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An Action Research Evaluation of an Online Inclusive Sport Peer Coach Training

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An Action Research Evaluation of an Online Inclusive Sport Peer Coach Training

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Dissertation defense submitted to the
College of Physical Activity and Sport Sciences
at West Virginia University

in partial fulfillment of the requirements for the degree of
Doctorate of Education in
Coaching and Teaching Studies

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Abstract

An Action Research Evaluation of an Online Inclusive Sport Peer Coach Training

Margaret Roberts Condon

Background: Trained peer tutors are a proven pedagogical technique that can help eliminate barriers to inclusion in physical education and extracurricular sport, including a reported lack of training and experience of professionals. When adequately trained, peer tutors can encourage social interactions, provide constant feedback, and increase active learning and engagement. While recommendations for training peer tutors have been provided, there are currently no known studies examining a peer tutor training in an online format for middle and high school-aged students participating in an inclusive sport program.

Purpose: The purpose of this study was to evaluate the effectiveness of an online peer coach training program for middle and high school school-aged students in the Prime Time Games® organization. This study aimed to (a) investigate if there was a statistically significant increase in knowledge from pre- to post-training completion, (b) investigate perceived strengths and weaknesses of the online training modules post-completion, and (c) determine the perceived applicability of module content after training and hands-on experience. Finally, recommendations for improvements were provided.

Method: This study employed two rounds of data collection based on an action research framework. First, peer coach participants ($n=36$) completed a demographic questionnaire, a pre- and post-knowledge evaluation, and open ended survey prompts. Next, semi-structured focus group interviews were conducted with peer ($n=13$) and head coach participants ($n=4$). Data analysis included a paired sample t -test and point biserial correlations and transcription, inductive coding, and peer debriefing

Results: Results of a paired sample t -test indicated a statistically significant increase in knowledge from pre-training ($M=66.29$, $SD=17.84$) to post-training ($M=80.29$, $SD=21.89$), $t(35) = 4.48$, $p < .001$, Cohen's $d=0.76$. Four major themes emerged from open-ended questions including (a) comprehension, (b) disability awareness, (c) interacting with the athletes, and (d) instructional design. Five major themes were identified from interviews including (a) expectations versus the reality of the role, (b) intrapersonal outcomes, (c) understanding commonalities, (d) athlete development, and (e) areas of improvement

Conclusion: Results of this study indicate that training peer coaches to provide instruction and support to athletes with disabilities utilizing an online format can be effective for middle and high school-aged students. Recommendations for improvement include additional information to enhance peer coach learning, a standard evaluation score to ensure competence, and a focus on communication strategies toward the beginning of training. Future research should continue the cyclical nature of action based research to determine if the recommendations provided are effective in improving the four online training modules.

Dedication

This is dedicated to all the individuals who continue to work to provide equal opportunities in movement settings, especially to the young people who choose to include. Continue to break down barriers and view differences as exceptionalities rather than inabilities.

This is also dedicated to my encouraging and loving family, who continued to support me through this journey from start to finish. You always believed in me, and for that, I am forever grateful.

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Introduction

The inclusion of individuals with disabilities in physical education (PE) and physical activity (PA) has been a well-researched area within the last twenty years (Block & Obrusnikova, 2007). In 2010, the United States Government Accountability Office (GAO, 2010) detailed a report to clarify the known opportunities and supplementary supports for students with disabilities in PE and extracurricular sports. The GAO Report highlighted the still existing barriers to providing inclusion in physical education and extracurricular sport despite the Individuals with Disabilities Education Act Amendments of 2004. Findings from the GAO Report indicated that students with disabilities in grades 7-12 were 67% less likely to participate in extracurricular sports than peers without disabilities and were not afforded the same opportunities to participate in extracurricular sports (GAO, 2010). The investigators found that 16 of 20 discriminatory reports filed alleged that a student with a disability was discriminated against in PE or extracurricular sport. The findings detailed in the GAO Report indicated that teachers and coaches are not adequately prepared for inclusion in extracurricular sport settings.

Teachers and coaches have reported that a lack of training and experience are major barriers to successfully including students with disabilities in their classes or teams (Lirgg et al., 2017; Vargas et al., 2018) which can further lead to negative attitudes toward inclusion (Block & Obrusnikova, 2007; Vargas et al., 2018). Vargas et al. (2018) further asserted that unless coaches have been teachers or have undergone a teacher training program, they lack the pedagogical techniques to appropriately include athletes with disabilities on their teams. A lack of training and experience can extend to negative attitudes toward inclusion (Block & Obrusnikova, 2007; Vargas, Beyer, & Flores, 2018). If teachers' and coaches' self-competence in providing strategies and instructional practices for inclusion are low, students and athletes with disabilities

are more likely to demonstrate lower motor skill performance, self-esteem, and satisfaction in their inclusive sport experience (Flores, Beyer, and Vargas, 2012).

One method of eliminating barriers to inclusion is the use of peer tutors, or students without disabilities, to provide support to students with disabilities in PE (Block & Obrusnikova, 2007). Peer tutors are a proven pedagogical tool when adequately trained and utilized (Sands et al., 2019; Wiskochil et al., 2007). Trained peer tutors have the potential to help facilitate skill development, fitness levels, and social interactions for both tutors and tutees (Barfield et al., 1998; Houston-Wilson et al., 1997; Klavina & Block, 2008; Lieberman et al., 2000) when compared to their untrained counterparts. Research has indicated positive benefits for trained peer tutors and tutees in encouraging social interactions (Klavina et al., 2014), providing support and continuous feedback (Breslin & Liu, 2014), and increasing active learning and engagement (Klavina, 2008) in PE and PA settings. To date, there have only been studies related to the use of peer tutors in PE and PA, with no known studies focused on peer tutors in inclusive sport settings.

Peer Tutor Training

While the importance of training peer tutors is well established, there is no one prescribed peer tutor training protocol. There are discrepancies among recommendations from researchers regarding the selection of peer tutors, training content, and time spent training (Temple & Lynnes, 2008). However, it is recommended that peer tutors should be volunteers with high motor skill performance (Klavina & Block, 2008; Lieberman & Houston-Wilson, 2017) and who are trained in communicating, prompting, and providing instructional feedback (Vonlintel et al., 2017). Two peer tutor training resources have recommended the training components of (a) selection of peer tutors, (b) approximately an hour to two-and-a-half hours of training time, (c)

disability awareness, (d) communication techniques, (e) instructional techniques, and (f) an evaluation of peer tutor knowledge (Klavina & Block, 2008; Lieberman & Houston-Wilson, 2017).

These recommendations for training peer tutors have been developed based on an in-person format (Klavina & Block, 2008; Lieberman & Houston-Wilson, 2017; Lieberman et al., 2000). Issues with this format include taking away from academic learning time, limited social interactions between students with and without disabilities, and limited participation in other opportunities for the peer tutors. Peer tutor training has been successful within the middle school PE setting (Park et al., 2020; Sands et al., 2019), but to date, there is no one prescribed method of training peer tutors using an online peer tutor training, nor protocol for training within extracurricular inclusive sport programs.

While there is no research in PE or PA regarding training peer tutors using an online format, Healy et al. (2019) found that physical educators can effectively be taught how to implement a peer tutor training program in their classes. Through the use of four online podcasts, Healy et al. determined that physical educators in the intervention group ($n=23$) significantly increased their knowledge of peer tutoring and their ability to apply lessons learned during online training as compared to the control group ($n=23$). Healy et al. (2019) further suggested that the recommendations for implementing an online class for educators could be translatable to an online peer tutor training program for students. The use of an online format for training peer tutors presents numerous benefits over traditional training including (a) the flexibility of time in which training takes place, (b) the speed at which an individual completes training, (c) training replicability that eliminates any geographical constraints, and (d) increased learning opportunities through multiple media educational sources (Healy et al., 2014). The evaluation of

an using an online mode of learning is necessary to determine any parallels between adult and student peer tutor training.

Action Research Framework

The action research framework is commonly utilized in classrooms and organizations to facilitate change by addressing a specific problem (Herr & Anderson, 2015). Action research allows the researcher to discover the most effective solutions to a practice-based problem through multiple iterations of development (Merriam & Tisdell, 2015). This form of research has been successful in education since it actively intertwines teaching and research together, allowing a broad generalizability to address the realities of an actual classroom (Caro-Bruce et al., 2007). Known as being practitioner-based, action research has been conducted by teachers with the goal of improving pedagogy used and student learning (Kalmbach Phillips & Carr, 2010). Action research is comprised of three different components: a) an intervention focus, b) an iterative cycle, and c) researcher participation (Petersen et. al., 2014).

Petersen et al. (2014) proposed conducting action research in a two-phase approach. Phase one was comprised of the development of the elicitation instrument through an iterative cycle by diagnosing the problem, action planning to design the intervention, action taking to implement the intervention, and reflection on the process. This took place prior to the current study in which the four online peer coach (PC) training modules were created. The problem diagnosed in phase one included the lack of an evidence-based online PC training program for middle and high school-aged students that was replicable across multiple teams and locations. Each of the modules underwent several iterations with input from the development team and key stakeholders. For each module, the development team created a script that was reviewed by the organization directors. Changes were made to the script and module components were created

and uploaded to the online platform. The development team and organization directors reviewed the module before changes were made and final module content was uploaded. Phase two was comprised of the evaluation of the elicitation instrument and is the focus of this research study to determine the overall effectiveness of the modules.

Conclusion

Trained peer tutors are a proven pedagogical technique that can help eliminate teacher and coach perceived barriers such as a lack of training and experience to applying inclusion strategies. Research on trained peer tutors in PE and PA may be comparable to the extracurricular sport setting. While general recommendations have been provided to train peer tutors to instruct and support peers with disabilities, there is no one prescribed method. There are currently no known studies examining online instructional delivery or its effectiveness to train middle and high school-aged peer tutors for inclusive sport programs. The development and use of online training modules would allow multiple PC to be systematically trained across settings in a replicable and cost-effective approach without the oversight of head coaches (HC) who may not be well-versed in this type of pedagogy.

Statement of the Purpose

Therefore, the purpose of this study was to evaluate the effectiveness of an online PC training consisting of four online modules for middle and high school-aged students in the Prime Time Games® organization, utilizing an iterative action-based framework. Specifically, this study aimed to (a) investigate if there was a statistically significant increase in knowledge from pre- to post-training intervention on providing support and instruction to athletes with disabilities, (b) investigate the perceived strengths and weaknesses of the four online training modules upon completion, and (c) determine the perceived applicability of content after training

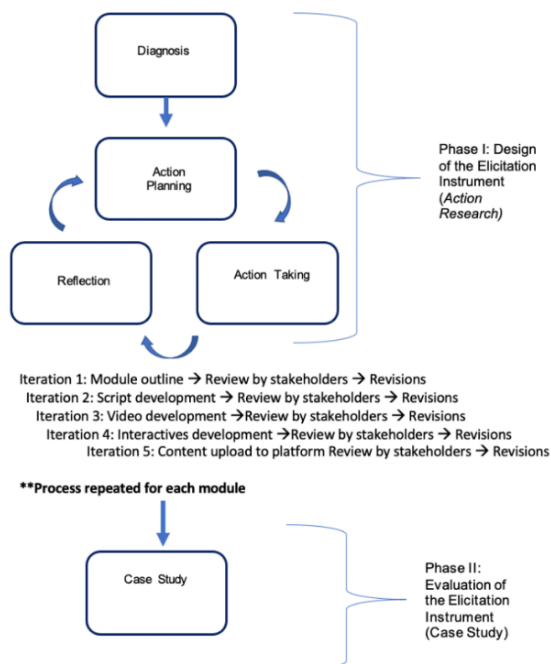
and hands-on experience in an inclusive sport program. Finally, resulting recommendations for alterations and improvements of the four online PC training modules were provided.

