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PEDAGOGY

Graduate Teaching Assistants' Experiences Using Digital Media Pedagogies in University Physical Activity Courses

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Abstract

Many college and universities in the United States provide physical activity courses (PAC) for students to earn credit toward graduation. Institutions vary in PACs, as physical activity programs are affected by administrative goals and needs. Although PACs can vary by institution, it is important to examine how PACs can contemporarily address the cultural changes in education and physical activity. This study employed a case study research design and investigated the lived experiences of eight graduate teaching assistants working as PAC instructors at one university. Interview, observational, document collection, and technology journal data were collected throughout a 16-week semester. An interpretative phenomenological analysis of multiple variables, attitudes and beliefs, and pedagogical implementations resulted in four recurrent themes regarding the use of digital media in PACs: (a) experimenting with student engagement, (b) finding meaningful resources, (c) learning Canvas, and (d) valuing video and audio media. This article also provides future considerations around digital resources and professional development opportunities.

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Colleges and universities in the United Stated provide physical activity courses (PAC) for students to earn credit toward graduation. Historically, PACs were designed to prepare students for military preparedness but have evolved into more recreation and leisure courses (Cardinal, 2017; Evans et al., 2013; Kim & Cardinal, 2019). There is a growing literature base suggesting the need to support PACs in higher education institutions, as physical activity can have positive impacts on student academic success (Annesi et al., 2017; Casebolt et al., 2017; Goldstein et al., 2017; Kim & Cardinal, 2019; Stapleton & Bulger, 2015).

Institutions vary in PACs, as physical activity programs are affected by administrative goals and needs (Brock et al., 2018). Although PACs can vary by institution, it is important to examine how PACs can contemporarily address the cultural changes in education and physical activity behaviors (Beaudoin et al., 2018; Cox et al., 2019; Kim & Cardinal, 2019). For example, institutions have begun implementing online PACs to encourage students who might be less inclined to enroll in face-to-face PACs, and the use of online management systems and mobile apps have kept PACs current with cultural trends (Brock et al., 2018; Goldstein et al., 2017; Melton et al., 2016; Prensky, 2010). Despite the benefits of PACs and the new digital pedagogies, there has been in a decline in physical activity programming due to budgetary restrictions, university priorities, and lack of contemporary pedagogical practices (Beaudoin et al., 2018; Charles & Charles, 2016; Stapleton et al., 2017).

PACs are typically taught by graduate teaching assistants (GTAs) in fields related to physical education or kinesiology (Langdon et al., 2017). GTAs often play multiple roles as both a student and an instructor (Melton et al., 2016). GTAs who are PAC instructors are responsible for quality instructional strategies without much teaching experience, and provisional efforts to support GTAs is a useful way to develop effective instructional strategies in PACs (Brock et al., 2018; Langdon & Wittenberg, 2018). Efforts such as professional development opportunities (e.g., workshops) and peer support groups are commonly favorable to prepare GTAs (Brock et al., 2018; Langdon & Wittenberg, 2018; Melton et al., 2016). However, physical activity programs' budget or resource restrictions can limit the amount of preparedness GTAs have for their PAC instructional strategies

(Brock et al., 2018; Cox et al., 2019; Langdon & Wittenberg, 2018). Instructional strategies that incorporate technology, and more specifically the use of digital media are increasingly supported in PAC literature (Charles & Charles, 2016; Cox et al., 2019; Goldstein et al., 2017; Melton et al., 2015; National Association for Sport and Physical Education, 2009).

Digital media is the exchange of information through an electronic device (e.g., computer, phone, wearable device) used in a multitude of formats, including photographs, video and audio clips, animations, and text. Digital media can be an engaging tool used by both instructors and students to consume (e.g., watch, listen, read) and/or produce (e.g., type, produce, record) educational content (Koc & Barut, 2016; Reynolds, 2016). However, despite digital media incorporation being a best practice (International Society for Technology in Education, 2017; Prensky, 2010), instructors continually need to stay updated with today's cultural trends in technology to be effective with their use in education (Bodsworth & Goodyear, 2017).

