benefit students who are passive or reluctant to participate in direct interaction; or novice students, who are new to the field or unfamiliar with a specific topic. Vicarious interactions in online APE courses could include reading other’s papers and assignments and watching videos of others teaching. For example, students in the PE Central class on visual supports for children with

autism have to make a visual schedule, task organizer and count down strips. These completed visuals could be posted on the class webpage and shared with all participants. Other assignments such as disability fact sheets, abstracts and lesson plans also could be posted for all to see and share.

Frequent and Constructive Feedback

The importance of the interaction between instructor and students has long been recognized as essential in the traditional classroom (Madden & Carli, 1981; Powers & Rossman, 1985), and its importance can be presumed transferable to the online environment also (Swan, 2003). This interaction often occurs in the form of feedback. In the online environment, providing feedback can be a challenging task for instructors, especially those who have spent the majority of their teaching careers in the traditional face-to-face environment (Picciano, 2002). For example, providing feedback to extensive amounts of dialogue and written assignments online takes a large time commitment from the instructor (Gallien & Oomen-Early, 2008).

Feedback must not be neglected on online courses, however, as empirical evidence shows that such interaction between instructor and student is important for the development of student-instructor connectedness and satisfaction (Gallien & Oomen-Early, 2008). The online instructor must make special efforts regarding timely and quality feedback. He/she should provide students with both informative feedback and acknowledgement feedback (Graham, Cagiltay, Lim, Craner, & Duffy, 2001). Informative feedback provides information or evaluation. For example, the instructor may comment on an online presentation provided by a group of students. Acknowledgement feedback, on the other hand, is simply communicating to confirm that an item has been received or an event has occurred. For example, the instructor may provide feedback to confirm that an assignment has been received.

Personalized, timely feedback from instructor to the student is best and should be strived for (Graham et al., 2001). This however can be time consuming and not always possible. To help this, the online instructor may opt to sometimes provide collective feedback. This is best done when students work in small groups. For example, within an online APE course students may work in groups to devise inclusive PE lesson plans. Not only does such collaborative work mean students are encouraged to interact with each other, it also means the online instructor can provide more detailed feedback to a collective group. This may not be possible if each student were to submit an individual piece of work. Of course such feedback should not replace individual feedback. Similarly, feedback is important for class discussions. Feedback on individual’s comments may not always be possible. However, by breaking down larger discussions into smaller collaborative groups, the instructor can provide more detailed, relevant feedback on the group’s discussion.

Peer feedback may also be an option to assist the online instructor in ensuring all students work receives thorough feedback. A practical benefit of implementing peer assessment is that the feedback comes in much larger quantities

than the teacher could ever provide alone, and becomes available much sooner (Van der Pol, Van den Berg, Admiraal, & Simons, 2008). Clear guidance from the instructor on this feedback is important for its success. Guidelines or structure can be provided to shape the students feedback; in particular, students should be advised to provide concrete suggestions for correction. In online APE courses this could be as simple as asking students to respond to each other's discussions questions, or even better reading each other's lesson plans and other assignments and providing feedback.

Flexibility and Choice in Satisfying Course Objectives

The diversity of knowledge, previous practical experiences, access to students with disabilities, and availability of time makes the creation of assignments challenging for instructors conducting online courses. The best solution to student diversity seen in online courses is to create multiple assignments and flexibility on assignment due dates for student to meet course requirements. For example, one assignment might focus on evaluating community sports programs for individual with disabilities. Those students who have limited practical experience can be encouraged to observe or volunteer in programs that serve individuals with disabilities such as Special Olympics or Challenger Baseball and post an ongoing blog about their experiences. Those with interests in therapeutic/community recreation as opposed to teaching can go to recreation facilities and talk about programs they currently offer individuals with disabilities and whether they would be interested in working with local schools and agencies to create some special recreation programs. Those students interested in fitness/exercise science can go to fitness clubs examining access to individuals with physical disabilities as well as training fitness instructors have in working with individuals with disabilities.

The key is to give choices that match students' background, interests, and needs. Similarly, online instructors should offer flexibility when assignments are due and even the order of completing assignments. One student may have coaching responsibilities in the early part of the semester and not have time to complete as many assignments, while those wanting to volunteer with Special Olympics may need to wait until a particular sport is offered. Providing flexibility in how and when to complete assignments will make the course more enjoyable for students and give students a better chance of completing all course requirements.

Instructor Guidance and Support

In an online course, instructors must create a learning environment that allows students to develop an understanding of content and build relationships with instructors and classmates (Vonderwell & Turner, 2005). According to Swan (2003), instructors have three roles: (a) a cognitive role, (b) an affective role, and (c) a managerial role. For deeper learning to occur for the student, the instructors' cognitive role must extend beyond one who injects only theoretical knowledge (Boling, Hough, Krinsky, Saleem, & Stevens, 2011), and must include roles of a mentor and coordinator. In an online APE course, instructors must be mentors who guide students to integrate theoretical

and practical knowledge to allow students to make deeper understanding of the course content. The online instructor is also encouraged to guide and support the students to provide them with the opportunity to combine theory and practice through a practicum experience.

An online discussion board develops students' cognitive and affective domains. Research shows that the discussion forum in an online course allows instructors and students to interact and share a variety of viewpoints (Swan, 2003). According to Russo and Benson (2005), the discussion in an online class has the effect of augmenting students' positive affect such as satisfaction and achievement. Therefore, the discussion is a useful tool to develop both deeper complexity of learning and positive affection at the same time.

The last role of instructors is management; according to Swan (2003), to manage online courses, instructors must consider the course structure and learning platform facilities that best serve the students. In an APE online course, a minimum of three types of tabs should be used to manage the course: (1) discussion forum, (2) video lab, and (3) assignments and exams. Online discussion is most useful for communication between instructors and students, and allows them to share their ideas and experiences. In the video tab, students can upload video clips such as videos of adapting equipment or instruction when including their students with disabilities in general physical education. In the last tab, assignments and exams allows instructors to assign, manage, grade and provide feedback on tasks completed by the students (Vonderwell & Turner, 2005). Students can upload their papers for assignments or complete exams online; and instructors can then grade and provide feedback through the online platform.

Conclusion

The current lack of in-service training, inadequate preparation in APE, and the type and severity of the disability continue to inhibit successful and positive inclusion in PE (Combs, Elliott, & Whipple, 2010; Doukeridou et al., 2011; Elliott, 2008; Fournidou, Kudlacek, & Evagellinou, 2011; Mangope, Mannathoko, & Kuyini, 2013; Martin & Kudlacek, 2010), as well as lead to the low teacher confidence of including students with disabilities (Hutzler, Zach, & Gafni, 2005; Rizzo & Kirkendall, 1995). An online adapted physical education course can provide the preservice teacher with experience that will lead them to be more confidence and competence. However, as much care needs to be taken in the planning of an online course as a traditional course; a poorly planned course will not lead to effective learning (Tallent-Runnels et al., 2006). By outlining the above concepts, course providers must be able to offer an individualized program, varying lectures and assignments, a flexibility with assignments, and the opportunity for frequent and often feedback. These concepts, when done correctly, will impart the conceptual and contextual knowledge needed to include students with disabilities in the general physical education setting. Through the creation of online adapted physical education courses, physical educators will be more prepared and confident to include students with disabilities.

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