Method

This action research study was conducted in a two-phase approach following the framework presented in Figure 1(modified from source: Petersen et al., 2014, p. 6). The iterative process of Phase I previously occurred through the development of the four online PC training modules that were utilized as the intervention. Phase two included the evaluation of the intervention through a case study approach (Petersen et al., 2014). This study focused on phase two to evaluate the effectiveness of the four online training modules. A qualitative and quantitative data approach was employed to determine the effectiveness of the four online training modules through an action research framework (Creswell & Plano-Clark, 2018). West Virginia University IRB approval was obtained prior to recruitment and data collection.

Figure 1.

Two-Phase Action Research Framework



Note. The image was created to represent the process of action-based research. Adapted from “Action research as a model for industry-academia collaboration in the software engineering context,” by Petersen et al., 2014, In *Proceedings of the 2014 international workshop on long-term industrial collaboration on software engineering*, p. 55-62. Copyright 2014 by Blekinge Institute of Technology.

Round One

Setting

The Prime Time Games® is a fully inclusive after-school sports organization designed for middle and high school-aged low-income youth and youth with disabilities to compete together in a varsity sports season including soccer and basketball (Straus, 2017). The PCs, or youth without a disability, work one-on-one with an athlete with a disability during after-school practices and games. HCs, or adult supervisors who have been hired and trained by the Prime Time Games®, lead practices and games and provide support to the PCs when necessary.

Participant Recruitment and Selection

All PCs and HCs from the Prime Time Games® were identified as potential participants and recruited to participate in the study, resulting in a potential pool of approximately 200 PCs and 20 HCs. A minimum sample size of 27 participants was needed to collect quantitative data according to GPOWER calculations at a power of .80.

Permission was granted by the Prime Time Games® to contact all head and peer coaches during the Fall 2021 season. All potential PC and HC participants were invited to participate through an online Qualtrics survey presented at the beginning of the first training module (Appendix A). Potential participants read a cover letter and consent form and then were invited

to click “yes” to participate or “no” to opt-out of round one of the study. Round one participant agreement included both peer coaches ($n=36$) and head coaches ($n=4$).

Inclusion Criteria. Round one inclusion criteria involved a) middle and high school PCs who volunteered and registered to participate in the Prime Time Games® and b) HCs for the Prime Time Games.

Instrumentation

Modules. At the request of Prime Time Games®, four instructional modules were created prior to this study by a development team of five experts in the fields of adapted PE, health and PE, and health policy and health education. Modules were based on recommendations from the literature and included (a) roles and responsibilities of a PC, (b) disability awareness, (c) instructional and feedback techniques, and (d) communication strategies. The modules included short, scripted Powtoons videos providing learners with content knowledge with auditory and visual representations through written word and images to guide learning. Multiple interactives throughout each module provided independent practice opportunities for reflection, checks for understanding, and scenario-based examples.

Demographic Questionnaire. The demographic questionnaire (Appendix B) was collected before the four online training modules were completed. The demographic questionnaire was used to collect participant descriptive data concerning age, year in school, gender, PC/HC experience, and if a family member or friend has a disability.

Knowledge Evaluation. The knowledge evaluation (Appendix C) was completed prior to the start of online training and again immediately following the completion of the fourth training module. The evaluation was comprised of ten multiple choice questions regarding

course content and was based on evaluations from Klavina and Block (2008) and Lieberman and Houston-Wilson (2017).

Open-Ended Questions. PCs and HCs completed five open-ended question reflections from the Usability Testing of Online Modules Survey (Appendix D) at the end of the four online training modules. The questions aimed to gain insight into the participants' experiences within the modules.

Data Collection Procedures

PCs and HCs individually completed the online training modules at their own pace over two days of their scheduled Prime Time Games® practice times. The participants were first directed to the Thinkific.com website to complete the demographic survey and the pre-knowledge evaluation test. At the end of the four training modules, the participants completed the post-knowledge evaluation and the open-ended question prompts. All data from the knowledge evaluation and open-ended questions were downloaded to an Excel spreadsheet by the researcher and saved on a secure, password-protected hard drive.

Round Two

Participant Recruitment and Selection

Inclusion Criteria. Round two inclusion criteria included a) PCs and HCs who completed the four online training modules based on user-level data and b) PCs and HCs who consented for their data to be collected in round one.

Peer Coach Participants. PC participants were recruited using purposive sampling for round two of the study. The Prime Time Games® directors identified four teams of approximately ten PCs per team for the researcher to recruit for focus group interviews. Due to

COVID-19 and district-wide limitations, there were only first-time PCs available to recruit and team sizes varied from school to school.

The researcher printed and mailed hard copies of the cover letter (Appendix E), an informed consent opt-out form (Appendix F), and a letter of invitation (Appendix G) to the Prime Time Games® directors. The cover letter and informed consent opt-out forms were distributed to potential participants during Prime Time Games® practice time four weeks before interviews. PCs could elect to opt out of the study by providing a personal or parent/guardian reply that he/she did not wish to participate in the interview process. Participants who did not opt-out received the letter of invitation two weeks prior to scheduled interviews reiterating the interview purpose and procedures. There were 13 peer coach participants ($n=4$ females, $n=9$ males) between grade six through eight who met inclusion criteria and agreed to complete round two of the study.

Head Coach Participants. All four HCs ($n=2$ females, $n=2$ males) who completed the module training and held practices/games during the fall season were invited and agreed to participate. The cover letter describing phase two of the study and opt-out form (Appendix H) were distributed to the HCs via email through the Prime Time Games® organization four weeks before focus group interviews. Participants who were unable to meet during the scheduled interview completed an individual interview with the researcher. Participants received the letter of invitation (Appendix I) by email two weeks before interviews reminding of interview purpose and procedures.

Instrumentation

Semi-Structured Interview Guide. The semi-structured interview guide (Appendix J) included open-ended questions based on (a) module content and usability, and (b) the PCs' ability to apply module content.

Pilot. The semi-structured interview guide was piloted for question clarity and formatting by two groups. First, the guide was reviewed by two individuals with qualitative research experience, including a qualitative methods professor and a professor who utilizes qualitative research. Changes were made as recommended by the qualitative experts. Second, the guide was piloted with six middle and high school-aged students who do not participate in the Prime Time Games® organization. Feedback from the pilot interviews was considered and questions were altered for clarity.

Data Collection Procedures

The Prime Time Games® directors facilitated the coordination of practice times and classroom locations for the Zoom-based focus group interviews to take place. Each interview lasted approximately 20 to 35 minutes to ensure participant focus and maximum participation (Adler et al., 2019) and were recorded with transcriptions enabled. The interviewer took notes during the interviews in case there were any issues with the recording process and highlighted any potential key statements or phenomena. All recorded interviews were saved in a password-protected secured hard drive to maintain confidentiality.

Data Analysis

Quantitative Data Analysis Procedures

Data from the demographic questionnaire and the knowledge evaluation were exported to IBM SPSS Statistics (Version 28) and screened for missing data, outliers, and violations of normality. Descriptive statistics were calculated on demographic variables. Point-biserial

correlations were run to determine differences in post-test scores between each of the following conditions: gender, grade, and if the participant had a friend or family member with a disability.

A paired samples t-test was conducted to determine any statistically significance of change of knowledge on the knowledge evaluation (Thomas et al., 2015). Data were analyzed providing mean scores, standard deviations, and the effect size (York, 2017). Pairwise deletion was utilized in cases of missing participant data (Marsh, 1998). Significant outliers of differences between pairs were evaluated and while there were no extreme outliers within the data, one pair violated the assumption of normality assessed by the Shapiro-Wilk test of normality and was therefore eliminated from analysis.

Qualitative Data Analysis Procedures

Qualitative thematic analyses took place for the data consisting of open-ended questions at the end of the four online training modules and the focus group interviews. The researcher uploaded data into NVivo 12 software to store and code the data. The researcher reviewed the responses to the open-ended questions and eliminated any incomplete thoughts or ideas. The researcher reviewed the interview transcriptions while listening through the interviews to ensure complete and correct content and for familiarity purposes.

An inductive approach to coding and analyzing themes was conducted using the six-phase step-by-step guide for thematic analysis followed (Braun & Clarke, 2006). First, the researcher became familiar with the data by reading and re-reading the data and noting any initial ideas. Second, the researcher generated initial codes from the data in a systematic fashion amongst the data. Third, the researcher searched for themes by collating the codes and gathering all relevant data into potential themes. Fourth, the researcher created a thematic map to review the themes across the data set. Fifth, the researcher defined and refined the names and themes to

guide the overall story of the analysis. Finally, the researcher selected compelling examples to relate the analysis to the research question (Braun & Clarke, 2006).

Triangulation

Triangulation of the three independent data sources was used to support conclusions (Thomas et al., 2015) and increase the credibility and validity of the research being conducted (Creswell & Plano-Clark, 2018; Merriam & Tisdell, 2015). Focus group interviews, the researcher's interview notes, and peer debriefing session notes were used as triangulation evidence. These data sources provided evidence of consistencies or discrepancies for conclusions to be drawn and guided the comparison of data in depth, enhanced understanding of the data, and enhanced trustworthiness due to the convergence of data (Carter et al., 2014).

Peer Debriefing

A peer debriefer knowledgeable in the intervention with expertise in qualitative research provided a new perspective on the data set and conclusions drawn by independently coding selected transcripts (Thomas et al., 2015). Ongoing briefing sessions were held to discuss codes and emerging themes (Spall, 1998), and coding comparison queries were run to determine inter-rater reliability. Briefing sessions were held after each query to discuss agreement and potential changes to the themes before the researcher incorporated necessary changes. After the third query, agreement ranged from 93.5 to 99.2 percent, but the kappa value for most themes remained between 0.50 and 0.80. The researcher and peer debriefer met a final time to discuss the themes and came to 100 percent agreement.

Results

Demographic Questionnaire

Of the thirty-six PCs within the Prime Time Games® organization who completed all four of the online training modules and volunteered to participate in the study, 66% ($n=24$) identified as male and 33% ($n=12$) identified as female. There were four HCs who completed the four training modules and volunteered to participate in the study. Two were male, two were female, and all HCs reported having a family member or friend with a disability. All participants were first time PCs or HCs in their first sports season for the Prime Time Games® (see Table 1).

Knowledge Evaluation

Results of a paired samples t-test indicated that PC participants scored significantly higher on the knowledge evaluation after completing the four online training modules ($M=80.29$, $SD=21.89$) as compared to the pre-test ($M=66.29$, $SD=17.84$), $t(35) = 4.48$, $p<.001$, Cohen's $d=0.76$. A point-biserial correlation was conducted to determine if there were differences in post-test scores between gender, grade level, and individuals who had a family member or friend with a disability and those who did not. Descriptive statistics showed a violation of normality and data were transformed prior to analyzing point-biserial correlation. There was no statistically significant correlation between gender and post-test score, $r_{pb}(32) = .26$, $p=.13$, grade level and post-test score, $r_{pb}(32) = .50$, $p=0.78$, or having a friend or family member with a disability and post-test score, $r_{pb}(32) = .01$, $p=0.94$.

User Level Data

Data from the Thinkific website were downloaded into an Excel spreadsheet to determine (a) the average time spent per module and (b) the average time total it took for the four modules to be completed (see Table 2). On average, it took PC participants approximately 1 hour and 54 minutes to complete all four online training modules.

Open-Ended Questions

A thematic analysis of the open-ended survey questions completed immediately after training resulted in the emergence of four major themes including (a) comprehension, (b) disability awareness, (c) interacting with the athletes, and (d) instructional design. Refer to Appendix K for an expanded table of representative quotes.

Comprehension

PC participants identified their ability to comprehend the content within the modules as an area of strength. Multiple PC participants noted their increase in knowledge of their role and how to work with athletes with disabilities. “I like how it shows me exactly what to do a couple of times so that I know,” replied PC #8. The immediate feedback of the content learned demonstrated the PCs’ perceptions of higher levels of competence.

Disability Awareness

The second theme that emerged from the analysis focused on a strength of disability awareness content. There were multiple indications from PC participants and HC participants that the information on disability-specific information was believed to be most useful within the four modules. The ability to learn about disabilities in general was noted as a helpful area. PC #10 replied that “it helped me learn about the disabilities and how to properly teach them [the athlete]”.

