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PEDAGOGY

Exploring Preservice Teachers' Perceptions of Humanities-Oriented Physical Education

Daekyun Oh, Kidae Lee, Seungsoo Baek, Hyungsik Min, Wonhee Lee, and Gi-cheol Kim

Abstract

The fundamental goal of school physical education (PE) encompasses more than the physical development of individuals, and the concept of humanities-oriented PE (HOPE) has the potential to achieve the comprehensive goal of PE. This study aimed to explore PE preservice teachers' (PTs) experiences of learning about HOPE along with one pedagogical model that practically embodies HOPE. A qualitative case study design was adopted as a methodological approach. Eight PTs were selected as participants. Data were collected through individual interviews, observations and field notes, participants' reflective journals, and additional written documents. Data were analyzed using inductive analysis. Four themes were developed during the analysis process: (a) a vehicle to facilitate holistic development, (b) HOPE looks like a bigger spectrum for inclusion, (c) a bounce between two branches: student reactions, and (d) it is doable. Based on the findings, this research offers support for PTs' positive perceptions of HOPE and the possibility of implementing this concept into school PE.

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Introduction

The fundamental purpose of education in schools is to facilitate the holistic development of students (Greenberg et al., 2003; Miller et al., 2005). Schools should play a crucial role in fostering students' growth by integrating the development of psychomotor, cognitive, and affective domains. Among various subjects, physical education (PE) is acknowledged as a powerful context for promoting holistic development, which is a logical justification for PE as a school subject (Condello et al., 2021). Robust research indicates that physical activity and sport, which are the core content of the PE curriculum, can promote not only physical but also cognitive, social, and emotional development (Opstoel et al., 2020; Singh et al., 2019).

Such a comprehensive view of the fundamental goal of school PE aligns with the concept of humanities-oriented physical education (HOPE), which is an integrated approach to PE based on the premise that humanities-oriented aspects of sport (e.g., sport-related philosophy, literature, art, music, history, religion, and language) should be delivered to students for facilitating students' holistic development (Choi, 2010). If the goal of the PE curriculum encompasses more than physical development, focusing only on sport skills and physical performance is not a sufficient condition for achieving the goal; rather, it should be intentionally combined with other types of activities targeting specific outcomes (e.g., cognitive and affective domains), such as humanities-related activities.

Hanaro Teaching (HT) is a pedagogical model in PE that practically embodies HOPE for promoting holistic development, and it is one of the most popular models in K-12 schools in South Korea (Choi, 2009). Hanaro in Korean refers to "becoming whole" or "all in one." On the basis of the meaning, this model focuses on the holistic aspects of the teaching and learning process in PE. In other words, HT presents four explicit and integrated objectives: (a) to integrate knowledge, skills, and mind into one, (b) to integrate doing, reading, writing, watching, and listening into one, (c) to integrate different people into one, and (d) to integrate PE and outside of PE into one (Choi, 2010). To achieve the model's goal, HT emphasizes not only direct experience but also indirect experience. Direct experience refers to activities related to techniques and tactics for effectively playing sports and/or physical activities, which include practicing skills,

understanding rules and tactics, and demonstrating sporting behavior, etiquette, and manner. On the other hand, indirect experience refers to activities that allow students to meaningfully understand and appreciate sport and/or physical activity by engaging with humanities-oriented aspects, such as reading novels and poetry, watching movies, listening to music, and keeping journals (Choi, 2010). In addition, in terms of instructional strategies, explicit and implicit teaching behaviors are non-negotiable structural characteristics of HT that help achieve the model's goal. Explicit teaching behavior refers to the teacher's actions that are directly intended to instruct sport skills and tactics (e.g., explaining and demonstrating content, providing feedback, and making corrections). Implicit teaching behavior refers to teachers' behaviors that affect students' affective and emotional domains, including the use of positive facial expressions, tone of voice, gestures, humor, and encouragement (Jung & Choi, 2016). PE teachers need to be able to utilize both explicit and implicit teaching behaviors to achieve all four objectives of HT. Furthermore, HT emphasizes students' cooperation within a team, providing them with opportunities for social interaction. Considering the objectives of the HT model and its characteristics, utilizing this model to deliver HOPE would promote the fundamental goal of school PE.

This model-based approach is even more important for teachers who do not have enough teaching experience, such as PTs (Kirk, 2013). Indeed, it has been advocated as a means of overcoming the challenges of teaching PE because it can serve as a structured guide to align the teaching components (i.e., objectives, content, methods, and assessment) for novice PE teachers (Kirk, 2013). The model-based practice also has the potential to contribute to a range of educationally beneficial outcomes for students across various learning domains (Casey & Kirk, 2020). Moreover, it can also facilitate a student-centered approach, which leads to an inclusive learning environment for all young people (Casey & Kirk, 2020). Because of the benefits, the ability to utilize the model-based practice is considered core knowledge that PTs need to acquire during their physical education teacher education (PETE) program (Kirk, 2013).

In short, HOPE is closely linked with the fundamental goal of school PE (i.e., holistic development of individuals). Considering the effectiveness of the model-based approach for PTs, their abil-

ity to utilize the HT model to deliver HOPE can be a meaningful way to achieve the fundamental goal of school PE. Thus, there is a need to provide PTs with an opportunity to learn about HOPE along with the HT model. In this regard, the purpose of this study was to explore PTs' experiences of learning and their perceptions of HOPE and the HT model through a series of learning activities. Specific research questions were as follows: (a) How do PTs come to understand HOPE and the HT model? (b) How do PTs perceive the feasibility of implementing the HT model to deliver HOPE in their PE classes? and (c) What do PTs believe are the benefits of teaching HOPE?

Methodology

A qualitative methodology was employed to fully explore PTs' learning and their perceptions of HOPE and the HT model. We also utilized a single instrumental case study as a research design (Stake, 1995). The case study approach was chosen to focus primarily on a group of PTs in a PETE program in the Northeastern United States as a boundary and to provide a rich and thick description of their learning experiences about HOPE and the HT model.

Participants and Research Context

Eight PTs (two females and six males) majoring in PE were recruited as participants. They ranged in age from 21 to 24 years old, and all identified as Caucasian. At the time of this study, they were seniors. They learned about HOPE and the HT model through a series of learning activities throughout one semester: (a) attending a three-credit major course focused on HOPE and the HT model, (b) implementing the HT model to deliver HOPE into their Student Teaching (i.e., learning by doing), (c) preparing and making a state-level conference presentation about their experience of HOPE and the HT model, and (d) joining informal meetings with the lead author.

In the three-credit major course taught by the lead author, PTs met once a week (two hours and forty-five minutes per session) for a total of 16 weeks. The first two sessions of the course covered the concepts of HOPE and the HT model as the main topics to help participants gain a basic understanding. The instructor also introduced the concept of HOPE and the HT model in later sessions, particular-

ly when topics related to HOPE and the HT model were discussed, such as teaching philosophy, instructional approaches and models, curricula, and assessments. PTs were also conducting a 14-week Student Teaching (seven weeks each for elementary and secondary schools), and they incorporated HOPE and the HT model in PE lessons in their Student Teaching in either elementary or secondary placement. The content in their units was soccer, football, tennis, strategy-based games, or team-building activities. They utilized the HT model to deliver their units. Table 1 presents participants' demographic information and their teaching context.

Table 1
Participants' Demographic Information and Their Teaching Context

Name	Age	Gender	Student Teaching School Level	Unit Taught by HT
Ben	21	Male	Secondary	Football
Andrew	24	Male	Elementary	Soccer
Sarah	22	Female	Elementary	Soccer
John	22	Male	Secondary	Strategy-Based Games
Clay	22	Male	Elementary	Tennis
Greg	22	Male	Elementary	Fundamental Motor Skills
Mary	22	Female	Secondary	Basketball
Jerry	22	Male	Secondary	Team Building Activities

Additionally, as part of the learning process, five PTs presented at a state-level conference to reflect on and refine their understanding of the concept. They developed presentation materials about their learning and teaching experiences of HOPE and the HT model. They conducted three rehearsals of the presentation before the conference, in which PTs discussed their presentation with each other and revised the materials with advice from the lead author. Moreover, throughout the process, PTs had informal meetings with the lead author right after each session of the major course. During the meetings, they asked questions about the concept of HOPE and the HT model, as well as its implementation, through which they could solidify their understanding of the concept.

Data Collection

We utilized four data-gathering techniques to collect meaningful resources: (a) individual interviews, (b) observations and field notes,

(c) participants' reflective journals, and (d) additional written documents. We conducted semi-structured and in-depth interviews with each participant. The average length of the interviews was 41 minutes, with a range of 34 to 49 minutes. All the interviews were audiotaped with permission and transcribed verbatim. The lead author conducted observations of PTs' learning activities. While observing, he wrote down descriptive and interpretive field notes to gather relevant information. In addition, we asked participants to write reflective journals about their learning and teaching experiences of HOPE and the HT model. Moreover, we gathered their lesson plans, teaching philosophies, and presentation materials (i.e., PowerPoint slides) to gain additional insight into their learning process.

Data Analysis

Data were analyzed using inductive analysis (Creswell & Poth, 2018). The inductive analysis began with close readings of the text and consideration of the multiple meanings that were inherent in the text. During the reading process, we wrote memos about emergent ideas and topics. Then, we identified specific segments that contained meaningful units based on the purpose of this study and labeled the segments to create categories. After categorizing, we deleted or combined sentences to minimize overlap and redundancy among the categories, continually reading the raw data, segments, and categories. Following this, we derived themes and sub-themes through interpretations. We continuously revised and refined themes, subthemes, and categories until the study was completed.

During the data analysis, we took the following techniques to establish trustworthiness: triangulation, member check, and peer debriefing. First, the data were triangulated using multiple data sources, including individual interviews, observations, field notes, and participants' written materials. These sources helped support the claims made by participants, as displayed in the findings and discussion sections. The themes were cross-checked against all data sources several times and were accepted or rejected based on the evidence and interpretation. Second, we allowed PTs to review the transcripts and themes derived from their interviews and written materials. We encouraged them to comment on the accuracy of the transcripts and themes. Third, peer debriefing occurred on an ongoing basis throughout this study. Two colleagues served as peer

debriefers. Both were experts in HOPE and the HT model, and they were familiar with the qualitative research methodology. These two peer debriefers offered an outsider's perspective to help us determine alignments between the transcriptions and interpretations of the developed themes.

Ethical Consideration

To avoid ethical issues, all activities during the research process complied with expectations and procedures dictated by the Institutional Review Board (IRB) from the lead author's university. Consistent with the IRB, we obtained informed consent from each participant. We also carefully considered issues of confidentiality and anonymity. In terms of confidentiality, we made sure that the information that the participants provided was not shared with unauthorized people without consent, except in special circumstances such as significant substance abuse, domestic violence, or suicidal thoughts and ideation. To protect identities and anonymity, we have changed the names of the settings and used pseudonyms for the individuals involved in the inquiry. When personal data were provided, it was only behind a shield of anonymity, and no identifiable data were disclosed.

In addition, the first author acknowledged the ethical and moral issues associated with serving in dual roles, as both instructor of the three-credit major course and researcher in this study. In particular, there were inherent power dynamics between those responsible for grading the course and the students taking it. To minimize the impact of this power differential on the PTs' relative standing in the course, the following steps were taken. The lead author did not participate in the interview process, and all interviews were conducted only after the instructions and assignments for the major course had been completed. The data were not transcribed or analyzed until the completion of the semester, after all grades had been submitted.

Findings

Four themes were developed during the analysis process with subsequent subtopics: (a) a vehicle to facilitate holistic development, (b) HOPE looks like a bigger spectrum for inclusion, (c) a bounce between two branches: student reactions, and (d) it is doable!

A Vehicle to Facilitate Holistic Development

PTs felt that learning about HOPE and the HT model helped them change their perspectives on teaching PE. PTs were skeptical when they first learned this approach. Jerry stated, "At the beginning, we were a little skeptical about the whole idea…. But learning HOPE could be helpful in breaking the stigma like, PE classes solely focus on physicality" (Jerry, Individual Interview). He had thought that physical/psychomotor development would be the most important aspect of PE before he learned HOPE and the HT model rather than holistic development. However, during his learning, he stated that he was able to see the potential for holistic development through HOPE and shift his perspective on PE to a holistic approach. Ben also mentioned his learning about the idea of HOPE, which helped him change his perspective on PE to a holistic perspective.

> My original thoughts on humanities-oriented activities in PE were that they wouldn't be beneficial…. because I believed that in PE, the most important thing to do is to maintain movement and activity. However, when we were learning about HOPE, I had somewhat of a change of view because of the holistic concept. It honestly opened my eyes to a whole spectrum of how to teach PE. (Ben, Reflective Journal)

PTs specifically perceived that HOPE is a meaningful idea for developing the cognitive and affective domains. For example, John believed that this approach provides meaningful activities for cognitive development by engaging students in reading sport-related documents, as they can acquire knowledge about sports. He said, "They don't have to like playing it necessarily, but just trying to read it and learn something, like rules, tactics" (John, Individual Interview). Mary also mentioned, "Although you may not be active when reading you would learn a lot about the correct ways to be physically active" (Mary, Reflective Journal). In addition, Clay thought that HOPE provides the opportunity to acquire proper knowledge and techniques to play sport. He perceived that this ultimately leads to the improvement of participation in physical activities and the development of sport skills, which helps facilitate holistic development.

> It is a great idea to integrate reading into PE. Although you may not be active when reading, you would learn a lot about the correct ways to be physically active. You can also learn about what happens to your body if you are not physically active, which would make kids want to be physically active even more. (Clay, Reflective Journal)

John also mentioned that "HOPE brings in a different way of looking at the sport" (John, Individual Interview) while mentioning his experience of changing his philosophy. His current teaching philosophy has shifted toward a student-centered approach, particularly after reading an article related to HOPE. Recognizing that individual students have different interests and needs, he thought providing them with what they desire from their perspectives was imperative.

> I am kind of like more adaptable to students… I am more in my student's shoes. I thought to myself, Maybe I don't really like PE that much, but maybe I would like to write something or read something about PE. So, kind of like reaching out to different types of kids. I think through this model, I realized that I could use various activities. It seems that I have a friendly and inclusive philosophy. (John, Individual Interview)

As he mentioned, John felt that utilizing the HT model to deliver HOPE appears to meet students' diverse interests and needs because it contains not only physical activities but also various humanities-related activities. Similar to John, Andrew also expressed the philosophy that there are a variety of activities where students learn and enjoy sports. He stated, "I realized it doesn't always have to be a physical activity. There are diverse ways to learn and enjoy sports, like drawing pictures, watching videos, and reading books related to sports" (Andrew, Individual Interview). In other words, they emphasized the importance of both physical and non-physical activities as content in PE.

Thus, although the centrality of their experience of HOPE was skeptical at first, they were able to see the potential of HOPE for holistic development as PTs went through the entire process of learning over the semester. Through this, PTs seemed to transform their frame of reference for PE from psychomotor development to a

more holistic and student-centered approach. PTs thought that the content is not necessarily physically demanding, and they recognized that physically playing sports is just one way of learning and enjoying sports. They also acknowledged that humanities-related activities could be alternative avenues for actively participating in sport, facilitating not only physical development but also cognitive and affective development. This perception aligned with a holistic perspective, and they considered the HT as a useful instructional model for holistic development.

HOPE Looks Like a Bigger Spectrum for Inclusion

PTs understood that HOPE is a comprehensive concept, thereby making PE a more inclusive environment. They perceived that PE lessons focusing not only on physical activities but also on non-physical activities (i.e., humanities-oriented activities) were innovative for students, and this approach helped students feel more interested in PE classes, contributing to an increase in their participation. Ben indicated, "HOPE has a broader and bigger spectrum for students to come to PE and enjoy compared to traditional PE classes because it provides various activities" (Ben, Individual Interview). Andrew also stated that when providing HOPE using the HT model, the participation rate was higher than in his previous teaching.

> When I was teaching the HT lesson, they found it to be very exciting…. They were hesitant about it [drawing a picture about their experience of playing soccer] at first, but they actually enjoyed it… Honestly, they were more engaged with it than with a regular PE lesson. (Andrew, Individual Interview)

One of the key reasons why PTs believed HOPE was effective for creating an inclusive environment is that this concept could help students with low sports skills participate in learning activities. For students who lack interest in physical activities and have low self-confidence in playing sports, it is essential to provide alternative ways to engage in PE classes. Ben said, "I know there's a lot of students who struggle with physical activity or don't want to do, and I want to give them an alternative way" (Ben, Individual Interview). In this

regard, PTs perceived that providing humanities-related activities could be a meaningful way to include these students in their classes.

Andrew also indicated he was able to include students who were not interested in physical activities in his class by providing humanities-related activities. He said, "Students get to read stories about soccer and write about how they feel about playing soccer" (Andrew, Individual Interview). He felt that these various activities helped him include students because individuals have different preferences in terms of learning activities, and providing only physical activity would be hard for him to include students who do not like physically playing sports. Thus, Andrew believed that this approach was helpful for him in increasing students' participation, regardless of their preferences and/or skill levels.

> You would have students like, they don't want to participate, and it [humanities-related activity] is a way of getting them to participate. Okay, well, if you don't wanna participate here, let's read this article about soccer, like the World Cup. Just kind of get them learning something about the sport using various activities. (Andrew, Individual Interview)

As stated in the previous section, Jerry noted that humanities-related activities could be helpful in breaking the bias that PE classes solely focus on playing sports. This approach helped students who do not like physical activity engage in the gym because HOPE provides various sport-related, but non-physical activities such as reading, watching, writing, drawing, and listening.

> HOPE would be another way to engage in PE, especially for students who aren't very like physically inclined, like sports. And they found like a love for that. So, it was a great inclusive part…. I know some kids don't really like PE because of the stigma, PE is just playing sports. (Jerry, Individual Interview)

Andrew also emphasized that when the content of PE aligns with students' interests and preferences, it has a positive influence on their engagement. From this perspective, his previous experience with PE was limited to a narrow range of physical activities, making it challenging to meet the needs of students who lack skills and interests in physical activities. However, Andrew indicated that HOPE offers di-

verse ways to learn and enjoy sport, which helps him meet students' needs as well as promote students' participation in his classes.

> It could be like a book or magazine, or it could be like a song or something. If it was towards their interest, I think it'd be more beneficial, like participation… I think honestly, that would make a student more engageable. (Andrew, Individual Interview)

The content of HOPE helped encourage female students' engagement in a football unit, which is often perceived as a sport primarily for males. Ben noticed initially that the female students were not enthusiastic about football practice. However, by incorporating humanities-related activities such as reading articles and engaging in discussions about football in the class, their participation changed positively.

> We were on a football unit and a lot of girls don't like to do football…. So, I did one reading station. We incorporated football into reading and stuff, because a lot like it. They were actually interested in reading an article about Cam Newton and Russell Wilson [professional football players]. (Ben, Individual Interview)

Overall, PTs believed that an ideal PE class would not be just for students who excel in playing sports and have an interest in physical activities. They had a determination to provide meaningful lessons that included all students regardless of different interests, skill levels, and/or genders. In this regard, they perceived that HOPE would be an effective approach to ensure inclusion in their classes because they could provide various activities to meet students' interests and needs.

A Bounce Between Two Branches: Student Reactions

PTs generally perceived that students' reactions to HOPE were positive. They thought that humanities-related activities were refreshing content for students because they had not been exposed to such materials before. Consequently, PTs perceived that students enjoyed it. Jerry stated, "They have never heard of it before, but I mean they really liked it once they tried" (Jerry, Individual Interview). Ben

also mentioned students' sense of enjoyment of humanities-related activities. He said, "I talked to students after teaching, to get some feedback…. Normally, they do like humanities-oriented activities…. It was pretty interesting stuff, so they told me that they really enjoyed it" (Ben, Individual Interview).

Although PTs had positive reactions from many students, PTs also identified the negative reactions from students who prefer physical activity and desire movement as limitations of HOPE. While humanities-related activities were seen as positive activities that encouraged participation for students who have lower sport skill levels and were passive in physical activity engagement, students who were eager to physically play sport did not particularly favor this idea. As Jerry stated below, some students were not positive when Jerry provided them with humanities-related content, such as reading a sports-related article.

> A lot more of the students liked it [humanities-related activity] than I thought they would, but to be honest, I think they definitely thought like one of the constraints was some of the kids don't want to do this, like the kids who love to be physical and run around, you know, work off all their energy. (Jerry, Individual Interview)

John also experienced students' negative reactions similar to Jerry's. He indicated that students were accustomed to PE, whose primary focus was movement and physical activity. As a result, some students were not willing to accept the new approach to instruction; instead, John mentioned receiving questions from students asking if they could just play sports as they had in previous PE classes. John identified this as the most challenging aspect of implementing HOPE into his Student Teaching.

> They are so used to the traditional style… When I introduced something new, some of them were not really up for the change…. they're like, 'Oh, well, why are we doing this? Why can't we just play?' So, that would probably be the biggest difficulty. (John, Individual Interview)

Ben mentioned that one reason students viewed HOPE negatively was that most other school activities primarily involved sedentary

tasks, except PE. He perceived that as a result, students desired to move their bodies at least during PE classes. However, since the HT included non-physical activities, students had negative reactions to HOPE.