There is a growing research base on the use of digital media in the field of kinesiology and sport pedagogy. Little is known, however, about the incorporation of digital media in PACs, particularly among GTAs (Charles & Charles, 2016; Cox et al., 2019; Melton et al., 2016). More can be understood about the variety of practices, attitudes, and values that GTAs experience regarding digital media in PACs. Therefore, the purpose of this study was to explore the lived experiences of GTAs working as PAC instructors and their use of digital media as a pedagogical tool in PACs. Specifically, this study explored GTAs at a university with no full-time coordinator. As technological advancements continue to change educational needs and desires, it is important to explore what GTAs experience in their roles. These research questions guided this study: (a) What variables impact the use of digital media within physical activity courses? (b) What are GTAs' attitudes and beliefs toward the implementation of digital media in physical activity courses? and (c) What are the pedagogical practices of digital media use by GTAs?

Method

This study was based on a social constructivist paradigm that acknowledges that social constructs are based on an individual's

interpretations of experiences, knowledge, and realities (Creswell & Poth, 2018; Crotty, 1998; Park, 2004; Patton, 2015). With a social constructivist paradigm, the research also acknowledges interpretations based on subjective values of educational meanings and patterns (Creswell & Poth, 2018; Papert, 1980; Reynolds, 2016).
This study employed a case study research design, which is used to investigate a shared phenomenon (Creswell & Poth, 2018; Stake, 1995). A case can be defined as a person, group, or event that is bounded by a set of parameters such as time and place (Hodge & Sharp, 2016; Stake, 1995). Using a collectively bound case study, we investigated several cases (GTAs) experiencing the commonalities of digital media pedagogies. This study was approved by our institutional review board.

Participants and Procedures

This study was conducted during a regularly scheduled semester. On the basis of previous pilot studies and relevant literature, recruiting no more than eight participants deemed sufficient in the development of a robust data set of an entire physical activity program (Cox et al., 2019; Creswell & Poth, 2018; Goddard, 2010). Participants were both conveniently recruited and purposefully recruited. The convenience of the sample was based on the established rapport we had with the program's administration (Creswell & Poth, 2018; Smith et al., 2012). The purpose of the sample was based on choosing a program that had no full-time physical activity coordinator, because physical activity programs with limited staffing should be better understood (Cox et al., 2019).

Participants were recruited during a required GTA workshop at the beginning of the semester in which the study took place. Eight GTAs (six males, two females) from a university in the Rocky Mountain region of the United States participated in this study. The GTAs were doctoral students between the ages of 25 and 32. All GTAs were instructor of record for at least one PAC for the semester. Table 1 includes a listing of additional demographic information, including doctoral area sought, semester in program, PAC experience, and additional GTA responsibilities.

Table 1
Participant Information

Participant	Gender	Age	PhD area sought	Semester in program	Prior number of PACs taught	Number of PAC sections	Number of non-PAC sections
A	Male	26	Sport Administration	1st	0	(1) Activities for Stress Management, (2) Bowling	(1) Sport Finance (online)
B	Male	25	Sport Administration	1st	2	(1) Basketball	(1) Coaching and Officiating
C	Female	27	Social Psychology of Sport and Physical Activity	1st	2	(1) Fitness and Conditioning (online)	(3) Motor Learning Lab
D	Male	25	Exercise Physiology	3rd	1	(1) Swimming	(2) Exercise Physiology Lab (1) Exercise Assessment Lab

Table 1 (cont.)

Participant	Gender	Age	PhD area sought	Semester in program	Prior number of PACs taught	Number of PAC sections	Number of non-PAC sections
E	Female	29	Sport Pedagogy	4th	5	(2) Activities for Stress Management	(1) Planning, Assessment, and Instruction in Physical Education Lab
F	Male	25	Social Psychology of Sport and Physical Activity	3rd	4	(1) Fitness and Conditioning (online)	(1) Introduction to Research in Sport TA
G	Male	30	Sport Administration	6th	5	(1) Self-Defense	(1) Introduction to Research in Sport TA
H	Male	32	Sport Pedagogy	1st	0	(1) Self-Defense (2) Walking and Jogging (online)	None

There were four methods of data collection: (a) interviews, (b) observations, (c) document collection, and (d) technology journals. This section provides detailed information regarding the data collection and analysis procedures.