Interacting with Athletes

The third theme of interacting with athletes emerged as both a strength and an area needing improvement from the perspective of PCs and HCs. For example, PC #2 observed that their expectations prior to training were met “because I now know how I can approach a teammate in need” after completing the four modules. However, three participants felt that there

could be additional information about how to treat the athletes and how to communicate more efficiently with the athletes.

Instructional Design

The final emerging theme was the overall instructional design of the four modules. This theme held the most discrepancy between strengths and areas needing improvement. In terms of strengths, participants believed that the videos were clear and easy to follow. For example, PC #27 noted, “I think the videos are helpful and overall, this is an amazing way to teach PCs.” The formatting of the platform was also noted as a positive, in that the table of contents displayed how many videos and interactives were left within the module being completed. HC #3 added that checking for understanding and review of information were the most useful components of the modules.

However, the design of the videos was an area that was perceived as needing amending to better serve those being trained. PC participants highlighted that the training and videos were too long, and that closed captioning could be displayed to aid in video sound glitches. There were also suggestions for changing the videos to incorporate more examples or to see athletes more representative of those PCs would be helping.

Focus Group Interviews

Findings from the focus group interviews determined the overarching themes of (a) expectations versus the reality of the role, (b) intrapersonal outcomes, (c) understanding commonalities, (d) athlete development, and (e) areas of improvement. Refer to Appendix L for an expanded table of representative quotes for all sub-themes.

Expectations versus the reality of role

There was a clear evolution of how PCs viewed their role before training and what their role involved once they began working with the athletes during the season. Two subthemes emerged from the interviews that included (a) the preconceived notion of inability and (b) the evolution of understanding the role.

Preconceived notion of inability. There was a misconception prior to the online training amongst PCs that athletes with disabilities possessed an inability to participate in sports or that the athlete could not or would not want to participate in sport opportunities. Both PCs and HCs made connections between the athletes that participate in the Prime Time Games® organization and an inability to participate in a traditional sports season. For example, PC #13 responded, “I think my role as a PC is to teach kids who don’t normally have access to or have a hard time because of a disability or like sometimes that hinders them from doing it.” Several PCs noted that their role as PCs was based around helping athletes with disabilities that would not normally have the ability to participate.

Evolution of understanding the role. As the PCs gained more training and hands-on experience throughout the season, there was a shift in the mindset of the PCs from what they originally believed their role was prior to the start of module training to what the role entailed. While there was an understanding of a need to provide support and instruction, the HCs recalled that the PCs had difficulty putting the training content into practice: “I think it was just that they didn’t know what was gonna, you know, happen” (HC #2). This was evident in one interview where PC #1 stated, “I actually thought that it was going to be more about what we’re teaching them and how we’re going to teach it. Um, not about how to handle anything if it goes wrong in situations like that.” There was a disconnect between the initial understanding of the PC role to what was going to happen during practices and games.

The PCs started the season under the impression that there was going to be a traditional sports game being played instead of a game played using modifications for athletes with disabilities. The HCs recalled having to remind the PCs at the beginning of the season that the focus of their efforts should be on the athletes instead of their own sports benefit:

“I had to convince them for like two weeks that they can’t kick the ball and they have to try not to score. Like I don’t know how many times, I could tell you, you’re helping your athlete score and then the whole question well, how come they’re an athlete? How do I become an athlete so I can score?” (HC #3)

The PCs were aware they would be helping during the sports season, but the application of that role was unclear in the beginning. Even after completing the four training modules, with one specific module about the role of a PC, there still were misconceptions of their role and what the season would involve. As the season progressed, the PCs were able to better understand what their roles should entail. Once the PCs started applying what they had learned with the HCs reminding them about what to do in certain situations, more success and confidence emerged for the PCs and athletes. This was evidenced by HC #2, “...They had to say, ‘no, we’re not the protagonists. We’re in the background, we’re shadows’... as it went along, they got more, more into “Oh I understand, now I get it’.”

Intrapersonal Outcomes

The sense of increased feelings of confidence, feeling good, joy, and an ability to assume a leadership type of role emerged as the second major theme from the analysis. PCs acknowledged that their happiness increased when speaking about their participation in the program. Most of the PCs enjoyed playing sports outside of the organization and spoke to their

excitement about helping others play sports. “When I figured out that we’re going to help other people play sports, I got happier because I like helping people play sports,” remarked PC #10.

The HCs noted that the PCs embraced leadership which directly ties back to the role of the PC taught in the first module. The PCs were marked as mentors to the athletes and HCs highlighted PCs’ ability to step out of their comfort zone to help others. HC #4 highlighted, “the modules I thought did a really good job showing them how to include their athletes in the sports and how to help them like take leadership, like, this is your athlete.” As the season progressed, the PCs were excited for practices to work with their athletes who were now being viewed as friends as evidenced through HC #3, “They asked me every week, when is Prime Time Games®? Do we have it today? Multiple times a week and I’m just like, Wednesday!”.

Understanding Commonalities

The understanding of commonalities emerged as an overarching theme with two subthemes of the development of empathy and building relationships through the Prime Time Games® experience.

Development of Empathy. The development of empathy emerged as PCs understood that there may be existing differences between themselves and participants in the sport season. PCs were also conscious of the development of their ability to share feelings or empathize with the athletes. This included the PCs’ understanding of how their behavior affected the athletes both positively and negatively.

The four online training modules bridged the gap between PCs and athletes who may not have had interactions before their participation in the season. “Since we saw the videos and um, did the training, and actually talk to people like that um... I’ve gotten better talking to them,” stated PC #7. There was a desire to try to better understand others and develop stronger

communication between PCs and athletes. There was also hope from the HCs that the empathy that had developed within their PCs would carry over into school to other students who may not participate in the program. For example, HC #2 stated, "...some of the peers are very popular on my campus... and I think that that's going to make a very positive impression on their, their own friends on how they, they work together with the students of our group."

Building Relationships. PCs and HCs spoke to the development of relationships through the sports season between PCs and athletes. The modules emphasized the Prime Time Games® key component of finding common interests between PCs and athletes, and it was clear from the focus group interviews that PCs were able to implement this strategy to make friends. Furthermore, the relationships were more than a simple PC and athlete partnership; true friendships were developed and carried outside of the sports season.

The hope HCs had that the bonds would carry over into the regular school day was confirmed during the PC interviews. Multiple PCs spoke to the fact that they would speak to the athletes during the school day because they knew the person and they viewed them as a friend. For example, PC #12 stated, "the athletes that we meet and talk to in Prime Time Games®, I see during school, and I'd say hi to them, say like how are you doing, because I know that person now." It was important for the PCs to get to know their athletes on a personal level to help them communicate better with their teammates and develop those relationships.

Athlete Development

The application of content and skills learned through the four online training modules was evident in terms of the development of athletes during the sports season. Skill development of the athletes, managing challenging scenarios, and motivating the athletes all emerged as

subthemes under this category. All three of the subthemes directly relate back to the content learned from the modules as each were key objectives of the four training modules.

Skill development of athletes. PCs described the advancement of skills from the athletes as the season continued from the instruction and support they were providing. PCs specifically highlighted scenarios where they were able to provide skill-specific feedback or demonstrations for the athletes which enhanced athlete learning. For example, PC #4 recalled,

“I remember something in the training where it’s like if the athlete doesn’t respond wait 10 seconds...because you know it may take them a little time to process what you said.

And that that happened one time with my athlete and I, like told him to do something and then like it took him like five seconds to like process to respond.”

Ironically some athletes had more developed sports skills than their PC counterparts. HC #3 remarked, “some of these athletes are lowkey better than the PCs, so I see them going back and forth.” This reciprocal type of learning may be attributed to the relationships that the athletes and PCs had developed.

Managing challenging scenarios. There were occasions when PCs found themselves in challenging situations that they were able to resolve by using information learned in the four online training modules. PC #12 recalled a time when an athlete became excited and began punching everyone in the stomach. The PC empathized with the athlete and believed that he may not have understood why it was inappropriate and instead gave him an alternative to doing a fist bump. There were also times when an athlete did not fully understand what was happening in game-like situations and the game paused for the PCs to help demonstrate what should be happening.

Motivating the athlete. Most of the challenging scenarios that PCs faced were resolved by motivating the athlete, an approach learned in the instructional strategies module. During practices and games, PCs often would use general feedback, words of encouragement, or positive body language to motivate their athletes. Interviewees identified situations when PCs gave words of encouragement or high fives to reinforce positive behaviors. PCs believed that it was important to build up the confidence of the athletes to encourage them to continue playing or to try again to develop their skills. HCs also described situations when PCs of other athletes would be cheering from across the field for their teammates. HC #4 remarked, “I have one student who really just refuses to do anything at all and they’re so good at getting him really excited and trying to get him to kick the ball, or like. You know just ‘Go [athlete], go!’”

Areas of Improvement

The final theme that emerged through data analysis were areas needing improvement in terms of the subthemes of future module development and technology.

Future module development. There were elements deemed unclear or needing more information for the PCs to be successful in providing instruction and support. Specific examples were provided by peer and HCs when they were unsure of how to successfully navigate a situation. For example, PC #6 identified:

“Sometimes like the athlete, like, if you tell them to do something and then you give them a couple seconds to respond and then you say it again and they still don’t do it like, is hard. Because, then I don’t know what to do.”

Several PCs noted as an area of improvement that the videos were repetitive and often concluded by reiterating the HC as a resource if the PC did not understand or know what to do next.

The PCs also identified that they wanted to take more of a leadership role and felt confident to handle situations before asking for the HC's help. One PC noted that the videos from the four online training modules did not portray individuals with disabilities. There was also a sense of limited information about different types of disabilities. PC #8 noted, "each athlete has a different way of expressing themselves and so being that it's kind of hard to you know help them out with different things." This is reinforced by HC #4:

"I don't know that this prepared them for like the level of disability that we were going to see. Like with my students... I could tell them like you're going to see this...this person drools, this person, you know, is going to run away from you..."

Technology. Technology in terms of usability emerged as the final area needing improvement. PCs highlighted that the login process for the modules was difficult to navigate. In particular, the access at the beginning of the modules was believed to cause issues for individuals trying to begin the modules. The length of the videos was again identified by PCs to be too long to complete which led to PCs wanting to be finished with the training regardless of information retention. The HCs supported this finding by reporting that there were PCs who would skim through the material leading to decreased learning or retainment of information.

Discussion

The use of peer tutors is a proven pedagogical technique that has been utilized successfully in PE and PA settings to support individuals with disabilities. To date, there has not been consensus on a prescribed method for training peer tutors, and there were no identified prior studies focused on the efficacy of an online training format for an inclusive after-school sport setting. The current study aimed to use an action research framework to evaluate the overall

effectiveness and applicability of an online PC training on providing instruction and support to athletes with disabilities.

As supported by multiple data points, the four online peer coach training modules were found to be effective in increasing PC knowledge and application of providing instruction and support. First, the quantitative analysis in round one of the study demonstrated that there was a significant increase in the knowledge of PCs toward providing instruction and support to athletes with disabilities, which aligns with results found in prior studies focused on in-person training for peer tutors in movement settings (Block, 2016; Lieberman et al., 2000; Wiskochil et al., 2007). Results of the open-ended questions in round one also evidenced that the PCs perceived an increase in their overall competence and confidence to apply the knowledge learned from the training while working with athletes. This aligns with the findings from the focus group interviews which detailed examples of the PCs' abilities to implement the knowledge they gained to help develop athletes' skills during practices and games by providing corrective feedback and words of encouragement. These results suggest that an online format for peer tutor training can be effective in increasing knowledge. This parallels the finding of Healy et al. (2019) in using an online training to teach physical educators to implement a peer tutor training program in their own classes. The current study is the first to demonstrate that peer tutors can perceive their own knowledge growth and ability to apply content based on an online training format.