> Students want to be more active… It's like, they just came from a class where they had to sit or like do a paper. Then they come to PE… Some of them want to get their energy out and run around, so I feel like that could kind of hold them back. (Ben, Individual Interview)

As stated above, PTs encountered two different student reactions. They received positive reactions from one side of students who were not interested in physically playing sports, while the other side of students who were eager to physically play sports responded negatively. This negative reaction was viewed as an event that might raise a dilemma about their perspective on teaching PE. The challenge for PTs was to find their own approach between the two different orientations (i.e., emphasizing physical activity as the focus or humanities-oriented activities) to meet the needs of both groups.

It Is Doable!

PTs recognized that utilization of the HT model to deliver HOPE differed significantly from the existing culture of PE in the US. However, at the same time, they believed that this approach would have educational value and could be implemented in school PE. Therefore, despite some students' negative reactions as mentioned in the previous section, they expressed that they would implement it even after becoming in-service teachers. Sarah indicated, "I am persuaded personally to have students experience humanities-oriented activities in PE classes" (Sarah, Individual Interview). Ben also said, "I am definitely going to incorporate that [the HT model] into my future teaching… Whenever I get a job, I'm gonna incorporate it" (Ben, Individual Interview). Similarly, Andrew mentioned that during the learning process of HOPE and the HT model, he was able to obtain helpful information and content necessary for utilizing the HT model to deliver HOPE. Based on this, Andrew had no difficulty implementing it in his classes during his Student Teaching. He said, "It honestly wasn't hard. He [the instructor] helped us a lot, and the

learning materials were very informative…. So, my lesson was very fluid, and I didn't have any troubles with it" (Andrew, Individual Interview).

John also perceived this approach as feasible in school settings. He stated that he would utilize HOPE after becoming an in-service teacher, with a focus on humanities-related activities. John particularly expressed his intention to harmoniously incorporate both physical activity and non-physical activity stations in his class.

> After teaching it in my Student Teaching, like, okay well, this worked well. So, I mean it really flipped my entire perspective…. I would love to implement this model in future PE…. I would incorporate different stations, like, okay, take a little breath, and then draw you playing sports or write how you feel, how the sports make you feel... It's kind of incorporated that way. (John, Individual Interview)

Andrew also mentioned that HT is his favorite instructional model, and he expressed his intention to continue utilizing the HT model after becoming an in-service teacher. He wrote, "Honestly, the HT model is my favorite one so far… I really like it" (Andrew, Reflective Journal). Andrew graduated shortly after learning HOPE and the HT model, and during the individual interview held one month after the graduation, he was working as a PE teacher. He mentioned actively incorporating the HT model to deliver HOPE into his classes. He specifically mentioned implementing video clips related to sports, citing their ease of accessibility in finding materials and their convenience for use during PE class.

> Not entirely, but I've used it more and more… you know, I've definitely incorporated more of the humanities-oriented aspect into my PE lessons…. I use videos because I feel it's easier for students to learn that way than the other way. (Andrew, Individual Interview)

All of the participants' comments indicated that they believed that implementing the HT model to deliver HOPE into K-12 PE would be feasible. They also expressed their willingness to incorporate HOPE into their future teaching. Considering their comments, PTs perceived this approach would be doable in school PE.

Discussion

Findings from the study indicated that PTs' perceptions of HOPE shifted from skeptical to optimistic. They understood HOPE as a comprehensive concept, which makes PE an inclusive environment. Because of this, their learning about HOPE and the HT model helped them shift their perspective on PE, adopting a holistic approach. PTs also believed that although students' reactions to HOPE were mixed, it has educational value and could be feasible to implement in school PE.

As a content area in K-12 schools, PE should have an obligation to embody holistic education. It has been argued that the PE setting provides students with opportunities not only for the development of motor skills and fitness but also for the improvement of cognitive abilities and personal and social skills (Coakley, 2016). PE is especially considered a ripe environment for students to foster social and emotional learning. With intentional planning, PE has the potential to be a place where students (a) feel valued and cared for and (b) promote social and emotional competencies to overcome adversity (Sutherland & Parker, 2020). This is also evident in the national standards for K-12 PE in the US (Society of Health and Physical Educators [SHAPE] America, 2024). The national standards serve as an important framework to ensure consistency and quality in PE curricula. These standards include not only the development of movement skills but also personal and social development, aligning with the holistic perspective (SHAPE America, 2024). Thus, PE should provide students with content related to not only physical, but also cognitive, social, and emotional development. Considering the fundamental purpose of PE, it can be considered a meaningful outcome of this study that PTs transformed their teaching philosophy into a holistic perspective on PE through learning about HOPE and the HT model.

Achieving holistic development in PE requires an integrative perspective between physical and non-physical activities (Gordon et al., 2016; Haudenhuyse et al., 2013; Zarrett et al., 2008). This harmonious approach enables PE teachers to create a more comprehensive and meaningful learning experience that addresses not only psychomotor aspects but also the cognitive, emotional, and social dimensions of students' growth (Wickens & Parker, 2022). Indeed,

the success of sport-based intervention programs is more likely to be achieved when sport and physical activity are strategically combined with non-physical components (Gordon et al., 2016). For example, Zarrett et al. (2008) explored the relationship between sport participation and positive youth development during after-school activities. They compared various combinations of activities and revealed that combining sport with non-physical youth development activities was more effective than providing "sport-only" activities. Haudenhuyse et al. (2013) also indicated that "sport-plus" refers to a range of targeted activities within a sport program that seeks to intervene in the broader life of youth, and providing such sporting opportunities is viewed as being of even greater value for youth. The existing literature supports the notion that PE teachers must provide students with not only physical activities but also deliberate non-physical activities, such as humanities-oriented activities related to sports.

However, students' mixed reactions to non-physical activities can also be found in previous studies as well as in the current research. To date, existing literature has demonstrated that although teachers value a pedagogical model, they encounter difficulties in effectively implementing it in their PE classes when students resist non-physical components in PE (Sutherland & Stuhr, 2014). Given that non-physical activities are essential components of holistic development, it is critical that attention be given to in-depth exploration and understanding of the contexts where students have negative reactions to non-physical activities, so that teachers can minimize these reactions and facilitate students' participation in non-physical activities.

One interesting point is PTs' willingness to try the HT model to deliver HOPE and their conviction to continue utilizing this model even after they become in-service PE teachers, despite being new to it. In other words, the HT was an "innovative model" that they had never learned and implemented in their PE classes. This phenomenon can be explained by Rogers' (2003) five key perceived attributes of innovations (relative advantage, compatibility, complexity, trialability, and observability) because their willingness to teach the HT to deliver HOPE could be considered as a process of adoption of innovation (Kaur Kapoor et al., 2014). To be specific,

PTs considered the HT as a useful pedagogical model for student development, particularly holistic education (relative advantage). One reason PTs implemented HOPE into their teaching was the alignment between their teaching philosophy and the fundamental goals of the HT model (compatibility). They also thought that HOPE was an easy framework, and therefore, they felt they had the knowledge, understanding, and resources to implement HOPE into their lessons after learning (complexity). Based on their learning, they actively attempted to utilize the HT model or a part of its structure to deliver HOPE (trialability), and they were able to see some possibilities for student development even within a short period of time (observability). Thus, this finding demonstrates that even though the HT was a new instructional model to use in their teaching, PTs perceived that the usage of the HT to deliver HOPE in PE was feasible so were willing to adopt the innovation.

Conclusion

The current study explored PTs' learning and their perceptions of HOPE, along with the HT model, after providing a series of learning activities in a PETE program. As noted, this study provides meaningful evidence regarding PTs' positive perceptions of HOPE. They felt that HOPE helps create PE as an inclusive environment for holistic development. They also perceived that implementing the HT model to deliver HOPE would be feasible in school PE.

Despite the meaningful findings, this study has some limitations that we would like to acknowledge. First, we had a limited perspective on HOPE and the HT model because data were gathered from only a group of PTs, and other possible groups (e.g., in-service teachers, students, guardians, and/or administrators) were not included as key informants. Thus, future studies should consist of a diverse range of participants, particularly students, as the ultimate goal of using the HT model to deliver HOPE is to enhance student development. Second, the possibility of transferability to other contexts (e.g., another group of pre-service and/or in-service teachers in different environments) is limited. Given the nature of the case study approach, it is also challenging to determine the extent to which the findings of this study can be applied to other contexts, circumstances, and situations. Although a qualitative case study typically focuses on small numbers of participants to yield insights and an in-depth un-

derstanding (Patton, 2015), data from only eight participants were insufficient to facilitate transferability. Thus, the current study needs to be replicated in the future with different teaching contexts, teacher groups, and learning environments to gather stronger evidence of the perception of HOPE in conjunction with the HT model. Last, the findings of this study raise concerns that readers may have a superficial understanding of HOPE. The theoretical background of HOPE emphasizes that learning sport includes transmitting its culture, tradition of social practice, and values (Choi, 2018). However, PTs seemed to have a limited understanding, primarily perceiving the concept of HOPE as a tool to provide non-physical activities rather than appreciating the intrinsic parts of sport. Thus, in the future, a critical analysis of this aspect should be undertaken to provide a deeper understanding of the true value and potential of HOPE.

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PEDAGOGY

Teaching Readiness in Physical Education Teacher Education: Preservice Teachers' Content Development and Adaptations to Lesson Plans During School Placement

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Abstract

The purpose of this study was to examine (1) preservice teachers' (PSTs) content development in terms of task selection and specialized content knowledge (SCK) index; and (2) what adaptations to core practices PSTs make in lesson plans during school placement. Content development data were retrieved from 111 lesson plans of 11 PSTs. Data on adaptations to lesson plans following reflection-on-action with a supervisor were retrieved from 112 lesson plans of 10 PSTs. The data were coded by trained coders and analyzed descriptively. The PSTs planned an average of 4.51 tasks per lesson plan, and all had an SCK index below the 3.0 benchmark. On average, PSTs made 1.16 adaptations per lesson plan, with most being made to content development

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(46%) and management (26%). The PSTs demonstrated low SCK in the content they were teaching. The low number of adaptations might indicate PSTs' difficulties in adapting their teaching.

Introduction

Teachers' ability to adapt their teaching for students with different skill levels and prior knowledge (i.e., adaptive competence) is a crucial outcome of teacher education programs (Xie et al., 2021). Consider, for example, a teacher teaching a 1v1 badminton game. After observing a game with a higher and a lower-skilled student, the teacher decides to narrow the playing field for the lower-skilled student. The higher-skilled student needs to be more precise to score, and the lower-skilled student has less court to cover and is more successful in returning the shuttle. As a result, the game becomes more competitive and equitable. After the lesson, the teacher decides to add this task adaptation to the lesson plan for future classes. This example illustrates the teacher's ability to adapt a task to the student's skill level, a concept known as adaptive competence (Brühwiler & Blatchford, 2011; Xie et al., 2021).

Adaptive Competence

Teaching occurs in an active, constantly changing context that requires teachers to be adaptive (Xie et al., 2021). Adaptive competence is defined as teachers' "ability to adjust their planning and teaching to the individual learning processes of students" (Brühwiler & Blatchford, 2011, p.98). In physical education, teachers need to monitor students during often high-paced activities and make informed decisions regarding content and management to optimize their learning. Adaptive competence views teaching as a decision-making process rather than a prescriptive activity (Ward et al., 2018).

Research on adaptive competence in physical education has investigated PSTs' adaptations to core practices in lesson plans and during their teaching (Bosmans et al., 2024; Cho et al., 2023, 2024; Dehandschutter et al., 2024; Xie et al., 2020; 2021). Core practices are the central teaching tasks that teachers need to teach effectively (Forzani, 2014). In teacher education programs, PSTs focus on the application of core practices within specific content and contexts, rather than viewing learning theory and pedagogy as discrete events

(Forzani, 2014; McDonald et al., 2013). Ward (2021) defined and validated a set of sixteen core practices for physical education, including developing rules and routines, presenting content in progressive steps, and using accurate demonstrations to present the content to students. Core practices are highly contextual, and beginning teachers need to learn to apply these in varying circumstances and with different learners (Ward et al., 2020). In other words, core practices are transferable skills that enable PSTs to learn from and about their teaching, thanks to the multiple opportunities for practicing analysis and decision-making during lessons.

Deliberate Practice

The improvement of teachers' ability to adapt their core practices requires a deliberate effort. Several researchers have proposed different pedagogies to develop adaptive competence, such as deliberate practice and reflection. Deliberate practice means that during the planning or teaching of lessons, teachers focus intentionally (i.e., deliberately) on the improvement of one or more core practices (Xie et al., 2021). The term implicates intentional efforts to improve performance (Ericsson et al., 1993) and is characterized by goal setting (Ward et al., 2018). Several teaching pedagogies, like teaching rehearsals, can be used to facilitate deliberate practice. In teaching rehearsals, such as peer teaching in methods classes, PSTs can focus on the nuances of teaching, with a deliberate emphasis on core practices. A study of Cho et al. (2023) conducted during an introductory methods class reported on PSTs' adaptations to core practices in three lesson plans. PSTs had multiple opportunities to make adaptations to each lesson plan, and data reported a median number of adaptations of 39 (lesson plan 1), 49 (lesson plan 2), and 38 (lesson plan three). Most adaptations were made to the core practice of "providing clear instructions" and "establishing rules and routines." Similar results were found in two studies by Xie et al. (2020; 2021). In a first study conducted during peer teaching (Xie et al., 2020), five PSTs had a total of five opportunities to make adaptations to three lesson plans. Out of a total of 620 adaptations, most adaptations were made to 'establishing rules and routines' (n=150) and 'providing precise instructions' (n=115), after 'coordinating and adjusting instruction' (n=234). In a follow-up study (Xie et al., 2021), adaptations to core practices were examined in a virtually taught introductory methods

class. Nine PSTs made an average of 788 edits during seven weeks, with 16 edits to two lesson plans and an additional edit to a novel lesson. Most edits were found in the core practice of "providing precise instruction" (mean = 421.2), followed by "establishing rules and routines" (mean = 141.8).

Reflection

Schön (1987) discriminated between two types of reflection: reflection-in-action and reflection-on-action. When connecting a teacher's reflection with their actual, practical pedagogical action, teachers can adapt their teaching either during or after the teaching process. The former is the result of reflection-in-action, and the latter is the result of reflection-on-action (Schön, 1987). For example, during a lesson (reflection-in-action), the teacher notices that one of the students is not successfully performing the basketball's pass-and-go move. She steps in and instructs the student to feint a passing movement and change speed after passing (adaptation to the task, i.e., content development). As for reflection-on-action, a teacher may only realize that she could have solved a lesson problem after class, when she looks back at the lesson plan and reflects on what she could have done better or what she would do better next time. The teacher may also sense that different feedback should be provided (active supervision and monitoring) and that it is best to refocus the task goals on setting the forearm position straight (goals and assessment).

In considering reflection-on-action, a teacher's decisions during post-lesson reflection and planning may reflect the application of knowledge regarding how a teacher will teach (Xie et al., 2021) in the next time they may face a similar situation. This level of applied reflection demonstrates a certain level of pedagogical ability, empowering teachers to anticipate future teaching challenges and draw on prior reflections when planning the next lesson. In physical education, reflection on action has been implemented to facilitate PSTs' development of adaptive competence. Bosmans et al. (2024) examined the effect of guided reflection for adapting core practices in lesson plans during a methods class. PSTs who received a personal feedback meeting with video analysis of their teaching and probing questions made more adaptations than PSTs who only received class-wide feedback or PSTs who only observed their peers teach

during the methods class. Cho et al. (2023) used the practice-based pedagogy cycle, a six-step process that includes reflection, to develop the adaptive competence of PSTs. The reflection helped PSTs to think about how to improve their teaching for the next time. To date, there is one study that examined adaptive competence during school placement (Dehandschutter et al., 2024). Two PSTs adapted two lesson plans during three iterations and were supported by feedback, guided reflection on action, and repeated teaching. Results indicated that the PSTs made substantive changes in their lesson plans and demonstrated growing competence in their teaching.

Content Knowledge

The concept of adaptation relates to Shulman's (1987) definition of pedagogical content knowledge (PCK). Shulman (1987) considered PCK as "an understanding of how particular topics, problems, or issues are organized, presented, and *adapted* to the diverse interests and abilities of learners, and presented for instruction" (p.8). Consequently, teachers' adaptations of planning and teaching are an element of PCK.

Teachers' PCK is largely influenced by their content knowledge (CK). Ward (2009) defined knowledge about rules, techniques, and tactics needed to perform a specific task (e.g., a badminton clear) as Common Content Knowledge (CCK). The knowledge to teach an activity (e.g., knowing the different task progressions to teach a badminton clear), or to teach CCK, to students is operationalized as Specialized Content Knowledge (SCK). In PETE, SCK can be subcategorized into instructional tasks (e.g., different task progressions), frequently made errors and how to correct them, and how the content is presented to students (e.g., descriptions, demonstrations, and metaphors). It consists of knowledge about student errors, knowing how to present a task, and how to adapt the task for learners with different skill levels (Ward et al., 2020).

Content Development

The sequencing of tasks to achieve an instructional outcome is referred to as content development (Ward et al., 2020). In her seminal work, Rink (1979) defined four main task types to teach toward an instructional outcome progressively. An informing task is an initial task in progressing a skill or tactic. Extending tasks increases

or decreases the complexity or difficulty relative to a previous task. Refining tasks focus on performance quality, such as improving the technique. In an applied task, students need to apply their CCK in a particular context, such as a game.

A large body of evidence shows that PSTs enter PETE programs with limited knowledge of the content they need to teach (Tsuda et al, 2019). Additionally, they often acquire only a small portion of that knowledge during their training (Iserbyt & Coolkens, 2020; Tsuda et al., 2019; Ward et al., 2020). This is a critical issue since teachers will struggle to teach content that they don't know. To measure the depth of the content development, Ward et al. (2017) created and validated an SCK index score. The resulting score reflects the teacher's depth of SCK. The SCK index score places the informing task as a denominator and all other instructional tasks as numerators, where a score of 3.0 can be identified as a benchmark for strong SCK. Reviewing work regarding SCK must be done carefully because effectiveness can be influenced by the method used to measure it: what SCK the teachers used versus what SCK the teachers planned, which may be less (Kim & Ward, 2021).

Purpose and Research Questions

Several studies have examined the content development and adaptive competence of PSTs during teacher training and methods classes. This study will investigate both variables in the context of a school placement within a PETE program in Northern Portugal. More specifically, this study will investigate how PSTs make adaptations to core practices following their teaching without specific support or training, which contrasts with previous research (e.g., Bosmans et al., 2024; Cho et al., 2023; Xie et al., 2020, 2021). The following research questions were defined: (1) What is the PSTs' content development of PSTs in terms of task selection and SCK index? and (2) What adaptations to core practices do PSTs make in lesson plans? We hypothesized that (1) PSTs' task selection will mainly consist of informing tasks, which would result in SCK index scores lower than the 3.0 benchmark; and (2) PSTs make more adaptations to management and content development compared to the other core practices.

Methods

Participants and Setting

Participants were 16 PSTs (11 males and five females; mean age = 23±1.9 years) enrolled in the second year of a two-year PETE Master's program at a Northern Portuguese Faculty of Sport. The PSTs were placed in nine secondary schools for school placement training and supervised by nine cooperating teachers who had ±30 years of experience in teaching and ±20 years of experience as cooperating teachers. Data were collected during PSTs' school placement. In total, this study considered 12 basketball and volleyball units taught by PSTs during their school placement, with a minimum of eight lessons per unit.

In the first course year, the PSTs completed coursework on six theoretical course units (e.g., Curriculum Development in PE, Teaching Professionalism, Educational Psychology, Research in Education, School Culture and Organization; General Teaching Methods in a total of 240 hours) and 12 practical-based units including team sport teaching methods (Volleyball, Basketball, Football, Handball), individual sport teaching methods (Swimming, Athletics, Gymnastics, Badminton, Dance, Martial Arts) and Physical Activity-based teaching methods (Adapted Sport, Fitness) totaling 360 hours. For both basketball and volleyball (the school placement units taught by PSTs in the current study), PSTs received 30 hours of pre-school placement training (two hours x 15 sessions per sport). In each teaching methods unit, the PSTs learned a particular content (e.g., badminton, swimming) associated with different pedagogical models (direct instruction, Sport Education, Games-based approaches). In most units, the PSTs engaged in group peer-teaching practice and teaching sessions with children from the fifth grade. In the professional school placement of the second year of the course, PSTs work 14 hours a week for a full academic year (i.e., 34 weeks, totaling approximately 470 contact hours). The Ethical Committee from the fourth author's university granted ethical approval for this study (CEFADE12-2023).