Interviews

Semistructured interviews were the primary source used to investigate the lived experiences of the GTAs (Smith et al., 2012). Each participant was interviewed three times (beginning, middle, and end) during the 16-week semester. We audio recorded, transcribed, and hermeneutically analyzed each interview to develop further inquiries and triangulate the data with other data sets. Interview questions consisted of inquiries about pedagogy (e.g., What have students learned in your PAC?), inquiries about digital media (e.g., What are your experiences using digital media?), and questions related to other data gathered from the participants (questions to expand upon previous observations, technology journal, etc.). For example, one participant mentioned they had to wear a microphone for a student with deaf and hard of hearing equipment. Upon transcriptions and course observations, we were able to ask for more details about the experience with a microphone. The interviews also served as a time for participants to provide us with a virtual tour of their course setup in the learning management system Canvas.

Observations

Participants who taught a face-to-face PAC were observed teaching their class twice (i.e., fourth/fifth and 11th/12th weeks) during the semester. Dannon G. Cox served as a participant observer, which involved participating in the activities as a form of analysis (Merriam, 1995; Schwandt, 2014). Descriptive notes were recorded during each observation and included classroom layout (e.g., equipment), physical settings, and number of students in class (Creswell & Poth, 2018). Reflective notes were recorded after each observation, which included Cox's interpretations and were used for further inquiries for interviews.

Document Collection

Participants were asked during or after each interview to provide documents used in the PAC such as files, photos, video links, or handouts as supplemental data (Merriam, 1995; Stake, 1995). Additional

documents included screenshots from the PAC Canvas pages. For example, one participant provided a screenshot of a Canvas rubric. No student information or data were observed or collected.

Technology Journal

Participants completed a technology journal three times throughout the semester. The technology journal provided more information about the participants' lived experiences while Cox was not present (Bartlett & Milligan, 2015; Corti, 1993). An online survey link was sent at the end of each month to the participants. The survey contained two parts: (a) checklists of digital media formats and (b) open-ended inquiries. The checklists included digital media formats such as Microsoft Outlook, mobile phones, audio or video links, Canvas pages, wearable devices, and augmented reality. The open-ended inquiries included questions that allowed participants to provide more details about the digital media pedagogies used. Questions inquired about the benefits, challenges, perceived successes of using digital media and the GTAs' willingness to use it again.

Analysis

An interpretative phenomenological analysis (IPA) explored how digital media was implemented in PACs. Similar to a thematic analysis, an IPA purposefully details narrative accounts of a homogeneous group of individuals within a bounded system. An IPA is useful when the complexity of a phenomenon is not appropriately comparable for analysis across cases (Sparkes & Smith, 2013). An IPA primarily uses interviews as the primary data source and uses additional information (i.e., observations and technology journals) to triangulate and establish a more robust data set (Smith et al., 2012). IPAs generally involve a hermeneutic approach, which prioritizes the analysis of individual experiences while routinely examining the overall experiences in the latter stages of analysis (Smith et al., 2012).

Investigating the lived experiences for a larger sample size of eight, we used six major steps to investigate the use of digital media in PACs (Smith et al., 2012; Sparkes & Smith, 2013). First, data immersion began with listening and reading to all transcripts and rereading all data sets so that we could be fully knowledgeable and organized with the content. Second, exploratory coding included inductively

commenting and coding transcripts with short sentences and phrases related to verbatim quotes or other data sets. Third, patterns were identified based on common patterns across all participants. The identified patterns were placed into a digital table, which provided an organized culmination of verbatim quotes (Smith et al., 2012). Fourth, clusters were formed based on the identified patterns across participants. Fifth, superordinate themes were categorized based on common patterns that best represented the essence of the individual's lived experiences while concurrently represented across cases. On the basis of Smith et al. (2012), at least one third of participants had to experience common patterns to be considered a superordinate theme. Last, recurrent themes were identified based on the defined superordinate themes. The recurrent themes provided the overall essence of GTAs implementing digital media within a single semester.