Second, the results also showed that PCs held the perception that they were able to interact appropriately with the athletes after learning about disability specific information, instructional strategies, and providing support. This was evident in the open-ended questions in round one as PCs viewed their interactions as a strength in being able to approach a teammate in

need. This parallels the findings of the focus group interviews of round two in which the development of empathy and importance of building relationships were key subthemes. These two subthemes are necessary for positive attitudinal change of inclusion in sport to take place (Grenier et al., 2014; McKay, Haegele, & Block, 2019; Wilhite et al., 1997).

Third, the triangulation of data supported the effectiveness of the disability awareness portion of the training. The open-ended questions in round one revealed that participants believed that the disability awareness module was too lengthy, which was confirmed by the user level data as being the longest of the four modules. However, the length of this module may be necessary as the PCs and HCs noted in both the open-ended questions and focus group interviews that the disability awareness information was the most important information learned. Disability awareness is highlighted as a key component of attitudinal change (McKay et al., 2019).

Module Strengths and Recommendations for Improvement

Prior recommendations for total time spent training peer tutors have varied between one hour and two and a half hours in duration (Houston-Wilson et al., 1997; Klavina & Block, 2008; Lieberman et al., 1997; Lieberman et al., 2000) expanded across multiple sessions to increase retention and application (Block, 2016; Klavina, 2008, Lieberman & Houston-Wilson, 2017). The average total time of two hours that it took participants to complete the four online training modules in this study was consistent with previous recommendations from in-person training (Block, 2016; Lieberman & Houston-Wilson, 2017). This may suggest that the cumulative length of the training was adequate to enhance retention and knowledge gain as the PCs worked individually to complete each module (Healy et al., 2014). However, spreading the training

across additional sessions for PCs to further process and retain information is recommended for further evaluation.

When focusing on specific module length, the disability awareness module took approximately 42 minutes, approximately 8 minutes longer than the second-longest module to complete. This may have adversely affected the remaining two modules due to participants becoming overwhelmed by the extensive time needed to complete only one module. Shortening the modules to encourage information processing and engagement for middle-school aged students to around ten minutes in length has been found more beneficial than longer videos (Slemmons et al., 2018). Therefore, it may be recommended to shorten the length of each of the modules by identifying extraneous information within each module if possible.

The PCs held many misconceptions of their role prior to the start of the season. Many PCs thought they were going to help athletes who could not, or would not regularly participate in sport, or that there would be a traditional game being played. The disconnect between what the PCs thought their role was going into the season versus what the role involves may be due to a missing link in the training modules or could be attributed to how the season is marketed to participants. While the first module describes in detail the role of PCs during practices and games, but it is recommended to have additional information regarding the role of the PCs to bridge the gap between theory and practice. This information may be presented in an additional module or could be incorporated into an in-person training.

Participants believed that the content focus on Autism and Down Syndrome did not provide enough information for supporting all athletes that they worked with during the season. Multiple indications from the findings of this study point to a potential needs assessment to determine additional information on disabilities beyond the two main disabilities that were

identified by the Prime Time Games®. It is recommended that an additional module be considered to address more information pertaining to behavior management of characteristics that may be demonstrated by athletes within the program.

Usability and accessibility may be areas to further examine for module improvement. The modules did not have a function to require content completion or to time out if the individual was not progressing through the module. It is recommended that a prompt or a time-out feature be added to the modules to keep training progressing. An evaluation of usability features would determine if these settings could be enabled to further assess training effectiveness. The addition of closed captioning to the videos would help to clarify the scenario-based video examples as reported by participants. It is also recommended that guidance on online accessibility be reviewed to ensure that each module meets accessibility standards. One potential way to ensure accessibility would be for the modules to undergo an audit followed by the remediation of audit results (Accessibility Works, 2021).

While there was a statistically significant increase in knowledge scores from pre-test to post-test, PCs were only required to complete the post-evaluation once with no target score identified. It is recommended in the literature that students pass an evaluation with a 90% success rate and students should be reinstructed within the areas of weakness (Klavina & Block, 2013; Lieberman & Houston-Wilson, 2018; Wiskochil et al., 2007). In future iterations, a function could be added at the end of the evaluation for a student to revisit module information or have a summary for remediation before retesting. This may increase the PCs' ability to apply instruction and support once they begin working with the athletes during the season, which was highlighted during focus group interviews.

Grenier and Miller (2015) suggested that peer tutors need to understand a variety of communication strategies to improve efficiency and enhance academic and social engagement. This may explain why certain participants believed more information was necessary for improved communication skills, particularly if the athlete utilized a specific form of communication. A future needs assessment could help determine various communication strategies used by athletes who participate in Prime Time Games® to increase positive interactions and instruction and may identify student-specific modes of communication that would increase the interactions and encourage skill development, especially for athletes with multiple severe disabilities (Cervantes et al., 2013). Furthermore, Cervantes et al. (2013) contended that communication strategies are the most important element and should be taught first. This was the final module completed at the end of the two day training, which may explain why certain participants believed more information was necessary for improved communication skills. The desire to be finished with training may have outweighed the effective retainment of module content from the PCs at the end of the training. It is therefore recommended that this module be moved to the beginning of the training intervention and for the training to take place across more than two sessions for the PCs for higher retainment.

Researchers have suggested that instructional techniques, specifically the system of least prompts (Dunn et al., 1986), were most relevant for peer tutors to learn (Klavina, 2008; Klavina & Block, 2008; Lieberman & Houston-Wilson, 2017). During the focus group interviews, the PCs and HCs described scenarios when PCs were able to elicit skill development by first providing a verbal prompt before then moving to a demonstration. Most PCs were able to identify what to do if the athlete did not immediately respond. However, after this point, PCs were unsure how to proceed if the athlete continued to not respond and there were no examples

provided of PCs utilizing physical assistance. More information on how to provide physical assistance through real-life examples may be necessary for training improvement (Cervantes et al., 2013; Lieberman, et al., 1997; Lieberman & Houston-Wilson, 2017). An additional training component should address the application of the system of least prompts and how PCs should progress their instruction. This could be added to the additional recommended module or to an in-person complementary application-based training to the modules.

In a true action research framework, this study should be considered one iteration of the cyclical process in the evaluation for the improvement of the four online training module intervention. The case study approach provided evidence for training effectiveness and areas of improvement. Future iterations should seek to determine module effectiveness once the recommendations have been implemented.

Limitations

The current study provides insight into the effectiveness of online peer tutor training modules specifically designed for an inclusive sport setting; however, limitations should be considered. This study only used PCs and HCs from a specific organization. The single-city geographical location of the organization may restrict the generalizability of findings. Another limitation of this study involved the selection of participants to be interviewed as a team due to time and location constraints. Furthermore, this study only investigated individuals who have volunteered to participate in the Prime Time Games® organization who may hold more positive perceptions and predispositions toward inclusion, skewing results. Researcher bias may also have been present. The researcher aimed to minimize bias first by identifying bias before data collection and analysis (Hill, et al., 2005), second, working with a peer debriefer to guide the coding analysis to provide consistency to interpretations (Thomas et al., 2015), and third,

verifying multiple sources of data to increase the confidence of findings (Merriam & Tisdell, 2015).

COVID-19 presented multiple limitations to this study including participants, timeline restrictions, and videos presented in the modules. First, all participants were first-time PCs and HCs due to the COVID-19 pandemic which caused the Prime Time Games® to pause normal operations. Since participants were interviewed as a team, their own limited experience and contact with athletes with differing disabilities may not represent the overall inclusive sport population. The timeline of training completion and the start of practices and games was affected by the pandemic and the mandates being issued in the school systems. Online training was completed at least four weeks prior to practices and games, which may have influenced the disconnect between theory and practice found in the results. The online modules were designed to be complimented with an in-person follow up training with the organization, but due to the pandemic, the in-person training did not follow module completion. Lastly, the videos used in the modules were filmed using individuals without disabilities and those whose disabilities that may not have been noticed or may not have been representative of the types of disabilities common among athletes from the organization. Due to the pandemic and the pause of normal operations, the module developers were unable to use actual footage from the program, which could be recommended for future modules.

Future Research

There is limited research regarding knowledge change due to peer tutor training and further research may be necessary to identify if gender, grade level, or experience with an individual with a disability are major indicators of outcomes. The modules used in this study should be expanded into physical education and physical activity settings to determine online

training applicability across settings. Other organizations should consider implementing the four online training modules as an effective way to train PCs or tutors to provide instruction and support to students with disabilities in inclusive sport.

Future research should continue the cyclical nature of the action research framework to continuously improve the four online training modules. As the recommendations are implemented, each will need to be evaluated to determine the effectiveness of the change. The modules were intended to be the first component of training followed by in-person training provided by the Prime Time Games®. Additional research may focus on a refresher type of online module training two weeks after the season begins to remind PCs of strategies and techniques once they can apply theory to practice.

Conclusion

The Government Accountability Office Report (2010) identified existing barriers to equal access and successful inclusion in physical education and extracurricular sports for students with disabilities. Limited professional training and experience coincided with negative attitudes toward inclusion has made it difficult for educators and coaches to appropriately implement inclusion in movement settings. The use of trained peer tutors has illustrated the ability to help eliminate these barriers by providing extra instruction and support to students with disabilities.

This study examined the effectiveness of four online PC training modules delivered in an online format to middle and high school-aged students. It was determined that there was a statistically significant increase in knowledge regarding support and instruction to athletes with disabilities from pre- to post-training intervention. Strengths of the modules included an increase in knowledge and applicability of instruction and support from middle and high school-aged PCs participating in an inclusive sport program. This study is the first to determine whether online PC

training can be effective for middle and high school students. This study additionally proved that PCs can be systematically trained in a way that is replicable and cost-effective.

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Tables**Table 1***Round One Peer Coach Participant Demographics*

Factor	# of Peer Coach Participants	# of Head Coach Participants
Gender		
Female	12	2
Male	24	2
Grade		
Middle School (6-8)	26	4
High School (9-12)	9	0
Previous Peer Coach Experience		
Yes	0	0
No	36	4
Family Member or Friend with a Disability		
Yes	14	4
No	21	0

Table 2*User Level Data Totals*

Module Topic	Participant Times (hours: minutes: seconds)		
	Middle School	High School	All Participants
Introduction to the Prime Time Games®	0:23:11	0:20:05	0:22:25
Disability Awareness	0:43:16	0:40:20	0:42:32
Instructional Strategies	0:16:23	0:26:38	0:18:56
Communication Strategies	0:36:18	0:32:20	0:35:18
Total Time	1:56:33	1:48:30	1:54:32

Appendices
Appendix A: Module Cover Letter (Qualtrics)

Dear Prospective Participant,

This letter is a request for you to take part in a research project focusing on your training experience to becoming a peer coach for the Prime Time Games. This project is being conducted by Maggie Roberts, M.S. in the Coaching and Teaching Studies doctoral program at WVU under the supervision of Dr. Andrea Taliaferro an Assistant Professor in the College of Physical Activity and Sport Sciences.

If you decide to participate, you will be asked to allow your responses in the following modules to be collected for this study. Your participation in this project will take approximately 2 to 2.5 hours total. All peer coaches who are in grades 6-8 and their head coaches are invited to participate.

Your involvement in this project will be kept as confidential as legally possible. All data will be reported in the aggregate. You will not be asked any questions that could lead back to your identity as a participant. Your participation is completely voluntary. You may skip any question that you do not wish to answer, and you may discontinue at any time. West Virginia University's Institutional Review Board approval of this project is on file.

If you have any questions about this research project, please feel free to contact me by e-mail at mar0076@mix.wvu.edu or Andrea Taliaferro at andrea.taliaferro@mail.wvu.edu. If you have any questions about your rights as a research participant, please contact the WVU Office of Human Research Protection by phone at 304-293-7073 or by email at IRB@mail.wvu.edu.

I hope that you will participate in this research project, as it could help us better understand the training needs of peer coaches in the future. Thank you for your time and consideration.

Sincerely,

Maggie Roberts, M.S.
Andrea Taliaferro, Ph.D.