School Placement

During school placement, each PST was responsible for teaching two units each school term (two team sports—e.g., basketball, volleyball; one individual sport—athletics or gymnastics; and one outdoor adventurous activities unit—orienteering) to one fixed secondary class across the entire academic year. The university supervisor's (±11 years of supervision experience) support included three annual field observations per PST and post-lesson reflective work sessions together with the cooperating teachers.

During their daily fieldwork, PSTs received proximal support from their respective cooperating teacher, who observed all lessons and met weekly with PSTs to discuss and address their ongoing teaching challenges. This support included suggestions for appropriate tasks, management, instruction strategies (e.g., task presentation), and learning monitoring (e.g., error detection feedback). In addition, the university supervisor and the nine cooperating teachers held weekly meetings to align the mentoring procedures applied to PSTs. In school placement, accommodation facilities varied per school and could not be standardized.

Dependent Variables

Although 16 PSTs participated in this study, not all participants provided cumulative data for the two dependent variables (content development and adaptations). A total of nine volleyball units and six basketball units were considered in content development, and eight volleyball units and six basketball units in the adaptations made to lesson plans.

Content Development

Data from 11 PSTs (four females, seven males) were included. A total of 111 lesson plans were coded and analyzed, of which 32 represented basketball and 70 referred to volleyball. Content development underwent the following coding protocol: (1) PSTs counted the number of tasks following an informing one in their lesson plans; (2) during post-lesson reflections, the tasks were coded into the seven groups defined in Table 1 based on the work of Rink (2020). In addition, to accommodate game-based approaches, the task types defined by Rink (2020) were extended to include refining-applying, extending-applying, and applying-non-game tasks (Ward et al.,

Table 1
Definition of Content Development Variables

Task type	Definition + example
Informing task (I)	The initial task in the progression of a skill and which cannot be classified under the other categories. For example, "We start with a 1v1 badminton game on half court, but you can't score in 'the death zone' in front of the service line."
Extending task (E)	A task that increases the level of difficulty of a previous task by adding or deleting elements (e.g., adding the lob service) or adding more variety (e.g., touch a sideline after every stroke).
Extending-Applying task (EA)	An extending task occurring in context of a game-like environment where the purpose is to apply the task in a game. For example, "From now on you can only score with a clear."
Refining task (R)	A task that requires a specific focus on the quality of performance such as technique or tactical performance. For example, "Shift your bodyweight from the rear foot to the front foot when hitting the shuttle."
Refining Applying tasks (RA)	A refining task occurring in context of a game-like environment where the purpose is to apply the task in a game. For example, "Try to find the open spaces in your opponent's court."
Applying task-game (AG)	A task that uses the content of the lesson in a game. For which the particular focus is not specified. For example, "We play a 1v1 half court badminton game."
Applying non-game task (AN)	A task that centers on assessment of form or on how to use the movement, rather than just how to do the movement. For example, "How many sequences of clear – clear – drop can you and your partner make within 1 minute?"

2017). Applying-refining and applying-extending tasks are types of tasks that occur in a game-based situation, refining and extending skills. Applying non-game tasks are tasks that serve as assessments or center around how to use the movement; (3) appropriateness was checked first by their peer PST (i.e., a PST that was at the same school)followed by the cooperating teacher and by the university supervisor; (4) the coded data were organized into one single coding file; (5) SCK-indices were calculated (all but informing tasks / informing tasks); (6) proportions of task types were used to examine the task selection.

Lesson Plan Adaptations

A total of 112 lesson plans were coded and analyzed (basketball = 34 and volleyball = 68). Twenty-three of those lesson plans were delivered by a dyad of PSTs. Eighty-nine were individual assignments.

Two students were excluded due to incomplete data regarding their adaptations. The total data were collected from 10 PSTs (two females and eight males).

The adaptations that PSTs made to core practices were written on lesson plans and then entered datasheets. The coding protocol consisted of three steps: (1) translation into the coder's native language (Dutch); (2) verifying whether it was an adaptation (e.g., oftentimes PSTS would write comments like "This did not work well," which was not coded as an adaptation); (3) Indicating to what core practice the adaptation was referred to. The six core practices are defined in Table 2.

Data Collection and Reliability

The PSTs' supervisor collected the lesson plans and the results of their assignments to make a reflection-on-action following each lesson during their school placement. All these documents containing data were uploaded to an online learning management system. The data were then downloaded and compiled into a single Excel file for coding.

Table 2

Core Practices and Examples

Core practice	Example from the study
1. Goals and assessments (GA)	Formative evaluation to assess and re-evaluate the process and future goals in a 3v3 basketball and volleyball game.
2. Establishing rules and routines (RR)	Each session will be ended with putting away materials and a check for understanding.
3. Management (MA)	Assemble the students with the purpose of improving efficiency of task presentation.
4. Content development (CD)	Underhand throw instead of underhand service to optimize playing the game.
5. Task presentation (TP)	Select skilled students to demonstrate the task and rotation system.
6. Active supervision and monitoring (AM)	Observe the criteria of the task and (only) give feedback accordingly.

For reliability, coding occurred on four different levels. First, students and their peers coded as part of their coursework. The supervisor checked completeness and provided feedback. Subsequently, the authors established goals and aligned their understanding of the different criteria for coding during a first meeting. Then, one of the authors began coding and highlighted the difficulties and uncertainties. Upon completion, the coding results were discussed in a follow-up meeting to resolve any disagreements. Additionally, >35% (n=158 adaptations) of the data was checked by a trained coder, obtaining an intercoder reliability of 90.4% ([agreements/(agreements + disagreements)] * 100).

Data Analysis

The data analysis was conducted in an Excel spreadsheet. After coding task types and adaptations in lesson plans, descriptive statistics were calculated in Microsoft Excel. Average tasks per lesson, SCK depth, and proportions of task types were described for the participants included in the first research question. Absolute numbers of the different adaptations made to core practices were described for the participants included in the second research question.

Results

Content Development

A total of 111 lesson plans from 11 PSTs were coded and analyzed. Results showed an average of 4.51 tasks per lesson plan (range, 3.78–6.0) and a mean SCK index of 2.14 (range, 1.62–2.93) for the 11 PSTs (see Table 3). None of the PSTs reached the 3.0 SCK benchmark. Informing tasks represented on average 34% of tasks in PSTs content development, followed by extending tasks (22%) and applying-game tasks (20%). Refining and refining-applying tasks represented 6% and 5% of tasks, respectively. Extending and applying tasks represented 12%, while applying non-game tasks represented 11%.

Adaptations to Lesson Plans

Adaptations to lesson plans were analyzed to examine the adaptive competence of the PSTs. The PSTs made 130 adaptations in 112 lesson plans, averaging 1.16 adaptations (range: 0.38–1.78) per lesson plan (see Table 4). Adaptations to content development ac-

Table 3
Overview of Tasks (n=504), Average Tasks Per Lesson Plan, Specialized Content Knowledge (SCK) Index, and Task Types for 11 Preservice Teachers (PSTs) across 111 Lesson Plans

PST	Lessons	Total Tasks	Average tasks per Lesson Plan	SCK index	I (%)	E (%)	EA (%)	R (%)	RA (%)	AG (%)	AN (%)
1	8	35	4.38	2.02	37	11	20	9	3	14	6
2	8	35	4.38	2.75	29	17	17	6	9	14	9
3	9	37	4.11	1.87	35	19	8	5	8	24	0
4	9	34	3.78	1.65	38	15	9	6	12	21	0
5	10	41	4.10	2.35	29	29	5	10	0	20	7
6	10	47	4.70	1.62	36	23	9	9	0	23	0
7	10	55	5.50	2.93	29	47	7	0	0	16	0
8	11	44	4.00	1.66	41	16	5	2	5	25	7
9	12	72	6.00	2.13	35	22	14	7	0	22	0
10	12	47	3.92	2.63	28	13	17	0	4	9	30
11	12	57	4.75	1.89	37	21	18	0	0	25	0
Average	10	46	4.51	2.14	34	22	12	6	5	20	11

counted for 36% of all adaptations, followed by 28% for management. These two core practices represented 64% of all adaptations. The least adaptations were made to the core practices of developing goals and assessments (8%) and establishing rules and routines (9%).

Discussion

This study aimed to answer the following research questions: (1) What is the PSTs' content development in terms of task selection and their SCK index? and (2) What adaptations to core practices do PSTs make in lesson plans? We hypothesized that (1) PSTs' task selection will mainly consist of informing tasks, which would result in SCK index scores lower than the 3.0 benchmark; and (2) PSTs make more adaptations to management and content development compared to the other core practices.

Content Development

The PSTs in this study did not achieve the 3.0 benchmark of SCK in their lesson plans. This suggests that PSTs lacked sufficient knowledge about the content they were teaching. Although highly undesirable, various authors from different countries have reached the same conclusion. In their study with PSTs, Iserbyt and Coolkens (2020)

Table 4
Overview of Adaptations (n=130) to Core Practices for 10 Preservice Teachers (PSTs) across 112 Lesson Plans

PST	Lessons	Total Adaptations	Adaptations per Lesson Plan	GA	RR	MA	CD	TP	AM
1	14	22	1.57	1	2	8	10	0	1
2	14	25	1.79	2	1	7	8	4	3
3	16	23	1.44	4	3	6	4	4	2
4	4	4	1.00	0	0	4	0	0	0
5	10	11	1.10	1	1	4	3	0	2
6	14	16	1.14	0	0	2	11	1	2
7	6	6	1	0	0	2	1	2	1
8	15	14	0.93	1	0	1	7	3	2
9	13	5	0.38	0	1	1	1	0	2
10	6	4	0.66	0	0	1	2	1	0
Total (%)	112	130	1.16	9 (7%)	8 (6%)	36 (28%)	47 (36%)	15 12%)	15 (12%)

reported median SCK indexes of 1.67 and 1.15 in parkour and basketball, respectively. These PSTs had just received a methods class on how to teach both content domains in middle and high school. In this study, informing tasks represented the largest proportion of tasks planned by PSTs, which confirms findings from other research (Ward et al., 2017) and is a mathematical antecedent for lower SCK index scores. Ayvazo and Ward (2011) and, more recently, Ward et al. (2017) argued that extending tasks are more often used by more knowledgeable and expert teachers. The results of this study showed that PSTs had a planned proportion of 22% extending tasks. Extending and applying tasks represented only 12% of the total tasks. Because the content domains of volleyball and basketball were taught using a games-based approach in the teacher education program, one would expect proportionally more extending-applying tasks (i.e., extending tasks in a game-based setting) compared to extending tasks. It seems that the content development of the PSTs during their school placement does not reflect this approach, as previously argued by Iserbyt and Coolkens (2020). In conclusion, PSTs showed preferences in informing, extending, and applying game tasks.

The finding above can be considered in light of the host university's curricular choices in this study. Namely, and as it relates to the

second finding regarding the first research question, PSTs taught a minimum of eight units in each school on the same topic. This policy choice of rather long units lends itself to a lot of extending(-applying) and refining(-applying) tasks. These refining(-applying) tasks were not planned by PSTs accordingly, which is an indicator of limited SCK. A possible explanation could be the absence of knowledge of student errors. Previous research has suggested providing PSTs with CK workshops to enhance content development (Kim et al., 2018).

Adaptations in Lesson Plans

Relative to the second research question, the results indicated that PSTs in this study made substantially fewer adaptations to lesson plans compared to previous work (Bosmans et al., 2024; Cho et al., 2023; Dehandschutter et al., 2024; Xie et al., 2021). Earlier studies in adaptive competence implemented intensive interventions to assist PSTs in developing adaptive competence. Reflection-on-action in those studies was supported through personal feedback meetings (Bosmans et al., 2024) or the practice-based pedagogy cycle (Cho et al., 2023). In contrast, this study was conducted during school placement with limited support for developing adaptive competence, which, together with PSTs' low SCK, possibly led to substantially fewer adaptations compared to other work. Dehandschutter et al. (2024) demonstrated that substantive adaptations in lesson plans can be made during school placements. However, their support in PSTs' adaptive competence was quite intensive, consisting of three iterations of each lesson plan combined with daily lesson observation and feedback meetings, which limits the feasibility of this approach to a regular-sized PETE program.

Additionally, in methods classes PSTs are supported by experienced supervisors who prompt PSTs and guide them towards the development of adaptive competence. The supervision during school placement by cooperative teachers may differ from that by PETE faculty, which could also explain the few adaptations observed in this study. To date, the impact of cooperating teachers' supervision and feedback on the development of adaptive competence has not been investigated. However, it may be of prime importance, as they usually spend a considerable amount of time with PSTs. The design of this study—adaptations were made to the lesson plans—could

also contribute to the relatively low frequency of adaptations, as the same PST may become more adaptive through practice, reflection-in-action, or repeated teaching, which is not reflected in these results. Being able to reflect in action is another important component of adaptive competence.

Most adaptations in this study were made to the core practice of content development (*n*=47; 36%) and management (*n*=36; 28%). This contrasts with other studies, where most adaptations referred to rules and routines or different aspects of task presentations (Xie et al., 2020, 2021; Cho et al., 2023). While in methods classes, PSTs often work from incomplete lesson plans provided by PETE faculty; however, during school placements, PSTs usually write lesson plans from scratch. This might affect the number of adaptations PSTs make in lesson plans. In contrast, this study found that management was an often-adapted core practice. Xie et al. (2020, 2021) and Cho et al. (2023) also found that establishing rules and routines was often adapted. Both core practices may be interrelated because they are primarily used for fluent transitions and other organizational activities. Perhaps this might reflect a different focus of the program. Additionally, it has been argued that during school placements, PSTs tend to adopt the rules and routines of the cooperating teacher, which explains why little adaptation to this core practice occurs (Dehandschutter et al., 2024).

Together with management, content development accounted for 64% of the adaptations made to lesson plans in this study. The number of adaptations to these core practices reflect the findings of limited SCK in the PSTs. Whenever a PST had to make a lot of adaptations related to content development, it often implied uncertainties regarding the content taught. However, this finding cannot be generalized to every PST. Different initial levels of content knowledge guided PSTs towards different content taught and adaptations made. It underlines the importance of strong (S)CK to develop adaptive competence in both preservice and in-service physical education teachers (Kim & Ward, 2021). The relatively low frequency of adaptations made towards task presentation and active supervision could also be explained by limited content knowledge. It implies not knowing how to explain a task or how to correct errors.

Limitations and Strengths

This study has a few limitations. First, field-based research in teacher education settings often involves a limited sample size. Also, there is no control or comparison group. This makes it impossible to assess the cooperating teacher's or co-teacher's role in determining the development of adaptive competence and selecting appropriate tasks. The content knowledge of the individual PSTs was not evaluated before this study. This could have given insights into the decision-making process of less knowledgeable or experienced PSTs. Finally, we have no idea about the effect of the adaptations on students' performance and learning, nor do we know why PSTs made certain adaptations. Both domains are certainly areas for future research.

The study reports representative data of an intact PETE program as it is currently organized, which is a strength of this study. As discussed, the study could contribute to an evidence-based development of adaptive competence through core practices. Some of the descriptive results provided here could potentially inform future (quasi-)experimental designs. Additionally, the role of possessing or gaining more content knowledge regarding the development of adaptive competence should be explored further in future research. Especially now because of the possibility to measure the evidence-based distinction between PCK, SCK and CCK. This could be a significant intervention for in-service teachers during a professional development workshop or content classes.

Conclusion

This study shows that during school placement, the PSTs in this study had an SCK index below 3.0. Additionally, the low number of adaptations made in lesson plans reflects difficulties in adapting their content and teaching. A key contrast with previous studies is the absence of expert support and accountability. Future work should include CK workshops to improve PSTs' content development and support in developing adaptive teaching to improve PSTs' adaptive.

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PEDAGOGY

Effects of a Training Program on Pre-Service Physical Education Teachers' Skill Analysis Ability

Shern Meng Tan

Abstract

Although skill analysis ability is crucial for physical education (PE) teachers, it is underemphasized by physical education teacher education (PETE) programs. This study aims to examine the effects of a training program on pre-service PE teachers' skill analysis ability. Utilizing a quasi-experimental research design, 36 pre-service PE teachers (experimental group) participated in a skill analysis training program for eight motor skills while no training was provided for 37 Sport Science and Management (SSM) undergraduates (control group). Based on a four-step model (Knudson, 2013), the skill analysis training program introduced participants to eight motor skills and their critical features. Participants also watched videos of correct skill performances and practiced analyzing incorrect skill performances using the same videos. For both groups, the skill analysis ability of the eight motor skills was measured before (pre-test), immediately after (post-test), and six weeks after (retention test) the training program. For the experimental group, a large and statistically significant increase in skill analysis ability was observed between the pre- and post-tests, while a statistically insignificant decrease in skill analysis ability was observed between the post- and retention tests. For the control group, a small but statistically significant increase in skill analysis ability was observed between

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the pre- and post-tests, and a statistically insignificant decrease in skill analysis ability was observed between the post- and retention tests. The results indicated that pre-service PE teachers were unable to analyze motor skills prior to the PETE program, and the training program effectively improved their skill analysis ability, which was retained six weeks later. More importantly, the pre-service PE teachers attained the established competency level for eight motor skills after the skill analysis training program. Thus, the study supports the inclusion of skill analysis training in PETE programs.

Introduction

Skill analysis is an important ability that PE teachers must possess, referring to the systematic observation and introspective judgment of the quality of human movement to provide the most appropriate intervention to improve performance (Knudson, 2013). Experienced PE teachers frequently use their skill analysis ability in their classes to provide feedback, manage the classroom, and inform teaching practice (Siedentop & Tannehill, 2000). Likewise, Metzler (2011) and Rink (2014) considered skill analysis to be an essential skill for PE teachers, enabling them to provide students with feedback, assess their performance, or make decisions about what to do next. Most recently, Ward et al. (2021) discussed the importance of PE teachers' skill analysis ability, its place in PE teachers' content knowledge, and how PETE programs can develop PE teachers' skill analysis ability. It was suggested that PE teachers' skill analysis abilities can be enhanced by using criteria checklists and peer teaching strategies during courses, incorporating technology such as video software, to provide PE teachers with more precise and detailed skill analysis. Opportunities to analyze students' skill performances can also be found during practicum and formative assessment. Most importantly, Overdorf and Coker (2013) argued that PETE programs have "traditionally relied on a fragmented single sub-disciplinary approach" (p. 198), short-changing PE teachers in terms of their skill analysis ability. They proposed that PETE programs should adopt an integrated four-step model (Knudson, 2013) to develop the skill analysis ability of PE teachers.

A Four-Task Model for Skill Analysis Training

Knudson and Morrison (1996) and Knudson (2000) proposed a skill analysis model that integrated many subdisciplines of PE (e.g., biomechanics, motor learning, and pedagogy), and comprised four tasks: preparation, observation, evaluation/diagnosis, and remediation. PE teachers must first prepare to analyze the skill by identifying its critical features from research, professional literature, and experience. Next, PE teachers should observe multiple attempts of the skill from positions where they can see most or all of the critical features. After observing, PE teachers evaluate and diagnose skill performance by determining whether the critical features were performed correctly, incorrectly, or not at all. Lastly, PE teachers remediate skill performance by providing feedback, modifying practice, or praising the performer if the skill was performed correctly. Knudson (2013) emphasized that skill analysis is a key teaching skill that is interdisciplinary and should be systematically addressed by the curriculum in teacher preparation and other kinesiology programs, rather than residing solely in a specific course, such as Biomechanics.

Studies on Skill Analysis Training

The training of PE teachers' skill analysis ability remains understudied, with less than 30 studies conducted in the past five decades. In terms of skill analysis training, limited studies have generally found that videotape-based instruction, complemented with skill checklists, is effective for pre-service PE teachers (e.g., Cloes et al., 1995; Gangstead & Beveridge, 1984). Skill analysis training without instructors was found to be less effective e.g., self-directed training programs (Walkley & Kelly, 1989), multimedia interactive laserdisc computer-driven training programs (Williams & Tannehill, 1999), computer-based distance learning (McKethan et al., 2003), and peer-teaching among undergraduates (Pulling & Allen, 2014). Also, studies indicated that skill analysis training is specific and not transferable (Gangstead & Beveridge, 1984; Wilkinson, 1996).

In terms of the skills analyzed, the overarm throw is the most analyzed skill (e.g., Haynes & Miller, 2015), and studies have also focused on specific games/sports, e.g., Volleyball (Bayless, 1981; Cloes et al., 1995; Moon & Park, 2023; Nielsen & Beauchamp, 1991; Soyturk, 2019; Wilkinson, 1991, 1992). Previous studies have trained

participants to analyze various skills, with nine studies including only one skill (Armstrong & Hoffman, 1979; Eckrich et al., 1994; Imwold & Hoffman, 1983; Kelly & Bishop, 2013; Kelly & Moran, 2010; Kelly et al., 2012; McKethan et al., 2003; Walkwitz & Lee, 1992; Wilson et al., 2021) and seven studies including three skills (Bayless, 1981; Morrison & Harrison, 1985; Morrison & Reeve, 1988, 1992; Morrison et al., 1992; Wilkinson, 1991, 1992). Only one study included nine skills (e.g., Williams & Tannehill, 1999). The training duration of skill analysis ability depended on the number of skills covered and varied between studies, ranging from 40 minutes (Morrison & Reeve, 1986) to twelve weeks (Nielsen & Beauchamp, 1991). The number of skills included in each study is more often an afterthought. As highlighted by Haynes and Miller (2015), studies were more concerned with reporting the novelty of their skill analysis training programs rather than the number of motor skills that PE teachers can analyze after training.