Trustworthiness

Throughout the data collection and analysis process, data trustworthiness was strengthened via four primary methodological criteria standards established by Lincoln and Guba (1985). First, the data were strengthened via prolonged engagement that involved reading and rereading all data sources and this established greater triangulation across an entire semester (Stake, 1995). Second, the methodological procedures were descriptively recorded and this strengthened transferability if the study was to be reproduced (Burke, 2016; Schwandt, 2014). Third, dependability was strengthened by the establishment of traceable accounts of all data collection and analysis procedures (Schwandt, 2014). Fourth, confirmability was strengthened through multiple member checking as well as peer checking throughout the data collection and analysis procedures and this verified the interpretations were accurate (Creswell & Poth, 2018; Sparkes & Smith, 2013).

Results

We examined the data to determine the shared experiences of implementing digital media pedagogies in PACs. The qualitative analysis resulted in common variables, attitudes and beliefs, and common pedagogical practices. Table 2 lists and describes the most common variables associated with digital media uses. For example, *resources* was a highly common variable based on direct and indirect

quotes such as "I checked the video again and I wondered, should I share this video with my students cause it's a good resource" and "I have files of video techniques from Olympians that were connected through coaches here and the coaches I've worked with elsewhere." Table 3 describes the most common attitudes and beliefs about digital media as a pedagogical tool in PACs. For example, participants considered digital media to be an engaging tool. This common attitude and belief was shown through direct and indirect quotes such as "I can see they have a reaction to the videos. They laugh or they look at the screen and uh, they engage in discussion"; "personally, I like the YouTube and the PowerPoint and voiceover…I think it's so much more engaging or you can see student's creativity a lot of times"; and "I need to think through how can I still create something that's interactive." Table 4 lists the digital media pedagogies that were either observed or discussed by the participants via interviews, technology journal, or collected documents.

Table 2
Definitions of Variables

Variable	Definition	Sample quote
Experimental	Willingness to apply digital media	"I'm still attempting to attempt creativity pieces…"
Resources	Digital access to people, information, or equipment	"Different online resources allow me to…"
Experience	Prior teaching experience	"I've taught so many times…"
Empathy	Conscious of student experience and involvement	"I feel like this semester catches up with all of us."
Student variety	Addressing diverse student population and class culture	"I had students who wanted to train for half marathons…"

Table 2 (cont.)

Variable	Definition	Sample quote
Peers/network	Influence of fellow graduate teaching assistants, faculty members, and friends	"I would like to know what kinds of specific media other instructors have used..."
Personal equipment	Use of personal equipment	"I use my Apple Watch; I do use it for when I exercise…"
Professional development	Impact of professional development workshops and opportunities	"I was already aware of the content, but it was a nice refresher."
Online interaction	Communication via online platforms	"I changed the language of the discussion posts to incorporate…"
Feedback	Interaction between student and teacher via feedback	"I asked my students, 'Did you watch the video?'"
Self-reflection	Recounting experiences throughout the semester	"I put some thought into it as the class progressed…"
Student limitations	Adapting to student physical, cognitive, and environmental limitations	"One of my students is actually coming back from an injury…"
Canvas management	Managing Canvas to specific needs	"It's kind of a beast."

Table 3
Definitions of Attitudes and Beliefs

Attitudes and beliefs	Definition	Sample quotes
Digital media is an engaging tool	Promoting an active learning environment for students to optimally learn	"I can see they have a reaction to the videos." "I'm going to look up videos and (use) Kahoot. Stuff like that to get them, to make sure they're engaged…" "Some of the topics at the end are more, I'm just going to call them kind of fun topics that are relatable but not necessarily pertinent what they're trying to do as an engaging in physical activity."
Digital media is a supplemental resource	Providing additional mechanism to enhance both teaching and learning	"[Digital media] definitely could be much more beneficial [for students] because they seem like they're going to be more willing to reach out and use those resources." "Some videos helped me a lot."
Digital media has its time and place	Contextual variables and attitudes determine the use of digital media	"They wrote [an assessment] down on paper. I thought about doing it online, but I felt like that would consume a little more class time." "I have a bad connotation towards phones in my head right now because I always think they're so distracting."
Willing to learn more about digital media	Valuing digital media as a resource but lacks pedagogical knowledge	"I'm trying to even come out of my comfort area of not really using technology extensively but doing so because like the generation that are the students…" "I'm as neophyte as you can get, but I'm super intrigued by it."