By clicking the button below, you acknowledge:

Your participation in the study is voluntary.

You are aware that you may choose to terminate your participation at any time for any reason.

*I consent, begin the study

*I do not consent, I do not wish to participate

Appendix B: Demographic Questionnaire

Please answer the following questions completely. Your answers and identity will be kept completely anonymous.

1. Please enter your username given to you by Prime Time Games.
_____ (example: peercoach1)
2. How old are you? _____ (example: 14)
3. What grade are you currently in?
 - a. 6th grade
 - b. 7th grade
 - c. 8th grade
 - d. 9th grade or above
 - e. Head coach
4. Have you been a peer coach/head coach before for the Prime Time Games?
 - a. Yes
 - b. No
5. How many seasons have you been a peer coach/head coach?
 - a. 0 seasons
 - b. 1 season
 - c. 2 or more seasons
6. Do you have a family member or a friend with a disability?
 - a. Yes
 - b. No

Appendix C: Evaluation of Knowledge Test

Directions: Choose the best answer for each of the following questions.

1. Which of the following options is an appropriate way of getting the athlete's attention?
 - a. Whistle at the athlete
 - b. Clap your hands at the athlete
 - c. Stand in front of the athlete and make eye contact
 - d. Yell the athlete's name
2. "Claire, we are going to dribble the basketball to the hoop" is an example of which instructional step?
 - a. Step 1- Say what you are going to do
 - b. Step 2 – Tell the athlete what to do to get the task done
 - c. Step 3 – Show how to do the task
3. If you give the athlete the verbal cue "kick the ball towards the goal" but he/she does not respond, what should you do next?
 - a. Provide physical assistance
 - b. Model or show the athlete what you want him to do
 - c. Ask the head coach for help
4. Which of the following is an example of general praise or general feedback?
 - a. Great job, Mark!
 - b. Nice job bending your knees!
 - c. Use the inside of your foot like this.
 - d. Keep trying to aim for the goal!
5. Which of the following is an example of specific praise or specific feedback?
 - a. Almost! Keep trying!
 - b. You almost had it that time!
 - c. Would it be okay if I help you?
 - d. Nice job looking for an open teammate to pass the ball to!
6. Which of the following is an example of a verbal cue?
 - a. Good try.
 - b. Keep your arms up to defend the basketball.
 - c. Try again.
 - d. You almost had it that time!
7. Demonstrating or showing the athlete how to perform a skill (like shooting a basketball) is an example of:
 - a. A verbal cue
 - b. Modeling
 - c. General feedback
 - d. Specific feedback
8. "Greg, do you see how I bend my knees when I shoot the ball" is an example of which instructional step?
 - a. Step 3 – Show how to do the task
 - b. Step 4 – Help the athlete do the task

- c. Step 5 – Give praise or correct mistake
9. Which of the following is an example of providing physical assistance to the athlete?
- a. Giving the athlete a high-five or fist bump
 - b. Helping the athlete bend their elbow when shooting a basketball
 - c. Pushing the athlete to move to an open area on the field or court
 - d. Kicking a soccer ball towards the athlete and telling them to kick it back to you
10. “Sarah, that was a good try, but next time step to your target” is an example of which instructional strategy?
- a. Step 3 – Show how to do the task
 - b. Step 4 – Help the athlete do the task
 - c. Step 5 – Give praise or correct mistake

Appendix D: Usability Testing of Online Modules

Sample: TPT peer coaches and head coaches

The modules will be evaluated for ease of use and navigation, audience interest in material, relevance, and appropriateness of the content, and overall participant satisfaction.

Objectives:

- Ease of use and navigation of the online learning modules will be evaluated
- Format of the interactive learning system will be analyzed
- Content and design of online learning modules will be tested
- Recommendations for improvement of the online learning modules will be provided
- Appropriateness of use for participants in Prime Time Games will be analyzed

Usability Survey (Qualtrics)

Thank you for taking the time to help us test our online modules. Your feedback is very valuable.

Directions: Please review the online learning module and then filling out a survey at the end to share your feedback. During this survey, you will be asked questions about your thoughts on the online learning module. Your feedback will be used to help improve the learning module.

Demographic Questions:

PTG username:

Grade Level:

Age:

Gender:

Which of the following describe you (check all that apply)

- I am a peer coach (1)
- I am a head coach (2)

On a Likert scale of 1-5 (5=strongly agree, 4=agree, 3=neutral, 2=disagree, 1=strongly disagree, 0=not applicable/unknown) with an option after each question for comments

Navigation

1. Entry into the module is easy
2. The navigation icons and instructions are easy to follow
3. Video, audio, and/or animation sequences work well (if applicable)

Instructional Design

4. Learning objectives/goals are clearly stated
5. Content in the modules relates to the objectives
6. The organization of the module is easy to follow
7. Content is easy to read
8. The language used in the module is clearly worded
9. Concepts are presented clearly
10. Content is presented at an appropriate level for understanding
11. Content maintains attention and interest

12. Material is culturally appropriate (considers differences in ability, ethnicity, gender, etc).

Effectiveness for learning

13. Activities and examples enhance understanding of ideas and concepts

14. Learning activities are interesting

15. Activities encourage thinking about the topic

Open ended question/response

-What did you find most useful about the module?

-What areas can be improved or expanded upon?

-What were your expectations going into the training? Were your expectations met? Why or why not?

-If you could change one thing, whether it is major or minor, what would be at the top of the to-do list?

-What additional suggestions or feedback do you have overall?

Appendix E: Focus Group Interview Cover Letter

Dear Participant,

This letter is a request for you to take part in a research project focusing on your training experience to becoming a peer coach for the Prime Time Games. This project is being conducted by Maggie Roberts, M.S. in the Coaching and Teaching Studies doctoral program at WVU under the supervision of Dr. Andrea Taliaferro an Assistant Professor in the College of Physical Activity and Sport Sciences.

If you decide to participate, you will be asked to participate in a focus group interview with your peers for this study. Your participation in this project will take approximately 30 minutes total. All peer coaches who are in grades 6-8 and their head coaches are invited to participate.

Your involvement in this project will be kept as confidential as legally possible. All data will be reported in the aggregate. You will be asked to confirm your first name and the number of seasons you have participated in the Prime Time Games. Your participation is completely voluntary. You may skip any question that you do not wish to answer, and you may discontinue at any time. West Virginia University's Institutional Review Board approval of this project is on file.

If you have any questions about this research project, please feel free to contact me by e-mail at mar0076@mix.wvu.edu or Andrea Taliaferro at andrea.taliaferro@mail.wvu.edu. If you have any questions about your rights as a research participant, please contact the WVU Office of Human Research Protection by phone at 304-293-7073 or by email at IRB@mail.wvu.edu.

I hope that you will participate in this research project, as it could help us better understand the training needs of peer coaches in the future. Thank you for your time and consideration.

Sincerely,

Maggie Roberts, M.S.
Andrea Taliaferro, Ph.D.

Appendix F: Peer Coach Focus Group Interview Opt-Out Informed Consent Form

Dear Parent/Guardian:

The Prime Time Games provides its peer coaches training modules to those participating and providing support and instruction within the sports organization.

Your child's responses to educational content within training and related questions to how your child has applied what they learned will be collected through focus group interviews.

If you WANT your child to participate in this interview, DO NOT return this form to the school.

The interview will be held at your child's scheduled Prime Time Games practice time during this school year, 2021-2022. Please be aware this interview is not routinely repeated for children each year. This will not affect your child's participation in the Prime Time Games organization.

When all interviews are completed, the information gathered will be used to provide recommendations to enhance peer coach training in the future. Group information may be used for overall program evaluation, research, and/or research publications. Personal ID information, including your child's name, school identification number, and gender, will remain confidential.

If you DO NOT want your child to participate in this interview, please print your child's name and sign your name. Return this form to your child's Prime Time Game Head Coach. IF THIS FORM IS NOT RETURNED TO THE SCHOOL, YOUR CHILD MAY BE INTERVIEWED.

I DO NOT want my child to participate in this focus group interview

Child's full name _____

Parent or Legal Guardian's Signature _____

Prime Time Games Online Training Username: _____

If you have any questions about this research project, please feel free to contact me by e-mail at mar0076@mix.wvu.edu or Andrea Taliaferro at andrea.taliaferro@mail.wvu.edu. If you have any questions about your rights as a research participant, please contact the WVU Office of Human Research Protection by phone at 304-293-7073 or by email at IRB@mail.wvu.edu.

Sincerely,

Margaret Roberts, M.S.
Andrea Taliaferro, Ph.D.

Appendix G: Letter of Invitation for Peer Coaches

Dear Prime Time Game Peer Coach,

Congratulations! Based on your responses to the peer coach training modules and participation in the Prime Time Games fall season, you have been selected to participate in semi-structured focus group interviews. These interviews will help investigators better understand the effectiveness of the online peer coach training modules. This study is being conducted by doctoral student Maggie Roberts and Associate Professor Dr. Andrea Taliaferro in the College of Physical Activity and Sport Sciences at West Virginia University.

As a reminder, the focus group interviews will be conducted via Zoom during your regularly scheduled practice times. The interview will last approximately 25-30 minutes. Your participation is voluntary, and your responses will be kept as confidential as possible.

Once all participants have responded, you will be further contact by doctoral student Maggie Roberts via email confirming the date and time of the focus group interview. If you find that an alternate time slot is needed to participate in the interview, please contact Maggie Roberts via email or by phone at 804-586-9146. If you have any additional questions about participant, please feel free to contact Maggie Roberts via email at mar0076@mix.wvu.edu or Dr. Andrea Taliaferro via email at Andrea.Taliaferro@mail.wvu.edu.

Thank you for your consideration of participating and your support in the evaluation of the peer coach training modules.

Sincerely,

Maggie Roberts, M.S.
Andrea Taliaferro, Ph.D.

Appendix H: Head Coach Focus Group Interview Opt-Out Informed Consent Form

Dear Prospective Participant:

The Prime Time Games provides its peer coaches training modules to those participating and providing support and instruction within the sports organization.

Your responses to educational content within training and related questions to how you believe peer coaches have applied what they learned will be collected through focus group interviews.

If you WANT to participate in this interview, DO NOT return this form to the Prime Time Game Organization.

The interview will be held at your scheduled Prime Time Games practice time during this school year, 2021-2022. Please be aware this interview is not routinely repeated each year. This will not affect your head coach position or job in any way.

When all interviews are completed, the information gathered will be used to provide recommendations to enhance peer coach training in the future. Group information may be used for overall program evaluation, research, and/or research publications. Personal ID information, including your name, school identification number, and gender, will remain confidential.

If you DO NOT want to participate in this interview, please print your name and sign your name. Return this form to the Prime Time Games Organization. IF THIS FORM IS NOT RETURNED, YOU MAY BE INTERVIEWED.

I DO NOT want to participate in this focus group interview

Full name _____

Signature _____

SCHOOL: _____

If you have any questions about this research project, please feel free to contact me by e-mail at mar0076@mix.wvu.edu or Andrea Taliaferro at andrea.taliaferro@mail.wvu.edu. If you have any questions about your rights as a research participant, please contact the WVU Office of Human Research Protection by phone at 304-293-7073 or by email at IRB@mail.wvu.edu.

Sincerely,

Margaret Roberts, M.S.

Andrea Taliaferro, Ph.D.

Appendix J: Letter of Invitation for Head Coaches

Dear Prime Time Game Head Coach,

Congratulations! Based on your responses to the peer coach training modules and participation in the Prime Time Games fall season, you have been selected to participate in semi-structured focus group interviews. These interviews will help investigators better understand the effectiveness of the online peer coach training modules. This study is being conducted by doctoral student Maggie Roberts and Associate Professor Dr. Andrea Taliaferro in the College of Physical Activity and Sport Sciences at West Virginia University.