Only five studies have examined the retention of the participants' skill analysis ability (e.g., McKethan et al., 2003). It was found that skill analysis ability has been retained for a week (Kelly et al., 2012), two weeks (Eckrich et al., 1994), and two months (Morrison & Harrison, 1985) but not retained one year later (Wilkinson, 1992). More recently, Kelly and his colleagues examined the effectiveness of a web-based interactive video assessment program in training PE teachers to analyze skills, and both pre-service and in-service PE teachers' analysis ability improved for the skills of kicking and underhand roll (Kelly & Bishop, 2013; Kelly & Moran, 2010; Kelly et al., 2012; Wilson et al., 2021). Most importantly, few of the studies by Kelly and his colleagues have enabled their participants to attain the established level of 80% for skill analysis to be considered competent (Kelly & Moran, 2010; Walkley & Kelly, 1989; Williams & Tannehill, 1999).

In summary, the training of PE teachers' skill analysis ability remains understudied in the past decades. While some studies indicated that skill analysis training programs are best supported by the presence of instructors and the use of skill checklists, few studies have enabled PE teachers to analyze a variety of motor skills competently.

Skill Analysis Training in Singapore's PETE programs

The PETE programs in Singapore underemphasize skill analysis training (National Institute of Education, 2020a, 2020b, 2020c). Although pre-service PE teachers read kinesiology or biomechanics courses, past studies indicated that such courses offer few opportunities to acquire skill analysis ability (Abendroth-Smith et al., 1996; Morrison & Harrison, 1997; Wilkinson, 2000). Likewise, the plethora of physical activity courses, (e.g., Badminton, Basketball, Dance, Floorball, Curriculum Gymnastics, Soccer, Softball, Track & Field, and Volleyball), attended by pre-service PE teachers, emphasized learning the game/sport skills but do not equip them with skill analysis ability.

Situated within Singapore's PETE programs, this study is one of the first to examine the effects of a training program on pre-service PE teachers' skill analysis ability. The significance of this study is (1) the contribution to the limited literature on skill analysis training, and (2) the potential of inclusion or incorporation of skill analysis training by the PETE programs. For this study, two research questions were addressed: (1) Did pre-service PE teachers' skill analysis ability improve after the training program? (2) Did pre-service PE teachers retain their skill analysis ability six weeks after the training program? Based on the literature reviewed, it is hypothesized that the pre-service PE teachers' skill analysis ability will improve after the training program and will be retained six weeks after the training program.

Method

Participants

Thirty-six pre-service PE teachers (17 males, 19 females, mean age = 27.42 ± 4.18 years) and 37 SSM undergraduates (21 males, 16 females, mean age = 22.86 ± 1.51 years) participated in the study. Approval from the university's institutional review board (IRB-2020-06-031) and informed consent from the participants were obtained before the start of the study.

Instrument

To measure skill analysis ability, participants watched eight skill performances and rated whether their critical features were present and performed correctly. The eight skills coincided with those taught in Singapore schools (Ministry of Education, 2016), and are often assessed to establish motor proficiency among children (Ulrich, 2000, 2013), i.e., catch, dribble with hand, kick, roll (underhand), strike with bat, strike with racket, throw (overhand), and throw (underhand). The number of critical features ranged from five to eleven, and participants rated their skill performances on criteria sheets. Each criteria sheet contains illustrations of the skills and their critical features, obtained from Colvin et al.'s (2016) Teaching Fundamental Motor Skills, a course text often used by PETE programs and considered a valid and accurate source (Knudson, 2013). Participants watched the skill performances on videos. The skills were performed by school-age children and videotaped from the best vantage point (Knudson, 2013) (i.e., appropriately distanced, situated in front of a uniform background, capturing the performer's dominant side, and at a right angle to the plane of motion). In each video, the skill performance contains several errors, i.e., critical features are missing or performed incorrectly. Participants are afforded the use of video functions, such as pause, freeze frame, and slow motion, when watching the skill performance videos. Participants took no more than 30 minutes to watch and rate the eight skill performances on videos.

Participants' skill analysis ability is reported as a percentage and determined by comparing their responses against a reference developed by three subject matter experts: two university faculty members specializing in PE and a PE curriculum specialist from the education ministry. To control for testing threats (Thomas et al., 2011), separate sets of fundamental motor skill performance videos were used, and separate references were developed for the pre-, post-, and retention tests. For the pre-, post-, and retention tests' references, intraclass correlation coefficient estimates and their 95% confident intervals were calculated using SPSS statistical package version 28 (SPSS Inc, Chicago, IL) based on a mean-rating ($k = 3$), absolute-agreement, 2-way mixed effects model (Koo & Li, 2016). Intraclass correlation coefficient values were 0.943, 0.944, and 0.935 for the pre-, post-,

and retention tests, respectively, indicating excellent reliability for all three tests.

Skill Analysis Training Program

Overdorf and Coker (2013) proposed that PETE programs should adopt an integrated four-step model (Knudson, 2013) to develop the skill analysis ability of PE teachers. The skill analysis training program comprises four learning activities and is based on Knudson's (2013) four-task model, which includes preparation, observation, evaluation, diagnosis, and intervention. The first and second learning activities are based on the first task of preparation. The third and fourth learning activities are based on the second task, observation, and the third task, evaluation and diagnosis. The skill analysis training program does not address the fourth task of intervention, as the participants are not required to propose interventions to correct the errors observed in the videos.

For the first learning activity, participants were provided with criteria sheets containing illustrations and critical features of the eight identified skills. The instructor then introduced the sequence and critical features of these skills. The eight identified skills coincided with those taught in Singapore schools (Ministry of Education, 2016), and are often assessed to establish motor proficiency among children (Ulrich, 2000, 2013), i.e., catch, dribble with hand, kick, roll (underhand), strike with bat, strike with racket, throw (overhand), and throw (underhand). The number of critical features ranged from five to eleven for each skill. The illustrations and critical features of the skills are obtained from Colvin, Markos, and Walker's (2016) Teaching Fundamental Motor Skills. The course text is often used by PETE programs and is considered a valid and accurate source (Knudson, 2013).

The second learning activity was instructor-led, and participants were shown correct skill performance videos, i.e., all the skill's critical features are present and performed correctly. The correct skill performance videos are first shown in real-time and without the instructor's comments to give participants an overall impression. The correct skill performance videos are subsequently shown in slow motion or freeze frame, and the instructor highlights the critical features whenever they occur. Also, the correct skill performance

videos were made available to the participants as a reference for the subsequent learning activities.

The third learning activity was instructor-led, and participants were shown incorrect skill performance videos (i.e., some or all of the skill's critical features were absent or performed incorrectly). The incorrect skill performance videos are first shown in real-time, without the instructor's comments, to give participants an overall impression. The incorrect skill performance videos are subsequently shown in slow-motion or freeze frame, and the erroneous or missing critical features are highlighted whenever they occur. Five incorrect skill performance videos, performed by different school-age children and videotaped from the best vantage point (i.e., appropriately distanced, situated in front of a uniform background, capturing the performer's dominant side, and the right angle to the plane of motion) (Knudson, 2013), were shown for each skill that participants are required to analyze.

For the fourth learning activity, participants were tasked to rate incorrect skill performances on their own time before comparing their ratings with the instructors. Four incorrect skill performance videos, performed by different school-age children and videotaped from the best vantage point, i.e., appropriately distanced, situated in front of a uniform background, capturing the performer's dominant side, and the right angle to the plane of motion (Knudson, 2013), were provided for each skill that participants are required to analyze. Participants are afforded the use of slow-motion and/or freeze-frame functions when rating the incorrect skill performance videos.

The skill analysis training program followed a typical university course schedule, consisting of three-hour sessions per week over a three-week period. The first and second activities are scheduled for the first session, and the third and fourth activities are scheduled for the second and third sessions, respectively.

Procedure

A quasi-experimental research design was adopted for this study (Thomas et al., 2011), where pre-service PE teachers were recruited into the experimental group, and SSM undergraduates were recruited into the control group at the beginning of their respective programs. Pre-service PE teachers and SSM undergraduates were considered similar and have been recruited in previous studies (Eckrich et al.,

1994; Morrison & Reeve, 1988). Data collection and the skill analysis training program were scheduled during the academic semester to facilitate participation. During the first week of the academic semester, all the participants completed the pre-test. The skill analysis training program was conducted during the second, third, and fourth weeks of the academic semester for the experimental group, with each participant undergoing a three-hour session each week. The control group received neither information nor training regarding skill analysis from the investigator, except on the three occasions when the measures were administered. All the participants completed the post- and retention tests during the fourth and 13th weeks of the academic semester, respectively.

Data Analysis

Participants' responses to the criteria sheets were checked for completeness and compared to the respective references (i.e., the pre-test, post-test, and retention test, to generate percentages for each test). The data are then entered into a computer for analysis using SPSS statistical package version 28 (SPSS Inc., Chicago, IL). Due to the small sample sizes, presence of outliers, and violations of the assumptions of normality (Pallant, 2013), non-parametric statistics were used to compare the pre-test, post-test, and retention test scores between and within the experimental and control groups.

Results

Descriptive statistics of the pre-, post-, and retention test scores for the experimental and control groups were generated and presented in Table 1. Mann-Whitney U Tests revealed no significant differences between the pre-test scores of the experimental (Md = 57.35%, n = 36) and control (Md = 58.82%, n = 37) groups, U = 679, z = -.144, p = .886, r = .02, significant differences between the post-test scores of the experimental (Md = 88.97%, n = 36) and control (Md = 64.71%, n = 37) groups, U = 0, z = -7.361, p < .001, r = .86, and significant differences between the retention scores of the experimental (Md = 84.56%, n = 36) and control (Md = 61.76%, n = 37) groups, U = 0, z = -7.356, p < .001, r = .86.

A Friedman test was conducted to determine if there were differences in skill analysis ability between the experimental group during the skill analysis training program and six weeks after (see Table 2).

Pairwise comparisons were performed with a Bonferroni correction for multiple comparisons. Skill analysis ability was statistically significantly different at the different time points, $\chi^2(2) = 57.52$, $p < .001$. Post hoc analyses revealed statistically significant differences between pre-test (Md = 57.35%) and post-test (Md = 88.97%; $p < .001$), pre-test (Md = 57.35%) and retention test (Md = 84.56%; $p < .001$), but not post-test (Md = 88.97%) and retention test (Md = 84.56%; $p = .297$).

A Friedman test was run to determine if there were differences in skill analysis ability during the skill analysis training program and six weeks after for the control group (see Table 2). Pairwise comparisons were performed with a Bonferroni correction for multiple comparisons. Skill analysis ability was statistically significantly different at the different time points, $\chi^2(2) = 7.56$, $p = .023$. Post hoc analyses revealed a statistically significant difference between pre-test (Md = 58.82%) and post-test (Md = 64.71%; $p = .023$), but not pre-test (Md = 58.82%) and retention test (Md = 61.76%; $p = .544$), and post-test (Md = 64.71%) and retention test (Md = 61.76%; $p = .544$).

Discussion

Improvement of Skill Analysis Ability

This study aimed to examine the effects of a training program on pre-service PE teachers' skill analysis ability. The first research question was whether pre-service PE teachers' skill analysis ability improved after the training program, and it was hypothesized that this ability would improve after the training program. Corroborating with previous studies (Kelly & Bishop, 2013; Kelly & Moran, 2010; Kelly et al., 2012; Walkley & Kelly, 1989; Wilson et al., 2021), it was found that the pre-service PE teachers' skill analysis ability improved after the training program. Additionally, studies have suggested that skill analysis training offers wider benefits, allowing PE teachers to plan and enact more effective lessons and provide more targeted feedback to their students. For example, Walkwitz and Lee (1992) found that teachers who are skill analysis trained had more knowledge of the skill, were more concerned with the student's skill performances, and structured their lesson activities so that the students' practices were higher in quality. In addition, apart from being able to better analyze skills, skill analysis training not only improved participants'

Table 1

Descriptive Statistics and Mann-Whitney U Tests for Pre-, Post-, and Retention Tests between Experimental and Control Groups

Test	Exp		Con		U	z	p	r
	n	Md	n	Md				
Pre	36	57.35%	37	58.82%	679.00	.144	.886	.02
Post	36	88.97%	37	64.71%	0.00	-7.361	<.001	.86
Ret	36	84.56%	37	61.76%	0.00	-7.356	<.001	.86

Note: Exp – Experimental; Con – Control; Ret – Retention

Table 2

Friedman Tests for Pre-, Post-, and Retention Tests Within Experimental and Control Groups

Group	Test	N	Md	Mean rank	Chi-square	df	p
Exp	Pre	36	57.35%	1.00	57.52	2	<.001
	Post	36	88.97%	2.69			
	Ret	36	84.56%	2.31			
Con	Pre	37	58.82%	1.69	7.56	2	.023
	Post	37	64.71%	2.31			
	Ret	37	61.76%	2.00			

Note: Exp – Experimental; Con – Control; Ret – Retention

knowledge of the skill's critical features but also the amount of feedback given to students (Cloes et al., 1995). Results from this study reinforced the need for skill analysis training among pre-service PE teachers. Apart from enabling the pre-service PE teachers to analyze motor skills, they are also more likely to plan better lesson activities and provide more feedback for their students.

This study's findings are consistent with prior research indicating that pre-service PE teachers are often unable to analyze skills without formal training (Kelly & Bishop, 2013; Kelly & Moran, 2010; Kelly et al., 2012). There were no significant differences in the pre-test scores between the experimental and control groups, indicating that both groups lacked skill analysis ability at the beginning of their respective programs. With pre-test scores of 57.35% and 58.82% for the experimental and control groups, respectively, they do not enter their respective programs with the established level of 80% for skill analysis to be considered competent (Kelly & Moran, 2010; Walkley

& Kelly, 1989; Williams & Tannehill, 1999). While skill analysis ability is crucial for PE teachers (Metzler, 2011; Rink, 2014; Siedentop & Tannehill, 2000; Ward et al., 2021), graduates of the SSM program will also embark on careers in sports coaching and will require skill analysis training. Thus, the inclusion or incorporation of skill analysis training should be considered by both the administrators of PETE and SSM programs.

Interestingly, there was a small but statistically significant increase in skill analysis ability scores between the pre-test and post-test for the SSM undergraduates. Although the SSM undergraduates did not receive any information or training regarding skill analysis from the investigators, they continued to read university courses such as Introduction to Growth and Motor Development, where one of the learning outcomes was to "observe, analyze, categorize, and discuss children's fundamental movement skills." Thus, the increase in scores can be attributed to the university courses they read, but the courses did not enable them to reach the established level of 80% for skill analysis to be considered competent (Kelly & Moran, 2010; Walkley & Kelly, 1989; Williams & Tannehill, 1999). This finding corroborates past studies that cautioned against the inadequacy of specific university courses in equipping participants with the ability to analyze skills (Knudson, 2013; Overdorf & Coker, 2013).

Most crucially, the pre-service PE teachers attained the established level of 80% for skill analysis to be considered competent (Kelly & Moran, 2010; Walkley & Kelly, 1989; Williams & Tannehill, 1999) after the skill analysis training program. This finding is unprecedented, as no studies involving more than six motor skills have their participants attain competency after training. For example, Williams and Tannehill (1999) reported that participants' skill analysis ability improved but did not attain competency after training them on nine motor skills. Pulling and Allen (2014) reported that participants' skill analysis ability did not improve after training them on six motor skills. Haynes and Miller (2015) did not report the participants' competency level after training them to analyze seven motor skills.

Retention of Skill Analysis Ability

The second research question was whether the pre-service PE teachers retained their skill analysis ability six weeks after the training program, and it was hypothesized that their skill analysis ability

would be retained six weeks after the training program. The statistically insignificant result between the post-test and retention scores indicated that the hypothesis was supported. More importantly, the pre-service PE teachers maintained the established level of 80% for skill analysis to be considered competent at retention (Kelly & Moran, 2010; Walkley & Kelly, 1989; Williams & Tannehill, 1999). This study's findings contribute to extant literature as prior studies indicated that skill analysis ability is retained after a week (Kelly et al., 2012), two weeks (Eckrich et al., 1994), and two months (Morrison & Harrison, 1985), but not one year later (Wilkinson, 1992).

Despite the contribution of this study, the retention of skill analysis ability remains understudied, and future research will aid PETE program administrators in program design. For example, PETE programs in Singapore (National Institute of Education, 2020a, 2020b, 2020c) typically consist of four semesters, spanning two years. As research indicated that skill analysis ability is retained within two months but not one year later, program administrators should schedule their skill analysis training program in the last semester so that pre-service PE teachers' skill analysis ability remains viable upon graduation. Alternatively, future research should examine whether skill analysis ability is retained after six months or more, and when additional skill analysis training should be scheduled to aid retention, and whether a full or reduced skill analysis training program is required to maintain one's skill analysis ability.

This study is not without its limitations. First, the study's context and the small number of participants necessitated the use of a quasi-experimental research design, which limited the generalizability of the study's findings. Specifically, fewer than 50 pre-service PE teachers are recruited and trained in Singapore annually. Future studies should employ true experimental research designs to better control threats to internal validity (Thomas et al., 2011). To address the number of participants, future research should either employ a longitudinal design to recruit more cohorts of pre-service PE teachers over several years or recruit participants from other universities with PETE programs. Lastly, this study only involves eight motor skills. While the number of skills involved in this study already exceeds that of most existing literature studies, it pales in comparison to the plethora of motor skills that PE teachers must analyze (Kelly &

Moran, 2010). Future research should examine the training and PE teachers' analysis ability in motor skills not addressed in past studies.

Conclusion

This study aimed to examine the effects of a training program on pre-service PE teachers' skill analysis ability. It was found that the pre-service PE teachers' skill analysis ability improved after the training program, and their ability was retained six weeks after the training program. More importantly, the training program enabled the pre-service PE teachers to not only attain but also retain the established level of 80% for skill analysis to be considered competent (Kelly & Moran, 2010; Walkley & Kelly, 1989; Williams & Tannehill, 1999) for eight motor skills. No previous studies involving more than six skills have enabled their participants to be proficient in skill analysis. Additionally, it was found that both pre-service PE teachers and SSM undergraduates struggled to analyze motor skills. Thus, this study supports the inclusion or incorporation of skill analysis training by the PETE programs as well as the SSM program in Singapore.

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PEDAGOGY

What Makes a Great Physical Education Teacher? Insights from University Students in Rural Communities

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Abstract

This study investigated the qualities that Generation Z students in rural communities prefer in their PE teachers. Using a qualitative-ethnographic approach, data were collected from 20 Generation Z students through open-ended questions validated by experts. The findings highlight four key traits that students value in PE teachers: Teachers who "walk the talk," modeling the behaviors and skills they teach; Considerate teachers who are understanding and flexible with

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students' needs and circumstances; Teachers who are optimistic, energetic, and motivational, using their positive attitudes to engage and inspire students; and Dedicated teachers who are actively involved in supporting and guiding students in PE. These insights highlight the importance of PE teachers who serve as role models, are empathetic, motivational, and committed to fostering a dynamic and supportive learning environment that meets the needs of Generation Z students in rural settings.

Introduction

Generation Z, born from 1995 to the early 2010s, has significantly influenced societal norms, cultural shifts, and educational systems, profoundly shaping generational dynamics (Dolot, 2018). Known as the first group born entirely in the digital age, Gen Z has grown up immersed in a world of technological advancements, globalization, and rapid access to information (Seemiller & Grace, 2018). Cilliers (2017) stressed the importance of understanding this generation's values, challenges, and perspectives for educators, policymakers, and scholars aiming to design educational programs that cater to Gen Z students' distinct needs and preferences, particularly in the context of PE.

Research in the United States has shown that Generation Z is unique in its values, mainly shaped by its experiences with digital technology, social media, and instant connectivity (Francis & Hoefel, 2018). Their comfort with technology has influenced their learning styles, prioritizing interactive and tech-driven educational experiences (Iorgulescu, 2016). Generation Z is also distinguished by its pragmatism and resilience, traits developed in response to economic challenges, political shifts, and a rapidly changing job market. They are driven by inclusivity, fairness, and authenticity, with strong values rooted in social justice, environmental sustainability, and equity (Mohr & Mohr, 2017). These attributes demand educational frameworks that integrate technological tools and support these core values (Nioda & Tagare, 2024).