Table 4
Digital Media Pedagogical Implementations

	Participant							
Digital media use	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**
Canvas								
Announcements	✓	✓	✓	✓	✓	✓	✓	✓
Syllabus	✓	✓	✓	✓	✓	✓	✓	✓
Assignments	✓	✓	✓	✓	✓	✓	✓	✓
Files	✓	✓	✓	✓			✓	✓
People	✓	✓	✓			✓	✓	
Modules	✓		✓			✓	✓	✓
Discussions	✓				✓	✓		✓
Attendance	✓	✓						✓
Course evaluations	✓			✓			✓	
Quizzes	✓							
Microsoft Outlook	✓		✓	✓	✓		✓	✓
Microsoft PowerPoint	✓				✓	✓		
Mobile tablets or phone	✓		✓	✓	✓	✓		✓
Mobile apps			✓			✓		✓
Audio/video	✓	✓	✓	✓	✓	✓	✓	✓
YouTube	✓	✓	✓	✓	✓	✓	✓	✓
Voiceover	✓		✓		✓	✓		
Music	✓			✓	✓		✓	
Wearable devices			✓			✓		
Social media								✓
Campus equipment	✓	✓		✓	✓		✓	
Customized rubrics	✓	✓			✓	✓		
SMART goals	✓		✓	✓	✓	✓		✓

Recurrent Themes

Overall, four recurrent themes were found across all participants with regard to variables, attitudes and beliefs, and practices of digital media: (a) experimenting with student engagement, (b) finding meaningful resources, (c) learning Canvas, and (d) valuing video

and audio media. Table 5 displays each theme along with supporting quotes from participants.

Discussion

The purpose of this study was to investigate the lived experiences of implementing digital media in PACs. Specifically, this study investigated the uses of digital media by GTAs. The results show that digital media plays an essential role for instructors to find student engagement pedagogies with the proper resources. However, finding the proper resources is varied and depends on the individual's experience, network, and environment (Cox et al., 2019). Additionally, the learning management system used by GTAs at this university requires experience and practice to gain adequate competency. Last, video and audio files are highly valuable pedagogical tools for GTAs who teach PACs.

Experiment With Student Engagement

All GTAs intrinsically wanted students to remain interested in class and used digital media to keep students engaged. On the basis of their reflections and experiences, PACs were an "escape" from the stresses of school for both the instructor and the students. Particularly, GTAs wanted to build student relationships because of the low stress of a "one-credit" course. Similar to Evans et al. (2013) findings, this study's findings show that the GTAs highly desired building relationships with students. Consequently, GTAs had to experiment with digital media pedagogies to address attendance and communication issues. Attendance issues are common among students in PACs (Brock et al., 2018). Many GTAs played music in class to create a more welcoming environment, while others used what was available in their environment. For example, Participant B began using a Daktronics scoreboard in an attempt to increase student attendance as well as provide opportunities for a variety of students, noting that engagement "went through the roof" because it provided a more authentic feel to basketball rather than "pick-up game." Meeteer et al. (2011) suggested similar strategies by using a Sport Education model, which offers students a variety of roles related to a sport, such as incorporating a referee, scoreboard operator, and team managers.

Table 5
Recurrent Themes

Theme	Representative quotes
Experimenting with student engagement	Participant B: "You want to make sure they're involved so you want to make sure they're having fun or if they think it's meaningful [and that] they don't think it's dumb…it's about how connected they are to the class and it and it's like (snap, snap, snap) every minute. It's always adjusting. It's always fluctuating. So, it's tough 'cause I think that's what we try, even if I'm in class lecturing, I want to make sure that they're engaged. I think competitiveness helps engagement."
	Participant C: "Students specifically referred to the fact that [online modules] just helps them focus on whatever sort of theme that each week has as opposed to feeling like they have to encompass everything…A lot of students are actually pretty honest with what works and what doesn't work."
	Participant D: "I want [students] to enjoy it as much as I do. Making it fun, being positive constantly in that pool is a huge thing that I have to do. Staying positive, always reminding them, 'look where you were last week'...Keep them positive and hopefully get them excited to swim more."
	Participant G: "We may never teach this kind of physical activity when we get to the professor level… It's also a little easier [than other classes]. Especially it was the physical activity class, not the three-credit class. But yeah, this kind of teaching experience would be very helpful for me and preparing like teaching lectures in the future… It can be more related or kind of involved in the class with the students, not just talk and chalk."