As a reminder, the focus group interviews will be conducted via Zoom after your regularly scheduled practice times. The interview will last approximately 25-30 minutes. Your participation is voluntary, and your responses will be kept as confidential as possible. If you are interested in further study participation, please follow the link below to select a time and date that is convenient for your schedule to complete the interview. If there is a time that does not coincide with the majority selected focus group time, you will be contacted to complete an individual interview. In the poll below, please use your Prime Time Game peer coach training module username provided. Please be reminded that interviews will be conducted via Zoom and internet connect will be necessary for completion.

Once all participants have responded, you will be further contact by doctoral student Maggie Roberts via email confirming the date and time of the focus group interview. If you find that an alternate time slot is needed to participate in the interview, please contact Maggie Roberts via email or by phone at 804-586-9146. If you have any additional questions about participant, please feel free to contact Maggie Roberts via email at mar0076@mix.wvu.edu or Dr. Andrea Taliaferro via email at Andrea.Taliaferro@mail.wvu.edu.

Please submit your preferences by Sunday (INSERT DATE) at 8:00 pm.
(INSERT LINK)

Thank you for your consideration of participating and your support in the evaluation of the peer coach training modules.

Sincerely,

Maggie Roberts, M.S.
Andrea Taliaferro, Ph.D.

Appendix K: Semi-Structured Interview Guide

Thank you for taking the time to participate in this focus group interview as part of the blank. My name is Maggie Roberts, and I am a doctoral student in the College of Physical Activity and Sports Sciences at West Virginia University. This interview is being conducted evaluate the ability of peer coaches to apply what they learned during the four online peer coach training modules. By participating in this research, you will help guide recommendations for enhancing peer coach training in the future. Your participation in this research is entirely voluntary and you may skip any question that you do not wish to answer. You may also discontinue at any time and all responses will be confidential. This interview will be videotaped and audiotaped. If at any time you do not wish for your responses to be recorded, the recorder can be disabled. Interview information of all participants will be used for overall evaluation, research, and research publications, and will not identify any of the participants by name. There are no known risks to participation in this study. Do you have any questions before we begin?

[PEER COACH SCRIPT]

Participant Information:

Researcher prompt: I would like to verify information with each of you before we begin the interview questions. Please provide your Prime Time Game username, your grade level, and if this is your first time as a peer coach or if you are a returning peer coach for the Prime Time games.

[allow for participant answers]

Researcher prompt: Thank you. The questions that I am going to ask you are based on your experiences of the four online peer coach training modules you completed as part of your training. We will talk about the four modules specifically and then we will talk about how you used what you learned in practices and/or games.

Section 1: Module Content and Usability

Researcher prompt: First we are going to discuss your learning experiences during the online training modules.

1. How would you describe your role as a peer coach?
2. What did you think you were going to learn how to do going into training?
Probe: Were your expectations met? Why or why not?
3. What do you think was the most important thing you learned during the online training modules?

Section 2: Application of Module Content

Researcher prompt: Now that we have discussed what you learned in the modules, let's focus on how you were able to apply what you learned.

4. Can you describe a time when you used what you learned in the training modules to practices and games?
5. In what ways are you able to support or help your athlete during practices and games?

6. Were there any moments that challenged you as a peer coach?
 Probe: Was there anything specifically you remember from the modules that helped you handle this situation?
 Probe: What do you think you could have learned to help you with a situation like this?
7. What types of communication strategies did you use while working together in practices or games?
8. What do you think could be changed from the training to help you as a peer coach?
 Prompt: Did you feel prepared to work with your athlete? How so? Why not?

[HEAD COACH SCRIPT]

Participant Information:

Researcher prompt: I would like to verify information with each of you before we begin the interview questions. Please provide your Prime Time Game username and how many seasons you have been a head coach for the Prime Time games.

[allow for participant answers]

Researcher prompt: Thank you. The questions that I am going to ask you are based on your experiences of the four online peer coach training modules you completed as part of your training. We will talk about the four modules specifically and then we will talk about how the peer coaches were able to implement what they learned during practices and/or games.

Section 1: Module Content and Usability

Researcher prompt: First we are going to discuss the learning experiences during the online training modules.

1. How would you describe the role of a peer coach?
2. What did you think you peer coaches were going to learn how to do going into training?
 Probe: Were your expectations met? Why or why not?
3. What do you think was the most important thing peer coaches learned during the online training modules?

Section 2: Application of Module Content

Researcher prompt: Now that we have discussed what you learned in the modules, let's focus on how you were able to apply what you learned.

4. Can you describe a time when you observed peer coaches using what they learned in the training modules to practices and games?
5. What types of support or help did the peer coaches provide the athletes during practices and games?
 - a. Were there any scenarios that peer coaches were very prepared to handle?
 - b. Were there any scenarios that peer coaches did not seem as prepared to handle?
6. In what ways were peer coaches challenged during practices and games?

Probe: Was there anything specifically you remember from the modules that helped the peer coach handle this situation?

Probe: What do you think peer coaches could have learned to help with a situation like this?

7. What types of communication strategies did witness from peer coaches while working with athletes in practices or games?

8. What do you think could be changed from the training to help prepare peer coaches?

Prompt: Do you feel like peer coaches are prepared to work with athletes with disabilities? How so? Why not?

Appendix L

Inductively Developed Themes with Sample Quotes of Open-Ended Questions

Main Theme	Example quote
<u>Comprehension</u>	<p>“I didn’t necessarily have high or low expectations, but I think. I learned what I need to and feel better prepared so I would say my expectations were definitely met.” (PC #7)</p> <p>“I thought that training would be more of the best ways to be a coach, but this is better.” (PC #22)</p> <p>“My expectations were met because it [training] explained it clearly and I understand what I’m supposed to do.” (PC #5)</p>
<u>Disability Awareness</u>	<p>“I think it was all very useful but learning about the different disabilities and how to provide assistance to accommodate was definitely most helpful.” (PC #7)</p> <p>“It helped me learn about the disabilities and how to properly teach them [the athlete].” (PC #10)</p>
<u>Interacting with the Athlete</u>	<p>“The specifics on how to interact and communicate with someone with a disability” (HC #18)</p> <p>“It could say more about how to treat the athlete.” (PC #24)</p>
<u>Instructional Design</u>	<p>“I think they should add subtitles/captions.” (PC #30)</p> <p>“My expectations are exceeded because the training is so well organized.” (PC #30)</p> <p>“Maybe having a more interactive course rather than straight videos” (PC #7)</p>

Appendix M

Inductively Developed Themes with Sample Quotes of Focus Group Interviews

Main Theme	Sub-Theme	Example Quote
<u>Expectations vs. Reality</u>		
E1	Evolution of Understanding Role	<p>“I thought it was going to be sports in general. Not teach other kids how to.” (PC #3)</p> <p>“...They had to say, ‘no, we're not the protagonists. We're in the background, we're shadows’ and, and... So, it was a big adjustment, so are they prepared, or did they mentally have that... no, but I think as HC 3 said, as it went along, they got more, more into “Oh I understand, now I get it’.” (HC #2)</p> <p>“I was expecting them to really shed that sense of um, I don’t know, prejudging or pre-estimating what other people are like in their own eyes and sort of shedding all of that to work as, as, as one unit, one, one person with the ones they’re assigned.” (HC #2)</p>
E2	Preconceived Notion of Inability	<p>“...to help people who have a hard time doing things without like hurting their feelings or like making them feel left out.” (PC #11)</p> <p>“To help people who are different and to teach them how to do things that they didn't know how to do. Or just to help them do certain things they have trouble doing.” (PC #6)</p>
<u>Interpersonal Skills</u>		
I1	Development of Empathy	<p>“It helps me communicate with everybody and not just people who uh, I wouldn’t normally have been friends with, but... it just made it easier to just talk to other people in general.” (PC # 11)</p>

“...appreciation for our differences, in a sense, and, and also an innate ability to um... to, to take the underdog sort of under their wing and, and, and be there and I hope in a way outside prime time when they meet and greet on the campus out of this program, they still do have that bond.” (HC #2)

I2 Building Relationships “They've all like sort of gotten into it and it's really, it's really cool, but they've got like, little relationships and they say hi in the halls and stuff. It's really nice.” (HC #4)

“I helped that athlete get comfortable around me so you know we can communicate more. By introducing myself and trying to find things we have in common.” (PC #8)

Athlete
Development

A1 Skill Development “You’re supporting them because you're with your athlete. And you are kind of telling them where to kick it, how to kick it, where to run and when to shoot it and that's just you were helping them in that.” (PC #12)

“I would probably show the first step, like passing and stuff and they're definitely picking up right when I left off and I’m moving to the next group, and they keep it going so. It's like learning for me, and then turning back around teaching it to the athlete and just kind of getting them moving, so it was a lot of encouragement, so a lot of helping them with their soccer skills.” (HC #3)

A2 Managing Challenging Behaviors “We were kind of like doing a high five and fist bump and stuff and I think he kind of spun off and so he started like hitting us in the stomach. And I don't think he really understood why that was wrong and so using what I’ve learned from the practice and kind of talking to him. You know, we kind of told him that it was wrong and what he was doing was just not, like, acceptable and that he should stop but then maybe instead of punching me in the stomach you can just give me a fist bump.” (PC # 12)

“He [the athlete] only wants to get the ball, like, that's like all he wants to do... and like sometimes he uses his hands like to get the ball... You know, we use our hands, so I did that. That happens, like every sort of once in a while, but he's figuring it out so that's great.” (PC #4)

A3 Motivating
the Athlete

“When he did a good job, like whenever he kicked the ball like in a good way, I would give him a high five or I say good job, but even if he didn't kick the ball good, I would still say good job but like let's try again.” (PC #6)

“Okay, so when my athlete wouldn't run... and really it was mostly just cheering them on telling them that they could do it, and then they got started, and they were doing so good.” (PC #1)

Intrapersonal

“I think it's very cool how you can help people and you might not get something in return, but you feel good inside.” (PC #7)

“If a peer coach is doing their job right, everyone can have fun.” (HC #3)

Areas of Improvement

A1 Future
Module
Development

“It doesn't like give you the idea... what to do if something actually happens because some of the videos were like with real people, so they just figured it out and not with disability people and I didn't really understand like how to do it.” (PC #10)

“Yes, I wish they would've filmed that they didn't they didn't know how to do stuff and they, they take this stuff, and they just sometimes didn't follow instructions I wish they did that.” (PC #5)

A2 Technology

“I think the access is a little bit hard to get because it's in beginning it's hard to access because but later on a gets easier...” (PC #7)

Appendix N: Extended Review of Literature

Barriers to equal opportunities in physical education and extracurricular physical activities still exist for individuals with disabilities as highlighted by a report from the Government Accountability Office (2010) and guidance from the U. S. Department of Education (2013). Physical educators and coaches have reported their own perceived barriers to inclusion including insufficient training and experience (Haegele et al., 2018; Hersman & Hodge, 2010; Lirgg et al., 2017; Vargas, Beyer, & Flores, 2018), attitude toward inclusion (Jin, Yun, & Wegis, 2013; Vargas, Beyer, & Flores, 2018), the type and severity of an individual's disability (Campos, Ferreira, & Block, 2015), and a lack of support professionals (Bryan, McCubbins, & van der Mars, 2013; Grandisson, Tetreault, & Freeman, 2012). These perceived barriers by educators and coaches can lead to negative experiences for individuals with disabilities in inclusive physical education (PE) and physical activity (PA) settings (Goodwin & Watkinson, 2000; Place & Hodge, 2001). The utilization of properly trained peer tutors can aid in eliminating barriers perceived by instructors and students during inclusive physical education or extracurricular physical activity (Breslin & Liu, 2014, Klavina, 2008; Klavina et al., 2014). The focus of this study will be to investigate an online training module program for middle school-aged peer tutors in an afterschool extracurricular inclusive sports program. The literature reviewed in the following sections will provide justification for this study. Sections for examination are as follows: 1) barriers to inclusion in PE and extracurricular PA, 2) teacher and coach perceived barriers to inclusion, 3) experiences of individuals with disabilities in PE and PA, 4) the use of peer tutors to promote engagement of students with disabilities, 5) peer tutor training, 6) instructional design, and 7) action research framework.