However, as Generation Z moves towards digital platforms, there is growing concern about their decreasing levels of physical activity and increasing sedentary habits (Kenney & Gortmaker, 2017). Traditional PE methods, which focus on outdoor activities and

sports, still prevail in rural communities, where access to technology may be limited (Gapa & Tagare, 2023). This creates a gap between the digital preferences of Gen Z and the conventional PE methods practiced in rural areas. To bridge this gap, innovative approaches integrating technology with physical activity—such as gamification, mobile apps, and online resources—are essential for promoting active lifestyles. The PATH-Fit program, designed to provide a comprehensive and interactive educational experience, aims to address the specific challenges and needs of Gen Z students in rural communities by promoting physical fitness and overall well-being.

Despite this, implementing PE in tertiary institutions in the Philippines faces numerous challenges (Junio & Liwag, 2016). These include curriculum deficiencies, inadequate teacher training, and insufficient emphasis on PE, which is often politically sidelined (Asio & Tagare Jr, 2024). Cariaga (2014) highlighted the historical and systemic issues that hinder the development of tertiary PE, while Abbasov and Mavlyanov (2019) stressed the importance of improving quality education through increased resources and better teacher training. These challenges are not unique to the Philippines, as countries such as Brazil and Malaysia face similar issues with underfunded PE programs (Kilue & Muhamad, 2017; Osborne et al., 2016).

In response to these challenges, the Philippine Commission on Higher Education (CHED) has mandated the adoption of the Physical Activity Towards Health and Fitness (PATH-Fit) program across Higher Education Institutions (HEIs) in the country (CMO 39, s. 2021). This initiative aims to provide a standardized and comprehensive curriculum that emphasizes holistic development, essential life skills, and physical well-being (Peromingan et al., 2023). PATH-Fit's goal is to transcend traditional PE frameworks by offering an inclusive program that combines physical fitness with crucial life skills, creating an educational experience that equips students to lead healthier lives while fostering personal growth (Velez, 2023).

Previous studies on Generation Z have explored their behaviors and preferences in various fields, including education (Bhore & Pandita, 2022). For example, Ajmain (2020) highlighted how technology influences the social and communication skills of Generation Z, while Shorey et al. (2021) emphasized the need to incorporate

technology into education to meet their learning preferences. In PE, studies such as those by Escomes et al. (2021) and Panganiban (2019) have emphasized the need to adapt curriculum and teaching methods to align with the interests of Generation Z, thereby ensuring relevance and engagement. Graciano (2022) and Lobo et al. (2022) also emphasized the importance of considering student preferences and feedback to enhance the quality and effectiveness of PE programs.

Although there have been several studies on Generation Z and tertiary PE, there is a notable gap in understanding the kind of PE teachers that Generation Z students in rural communities of the Philippines prefer. This research contributes to the academic conversation by investigating the traits and qualities that rural Generation Z students seek in their PE teachers. This study aimed to identify the specific characteristics that resonate with these students, offering insights that could inform the development of more student-centered teaching approaches. By focusing on what students value in their PE teachers, this study provides a foundation for improving educational practices and pedagogical methods in rural settings. The findings can be used to design culturally sensitive and personalized teaching strategies that cater to the needs of rural Generation Z students, making the learning experience more engaging and relevant to their lives. This research is a step toward creating a more fulfilling and responsive educational environment for students in these communities.

Methodology

Research Design

This study employed a qualitative design, especially an ethnographic approach. According to Creswell and Poth (2016), qualitative research is a methodology that seeks to comprehend human events by thoroughly examining evidence that is not expressed in numerical form. Ethnographic research is a qualitative research approach in which researchers fully immerse themselves in the natural environment of a specific social group or culture to comprehensively understand and study its features (Brewer, 2000). Ethnographic research seeks to understand the customs, beliefs, behaviors, and routines of the society being studied by immersing oneself in the culture, conducting interviews, and engaging in participant observation.

Gobo (2011) describes this method as involving thorough and detailed on-site research. This approach enables the researcher to establish a strong relationship with participants, gain an insider's viewpoint, and uncover insights that would not be evident using other research methods. The ethnographic study delves into the social connections and symbolic importance inherent in the lives of the individuals being researched to gain a thorough understanding of culture (Hammersley, 2006). This research utilized a qualitative-ethnographic approach because it is well-suited to understanding the preferences of Generation Z students in rural communities regarding their PE teachers. The method provides a detailed depiction of the characteristics that students in these areas value most, offering more profound insight into their unique educational environment.

Participants and Sampling

The study employed purposive sampling to select 20 Generation Z individuals as the primary data source. According to Campbell et al. (2020), purposive sampling involves selecting participants based on their relevant experiences, insights, or perspectives. This method is commonly used in research to obtain an in-depth understanding from individuals with specific knowledge or experiences, ensuring that participants can contribute valuable insights to the research topic (Tongco, 2007). In this study, participants were required to meet specific criteria, including being part of Generation Z (born between 1995 and 2010), currently enrolled in PATH-Fit classes, and residing in rural communities.

The sample size of 20 Generation Z students from the Cotabato Province in the Philippines was sufficient to capture diverse preferences regarding the kind of PE teachers they prefer. Qualitative research focuses on obtaining detailed and rich data from each participant rather than seeking a broad representation. The selection criteria ensured participants shared common characteristics and experiences while allowing for variation within these parameters. Though the sample may seem small, it was adequate for capturing the varied perspectives and experiences of rural Generation Z students, aligning with the qualitative nature and objectives of the study.

Research Instrument

The primary research instrument used in this study was a set of open-ended questions specifically designed to investigate what kind of PE teachers Generation Z students in rural communities prefer. These open-ended questions enabled participants to express their opinions freely and authentically, providing in-depth insights into their preferences. The questions enabled a comprehensive exploration of the participants' views, ensuring their perspectives were captured in detail. To ensure the reliability and relevance of the questions, they were validated by experts through a rigorous evaluation process.

In addition to the interview guide, various tools were utilized to enhance data collection. A camera and voice recorder were employed to capture verbal cues, facial expressions, and environmental factors, providing additional context for interpreting participants' responses. Using multimedia techniques enriched the data, offering a more comprehensive understanding of the participants' experiences and surroundings, thereby contributing to the depth and accuracy of the research findings.

Data Analysis

The study utilized the Colaizzi Method (1978) for data analysis and interpretation. This approach entailed careful and systematic data analysis, including reducing, categorizing, and abstracting information to derive meaningful and essential findings from the participants' experiences. The Colaizzi Method involves transcribing interviews or data and identifying crucial comments and phrases pertinent to the research inquiries. The following steps entail extracting the meanings and patterns from these statements, categorizing these patterns into groups, and finally creating a thorough representation of the studied topic. The Colaizzi Method was chosen for this study due to its compatibility with the exploratory character of the research, which aims to comprehend the problems and ideas of Generation Z students in rural communities. The acquired data were methodically and meticulously analyzed to understand the participants' experiences and viewpoints fully. The method's flexibility enabled the identification of themes derived from participants'

views, which is crucial for capturing the varied and plentiful insights of Generation Z students in rural contexts.

Results

Table 1
Sub-themes on the Suggestions for the Teachers

Themes	Description	*Sample Transcript*
1. Walk the talk	Encourages teachers to model the behaviors and skills they teach, providing a practical example for students.	• *"...it would be great if our teachers were role models and physically fit..."* • *"...teachers should practice what they preach, so it's important that they are role models and physically fit themselves..."* • *"...I would like teachers to not just stick to printed materials but to also set an example and actively demonstrate the lessons..."*
2. Considerate	Highlights the need for teachers to be understanding and flexible regarding students' circumstances and needs.	• *"...teachers should be considerate of students' situations..."* • *"...it would be great if they were not too strict and showed consideration for the different weaknesses and abilities of students..."* • *"...despite the injury, the teacher still required them to perform, which wasn't appropriate given their condition..."*
3. Optimistic, Energetic, and Motivator	Emphasizes the value of teachers maintaining a positive and energetic attitude to inspire and engage students.	• *"...teachers should motivate us to do well and stay physically active..."* • *"...positive and enjoyable teachers help students realize they should also be that way..."* • *"...if a teacher appears tired or lacks energy, it can also make students feel more sluggish and less motivated..."*
4. Dedicated Teachers	Underlines the importance of teachers being committed and actively involved in supporting and guiding students in PE.	• *"...teachers should be dedicated to teaching, with a constant willingness to guide students effectively..."* • *"...activities should be meaningful and foster learning, rather than just assigning tasks without proper guidance..."* • *"...their commitment greatly influences students' engagement and interest in PE..."*

Discussion

Walk the Talk

This theme highlights the importance of teachers being role models in PE. Participants expressed a desire for teachers to be physically fit and actively participate in activities alongside students. They believe that when teachers demonstrate the lessons themselves, rather than just relying on printed materials, the learning experience can be more engaging and motivating. Teachers who embody the principles they teach can create a positive environment, helping students to focus on having fun and effectively understanding the lessons. To wit:

> …it would be great if our teachers were role models and physically fit. Teachers should act as coaches, participating in the routines alongside students. This can help motivate us to engage in activities and create a positive, enjoyable environment where the focus is on having fun rather than stressing out… – *Benjamin*

Teachers embodying their teaching principles convey that it can significantly enhance student motivation and credibility. When teachers actively demonstrate their teaching skills and behaviors, students are more likely to view the lessons as relevant and authentic. This alignment between teaching and practice can create a more engaging and motivating classroom environment where students are inspired to mirror their teachers' positive attitudes and skills. Consequently, this approach can foster a more meaningful connection to the subject and encourage greater student involvement and effort.

Furthermore, Crisol Moya and Caurcel Cara (2021) explained that PE teachers must walk the talk and set an example for students, as their behavior and attitudes can significantly influence students' perceptions and habits regarding physical activity. When PE teachers are committed to fitness and healthy living, they serve as role models, inspiring students to follow suit (Casey & Kirk, 2020). Leading by example reinforces the lessons taught and helps build credibility and trust. It demonstrates to students that the principles of PE are not just theoretical but also practical and beneficial, encouraging

them to adopt and maintain active, healthy lifestyles (Demchenko et al., 2021).

Considerate

This theme emphasizes the importance of teachers in understanding and being flexible towards students' unique situations. Participants expressed that PE teachers should accommodate students' different needs and circumstances, such as offering alternative options for those who miss practical exams for valid reasons. They also emphasized that teachers should consider students' abilities and weaknesses, avoiding overly strict approaches. Engaging with students in a supportive and empathetic manner can create a more inclusive and enjoyable learning environment, ensuring that all students are treated fairly and given appropriate opportunities. Based on the research participants:

> …I suggest that PE teachers consider students' situations. For example, if a student is absent for a valid reason during a practical exam, there should be alternative options to make up for it, like home-based activities. Teachers should offer flexibility and not be overly strict, accommodating different circumstances and providing opportunities for students to complete their work… - *Bogart*

> …teachers should be considerate. Last semester, when I was in my first year, there was a classmate with an ACL injury. Despite the injury, the teacher still required them to perform, which wasn't appropriate given their condition… - *Gelay*

This implies that when teachers show flexibility and understanding toward students' needs and situations, it can help reduce stress and enhance students' ability to engage effectively with the curriculum. This consideration helps ensure that all students can participate fully and benefit from the lessons, leading to a more inclusive and positive educational experience. As a result, students may feel more supported and valued, which can improve their overall motivation and performance in PE.

Furthermore, students need considerate teachers in PE because their heavy academic load in other subjects can lead to stress and

burnout. A considerate PE teacher recognizes this and creates a supportive, enjoyable environment that provides a necessary break from academic pressures (Ferry & Romar, 2020; Tagare, 2024). Being understanding and accommodating, PE teachers can help students manage stress, improve their overall well-being, and foster a positive attitude towards physical activity. This balanced approach ensures that PE contributes to students' mental and emotional health, making their educational experience more holistic and fulfilling (Leo et al., 2022).

Optimistic, Energetic, and Motivator

This theme highlights the role of teachers in maintaining a positive and energetic environment in PE. Participants expressed that teachers should motivate students to stay active and excel, acting as inspirational figures like second parents. They believe that teachers' optimism and energy make classes enjoyable and engaging. Positive and enthusiastic teachers can influence students' attitudes and participation, while teachers who appear tired or unapproachable may contribute to disinterest and a lack of motivation among students. According to them:

> …teachers should be optimistic because their energy greatly affects students. Positive and enjoyable teachers help students realize they should also be that way. The teacher's energy radiates to the students. Even if a teacher tries to appear happy but is not genuinely so, students can often tell if they are being insincere… - *Yan*

> …teachers should be jolly and energetic so that their enthusiasm can positively influence students. If a teacher appears tired or lacks energy, it can make students feel sluggish and less motivated… – *Jasmin*

This denotes that teachers who bring positive energy and enthusiasm to their classes can inspire students to participate more actively and maintain a higher level of interest. This positive atmosphere makes the learning environment more enjoyable, helping students stay motivated and engaged, which in turn enhances their overall performance and commitment to physical activities. Teachers' dy-

namic and supportive presence can create a more vibrant and practical learning experience for students.

Moreover, Abós et al. (2019) explained that having an optimistic and motivating teacher benefits students by creating a positive and inspiring learning environment. Such a teacher's enthusiasm is contagious, boosting students' morale and engagement (Öngel & Tabancali, 2022). Their optimism helps students overcome challenges and fosters resilience, while their energy keeps the class dynamic and enjoyable. Wenström (2020) also said that as motivators, these teachers encourage students to strive for their best, build confidence, and develop a love for learning. This supportive and lively atmosphere enhances students' educational experience and promotes a positive attitude toward school and personal growth (Weinhold, 2021).

Dedicated

This theme emphasizes teachers' commitment and engagement in their teaching roles. Participants expressed that teachers should constantly be willing to guide and support students effectively. A teacher's dedication significantly impacts students' interest and engagement in PE. They believe activities should be meaningful and include proper guidance rather than just assigning tasks without sufficient support. A dedicated approach ensures students receive valuable learning experiences and feel genuinely supported in their educational journey. Based on them:

> …teachers should be dedicated to teaching and constantly willing to guide students effectively. Their commitment greatly influences students' engagement and interest in PE… – *Christmas*

> …teachers should be dedicated and not neglect their students. Activities should be meaningful and foster learning rather than just assigning tasks without proper guidance. It should be more than self-study; a genuine focus should be on student learning and engagement… – *Namikazee*

This indicates that when teachers demonstrate a strong commitment to guiding and supporting their students, it enhances the quality of instruction and engagement in PE. This dedication ensures

that students receive meaningful guidance and support, fostering a more focused and engaged learning environment. As a result, students are more likely to benefit from well-structured activities and personalized attention, which can positively influence their learning outcomes and overall experience in the subject.

Additionally, teachers must be dedicated because their commitment to teaching, and student success has a profound impact on the learning experience. Dedicated teachers invest time and effort in creating engaging lessons, providing personalized support, and fostering a nurturing classroom environment (Alves et al., 2019). This dedication helps students feel valued and motivated, enhancing their academic performance and emotional well-being. When committed, teachers inspire students to take their education seriously, develop a strong work ethic, and pursue their goals with determination (Legrain et al., 2019). The positive influence of dedicated teachers extends beyond academics, shaping students' attitudes and behaviors for future success (Burden, 2020).

Conclusions

The findings of this study underscore the specific qualities Generation Z students in rural communities prefer in their PE teachers. First, students value teachers who "walk the talk" by embodying the teaching skills and behaviors they teach. This aligns with the student's desire for authentic role models who can practically demonstrate lessons in real-world contexts. Furthermore, being considerate is emphasized, as students appreciate teachers who show flexibility and understanding of their diverse needs, acknowledging that individual circumstances often affect their performance and participation in PE.

Additionally, students prefer optimistic and energetic teachers who serve as motivators. A positive and enthusiastic attitude helps engage students, encouraging them to participate fully in physical activities. Ultimately, dedication stands out as a crucial trait, with students expressing a desire for teachers who are committed to their development and provide ongoing support. Together, these traits underscore the importance of PE teachers in creating an inclusive, inspiring, and responsive environment that promotes physical skills and fosters students' overall well-being and growth.

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SPORT

"Wins and Losses Are Secondary:" Goals Developed by High School Athletic Directors to Evaluate Coaching Success

Tyler J. Ratts

Abstract

High school head coaches play an important role in the achievement of wide-reaching benefits afforded to student-athletes through their athletic participation. Given this impact, athletic directors must establish expectations that reflect successful coaching efforts by those tasked with leading athletic programs. Limited research has considered the use of performance appraisals within high school athletics as a way of evaluating head coaches, and a gap exists related to an in-depth examination of the criteria utilized to guide this process and detail how athletic directors perceive coaching success in this role. Therefore, the purpose of this qualitative study was to analyze the goals relied upon by athletic directors to evaluate head coaches during the performance appraisal process. Semi-structured interviews were conducted with 25 participants representing athletic directors across school classification (i.e., 1A, 2A, 3A, and 4A) and school type (i.e., public and private), with a thematic analysis yielding six main themes (i.e., coaching leadership behaviors, in-sport priorities, student-athlete life skill development, school day behaviors of student-athletes, promoting the athletic department, and investing in the feeder system) that detail the diverse

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areas considered by athletic directors during coaching evaluations. From a theoretical perspective, this work advances understanding of the performance appraisal process and goal-setting theory within high school athletics, while practitioners can utilize findings to reflect on their personal expectations of coaching success through the specific goals implemented for evaluating performance.

Introduction

With nearly eight million students participating in at least one sport (Grant, 2021), high school athletics play a key role in the overall academic experience in the United States. Given the high participation rates and wide-reaching benefits from being a student-athlete (e.g., academic success, life skills, lasting positive outcomes), this segment has been identified as the most significant body in the sport industry (Fraina et al., 2022). As athletics have been incorporated into the educational mission of schools, athletic departments thus prioritize programs that contribute to the development of student-athletes. This creates a need to ensure that those leading each athletic program (i.e., head coaches) are successful in meeting established outcomes through a sport and non-sport perspective. As the person responsible for making decisions that shape how the program operates, the onus is placed on head coaches to facilitate positive experiences for student-athletes through their participation (Forsyth et al., 2022).

To review coaching efforts, athletic directors engage in a performance appraisal process that evaluates coaching performance and determines the success of head coaches in meeting the goals they have developed (Ratts & Pedersen, 2023). In leading the athletic department, these leaders establish what is most important for student-athletes through their participation as well as expectations for a successful program (Forsyth, 2021). As such, the goals established to guide a coaching evaluation represent overarching organizational objectives, emphasize the priorities of athletic directors when considering successful head coaches, and demonstrate what constitutes a meaningful experience for those involved in the athletic program.

Performance Appraisal Process

Organizations aim to guide and enhance employee efforts by consistently reviewing performance and ensuring established goals are met. This review is conducted through the performance appraisal process, in which management and subordinates collectively reflect on the past and determine necessary future directions. Barbieri et al. (2023) identified these appraisals as one of the most powerful management tools by affording leaders the opportunity to assess employee work, identify goal achievement, and foster effective performance moving forward. Implementing specific goals to review performance provides a clear measurement for evaluating an employee's efforts and ensures consistency in determining success (DeNisi & Pritchard, 2006; Iqbal et al., 2015). Through an appraisal process that promotes goals, specific criteria can be established for individuals, and desired outcomes can fit within the broader context of the organization. Known as management by objectives, this approach clearly communicates the expectations of the employee and has been found to increase productivity within sports (Williams, 2013).

Goal-Setting Theory

To maximize an evaluation of employee performance, DeNisi and Pritchard (2006) emphasized the use of a goal-oriented perspective. First developed by Locke (1968), goal setting describes how hard and specific goals elicit a higher level of success, as defined intentions motivate actions. Over time, Locke and Latham (1990) established a theoretical framework centered on goal setting, which posits that implementing specific and challenging goals represents the most effective approach for enhancing an individual's performance. Thus, goal-setting theory serves as a meaningful way for achieving desired objectives (Locke & Latham, 1990). Every organization relies on goals to detail what it aims to accomplish through performance expectations, which places an emphasis on the process of goal setting to be successful (Locke & Latham, 2019). Sport has been identified as an ideal setting to help improve employee performance through goals that touch all areas of the organization, stretch across different skills and traits, and facilitate long-term success (Locke & Latham, 1985). When done effectively, sport leaders provide a lens through

which evaluations can be positioned, while employees are provided with direction to guide their efforts. By achieving goals, employees experience success in their role and strengthen the organization (Locke & Latham, 2019).

Coaching Evaluations

Leaders within sport have used appraisals as a guide in determining an individual's success. Within coaching appraisal literature, performance dimensions embody the goals developed to inform coaches on how success will be determined, reflect desired outcomes at the individual and organizational level, and examine areas such as academic outcomes, skill development, and leadership (MacLean & Chelladurai, 1995). These dimensions have been featured within scales established to measure coaching expectations in appraisal processes (Gillham et al., 2013; MacLean & Chelladurai, 1995), as well as additional coaching evaluation tools utilized to offer guidance on coaching success. Mallett and Côté (2006) established a model for evaluating head coaches that went beyond wins and losses and encouraged perspectives from key stakeholders, while Gillham et al. (2013) relied on a questionnaire that assessed coaching ability based on individual athlete outcomes (e.g., self-confidence, motivation, enjoyment).