Table 5 (cont.)

Theme	Representative quotes
Finding meaningful resources	Participant C: "[A workshop] gave me a general understanding to get my feet on the ground… got more into specifics like how to manage a classroom and gave me different perspective, not only like from the faculty here but also from current students, which I always appreciate because there's always different ways of seeing things. So, if anyone can give me their experience of perspective, it just adds more to my toolbox and things that I definitely will be using."
	Participant E: "To be honest, I had no idea how to teach [PAC]. But peers shared resources, lesson plans, and assignments. All of those were very helpful for me. And based on those, I modified the resources to my strengths."
	Participant F: "Resources, resources, resources. That's all were trying to do."
	Participant G: "I pretty much got everything [resources] cause I had zero knowledge about self-defense. Even though I practiced [martial arts] before, the syllabus and all the course materials and content, even the quizzes and final exam, pretty much everything, I followed the exact same way that the previous instructor did. But as the semesters go by, I changed it a little and revised it to my specific preferences…So it has been changed a little by little each semester."
	Participant H: "I cannot watch everything."

Table 5 (cont.)

Theme	Representative quotes
Learning Canvas	Participant A: "I feel sufficient enough, like I was able to pick up Canvas just based on my experience with put similar software like Desire 2 Learn (LMS), but everything, like even paying rent deals over a different kind of software. Just there's something different [components]."
	Participant B: "It's kind of a beast…If people haven't ever used it, it could probably be a little daunting."
	Participant C: "I noticed at the beginning of the semester [the challenge] was locating where to find certain items… I guess just familiarizing with Canvas itself [is necessary]."
	Participant H: "Blackboard (LMS) is more familiar to me because I have six years of experience using Blackboard… The overall concept is the same but like small things, detailed things, you know, functional things (made it) a little bit confusing."
Valuing video and audio	Participant B: "Next semester I think I'm going to have them partner up one day, use their cell phones and do that, watch their forms, maybe like write something about it."
	Participant C: "I would probably provide more than one link video just so they can get different interpretations of SMART goals so that they feel like they're just not having to solely rely on one."
	Participant E: "I use music each class because it creates a positive learning environment….It's just really helpful."
	Participant F: "To me it also fulfills one of our basic needs that to fulfill motivation, autonomy, they get to deal with it when they want…I'd like to give them the option of how they want to digest this information, so they can read the PowerPoint, they can listen to my voice over it, or they can just listen to my voice."

Additional experiments included GTAs providing video links related to PAC content, such as goal-setting videos, swimming technique videos, and meditation videos. GTAs often wanted feedback about the video and would reflect on future use of the video. Fink (2003) noted that asking for feedback from students is an important way for instructors to develop an understanding of student engagement. GTAs used other experiments such as the development of rubrics to assess students objectively and to make clear their expectations. Many GTAs had never taught prior to graduate school, further supporting the need to develop guidelines for syllabi, assignments, rubrics, and other instructional media (Brock et al., 2018; Melton & Burdette, 2011). Overall, GTAs considered themselves "neophytes" to their position, resulting in experimentations that relate with younger generations. With the increasing demand to adopt digital media pedagogies in PACs, future studies should explore best practices that GTAs can use to keep students engaged in class (Kawaguchi, 2009; Melton et al., 2015; Nelson et al., 2011; Reynolds, 2016).

Finding Meaningful Resources

Resources have continued to be a major limiting factor for PACs for over 20 years (Hensley, 2000). The resources and support provided for GTAs should aim to meet learning objectives and better prepare instructors to utilize digital media (Beaudoin et al., 2018; Langdon et al., 2017; National Association for Sport and Physical Education, 2009). Results of this study showed that instructors sought resources and information through a variety of ways such as personal research via the internet, fellow GTAs from the institution or colleagues from different universities, and social media. GTAs are encouraged to connect with fellow peers within their program. This allows them to exchange resources and provides greater mentorship between newer and experienced instructors (Brock et al., 2018; Langdon & Wittenberg, 2018).