Barriers to Inclusion in Physical Education and Physical Activity

In 2010, the United States Government Accountability Office (GAO) produced *Students with Disabilities: More Information and Guidance Could Improve Opportunities in Physical Education and Athletics*, a report highlighting the barriers to inclusion within the school setting which also provided clarity to Section 504 of the Rehabilitation Act of 1973. The report described that students with disabilities are not afforded an equal opportunity to participate in extracurricular athletics. Estimates provided in the report state that approximately 92% of students with disabilities in grades 1 through 7 and approximately 88% of students with disabilities in grades 7 through 12 participated in general physical education. While these large estimates of participation are present in terms of physical education, students with disabilities participate in extracurricular activities at ten to fifty percent less frequency than their peers without disabilities. The investigators found that 16 of 20 discriminatory reports filed alleged that a student was discriminated against in PE or extracurricular activities (GAO, 2010). These numbers indicate that instructors are not well prepared for inclusion within sport programs.

The statistics represented by the GAO report highlight the inequalities that individuals with disabilities face in physical education and extracurricular physical activities. The Individuals with Disabilities Education Improvement Act of 2004 ensures that students with disabilities are afforded the opportunity to have equal access to nonacademic and extracurricular services and activities. If the student's Individualized Education Program (IEP) states that he or she must have appropriate and necessary supplementary aids and services in PE and PA, the school must meet those requirements (Individuals with Disabilities Education Act, 20 U.S.C §

300[107a]). Students must be provided equal opportunity, but barriers and challenges are still present.

A response to the GAO report was sent to the Department of Education by the Assistant Secretary for Civil Rights providing insight into the proceedings in schools for students and athletes with disabilities and the opportunities those individuals are afforded. The purpose of the *Dear Colleague Letter: Students with Disabilities in Extracurricular Athletics* (USDOE, OCR, 2013) was to address and clarify schools' obligation to provide equal opportunities for students with disabilities to participate in nonacademic and extracurricular opportunities. Schools must ensure that reasonable modifications are utilized for the student to participate amongst peers without disabilities to the maximum extent appropriate for the needs of the student with a disability. Schools must make reasonable accommodations for students receiving special education services, unless the school can demonstrate that the requested modification would change essential elements of the game or give the student an unfair advantage in competition. Moreover, if a student cannot participate in extracurricular athletics with reasonable modifications, the student should still have access to opportunities to receive the benefits of extracurricular athletic activities. School districts are encouraged to work with the community and athletic associations to develop broad extracurricular athletic opportunities to include students with disabilities, including potentially offering sports teams on which students with and without disabilities participate (USDOE, OCR, 2013).

The lack of information dissemination in regard to providing reasonable accommodations for students with disabilities in PE and extracurricular athletic opportunities was clearly described in the findings of the GAO report (2010). The Department of Education responded

with the *Creating Equal Opportunities for Children and Youth with Disabilities to Participate in Physical Education and Extracurricular Athletics* (2011) report. This response provided suggestions and references for teachers and coaches to follow to increase opportunities and access to physical education and athletics for their students and players with disabilities. Suggestions and responses include eliminating common barriers to inclusion such as accessibility, equipment, personnel preparation, behavior management, and program options. Both the GAO report and the Department of Education's report outline a need to provide better training and preparation to eliminate barriers.

Teacher and Coach Perceived Barriers to Inclusion

The responses and clarifications to legislation illustrate the perceived barriers physical educators and sport coaches face when providing a supportive inclusive environment. Providing accommodations and modifications for students with disabilities in PE and PA opportunities has resulted in a variety of perceived challenges from teachers and coaches. These instructors have reported that their lack of knowledge or training can lead to the inability to effectively include students with disabilities (Haegele et al., 2018; Hersman & Hodge, 2010; Lirgg et al., 2017; Vargas, Beyer, & Flores, 2018). There has also been evidence that attitudes of teachers and coaches towards including students with disabilities in PE and extracurricular PA can affect the experiences of students without disabilities (Jin, Yun, & Wegis, 2013; Vargas, Beyer, & Flores, 2018). It is noted that the type and severity of a disability can increase planning and instructional time during class (Campos, Ferreira, and Block, 2015). While support personnel can be involved in general physical education to help meet the needs of students with disabilities, these paraprofessionals or teachers' aids can be heavily relied on for primary instruction, and can

indirectly isolate students with disabilities (Bryan, McCubbins, & van der Mars, 2013). The following sections will highlight each of these barriers from the physical educator and sport coaching context.

Training and Experience. Evidence suggests that physical educators feel inexperienced and undertrained when asked to teach students with and without disabilities in the same class (Haegele et al., 2018; Hersman & Hodge, 2010; Lirgg et al., 2017). Lirgg et al., (2017) studied physical education teacher preparedness by surveying physical educators ($n=75$) to better understand barriers presented by training and experiences. Descriptive results indicated that 68% of physical educators teach students with disabilities in fully inclusive settings. More than half of the participants (52%, $n=39$) had never received hands-on experience teaching students with disabilities before student teaching, and 54.4% did not receive hands-on experience teaching students with disabilities during their student teaching. This evidence suggests that many physical educators are not being provided adequate opportunities to work with students with disabilities prior to obtaining a job. If teachers do not feel confident in their ability to provide inclusion in general physical education, students with and without disabilities may have poor educational experiences (Jin, Yun, & Wegis, 2013).

Haegele et al. (2018) found that of the 168 physical educators in their study on the barriers to participation in PE for students with disabilities, a perceived lack of training ($n=75$) was a barrier to inclusion. This finding was consistent with Hodge et al. (2009) that most physical educators believed their deficiency in knowledge to provide individualized instruction hindered their ability to ensure positive learning experiences for students with disabilities. Similarly, Lieberman, Houston-Wilson, and Kozub (2002) utilized a validated questionnaire to

determine physical educators' perceived barriers to the inclusion of students with visual impairments. The most frequently reported perceived barrier was a lack of professional preparation at 66% ($n=148$). This corresponds to the findings of Jin, Yun, & Wegis (2013) and LaMaster et al. (1998) that minimal training or preparation can ultimately lead to negative attitudes towards inclusion (Block & Obrusnikova, 2007).

The inexperience and insufficient training experienced by physical educators in providing inclusive practices is paralleled in inclusive extracurricular PA as well. Vargas et al. (2019) stated that unless a coach is or has been a teacher, they are not likely to be trained in pedagogical techniques and demonstrate quality instructional practices. This lack of understanding of instructional strategies can lead to less instruction and support for athletes with disabilities. When coaches provide less feedback or instruction to individuals with disabilities due to their perceived lack of competence and satisfaction, then athletes with disabilities are subjected to less motor skill performance, lower self-esteem, and less satisfaction in their experiences (Vargas et al., 2019). Flores, Beyer, and Vargas (2012) conducted a survey of coaching educators ($n=36$) from universities and national governing bodies that revealed that coaches felt underprepared for working with athletes with disabilities (78%) while 70% believed there should be an educational component to help prepare coaches.

Sport coaches usually do not receive any formal training when it comes to meeting the needs of an athlete with a disability (Moran & Block, 2010). This lack of training has been reported to leave coaches feeling less competent in their abilities to include an athlete with a disability (Moran & Block, 2010; Rizzo et al., 1997). Disability awareness or disability training is limited for coaches especially when comparing paid coaches to unpaid volunteer coaches. May

et al. (2019) surveyed Australian soccer coaches ($n=30$) in the Auskick program to determine their approach is to inclusive sport. The researchers found that 56% of paid coaches and 27% of unpaid volunteer coaches had received disability training. If coaches do not understand or are less knowledgeable about hidden disabilities or disability behaviors, coaches may attribute challenging behaviors as athletes being lazy or oppositional (May et al., 2019). This can potentially lead to negative attitudes towards the inclusion of athletes with disabilities.

Attitudes toward Inclusion. The knowledge and experience of physical educators directly correlate with the positive or negative attitudes held toward teaching students with disabilities in general physical education. Klavina (2008) and Tripp and Rizzo (2006) found that teachers who had more experience working with students with disabilities were more likely to be positive towards applying inclusion strategies. Combs, Elliott, and Whipple (2010) conducted a mixed-method study to determine elementary teachers' attitudes towards including students with disabilities in physical education. Using the *Physical Educators Attitude Toward Teaching Individuals with Disabilities – III* questionnaire ($n=26$), four teachers were identified for interviews who had positive ($n=2$) and negative attitudes ($n=2$) toward inclusion. Thematic analysis was applied to the interview responses and themes were produced. The researchers found that the two teachers who had training and coursework in adapted physical education held more positive attitudes toward inclusion as compared to zero training and coursework in adapted physical education of the two teachers with negative attitudes. The teachers that held positive attitudes reported in the interviews that they focused on the affective domain in their teaching to help all students develop a sense of belonging in class. Contrarily, those teachers with negative attitudes believed that their focus on the students with disabilities took away from the typically

developing students in their class. Furthermore, the two teachers with positive attitudes noted that their definition of success for students was not based on each child being able to perform a skill the same way (Combs, Elliott, & Whipple, 2010).

The challenges faced by physical educators in including individuals with disabilities are echoed in the research involving youth sport coaches. Comparable to educators, the overall attitudes of coaches towards athletes with disabilities are positive; however, a lack of experience or knowledge towards working with individuals with disabilities can cause coaches' attitudes to become negative. As coaches learn and become more prepared to work with individuals with disabilities, positive attitudes increase (Vargas, Beyer, & Flores, 2018). This correlates with the findings of Beyer, Flores, and Vargas (2008) after surveying volunteer youth coaches ($n=221$). A one-way analysis of variance indicated a significant difference between experienced and non-experienced coaches ($F_{1,180}=11.31, p<.01$) in positive attitudes toward including athletes with ADHD. Unfortunately, the lack of experience or knowledge can make coaches less likely to engage in instructional practices or strategies with students with disabilities. This is evident in reports that the type or severity of a disability can alter the attitudes of teachers and coaches towards including students and athletes with disabilities.

Type/Severity of Disability. Campos, Ferreira, and Block (2015) investigated the challenges that physical education teachers perceived during their inclusive classes. Semi-structured interviews were conducted, and a semiotic analysis revealed recurring themes. The type and severity of the disability were mentioned by all teachers ($n=5$) as a challenge due to the increased need to provide more advanced accommodations. The participants noted the need for

training within the professional context and recognized that they were unsure of appropriate responses to various situations.

This echoes the findings of Hersman and Hodge (2010) who conducted semi-structured interviews with urban physical educators ($n=5$). A thematic analysis indicated that a barrier to inclusion involved the type or severity of a student's disability. Participants reported having difficulties implementing pedagogies if students had a more severe type of disability. It was also reported that be more inattentive, hyperactive, or behaviorally disruptive the student was during class time, the more difficulty the teachers had implementing inclusive practices. With these more severe disabilities, the participants acknowledged that it takes more time to plan, prepare, and organize their physical education classes (Hersman & Hodge, 2010).

Physical educators report that the type of severity of a disability requires more individualized instruction to those students with a disability. Campos, Ferreira, and Block (2015) and Hersman and Hodge (2010) revealed through their respective interview analyses that teachers constantly repeated directions which may have led to students without disabilities to become impatient with their peers with disabilities. Furthermore, teachers believe that the more difficult or severe a disability is, the more time they spend providing instruction to a student with a disability taking away time from the other individuals without disabilities in the class (Campos, Ferreira, & Block, 2015; Hersman & Hodge, 2010).

A study by Conatser, Block, and Gansneder (2002) found that Water Safety Instructors ($n=111$) held more positive attitudes towards teaching individuals with mild disabilities rather than severe disabilities. The researchers used the *Aquatic Instructors' Beliefs Toward Inclusion* questionnaire to measure attitudes, beliefs, intentions, and behaviors of instructors. Results from

correlated *t*-tests indicated that the instructors believed they would be more successful in instructing inclusive swim classes for mild disabilities rather than severe disabilities ($t(108) = 11.96, p < .01$) due to inadequate availability of resources. Questions about the instructors' beliefs of if they have the available resources to help coach individuals with disabilities were asked, though there is no specific examples provided on if this relates to equipment, instructional techniques, or support professionals (Conatser, Block, & Gansneder, 2002).