Coaching Evaluations in High School Sports

In high school sports specifically, limited research has considered the use of performance appraisals to review coaching efforts. Hoch (1989) compared the perspectives of coaches and athletic directors on this process and found similar views on the elements of an effective process, while a more recent survey of 171 high school athletic directors included 77% of participants sharing that they evaluate coaches and 70% indicating that the evaluation took place at the end of the sport season (Thielges, 2015). As such, athletic directors have implemented coaching evaluations to analyze coaching success. Through questionnaires with athletic directors on what should be included on an evaluation form, 17 factors (e.g., exemplifies moral and ethical qualities, supervises facilities, communicates with others) were noted as being somewhat important or very important by more than 88% of respondents (Hill & Pluschke, 2005).

More recently, Ratts and Pedersen (2023) conducted a qualitative analysis of performance appraisals to understand how athletic directors evaluate the efforts of head coaches. Findings detailed an evaluation process that aims to analyze coaching success through elements such as year-round information gathering, a positive and open evaluation environment, and a coaching evaluation form that ensures clear and consistent interactions with head coaches. Despite efforts to maximize this process, a lack of time and resources and differences in opinions during the evaluation reflect challenges facing athletic directors (Ratts & Pedersen, 2023). To help ensure a comprehensive understanding of head coaching efforts is secured when determining success, it is necessary to incorporate perspectives from key stakeholders (e.g., administration, student-athletes, assistant coaches) on their experiences with the head coach (Ratts, 2024).

Purpose of the Study

The purpose of this study was to examine the goals developed by high school athletic directors to evaluate coaching performance in determining successful efforts. A gap in the literature exists regarding an in-depth analysis of leadership perspectives on what they prioritize when ensuring coaching effectiveness. This research represented the first known study to thoroughly examine the specific criteria used to guide performance appraisals in high school sports. Therefore, results aimed to provide context for the goals that athletic directors utilize when engaging in a coaching evaluation. In doing so, a deeper understanding was pursued on the perspectives of athletic directors regarding the outcomes they have identified as key focal points in their appraisals. Through a foundation within the performance appraisal process and goal-setting theory, the following research question guided this study:

> RQ1: What goals are utilized by high school athletic directors when conducting a performance appraisal to determine successful head coaching?

Methods

This study utilized an exploratory qualitative approach to secure a deeper understanding of the goals emphasized by athletic directors

to determine coaching success during an evaluation. Data collection efforts ensured the representation of athletic directors across two key categories (i.e., school classification and school type) that have been examined in high school sport research to secure diverse perspectives and experiences (e.g., Epstein, 2008; Johnson et al., 2019; Johnson et al., 2023). Merriam and Tisdell (2016) described a nonprobability sampling technique as the most common sampling method for qualitative research. Specifically, a purposeful non-probability sample was developed, as participants represented a heterogeneous group of high school athletic directors from a Midwestern state ranked in the top 20 in the United States based on the National Federation of State High School Associations (NFHS) sport participation numbers (NFHS, 2023). Intentional consideration was given to achieve representation within school classification (i.e., 1A, 2A, 3A, and 4A) and school type (i.e., public and private schools).

Every athletic director whose school was a member of the specific state's athletic association was contacted via email to request their involvement in the study. A total of 25 athletic directors agreed to participate, thus representing the study's sample. Table 1 provides a breakdown of the participants in this research. Once the sample had been developed, semi-structured, in-person interviews were conducted using an interview protocol approved by an expert panel of five individuals to guide the interview conversations and ensure consistency during data collection. Across the 25 interviews, the average interview duration was 63 minutes and 20 seconds (63:20), with the longest interview lasting 87 minutes and 33 seconds (87:33), and the shortest one lasting 42 minutes and 48 seconds (42:48).

Data Analysis

Guided by the six phases (i.e., familiarizing with the data, generating initial codes, searching for themes, reviewing themes, defining and naming themes, and producing a report) detailed by Braun and Clarke (2006), a thematic analysis was utilized to capture the shared goals implemented by high school athletic directors to evaluate head coaching performance. Theme development was conducted through a deductive approach, positioning results within the context of the established research question. Saturation was deemed to have been met through the analysis, as the research question was fully answered, and no new themes emerged (Merriam & Tisdell,

Table 1
Athletic Director Information

Athletic Director	Gender	School Type	School Classification
Athletic Director 1	Female	Public	1A
Athletic Director 2	Male	Public	1A
Athletic Director 3	Male	Public	1A
Athletic Director 4	Male	Private	1A
Athletic Director 5	Male	Private	1A
Athletic Director 6	Female	Public	2A
Athletic Director 7	Male	Private	2A
Athletic Director 8	Female	Public	2A
Athletic Director 9	Male	Public	2A
Athletic Director 10	Male	Private	3A
Athletic Director 11	Male	Public	3A
Athletic Director 12	Male	Public	3A
Athletic Director 13	Male	Public	3A
Athletic Director 14	Male	Public	3A
Athletic Director 15	Male	Private	3A
Athletic Director 16	Male	Private	3A
Athletic Director 17	Male	Public	4A
Athletic Director 18	Female	Public	4A
Athletic Director 19	Male	Public	4A
Athletic Director 20	Male	Public	4A
Athletic Director 21	Male	Public	4A
Athletic Director 22	Male	Public	4A
Athletic Director 23	Female	Public	4A
Athletic Director 24	Male	Public	4A
Athletic Director 25	Male	Private	4A

2016). Several validity measures, including member checking, data triangulation, and reliance on an external coder, were employed to ensure that the thematic analysis and established themes accurately represented the data.

Results

The thematic analysis implemented for the data from the 25 semi-structured, in-person interviews generated six main themes (i.e., coaching leadership behaviors, in-sport priorities, student-athlete life skill development, school day behaviors of student-athletes, promoting the athletic department, and investing in the feeder system) that detail the key goal areas considered by athletic directors when evaluating coaching success.

Coaching Leadership Behaviors

As the leader of the athletic program, head coaches are expected to set the example for how operations will be conducted. Through specific coaching leadership behaviors, athletic directors discussed how they can be confident that the right person is leading the program. While the ways in which coaches can exhibit these behaviors are vast, two subthemes (i.e., creating a culture and interactions with others) encapsulate the shared areas where athletic directors view successful leadership from coaches and are more thoroughly detailed below.

Creating a Culture

For athletic directors participating in this research, a priority was to identify coaches who have established a culture in which people want to be involved. Athletic Director 1 called this "creating a culture that makes kids want to come play," while Athletic Director 4 added, "I was told this a long time ago...your best coaches are the ones that the kids want to play for the coach." Another athletic director (12) described a successful coach through how they have positioned culture as an important piece to their leadership. "The big thing for me is culture," they noted. "What is the culture of your program? Are all your kids totally invested?" For one athletic director (23), they discussed the idea of what they called "to create and maintain an athletic program that people want to be part of. That's our main goal." They explained how for "94% of high school athletes, this is it. When they leave us, 94% of them have played their last athletic competition," so it is important "to ensure that from the starter all the way to the last kid on the bench that they have the best experience."

A crucial component in creating a culture is having a clear plan for how to best structure operations. Athletic Director 19 summa-

rized how the coach's ability to be organized reflects the "nuts and bolts of the beginning of the evaluation because you got to have those in place to be able to perform." For one athletic director (18), maximizing the ultimate goal of "care of kids" cannot be achieved unless the head coach has clearly outlined how they plan to ensure a program is structured in a meaningful way. At the same time, another (10) has found that this area of a coach's role is underappreciated for "how it impacts the culture of the team."

Interactions With Others

Another important element of successful leadership is the ability to develop meaningful relationships with others to elicit positive outcomes. Athletic Director 3 emphasized that building relationships must be at the core of everything their coaches do to have a positive impact on student-athletes. "The very first thing I'm looking for in a coach is that they are personable and that they're ready to build relationships with their players because again, you can't get by in any system without relationships first," they emphasized. Connecting with student-athletes was echoed by another athletic director (20) when saying, "I think first and foremost, it's the relationship building." They continued that "when they (student-athletes) know and they trust you... they'll do anything for you, so I think that relationship thing is most important." When talking with head coaches about the potential impact that they can have, Athletic Director 2 will "try to instill that in my coaches, get to know the kids on a different level."

In leading an athletic program, the ability to communicate effectively is identified as necessary for success. One athletic director (17) posited that "if you're going to be somebody that's highly effective here, you are going to be a great communicator with the kids." Effective communication was listed by another (11) as "the most important thing" for head coaches in their role. Athletic Director 10 used an example of one coach "that I would have a tremendous amount of respect for and really feel good about the job they're doing" because of how they show their student-athletes respect. "They treat their student-athletes with respect, and by that what I mean is their coaching voice, their coaching tone, the information they give is always given in a positive, supportive manner," they explained. Athletic Director 7 added that "when I look at success, I look at their ability to communicate."

In-Sport Priorities

The pursuit of winning represents a key element that leads many to engage in sports. As high school athletics are founded within an educational setting, however, participants emphasized that their in-sport priorities are not reliant upon wins and losses. Instead, the focus is on how head coaches conduct themselves when leading the team during a game, as well as how student-athletes develop throughout the season and represent the program. As such, three subthemes (i.e., wins and losses not important, performance expectations, and a positive coach demeanor) reflect the lens through which athletic directors consider whether a head coach is meeting expectations for success.

Wins and Losses Not Important

While those involved in any athletic program want to win, athletic directors explained how this is not what is most important when considering whether a coach is successful. Given the presence of athletics within a school setting, the desired outcomes align more closely with the experiences of student-athletes. One athletic director (23) described this perspective when indicating, "We never talk about wins or losses. We just focus on what kind of experience they're going to provide for the student-athlete." Athletic Director 12 further highlighted this view. "Wins and losses are secondary," they noted. "We are still in the business of interscholastic education. Is her or she good to the kids? Are they a good leader? Are they a good role model?" The athletic director added that "if the answer to that is yes, I'm very reluctant to make any kind of changes based on wins and losses." Another athletic director (16) knows that "it sounds so cliché and something you would say," but "we don't evaluate coaches off of a scoreboard or wins and losses." They bluntly concluded, "I legitimately don't care."

Performance Expectations

By prioritizing other areas over winning and losing, athletic directors believed that their head coaches could enhance the overall experience for student-athletes by investing in their development. Athletic Director 2 emphasized "that if we improve every year, that's the biggest thing," which then allows student-athletes to develop and enjoy being a part of the athletic program. Through the promotion

of skill development within the sport, Athletic Director 12 felt that student-athletes could "continue to love the sport." They added, "We want to see skill progression and knowledge and gameplay progression on the mental aspect…You want to see them progress as athletes while continuing to enjoy doing it."

Participants also emphasized the importance of seeing individuals who represent the school in the right way, demonstrating good sportsmanship and effort while competing. Athletic Director 17 believes this is something "that the coach sets that example." At the same time, Athletic Director 22 noted how they tell coaches that "we want you to win," but what is more important is that "we want you to do it the right way," which is reflected by having "great sportsmanship." This comes with a respect for the game, which involves giving maximum effort. "My expectation is that our kids play hard," Athletic Director 6 explained. "I don't want them giving up at the end...the expectation is that they're playing hard." When leaders are unwilling to commit to promoting hard work within their program, it has led to decisions to move on from a head coach. Athletic Director 21 offered an example of this when recalling, "I have only in my 12 years removed two coaches, and both of them is because they lost their team. The kids weren't playing hard."

Positive Coach Demeanor

Athletic directors also pointed to what they want to see from head coaches in their demeanor when leading the team during an event. A coach's response to a situation can set the tone for how student-athletes react to certain calls during an event, as further explained by Athletic Director 5. They described wanting a head coach on the sideline who is "calm, cool, and collected" when interacting with others because they know that the coach's "actions on the court on bad calls is a direct relation to how the kids are going to react as well." Exchanges with student-athletes during a game also reflect the conduct of head coaches, as Athletic Director 10 discussed how they consider, "How do they (head coaches) interact with their students? How do they interact with their students when they make a substitution?" For Athletic Director 16, any interaction between coach and student-athlete should aim to get the best out of every player so "that it's apparent to me that there is a love for one another on that team." They continued, "It needs to be obvious to me that there's love com-

ing from the sideline, there's love coming to the sideline, and there's love while it's going on."

Student-Athlete Life Skill Development

Beyond growth within the sport, a priority was also placed on student-athletes becoming better human beings through their participation, which the head coach cultivates. Athletic Director 9 described this mindset further, "I want to make sure that our coaches are not just developing student-athletes on the field, but off, and having those life talks, those expectation talks." Another athletic director (21) said that "our concern is what are they (head coaches) doing with our student-athletes," and "how are they getting those kids prepared for life." For Athletic Director 5, success on the court is nice, "but if we're teaching the kids something that's going to help them in life, that's the biggest thing," while another athletic director (22) posited, "Education-based athletics is about helping students and athletes be ready for their next step."

The prioritization of life skill development through high school sport participation focuses not only on its short-term impact on student-athletes, but also on its long-term benefits for them. Athletic Director 23 highlighted wanting coaches who are in this role because they want "to put out really good adults later on in life, and so that's where we spend a lot of our time. How can we develop these kids into good, outstanding adults in our community?" Athletic Director 15 has an expectation "to get our kids prepared for either playing the sport in college or the realities of life once they get out of high school. We want to hold a high standard." This idea was echoed by Athletic Director 2, who said, "My biggest thing is if we can look at it and say are we building kids to be successful outside of high school?"

School Day Behaviors of Student-Athletes

The presence of sports within an educational setting creates a relationship between athletics and academics in which these extracurricular activities are positioned to promote the performance of student-athletes during the school day. Within the school day behaviors of student-athletes, two subthemes (i.e., promoting academic success and addressing discipline issues) represent how head coaches should contribute to student-athletes being high achievers and positive examples in the classroom.

Promoting Academic Success

High school athletics represent an environment in which sports can champion academic success as head coaches establish educational expectations for student-athletes to participate. "Number one, they're student-athletes first, and we always emphasize the student being first," explained Athletic Director 17. "The idea of emphasizing the student part of student-athlete first is something that I have always done and continue to do." Athletic Director 3 shared how one of the first questions they pose in an evaluation relates to a coach's view toward athletics promoting academics. "I'm looking for student-athlete," they offered. One athletic director (24) added how they seek coaches who can recognize these academic issues and work to help student-athletes overcome them. They noted how they want coaches to say, "You're struggling in class. What can I do to help you because I can't let you participate if you're not doing what you need to do in the classroom. I think it all goes hand in hand." As Athletic Director 25 summarized, "Academics is the number one thing, and our kids know that, and our coaches know that."

Addressing Discipline Issues

Although athletic directors recognize that head coaches cannot prevent every discipline issue that might arise, what is most important is how leaders respond in these situations. Athletic Director 20 shared that "what may be reflected on the evaluation is if the coach also doesn't address it and try to use it as a teachable moment." Another athletic director (23) stated they want to see head coaches "holding a kid accountable" when they hear about bad behavior. "We've had coaches in the past who no longer work here that when a kid would get in trouble, they would ask how they could get them out of trouble," they reflected. The athletic director indicated that "now, we have a lot of coaches who when a kid gets in trouble, the coach is actually asking me to do more than what we have to do." Athletic Director 19 recognized that coaches "get pretty disappointed when their kids are a bad example at school" because they "take a lot of ownership in the representation of the program." When issues arise, head coaches consider, "How are we going to work through this?" and "How are we going to build from it?"

Promoting the Athletic Department

Beyond the individual program coached, participants also emphasized the need for head coaches to be invested in the overall athletic department. Athletic Director 18 explained, "I don't think you can, as an athletic director, let your coaches be so siloed that they only care about their program." Two subthemes (i.e., show up to support others and encourage multi-sport athletes) highlight how head coaches are expected to successfully promote the athletic department.

Show Up to Support Others

One way participants want to see their head coaches promote the athletic department is by attending and supporting other teams' events. As Athletic Director 15 outlined, "We're in a very good situation right now with our coaches...they're going to support each other, and that was something that I was really big on when I got here." Another athletic director (19) appreciates being at a school where they truly feel that head coaches support each other. "I see a lot of them come to other events, and that's what we want," they shared. "It makes it more of a community of everyone, and that's unique." The presence at other events was identified by Athletic Director 9 as "part of our evaluation" because it is "a good showing to the community that we're all in this together," especially by "showing your student-athletes that you're supporting them outside of your sport." These efforts should also include head coaches encouraging their student-athletes to support each other, as Athletic Director 13 referenced their motto of "we over me," and proposed, "I think if it's a healthy culture, then coaches automatically think that's what we need to be doing."

Encourage Multi-Sport Athletes

There was also an expectation that head coaches would promote multi-sport participation to support the interests of student-athletes, which is often necessary to field full rosters within certain sports. As Athletic Director 20 detailed, "I tell our coaches all the time that we can't survive without multi-sport athletes. We're just not that school." Knowing this, they have to find coaches who "are supportive" of multi-sport athletes, "and if they're not, then we're going to have to have a discussion about that." Another athletic director (22) believes

"we have to share athletes, so we have to help each other in their own success in a certain way." Athletic Director 17, who also stressed being "a huge believer in promoting a multi-sport athlete," outlined how they "in no way, shape, or form am supportive of any coach who says, hey, don't play this sport" and will not hesitate to "confront those coaches" who discourage multi-sport participation.

Investing in the Feeder System

Being an effective high school head coach involves looking ahead to invest in the future student-athletes of the high school. "I've had coaches in the past that didn't last very long that just thought, no, my team is the ninth through twelfth," detailed Athletic Director 21. "No, that's not your team. That's your team that you're coaching, but you have to talk with these other coaches because that's your feeder system." In understanding how head coaches should be present in the feeder system, two subthemes (i.e., working with middle school teams and involvement with youth programs) embody the needed engagement with future student-athletes.

Working With Middle School Teams

To ensure the foundation is being developed at the middle school level, participants want head coaches who are actively involved in operations. For a coaching evaluation, Athletic Director 17 noted how "that plays really well into the evaluation process… because you're not just taking the best interests of the varsity kids that you're in charge of, but you're taking a vested interest in the kids in the community." Another (21) also highlighted how involvement with the middle school programs is a key "part of our evaluation" because "if you're not someone who was developing a middle school program, and then you want to complain that we don't have talent, well, that's part of your responsibility, and you should have been doing that." This includes attending middle school events, as Athletic Director 22 expressed, "We believe they should attend that middle school basketball game, that middle school football game. Go to the middle school baseball game when time allows. Be present. Be visible."

Involvement With Youth Programs

Youth programs represent the first opportunity for head coaches to interact with student-athletes and build relationships that will de-

velop over time. One athletic director (2) viewed this involvement as "a huge thing because in my opinion, successful programs start at the youth level." Athletic Director 20 further emphasized, "Your face, you got to be seen, and again, it goes back to those relationships." At the same time, another athletic director (14) added how they "always have youth nights at our events" because kids start to think "I can't wait to play here." Furthermore, by hosting youth camps, interactions can begin to take place between high school programs and children. "I think that's a really important thing for our schools, especially these camps, trying to get kids here on campus and getting to meet our coaching staff and our kids and see what we're all about," shared Athletic Director 7. In summarizing the value of a feeder system, Athletic Director 13 stated, "If I'm being serious with them (head coaches) when I'm talking to them, I tell them you're only going to be as good as your feeder systems."

Discussion

The purpose of this qualitative study was to detail the goals implemented by high school athletic directors to evaluate the success of head coaches during a performance appraisal. The six main themes in this research represent the points of emphasis for athletic directors when engaging in a coaching evaluation. While winning is often considered the primary focus of athletic participation, the presence of high school sports in an academic setting also facilitates expectations from head coaches that extend beyond winning. Thus, education-based athletics should emphasize the development of student-athletes both on and off the field to ensure positive and lasting benefits (Forsyth et al., 2022). The key areas outlined by participants reflect the goals viewed as most important for successful coaching and align with previous work on performance expectations across levels of sport (Gillham et al., 2013; Hill & Pluschke, 2005; Mallett & Côté, 2006).

As coaches are responsible for decisions related to all areas of the athletic program, wide-ranging expectations for success underscore the need for coaches to prioritize outcomes beyond the final score to facilitate meaningful experiences for student-athletes. The coaching evaluation represents the interaction in which performance is reviewed, as athletic directors examine the efforts of head coaches and consider their overall success in meeting desired goals. Through

both theoretical and practical lenses, the findings add context to the role of performance appraisals and goal setting within high school athletics, emphasizing how these frameworks are reflected in the coaching evaluation and offering guidance to practitioners to ensure they are appropriately capturing successful coaching performance in their appraisal processes.

Theoretical Implications

The performance appraisal process offers an opportunity for leadership to evaluate employee efforts against established goals that reflect effectiveness (Locke & Latham, 2019). Barbieri et al. (2023) emphasized the role of appraisals in analyzing goal achievement and ensuring desired outcomes are met. In the context of high school sports, the coaching evaluation serves as one example of this appraisal process, utilizing specific goals that have been established to achieve success. Participants emphasized how these key goal areas are captured by outlining expectations within each aim. Not only do these goals ensure a clear and consistent set of measures for determining success, but they also help leaders guide head coaching efforts. High school athletic directors in this study detailed the need for a coaching evaluation process that is founded in goals, as this approach facilitates the appraisal and ensures coaches are reviewed based on what constitutes a successful head coach.