GTAs locating resources can depend on many factors, such as teaching experience, time, energy, and motivation (Cox et al., 2019; Ottenbreit-Leftwich et al., 2010). Results of this study support these factors; all participants had varying degrees of willingness and success in finding the proper resources for their PACs. For instance, Participant D taught a swimming PAC and had internal access to Olympians and college athletic videos of swimmers because they

were a swim coach for the athletic swim team, whereas all other participants resorted to resources such as YouTube. YouTube has been known as an effective way for instructors to demonstrate and explain PAC content (Tiernan, 2015). Reynolds (2016) suggested that students should also investigate course-related content to develop individualized ideas while providing GTAs with a variety of video links. The use of mobile devices is steadily increasing in PAC and higher education literature (Cochrane et al., 2014; Goldstein et al., 2017; Melton et al., 2015) and should therefore be further studied and offered as a resource for other institutions.

Learning Canvas

All participants used the learning management system Canvas to communicate with students. Although the use of Canvas varied by instructor and PAC, all participants used Canvas to make announcements (e.g., due date changes or weather-related information) and to upload grades on assignments and/or assessments. Results of this study support relevant literature that learning how to navigate the learning management system is essential for instructors to effectively communicate and lead a PAC (Cox et al., 2019; Goldstein et al., 2017; Melton et al., 2016). Due to the variety of instructors and PAC types, online courses required more focus on online content. Online PACs have gradually increased in relevant literature (Brock et al., 2018; Goldstein et al., 2017). Brock et al. (2018) encouraged uniformity across PAC content such as syllabi. On the basis of the results of this study, GTAs did not have a common template, suggesting the need for program administration to develop learning management system course shells to uniformly develop PAC content while allowing the flexibility of adaptations needed for student and instructor strengths (Brock et al., 2018; National Association for Sport and Physical Education, 2009).

Valuing Video and Audio

The instructors in this study valued the use of video and audio media. All participants used video to either learn content for themselves or teach content to students. Implementing video and audio supports younger generations native use of digital media (Bodsworth & Goodyear, 2017). O'Loughlin et al. (2013) used video as a feedback tool with students as early as fourth grade, suggesting it can

be implemented for college learners, as well. Multiple participants incorporated a video project where students were assigned to create their own video related to PAC content. Lim et al. (2009) encouraged the use of media production as a pedagogical tool to engage students with PAC content while promoting higher order cognitive skills. More empirical evidence should specifically investigate the use of video and audio into PACs and the use of students' mobile devices (Cochrane et al., 2014; Cox et al., 2019).

Limitations

Multiple limitations should be considered in the interpretation of the findings of this study. First, this qualitative study is naturally subjective on the basis of our perspective, bias, and influences. Second, self-reported data were collected from participants, which can be subject to error and inaccuracies of true data. Therefore, multiple data collection methods were employed and triangulation established. This study was also based on a single physical activity program with only eight participants, limiting generalizability across other institutions and programs (Sparkes & Smith, 2013). However, participants at this institution were purposefully chosen because there was no full-time coordinator.

Conclusion and Recommendations

The results of this study highlight the various roles of digital media in college and university PACs. If given the opportunity, GTAs are willing to implement digital media as a pedagogical tool in their courses. Therefore, administration should provide GTAs an array of digital media tools and training to generate more effective and efficient methods of instructional delivery. Furthermore, if GTAs have the opportunity to experiment with digital media in PACs, there are greater chances to develop transferable skills that they can use in other aspects of their education and professional career.

PACs remain an important and historical factor in higher education. As technological advancements continue to develop, it is important to encourage the use of digital media as a pedagogical tool. Future considerations include the creation of open access archival procedures of programs and PACs so that instructors can stay updated with contemporary practices in education. Furthermore, future documentation of professional development opportunities

should encourage the use of digital media to support GTAs throughout their time.

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