Within the goal-setting theoretical framework, specific and difficult goals increase an individual's performance (Locke, 1968; Locke & Latham, 1990). Given the emphasis on achieving end results, sport has been found to represent an ideal setting for developing goals related to one's efforts within an organization and providing a lens through which performance can be evaluated (Locke & Latham, 2019). Participants demonstrated an intentionality in the goals they have established as the benchmarks for a successful head coach. This goal-setting effort represents an important task to establish measures for reviewing performance. As these goals are positioned within the larger context of the organization and span all areas of coaching efforts, the six key goal categories detailed by participants reflect the criteria viewed as most important by athletic directors. When met, head coaches are viewed as successful and help strengthen the experiences of student-athletes in their participation.

Practical Implications

Findings from this research provide important context for leaders in high school athletics, as detailed goals have been outlined to guide expectations for successful coaching efforts. Within sports, winning is traditionally considered the deciding factor in success. However, participants in this study emphasized that while winning is celebrated, it is secondary compared to the key focal points (e.g., coaching leadership behaviors, student-athlete life skill development, investing in the feeder system) considered when determining if a head coach is effectively leading an athletic program. Those looking to establish a coaching evaluation within their own athletic department can consider how these goal areas fit within their definition of a successful head coach and use the perspectives shared as a guide for implementing them.

Participation in high school athletics offers student-athletes lasting benefits that extend beyond sports. Thus, athletic directors seek head coaches who contribute to this overall development, rather than those who sacrifice all other areas for the sake of winning. For high school athletic administrators, self-reflection can be employed by utilizing these results to ensure that the goals they have set for the coaching evaluation process accurately reflect what should be considered successful coaching. In doing so, athletic programs can be better positioned to provide student-athletes with meaningful experiences both within and outside of sports through head coaches who meet these prioritized criteria.

Limitations

Through this research, two biases represent limitations impacting the study's results. Non-response bias was reflected in the high school athletic directors who decided not to participate in this study, which potentially excluded data that could not be included in the main findings. While 25 athletic directors from the specific state agreed to participate, every athletic director whose school belonged to the state's athletic association was asked to participate, with many opting not to be involved. Thus, the data that could not be secured from these potential participants constitutes a limitation within overarching findings on the key goal areas implemented by athletic directors to evaluate head coaches.

Additionally, when asking participants to share personal experiences and perspectives, social desirability bias can affect the answers provided and negatively influence the impact of findings. Specifically, in the context of this study, athletic directors were asked to discuss the goals they had developed to evaluate coaching performance. As high school sports are viewed as a segment that prioritizes student-athlete development, participants may have minimized the importance they truly place on winning to overinflate other areas considered (e.g., student-athlete life skill development, feeder system involvement, school day behaviors). This bias would elicit a description of goals that participants believe they should be emphasizing rather than the ones they use during a coaching evaluation.

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PHYSICAL ACTIVITY

Effects of Personal Mobile Devices on Social Behavior and Physical Activity Among Young Adults: A Multi-Group Comparison Study

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Abstract

Young adults' personal mobile device use is at an all-time high. Social interaction and physical activity (PA) are generally positively associated in this population; however, the nature of this relationship is unclear when personal mobile devices (cell phones) are present. The objective of this study was to examine the social and PA behavior among college students with and without access to cell phones and a stimulus to be physically active. A between-group design that included fifty-six college students randomly exposed to one of four experimental conditions: 1) no phone/no equipment, 2) no phone/equipment, 3) phone/no equipment, or 4) phone/equipment, and were observed via hidden camera. A modified System for Observing Children's Activity and Relationships during Play (SOCARP) instrument was used to quantify PA, social group size, and interaction type. Significant differences were observed for PA level ($p<0.001$), social group size ($p=0.03$),

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physical prosocial (p=0.046), physical antisocial (p<0.001), and ignoring (p=0.037) interaction type across experimental groups with lack of access to cell phone and PA stimulus being most physically and socially active. The findings suggest that cell phones may have a detrimental impact, reducing PA engagement and impeding social interaction among young adults.

Introduction

Since gaining popularity in the late 1990s and early 2000s, Americans' use of personal mobile devices, such as cell phones, has consistently increased. It is estimated that the number of cell phone users in the United States will exceed 290 million by 2024 (O'Dea, 2020). Young adults (18-29 years old) have the largest percentage of cell phone ownership (96%) among all age groups (Pew Research Center, 2019). They are also the largest overall consumers of social media content (Pew Research Center, 2020). The use of cell phones to access social media, although designed to promote greater social interaction, has been linked to reduced interactions among young adults (Robert et al., 2014). In addition, increases in frequency and duration of cell phone use for social connection are associated with higher stress levels among young adults (O'Dea, 2020), as well as increased severity of depression and social anxiety (Pew Research Center, 2019) in this age group.

Social interaction is a crucial factor influencing the subjective well-being of all adults, particularly students (Dissing et al., 2019), and has consistently been shown to be positively correlated with personal physical activity (PA) in this population (Elhai et al., 2018; King et al., 2020). Engaging in both acute and habitual bouts of PA is associated with improved subjective well-being (Bauman et al., 2012); however, like many adults, college-aged adults do not participate in enough PA each day (Rhodes et al., 2017), with less than half meeting the daily recommendations (Weise et al., 2018). This lack of PA can be detrimental to young adults' mental health (Centers for Disease Control and Prevention, 2020) as well as potentially have long-term implications on activity patterns and overall health later in life (American College Health Association, 2019).

Though social interaction is recognized as a determinant of PA (VanKim & Nelson, 2013), there is no comprehensive understanding

about factors that promote or inhibit regular PA levels among today's college-aged adults, who some consider the first digital natives (Dai et al., 2014). Recent studies indicate that among college students, higher frequency cell phone users were more likely to forego PA to use their cell phone (Lepp et al., 2013), and that high cell phone users are significantly more sedentary than low cell phone users (Barkley et al., 2016). In contrast, studies examining the use of social exercise cell phone applications (apps) have shown increases in PA because of their use (Romeo et al., 2019), however these investigations have only considered the effects of the apps on PA levels in aggregate, and the acute effects of access to mobile devices on PA remains understudied. Furthermore, to our knowledge, no studies have considered the acute direct effects of access to personal mobile devices on PA when opportunities to be both physically and socially active are available. Research shows that when children are presented with a stimulus for PA, such as playground equipment, along with discretionary time, such as recess or before/after school, their PA levels increase (Di & Papa, 2019). It is unknown if a similar response could be observed among college-age adults; however, college students regularly report participation in intramural activities as contributing to their social enjoyment and PA (Moore et al., 2010), thus it is plausible that these types of stimuli may encourage increased PA.

With modern societies becoming increasingly reliant on personal mobile technology, while also experiencing greater obesity rates and sedentary behavior, it is imperative to better understand how technology use directly impacts PA behavior. National surveys consistently indicate that college students face increasing mental health challenges, underscoring the importance of integrated wellness strategies on campus (American College Health Association, 2019; Institute of Medicine, 2013). Regular physical activity is associated with a wide range of health benefits in youth, including improved academic performance, physical health, and mental well-being (Carlson et al., 2008; Institute of Medicine, 2013). Therefore, the purpose of this study was to examine social interactions and PA among students with and without access to their personal mobile devices and a stimulus to be physically active. We hypothesized that social interaction and PA levels would differ among groups of college age adults who had either: (a) no access to their personal mobile

device and no PA stimulus, (b) no access to their personal mobile device and a PA stimulus, (c) access to their personal mobile device and no PA stimulus, and (d) access to their personal mobile device and a PA stimulus.

Materials and Methods

Study Design

To test the hypothesis that social interactions and PA levels would differ among college age adults with and without their mobile device and a PA stimulus, **a between-group design** experiment was conducted with 56 college students, who were able to engage in physical activity, were observed via hidden camera with or without their cell phone and a PA stimulus including available space, time, and physical education (PE) equipment designed for physically active use. The sample size was determined to be sufficient via power analysis conducted using G*Power software. Data input for the power analysis was based on the effect sizes (partial eta^2 = 0.20) presented in Rebold et al. (2017). This study was conducted on 44 college-aged students and demonstrated large effect sizes for texting and talking on treadmill exercise. The power analysis suggested that a minimum of 48 participants were necessary for the current study to achieve adequate power. Participants were recruited from the university's SONA psychology research system, and each had a major area of study that was in or related to psychology (at the upper division third-year status). None had participated in research in the Kinesiology laboratory (where the research was conducted) prior to the current study. Prior to data collection, participants were preassigned to one of four experimental conditions: (a) No Cell Phone, No PE equipment, (b) No Cell Phone, PE equipment, (c) Cell Phone, No PE equipment, and (d) Cell Phone, PE equipment. The group conditions were designed to allow participants access to, or a lack thereof, their personal mobile device with or without a PA stimulus, to which the combination of available space, time, and PE equipment was considered a proxy.

In line with a pre-established research methodology, the authors deliberately refrained from collecting specific demographic data, including gender and participant age, for this study. This decision was grounded in a commitment to uphold ethical research standards, ac-

knowledging the potential sensitivity and discomfort that inquiries into gender identity may elicit among participants. Furthermore, it was deemed that gender information bore no direct relevance to the study's particular research objectives, aligning with a methodology endorsed by research ethics boards (Cameron & Stinson, 2019). Despite the recognized existence of gender disparities within the physical activity literature, the authors opted to utilize a physical activity survey as the primary data collection instrument to ensure a homogenous representation of participants' physical activity characteristics.

Analysis of participant demographics revealed that age was not a pertinent variable for the statistical framework, as the age range of participants was relatively homogenous, spanning from 18 to 24 years. Additionally, all participants were enrolled in the same academic major, thus presenting a uniformity in academic and professional trajectories. This demographic homogeneity rendered age stratification in the dataset unnecessary. Gender-based considerations were also examined. Although specific gender data was not actively collected, the participant sample was representative of the university's overall gender distribution among full-time undergraduate students, which is composed of approximately 57% female and 43% male individuals. This comparability suggests that any findings pertaining to gender dynamics within the study are reflective of broader institutional trends. The authors wish to emphasize that all research procedures adhered to the principles outlined in the Declaration of Helsinki and underwent rigorous ethical evaluation, receiving approval from the University of Louisiana at Lafayette Institutional Review Board before the commencement of participant recruitment and data collection.

Test Procedures

To observe participants' unbiased behavior in each of the experimental groupings, it was necessary to use a certain amount of initial deception. As such, each predetermined experimental group of participants was invited to the research facility on separate days and briefed about the purpose of the study. During this briefing, participants were (deceptively) informed that they would be surveyed about their leisure time PA, personal affect, and salivary cortisol level. At this point, participants completed a baseline assessment of

their personal affect. Then, participants were asked to enter a "waiting room" for a period of 12 minutes, and depending on their group assignment, were either required to surrender their cell phone or allowed to keep it on their person. The waiting room was either filled with PE equipment such as jump ropes, a variety of balls, paddles, and other implements, or it was completely void of any objects, depending on group assignment. Chairs were not provided in either condition nor were instructions given to any group about what to do while in the waiting room, except that they were expected to wait until researchers called them to a separate room where they would participate in the study. After the 12-minute (pseudo-waiting) observation period, students were asked to leave the waiting room one at a time, where they were informed that they had been deceived about the study procedures. Participants were informed that they had also been video recorded while in the waiting room and were given the option to drop out of the study and revoke their consent for their data, including video data, to be used in the study. Participants opting to remain in the study were post-tested for personal affect. None opted out of the study, and complete data were available for 56 participants.

Measures

The study employed the Positive and Negative Affect Schedule (PANAS; Cameron & Stinson, 2019) to assess the participants' personal affect before and after the study. A Leisure and Physical Activity (LPA) survey ensured the participants' relative homogeneity in terms of their regular PA levels. Furthermore, the System for Observing Children's Activity and Relationships during Play (SOCARP; 254) was utilized to assess both participant social interactions and PA levels during the 12-minute observation period.

PANAS

The PANAS is a 20-item scale designed to accurately capture the personal hedonic or affective level of individuals at a specified time, and is a valid and reliable instrument (265) that is widely used in studies in human psychology, including in studies conducted with young adults as participants (276). The PANAS consisted of 10 positive and 10 negative adjectives, on which respondents rated the extent to which each applied to them. The PANAS was set to a 5-point

Likert-style scale, and participants were instructed to indicate the extent to which they "felt this way at this very moment." Examples of emotions included on the PANAS were interested, distressed, irritable, alert, excited, ashamed, and upset. Participants were administered identical PANAS assessments at the initiation of the study and at its conclusion.

LPA Survey

With the comparative design of the study, we recognized that participant PA levels during discretionary time must be evaluated and controlled for; thus, prior to data collection, a Leisure and Physical Activity (LPA) Survey was developed based on the typical habits of college-aged adults. At the time of the study, no suitable PA surveys were available to evaluate college-aged adults' leisure-time PA specifically; therefore, it was decided to develop and validate an instrument to best fit the study population. The subsequently developed LPA Survey assesses respondents' participation in various leisure-time activities, including aerobic exercise and weightlifting, as well as sedentary activities such as working at a computer station, video gaming, and web surfing/entertainment. The LPA Survey questionnaire requires respondents to indicate a range of days per week (zero to two days, three to five days, or six to seven days) they participate in each of five leisure-time activities: (a) Typing/schoolwork on computer, (b) Web surfing/Entertainment (television, Facebook, Instagram, etc.), (c) Weightlifting (machine, free-weight, CrossFit, etc.), (d) Video gaming (Xbox, Nintendo, PlayStation, etc.), and (e) Aerobic exercise (running, walking, biking, aerobics, etc.). Respondents are also required to indicate the range of minutes spent in each activity (0-15 minutes, 16-30 minutes, and more than 30 minutes) when they participated in it.

The total scores for each LPA item were determined by summing the frequency and duration responses. The construct validity of the LPA Survey was established through correlational analysis of the individual items to respondent totals during a first pilot study conducted with 60 college-aged participants. The LPA Survey instrument had low item-to-total correlations ($r < 0.20$), indicating that the items measured different constructs.

Convergent validity of the exercise-related individual LPA Survey constructs (weightlifting and aerobic exercise) was established by

correlating their resulting LPA values with other measures in which a theoretically strong relationship would likely exist. For example, in pilot testing, the weightlifting score demonstrated a strong, significant correlation ($r > 0.80$, $p < 0.05$, $N = 58$) to hand-grip strength, assessed by hand grip dynamometer (Jamar Hand Dynamometer, Sammons Prestons Bolingbrook, IL). Hand-grip strength is strongly correlated to participation in resistance training exercise (Leong et al., 2015; Leyk et al., 2007), supporting the convergent validity of the LPA weightlifting item.

Similar results were found in a separate pilot study for the LPA aerobic exercise total score and VO^2 max ($r > 0.60$, $p < 0.05$, $N = 12$), assessed via graded cardio-metabolic test (ParvoMedics TrueOne 2400, ParvoMedics, Sandy, UT). Strong associations between VO^2 max and habitual aerobic exercise have been long established (Berthouze et al., 1995), thus supporting the convergent validity of the aerobic exercise item in the LPA. Additionally, both the weightlifting and aerobic LPA total scores did not differ in a test-retest reliability study ($n = 389$, $p > 0.05$) that examined stability over a one-month time period (Bellar et al., 2014). Validity of the LPA items associated with sedentary behaviors (typing/schoolwork, web surfing/entertainment, and video gaming) was established by external examination of the survey by a panel of experts.

SOCARP

The SOCARP instrument was initially designed to evaluate both the social behavior and PA levels of elementary school-aged children while at recess or other discretionary play time on school playgrounds. The SOCARP instrument includes a 1-5 scale for assessing PA with the following scale descriptions: 1 = Lying, 2 = Sitting, 3 = Standing, 4 = Walking/Moderate, and 5 = Very Active/Vigorous. The SOCARP also allows for evaluation of group size as Alone, Small (2-4 individuals), Medium (5-9 individuals), and Large (10+ individuals), as well as activity types: Sport (engaged in sport-related activity), Game (active in game, not sport-related), Locomotion (movement that is not sport or game), or sedentary. The SOCARP social interaction definitions include None, Physical sportsmanship (physical pro-social), Verbal sportsmanship (non-physical pro-social), Physical conflict (physical antisocial), Verbal conflict

(non-physical antisocial), and Ignoring (no response to a negative interaction).

For the purpose of this study, the SOCARP was modified in order to be appropriate for use with college-aged adults. Specifically, the social interaction descriptions were modified because the original SOCARP categories were designed to capture positive and negative interactions that are commonplace with young children at play. These types of interactions were unlikely to be present in the pseudo waiting room; thus, similar but more appropriate definitions were derived, such that Physical Sportsmanship was modified to Physical Prosocial (PP), and any behavior where the participant was observed being physically active with another was coded as such. Verbal Sportsmanship was modified to Verbal Prosocial (VP), which includes any verbal engagement with another participant without PA, and was coded. Physical Conflict was modified to Physical Antisocial (PA), and instances where participants were physically active by themselves were so coded. Verbal Conflict was modified to Verbal Antisocial (VA) to represent any verbal interactions that included arguing, making obscene gestures, or other anti-social behavior. In the modified version of SOCARP, the absence of any interaction is noted, whereas in the original SOCARP, ignoring was related to other participants' antisocial behavior.

The PA scale was also modified such that 1= Sitting, 2= Leaning (as in propped against wall, not standing on only feet), 3 = Standing, 4 = Walking/Moderate, and 5 = Very Active/Vigorous. The removal of the "Lying" criteria was critical to the sensitivity of the modified SOCARP to capture differences in PA, as it was determined that college-aged adults in a "waiting room" would be highly unlikely to lie down, thus leaving the category would only reduce the range of PA. The addition of the "Leaning" criteria was critical because no chairs were provided, and participants could choose to sit or stand, with many opting to lean against a wall.

The modified definitions of the SOCARP underwent assessment of difference by raters on a separate group of college-aged adults (N = 11) in a pilot study conducted by the three researchers involved in the current study. In this pilot study, participants were recruited from the Kinesiology department and instructed to spend 12 minutes in a pseudo waiting room filled with PE equipment. Participants

were not asked to surrender their personal mobile devices. A video of the 12 minutes was coded independently by each researcher. Initial interrater agreement was poor, which warranted the researchers reviewing the video and recalibrating, particularly with regard to group size, as distances between individuals had to be standardized to determine if they were indeed grouped or not. After recalibration efforts, there was no significant main effect of rater ($\chi^2 < 1.4$, $p > 0.46$) or interaction effect of rater by time ($\chi^2 < 0.9$, $p > 0.77$) in any logistic regression model, which was considered sufficient for the reliability of data.

Statistical Analysis

Experimental group means and SD were calculated for PA from the modified SOCARP instrument, and all values are presented in Table 1. Numeric data was analyzed via a group-by-time analysis of variance (ANOVA). Categorical data from the SOCARP instrument was analyzed using categorical response analysis for multiple response data. Statistical significance was set at alpha < 0.05, and a modern statistical software package was used for all data analysis (JMP®, Version *13.0*. SAS Institute Inc., Cary, NC.). In instances where large numbers of results by time points are presented, *F* and *p* values will be listed as less than the greatest value below 0.05 or greater than the nearest value above 0.05.

Table 1

Mean and Standard Deviation of Physical Activity Levels by Cell Phone Use and PE Equipment Condition

Group	Mean	SD
No Cell Phone, No P.E. Equipment	1.10	0.49
No Cell Phone, P.E. Equipment	1.40	0.90
Cell Phone, No P.E. Equipment	1.07	0.45
Cell Phone, P.E. Equipment	1.08	0.49

Note: PA levels were measured using the modified SOCARP instrument. The PA mean values are based on a 1-5 scale where 1= Sitting, 2= Leaning (as in propped against wall not standing on only feet), 3 = Standing, 4 = Walking/Moderate, and 5 = Very Active/Vigorous

Results

The baseline data from the LPA survey indicated that the study population was moderately active, with 81% of participants reporting engagement in aerobic exercise on three or more days per week and 76% reporting that they performed at least 15 minutes of exercise per session. Additionally, 35% of the group reported engaging in three or more days of resistance training per week with 49% reporting 15 minutes or more per bout No differences by group were found for aerobic frequency or duration ($F < 1.3$, $p > 0.27$), nor weightlifting frequency or duration ($F < 0.82$, $p > 0.51$), suggesting all groups had similar composition regarding physical activity patterns.

Positive and Negative Affect

Analysis via repeated measures ANOVA (group x time) showed no significant difference by group ($F = 1.51$, $p = 0.224$) but did demonstrate a main effect for time ($F = 11.62$, $p = 0.001$) regarding positive affect. The analysis did not result in a significant interaction effect between group and time ($F = 1.59$, $p = 0.202$) for positive affect. With regard to negative affect, group x time ANOVA also showed no significant difference by group ($F = 1.15$, $p = 0.339$) and did not demonstrate a main effect for time ($F = 1.98$, $p = 0.165$). This analysis also did not result in a significant interaction effect between group and time ($F = 0.61$, $p = 0.612$) for negative affect. Ratios between positive and negative affect were analyzed using repeated measures ANOVA (group x time), and no significant difference by group ($F = 2.01$, $p = 0.124$) was observed, nor a main effect for time ($F = 1.87$, $p = 0.177$). Additionally, the group x time ANOVA for the positive-to-negative affect ratio did not result in a significant interaction effect between group and time ($F = 1.74$, $p = 0.171$).

SOCARP Variables

Participants' PA level during the 12-minute pseudo waiting room observation period ranged from 1.07 in the "Cell Phone, No PE Equipment" group to 1.40 in the "No Cell Phone, PE Equipment" group. Further analysis of participant PA level using repeated measures ANOVA (group x time) demonstrated a significant main effect for group ($F = 6.61$, $p < 0.001$), time ($F = 2.92$, $p = 0.009$), and interaction effect for group by time ($F = 4.37$, $p = 0.004$). Post hoc Tukey's HSD revealed that all group pairings differed from one another (t

> 7.49, $p < 0.001$), except for the comparison between the No Cell Phone and No PE Equipment groups.

Structured Chi-square multiple response analysis demonstrated that social group size 'S' ($\mathcal{X}^2$= 13.6, $p < 0.001$) and 'M' ($\mathcal{X}^2$= 17.53, $p < 0.001$) were significantly different by experimental group for the recorded session. Additionally, the Chi-square test of homogeneity of observation by group across all time points revealed significant differences ($\mathcal{X}^2$>15.80, p<0.030) for social group size. Refer to Table 2 for the counts and percentages of time spent in each social group size.

Table 2
Social Group Size by Experimental Grouping

Experimental group	Group Size	Count	Percent
No Cell Phone, No PE Equipment	Alone	0	0%
	Small (2-4 individuals)	395	>99%
	Medium (5-9 individuals)	1	<1%
	Large (≥ 10 individuals)	0	0%
No Cell Phone, PE Equipment	Alone	109	25.20%
	Small (2-4 individuals)	316	73.10%
	Medium (5-9 individuals)	7	<1%
	Large (≥ 10 individuals)	0	0%
Cell Phone, No PE Equipment	Alone	180	21.70%
	Small (2-4 individuals)	432	52.20%
	Medium (5-9 individuals)	212	25.60%
	Large (≥ 10 individuals)	4	<1%
Cell Phone, PE Equipment	Alone	175	48.60%
	Small (2-4 individuals)	175	48.60%
	Medium (5-9 individuals)	10	<1%
	Large (≥ 10 individuals)	0	0%

Regarding the type of activity participants engaged in (Active Games, Locomotion, or Sedentary), a structured chi-squared multiple response analysis indicated that no experimental groups were significantly different from one another overall ($\mathcal{X}^2 < 6.54$, $p > 0.080$). Refer to Table 3 for the actual counts and percentages of time spent on each activity type.

Table 3

Activity Type by Experimental Grouping

Experimental group	Activity Type	Count	Percent
No Cell Phone, No P.E. Equipment	Active Games	1	<1%
	Locomotion	9	2.20%
	Sedentary	386	97.50%
No Cell Phone, P.E. Equipment	Active Games	12	2.70%
	Locomotion	64	14.81%
	Sedentary	356	82.40%
Cell Phone, No P.E. Equipment	Active Games	0	0.00%
	Locomotion	19	2.30%
	Sedentary	809	97.70%
Cell Phone, P.E. Equipment	Active Games	23	6.39%
	Locomotion	10	2.78%
	Sedentary	327	90.83%

For social interaction type (PP, VP, PA, and I), structured chi-squared response analysis demonstrated that PP ($\mathcal{X}^2 = 7.99$, p=0.046), PA ($\mathcal{X}^2 = 12.57$, $p = 0.006$), and I ($\mathcal{X}^2 = 8.48$, $p = 0.037$) were different by group across the session, with significant differences ($\mathcal{X}^2 > 12.5$,

$p < 0.05$) observed between groups across most (24 of 36) observations. No significant differences were revealed in VP ($X^2 = 6.27$, $p = 0.099$) by group, and differences were observed in less than half of the coded time points. Table 4 includes counts and percentages of time spent in each social interaction type.

Table 4
Type of Social Interaction by Experimental Grouping

Experimental group	Interaction Type	Count	Percent
No Cell Phone, No P.E. Equipment	Physical, Prosocial	1	<1%
	Verbal, Prosocial	68	17.17%
	Physical, Antisocial	6	1.50%
	Ignoring	321	81.00%
No Cell Phone, P.E. Equipment	Physical, Prosocial	3	<1%
	Verbal, Prosocial	241	55.79%
	Physical, Antisocial	19	4.40%
	Ignoring	169	39.01%
Cell Phone, No P.E. Equipment	Physical, Prosocial	0	0.00%
	Verbal, Prosocial	258	31.16%
	Physical, Antisocial	15	1.81%
	Ignoring	555	67.03%
Cell Phone, P.E. Equipment	Physical, Prosocial	0	0.00%
	Verbal, Prosocial	0	0.00%
	Physical, Antisocial	33	9.17%
	Ignoring	327	90.83%

Discussion

The purpose of the current study was to examine social interactions and PA behavior when college-age adults did or did not have access to their personal mobile devices (cell phones) under condi-

tions where a stimulus to be physically active was or was not present. Specifically, we hypothesized that social interactions and PA levels would be different based upon four experimental conditions where access to a cell phone and a PA stimulus were or were not present. The results of the study support this hypothesis and suggest that use of cell phones may reduce PA among college age adults, as the two experimental groupings with no access to their cell phones experienced significantly lower amounts of PA across the 12-minute pseudo waiting period (Barkley et al., 2016; Lepp et al., 2020; O'Dea, 2013). Additionally, in the conditions where PE equipment was introduced, PA levels increased, suggesting that when offered an alternative to engaging with a personal mobile device, college students tend to opt for more physically active pursuits (Di & Papa, 2019).

The results also suggest that the use of personal mobile devices may inhibit the quantity and quality of social interactions among college-age adults (Robert et al., 2014). This was evidenced by the experimental groups with access to their devices spending greater amounts of time alone, as opposed to being in small, medium, or large social groups, during the 12-minute pseudo waiting room observation period. Additionally, the participants in the two device-carrying experimental groups exhibited greater occurrences of ignoring and higher percentages of physical, antisocial behavior (i.e., being physically active alone) (Robert et al., 2014). While having possession of a personal mobile device would logically seem likely to result in more ignoring behavior, it is unclear exactly why the device-carrying individuals displayed more physical, antisocial behavior. It may have been a function of the passage of time during the 12-minute pseudo-waiting period, as most of these individuals paid attention to their devices (e.g., ignoring) at the initiation of the observation period. Then some opted for a physically active pursuit later in the observation period. We speculate that this initial ignoring behavior may have resulted in missed opportunities to engage with others that persisted even when choosing to be physically active.

In addition to promoting PA, the presence of a PA stimulus may have also facilitated an increase in social interaction, albeit with a less pronounced effect. In particular, the No Cell Phone, PE Equipment group exhibited the greatest prosocial behavior, and the absence of cell phones, combined with the availability of PE equipment, may

have catalyzed some of this social interaction (Di & Papa, 2019). These interactions were primarily of the verbal, prosocial type; thus, in this case, not increasing both PA and social interaction simultaneously. In this No Cell Phone, PE Equipment group, however, there was an increased amount of time spent in physical, antisocial behavior, further supporting the notion that the presence of PE equipment increases the likelihood of PA, but not necessarily PA and social interaction simultaneously. Likewise, the Cell Phone, PE Equipment group had the highest proportion of time spent in physical, antisocial behavior, while also engaging in no physical or verbal, prosocial behavior (Di & Papa, 2019). While previous research among college students indicates a potentially reciprocal relationship between social interaction and PA (VanKim & Nelson, 2013), the results of the current study are not necessarily supportive, however the atypical clinical nature of the circumstances in which the two are compared in this study may have contributed to the lack of additive effect of PA and social interaction.

This study was different in its approach to examining college-age adults' social interactions and PA; however, some limitations should be considered. First, although the clinical nature of the study allowed for the reduction of extraneous variables and strengthened group comparisons, the results cannot be directly applied to all natural settings involving college-age adults. The results do allow for an initial comparison of how college-age adults may react when presented with social and PA alternatives to cell phone use in isolation. However, it cannot be assumed that the results discovered here will be typical in non-clinical settings. Future research should attempt to examine the impact of cell phone use on personal social interactions and PA outside of clinical settings. Additionally, although efforts were made to ensure homogeneity of participants on important variables (e.g., academic unit, experience in the Kinesiology lab, PA level), there may have been small, uncontrolled differences between experimental groups regarding their propensity to engage socially or be physically active during the observation period. Studies utilizing greater sample sizes in a variety of settings are needed to both replicate or refute our findings and provide a more complete examination of college-age adult behavior regarding cell phone use, social interaction, and PA.

It should also be noted that the data collection for this study took place prior to the COVID-19 pandemic, which may now limit the transferability of findings to a post-pandemic population, as it is generally accepted that the majority of young adults experienced greater social isolation and emotional distress during COVID-19 pandemic quarantine conditions (Tasso et al., 2021). Despite limitations, to our knowledge, this is the first study of its kind to explore the socio-behavioral tendencies of college-age adults with and without access to their cell phone and/or a stimulus to be physically active (Robert et al., 2014). The value of cell phones for a variety of modern purposes is unquestioned; however, the results of this study suggest that reliance on their use may promote unhealthy behaviors such as sedentary and antisocial behavior, especially among young adults. Habitual PA in adulthood is strongly predicted by behavior patterns established during early adulthood (American College Health Association, 2019); thus, understanding the factors that both promote and inhibit PA is paramount for future public health. In addition, with the prevalence of social/emotional distress on the rise among college age adults (Dissing et al., 2019), future research should examine the impact of cell phone usage on social interactions and consider how PA opportunities may offset antisocial behavior and promote more social interactions.

Conclusion

The findings of this study provide a foundational understanding of how cell phone use interplays with social behaviors and physical activity (PA) among college students. It is imperative that university administrators and policymakers heed the insights garnered from this research and proactively devise strategies that promote face-to-face interactions and PA within the student body. Institutions of higher education have a range of established social platforms at their disposal, including intramural sports, diverse student clubs, and numerous student-led organizations that foster a sense of community spirit. Building on these existing structures, universities could implement creative interventions. These might include designated 'phone-free' zones across campus to encourage live conversation, the implementation of peer-to-peer mentoring programs that embed counseling within active environments, the establishment of fitness groups such as walking or jogging collectives, and the intentional

setting of social and emotional well-being objectives in all aspects of campus life. The integration of digital wellness workshops and gamification methods to incentivize participation in communal activities might be another avenue worth exploring. For such initiatives to be successful, they must be student-centered, grounded in research, and continually evaluated for effectiveness. By adopting a multifaceted approach that includes innovative program design and addresses the holistic needs of students, universities have the opportunity to significantly enhance both the social engagement and physical wellness of their student populations.

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Conflicts of Interest

The authors declare that they have no conflicts of interest.

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YOU AND THE LAW

Golf Cart Injury: Inherent Risk
Bertin v. Mann
502 Mich. 603
Michigan Supreme Court
July 25, 2018

Thomas H. Sawyer

Introduction

Mr. Bertin (Plaintiff) appeals as of right the trial court's entry of a judgment of no cause of action in favor of Mr. Mann (Defendant) following the jury's verdict that the defendant did not engage in reckless misconduct while operating a motorized golf cart at the Farmington Hills Golf Club. The only issue in this appeal is whether the trial court correctly ruled before trial that the applicable standard of care for operating a golf cart is reckless misconduct, rather than ordinary negligence.

Issue before the Michigan Supreme Court

At issue in this tort case is whether getting hit by a golf cart is an inherent risk of golfing. If so, then the defendant, who ran over the plaintiff with a cart while golfing, owed a duty only to refrain from

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reckless misconduct, but cannot be held liable for negligent conduct. If not, then the defendant will be held to the negligence standard of conduct. The question boils down to how we (the Michigan Supreme Court) determine which risks in a recreational activity are inherent, such that the reckless standard of conduct applies. The Court of Appeals answered this question by meditating upon golf's essence and discerning that golf carts are not within the essence of the sport.

Factual Background

This case arises from an accident involving a golf cart driven by the defendant, which occurred while the plaintiff and defendant were golfing together on May 22, 2013. According to the plaintiff, while the parties were at the 17th hole, the defendant hit his golf ball onto the green, and the plaintiff's landed to the right of the green. The plaintiff then drove the cart toward his ball and parked it in nearby rough off the green. He exited the cart, while the defendant remained in the passenger seat, and grabbed his putter and wedge, intending to use the latter to chip the ball onto the green. However, after laying his putter on the ground, the plaintiff struck his ball too hard, it traveled further than the plaintiff intended, and it stopped on the other side of the green. The plaintiff then picked up the putter from where he had set it on the ground and began to walk toward his ball. The plaintiff did not believe that he stepped in front of the cart while walking, as he was moving in the opposite direction of the cart. After he had gone about 10 to 15 feet, the defendant drove the cart and struck the plaintiff in the buttocks. The plaintiff was pushed forward and knocked to the ground due to the impact. After the impact, the plaintiff rolled to the right, and the cart struck him a second time, running over his leg.

Defendant's recollection was similar to the plaintiff's except with regard to the cart. Defendant testified that after he took a shot to get his ball on the green, he returned to the cart, intending to drive it to the other side of the green so that it would be ready for them to drive to the tee box for the next hole. The defendant thought the plaintiff was to the right and slightly behind the cart, not in front of it.

Complaint

In April 2014, the plaintiff filed a complaint primarily alleging that the defendant acted "with active negligence" and "without due care and caution" when he struck the plaintiff. In particular, the plaintiff alleged, among other things, that the defendant breached his duty to safely, dependably, and reliably operate the golf cart and incur significant damages.

In his answer, the defendant largely denied the plaintiff's allegations and expressly denied the plaintiff's allegations of negligence and carelessness. However, the defendant also raised two affirmative defenses: the event was an unforeseeable accident and plaintiff's own negligence or order to ensure plaintiff's safety and, as a result, caused plaintiff to sustain serious injuries and comparative negligence was the sole cause or a contributing cause to the injuries and damages claimed by plaintiff.

Analysis

This case presents an issue of first impression in Michigan. As discussed further below, the parties were, without dispute, co-participants in a recreational activity. Under the broad language in Ritchie–Gamester, 461 Mich. 73 at 75, "co-participants in recreational activities owe each other a duty not to act recklessly." However, as the plaintiff emphasizes, Ritchie–Gamester does not establish that any co-participant conduct that causes injury during a recreational activity must meet the reckless misconduct standard. Likewise, even though numerous golf-related cases in Michigan and other jurisdictions have applied the reckless misconduct standard to a participant who was injured by a golf ball or a club, we have not found a single Michigan case, or a case in any other jurisdiction, where the driver of an injury-causing golf cart during a game of golf was held to any standard other than ordinary negligence.

Standard of Care for Recreational Activities

The Court indicated that a person who engages in a recreational activity is temporarily adopting a set of rules that define that particular pastime or sport. In many instances, the person is also suspending the rules that generally govern everyday life. The Court concluded

that no matter how the elevated standard is described or justified (for example, as having notice of the inherent risks, as consenting to the inherent risks, or assuming the risks, etc.), the basic premise is the same: When people engage in a recreational activity, they have voluntarily subjected themselves to certain risks inherent in that activity. When one of those risks results in injury, the participant has no ground for complaint. The Court noted that there are foreseeable, built-in risks of harm in all recreational activities, including both contact and non-contact sports, as well as individual activities.

Reckless Misconduct

The Court adopted reckless misconduct as the minimum standard of care for co-participants in recreational activities. It is believed that this standard most accurately reflects the actual expectations of participants in recreational activities. Further, the Court believed that participants in recreational activities do not expect to sue or be sued for mere carelessness. A recklessness standard also encourages vigorous participation in recreational activities, while still protecting from egregious conduct. Finally, this standard lends itself to common-sense application by both judges and juries.

The Court further clarified the scope of the reckless misconduct standard as follows:

> Surely all who participate in recreational activities do so with the hope that they will not be injured by the clumsiness or over-exuberant play of their co-participants. However, we suspect that reasonable participants recognize that skill levels and play styles vary, and that an occasional injury is a foreseeable and natural part of being involved in recreational activities; however, the informal and formal rules are structured and enforced (Id. at 612).

When a player steps on the field, he or she must recognize that an injury may occur, but he/she does not know whether he/she will be injured, or whether he/she will inadvertently injure another player. We do not believe that a player expects an injury, even if it results from a rule violation, to give rise to liability. Instead, the Court thought it more likely that players participate with the expectation

that no liability will arise unless a participant's actions exceed the normal bounds of conduct associated with the activity.

Thus, the Court adopted the standard of recklessness based explicitly on the usual expectation of participants that liability will only arise with regard to conduct that exceeds the normal bounds of the conduct associated with a given activity. It is also clear that the Court did not articulate a specific test for determining whether an injury arose from an inherent risk of an activity or whether it was tangential to the sport in which the parties were engaged.

Finally, the Court clarified in a footnote that the broad language of its holding does not imply that a reckless misconduct standard should be applied in all cases involving conduct arising from a recreational activity. The Court recognized that it has stated this standard broadly as applicable to all recreational activities. However, the precise scope of this rule is best established by allowing it to emerge on a case-by-case basis, so that we might carefully consider the application of the recklessness standard in various factual contexts.

Inherent Risk

A risk is inherent in an activity if the ordinary participant would reasonably consent to the risk, and the risk cannot be tailored to satisfy the idiosyncratic needs of any particular participant, like the plaintiff. The Court determined that the nonuse of a cart does not prevent a person from engaging in golf, while the nonuse of a ball or club would; it cannot be considered an inherent part of the game. As such, the risk of being injured by a golf cart does not become an ordinary and foreseeable risk.

Court's Conclusion

The trial court (*Bertin v. Mann, 2017*) applied an incorrect standard of care. Thus, we vacate the jury's verdict, reverse the trial court's order finding that reckless misconduct, as opposed to ordinary negligence, is the applicable standard under the circumstances of this case, and remand for further proceedings consistent with this opinion.

Risk Management Discussion

Golf carts were designed for golf. They are recreational vehicles designed for slow-speed driving, away from traffic, along grassy paths. With a poor brake assembly, no seatbelts, and a lack of other safety features, they do not provide the normal crash protection that an automobile typically offers. The open-air design makes it very easy for a passenger to fall out, as was the case recently when a young child tragically lost her life from such a fall. Some vehicles are being up-fitted these days to make them "road legal," but those often seen cruising through the neighborhood are not typically so equipped. And most have not been maintained in the way people would normally attend to an automobile.

It is clear, at least in the State of Michigan, that a golf cart is not an inherent risk of the game of golf. Based on this ruling, it would be extremely important for the golf course operator/owner to clearly warn golfers of the inherent dangers of golf carts and post warnings related to those dangers. Further, the owner/operator should inspect and maintain the golf cart daily before renting it to a golfer.

Finally, the operator/owner should consider posting in prominent locations the following signage regarding the fundamentals of safe golf cart operation:

- Always drive responsibly.
- Arms and legs should always remain inside the vehicle, and, if your cart is equipped with them, seatbelts should always be fastened.
- Only carry passengers for whom you have seats.
- Do not try to squeeze in extra passengers.
- Never drive recklessly or joyride.
- Be courteous to other drivers and obey vehicle traffic laws and the rules of the road.
- Never drive intoxicated or under the influence of any drug or narcotic.
- Avoid distractions while operating your golf cart.
- No matter the size of the vehicle, it's still an automobile.
- Remain attentive and avoid distractions, such as talking, texting, or reading while driving, reaching for objects, applying makeup, or eating.

- Never allow anyone to stand in the vehicle or on the platform located at the back of the vehicle, and never put the vehicle in motion until all passengers are safely inside and buckled in.
- Always use hand signals to indicate upcoming turns as well as your turn signals. Turn signals may be small or go unnoticed by vehicles behind you, so it's always a good idea to use hand signals as well.
- Always check blind spots before turning. When making a left-hand turn, yield to the through traffic lane and merge into that lane before turning left.
- Use caution while tuning and look behind your golf cart before backing up.
- Avoid excessive speeds, sudden starts and stops, and sharp turns at fast speeds.
- Reduce speed depending on the driving conditions and driving environment. Reduce speed on hills and inclines, as well as in blind corners, and yield to pedestrians.
- Do not leave keys in the golf cart while unattended, and always make sure to set the parking brake.
- Always yield to pedestrians.
- Use extreme caution in inclement weather.
- Golf carts may be prone to lightning strikes.
- Avoid driving in inclement weather whenever possible.

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