Vargas, Flores, and Beyer (2015) alleged that while coaches can recognize appropriate versus ineffective coaching behaviors after watching video scenarios, they are less likely to be able to provide appropriate instruction for athletes with varying learning needs. Participants ($n=55$) were asked to watch four video scenarios depicting typical behaviors of individuals with hidden disabilities. Participants then completed the *Learning and Behavior Difficulties Questionnaire* comprised of five open-ended questions and the *Efficacy and Demographic Questionnaire* comprised of a rating scale of eight questions. The qualitative responses provided insight to coaches attributing athletes' negative behaviors towards being defiant or ignoring direction, rather than attempting a different instructional approach or the coaches' responsibility to provide accommodations (Vargas, Flores, & Beyer, 2015). This could be from a lack of pedagogical techniques taught in coach education or a lack of knowledge towards disability.

Parallel to physical education, there is a need for coaches to be proactive in their practice plan development and instructional strategies usage while working with individuals with disabilities. This preparation allows coaches to reach athletes of a wide variety of ability and skill levels by providing support for the success of all involved. Hammond, Young, and Konjarski (2014) asserted that coaches who include individuals with intellectual disabilities in swimming

may have a difficult time providing instruction if an athlete does not understand what the coach may consider to be basic instruction. Young (2010) suggested that cueing, breaking down skills, and using purposeful questioning can enhance the learning of an athlete with an intellectual disability.

Professionals Providing Support. Additionally, collaboration between professionals who provide support, such as paraprofessionals and adapted physical education (APE) specialists, and physical educators is not always feasible due to budget restrictions (Cervantes et al., 2013) or the lack of positions in the school district. In a study of physical educators, Beamer and Yun (2014) found that 65% of respondents did not have an APE specialist in the school district. This lack of educational support can lead to instructional issues such as an extensive amount of time spent planning and increased difficulty levels of planning reported by physical educators (Hersman & Hodge, 2010).

Physical education teachers reported a vague understanding of the role that paraeducators take in providing support in their general physical education class. The paraeducators believe they should take it upon themselves to aid in the teaching of students with disabilities, so the PE teachers did not have to “deal” with those students, often causing alienation from other students in the class (Bryan, McCubbins, & van der Mars, 2013). Physical education teachers were accepting of the students with disabilities but did not see themselves as the primary instructors of those students.

Support professionals are identified by physical educators as a way to help overcome challenges in inclusive settings since they are trained to provide instructional practices (Campos, Ferreira, & Block, 2015). However, support professionals are often limited in availability which

may leave physical educators with the inability to provide individualized instruction for all students in their classes (Beamer & Yun, 2014; Campos, Ferreira, & Block, 2015). One potential way to alleviate this barrier is by utilizing trained peer tutors.

According to section 504 of the Rehabilitation Act of 1973, qualified students with disabilities must receive reasonable accommodations including access to aids and services that are necessary for equal opportunity to participate in extracurricular PA. An example would include affording support professionals such as an educational interpreter for a student who is deaf. Because the student is required to have support and it is written in the student's IEP, the school must provide this service during extracurricular PA. Unfortunately, providing this type of personnel during weeknight and weekend hours is a barrier for schools (Dieringer & Judge, 2015).

Grandisson, Tetreault, & Freeman (2012) conducted semi-structured interviews for parents ($n=20$) of individuals with intellectual disabilities who participated in inclusive sport programs and staff ($n=39$) within the programs. Both parents and staff mentioned that discreet support would be an ideal way for individuals with intellectual disabilities to participate more effectively and that other athletes without an intellectual disability maybe the best positioned to provide the support. In terms of the type and severity of a disability, individuals who have difficulty managing emotions or have difficulty with social skills were recognized as having challenging behaviors inhibiting successful inclusion and support. Students or athletes who participated more independently or with less individualized support from coaches were identified by parents and staff as less challenging to include in sport. Individuals who have participated in

inclusive sport in the past report that the coach's knowledge of disability has a direct impact on the success of the integration of disability in sport (Grandisson, Tetreault, & Freeman, 2012).

Experiences of Students with Disabilities in Physical Education and Physical Activity

Students with disabilities have reported experiences in inclusive physical education settings that reiterate the perceptions of physical educators. Positive and negative reactions were recorded by Goodwin and Watkinson (2000) for students ages 10 to 12 ($n=9$) who participated in inclusive physical education. Good days were distinguished as having a sense of belonging, the acknowledgment of why physical activity is important, and the application of skillful participation. Bad days involved restricted participation due to physical barriers or classmates' biases, having their competence questioned, or being isolated from the group.

Research conducted on inclusion in physical education concludes that negative outcomes such as limited interactions, bias, or isolation can be encouraged leading to poor physical education experiences (Goodwin & Watkinson, 2000; Place & Hodge, 2001). Students have also reported their internal barriers including embarrassment or not wanting their classmates to become upset during play beyond not being included or having the option to simply sit out of activities (Blinde & McCallister, 1998; Bredahl, 2013; Fitzgerald, 2005; Healy, Msetfi, & Gallagher, 2013). These experiences of students with disabilities are reiterated in the findings of individuals with disabilities participating in PA. Stanish et al. (2015) determined that students with Autism Spectrum Disorder ($n=35$) perceived that learning physical activities was difficult, and they were less likely to enjoy participating in sport and exercise with their typically developing peers.

The experiences of individuals with disabilities in PE and PA settings should also be evaluated through an inclusive sport lens, or those sports in which individuals with and without disabilities practice and play together. Within Special Olympics Unified Sport, athletes have reported their experiences in inclusive sport settings. McConkey et al. (2013) conducted individual and group interviews of athletes ($n=25$), partners ($n=25$), and coaches ($n=5$) across five nations to understand factors that contributed to the promotion of social inclusion. Phenomenological thematic analysis indicated that athletes played on teams focused on teamwork and having an equal role on their team. Athletes and partners also reported the development of friendships during and outside of the program (McConkey et al., 2013).

Grandisson, Tetreault, and Freeman (2012) interviewed adolescent athletes with intellectual disabilities and their parents ($n=40$) to understand perceptions of inclusive sport and barriers to integration. Qualitative themes implied that participants' overall health and self-esteem improved from inclusive sports programs. Participants also reported that inclusive sports allowed for increased social inclusion and the development of friendships. The experiences of the participants in inclusive sport lastly incorporated the theme of fun, to which the participants had difficulty naming areas they did not enjoy (Grandisson, Tetreault, & Freeman, 2012).

The aforementioned studies highlight the positive experiences that individuals with disabilities have during extracurricular PA and sport opportunities. Working alongside peers without disabilities has had positive effects for the athletes and their peers (McConkey et al., 2013). To facilitate positive experiences and perhaps eliminate the barriers teachers and coaches perceive of inclusion practices, individuals without disabilities can be trained as peer tutors to enhance learning opportunities and support social interactions of individuals with disabilities.

Peer Tutors to Promote Engagement of Students with Disabilities

One potential way for physical educators and athletic coaches to address barriers to inclusion including training, attitudes, type and severity of a disability, and limited support professionals is by utilizing peer tutors (Johnson & Ward, 2001; Klavina & Block, 2008; Tripp, Rizzo, & Webbert, 2007). This pedagogical technique provides one-to-one instruction between classmates and can encourage social interaction opportunities (Klavina et al., 2014; Liberman & Houston-Wilson, 2017). Peer tutoring in physical education has been researched thoroughly, with documented success for students with disabilities as tutees and some benefits identified for those serving as peer tutors.

Peer tutors provide an instructional benefit allowing for students to work cooperatively with one another while remaining actively engaged in learning by working on skill development, social interactions, and cognitive retention. While working one-on-one, tutors can provide support and consistent feedback in a general physical education class or inclusive sport environment that a tutee may not receive by the instructor alone. Conversely, trained peer tutors can provide support to students with disabilities during assessment by monitoring and helping the tutee remain engaged during the activity (Breslin & Liu, 2014).

There has been some debate whether the inclusion of students with disabilities in general physical education negatively impacts the learning of their typically developing peers, however, research suggests that this is not the case (Block & Obrusnikova, 2007). According to Block (2016), “peers provide more natural supports, increase social interactions and communication skills, and maintain or enhance students’ academic engagement” (pg. 101). Furthermore, peers without disabilities have provided the most significant support system for students with

disabilities in physical education (Hutzler, Fliess, Chacham, & van den Auweele, 2002). The time spent actively engaged in academic activity, or Academic Learning Time in Physical Education (ALT-PE), has been found to increase for both tutors and tutees when utilizing peer tutoring (Klavina, 2008; Webster, 1987; Wiskochil et al., 2007).

Comparing Untrained and Trained Peer Tutors

Peer tutors have been researched in both untrained, or simply classmates, and trained capacity to work with their peers with disabilities. For example, Houston-Wilson et al. (1997) found higher motor skill levels of students with disabilities from working with a trained peer tutor versus an untrained peer tutor. Tutees' motor skills were broken down into five cues and through visual analysis and means were determined for the total skills. The tutees increased motor skill performance the most in the trained tutor intervention. Protocol 1 included tutees working with an untrained peer tutor in intervention one before working with a trained peer tutor in intervention two. In protocol 1, one tutee decreased in motor skill performance means by 3.9% while the other two tutees increased performance by 3% and 10.9% between baseline and untrained tutor intervention. Tutees within protocol 1 increased their motor skill performance means by 10.2%, 38%, and 22.1% between untrained tutor intervention and trained tutor intervention. Tutees who received Protocol 2 of baseline and train tutor intervention increased their motor skill ability means by 30%, 36%, and 20%. These results demonstrate that trained peer tutors are more effective in enhancing motor skills of tutees with disabilities.

Houston-Wilson et al. (1997) further investigated the peer tutors' teaching behaviors and found that trained peer tutors ($n=6$) could produce improvements in tutees' motor skill mean percentages while providing higher levels of instructional techniques including verbal cues,

modeling, physical assistance, general skill feedback, and skill-specific feedback. Peer tutors wore a microphone to collect responses of teaching behaviors during class time which were transcribed and analyzed by the researchers. Peer tutor behaviors were tallied into one of the following categories: verbal cue, model, physical assistance, general feedback, or specific feedback. Mean teaching behaviors from participants increased in amount and quality before and after peer tutor training. There were no significant findings, but the researchers considered training to be effective due to increased teaching behaviors (Houston-Wilson et al., 1997).

Ensergueix and Lafont (2011) studied the different motor skill and cognitive performance between trained ($n=24$) and untrained ($n=24$), or spontaneous, peer tutoring within general physical education. The researchers found that not only were the trained peer tutors scoring higher in motor skills and cognitively than their untrained counterparts, but they were also able to identify errors and provide feedback to their tutees.

Benefits of Trained Peer Tutors

To promote a successful inclusive environment in physical education and physical activity, peers without disabilities should be trained on how to support peers with disabilities (Houston-Wilson et al., 1997; Klavina & Block, 2013; Lieberman et al., 2000; Lieberman & Houston-Wilson, 2017). Peer tutors that have been appropriately trained have displayed higher levels of academic performance through the repetition of “teaching” a skill and through evaluations at the end of training to determine the competence of skills being taught (Barfield et al., 1998; Cushing & Kennedy, 1997; Lieberman et al., 2000). Trained peer tutors can also increase levels of interactions between tutors and tutees (Klavina, 2008; Klavina & Block, 2008) and demonstrate quality levels of instructional techniques (Houston-Wilson et al., 1997).

Trained peer tutors have the potential to help facilitate learning and skill development, fitness levels, and social interactions for tutors and tutees (Barfield, Hannigan-Downs, & Lieberman, 1998; Houston-Wilson et al., 1997; Klavina & Block, 2008; Lieberman et al., 2000). When training peer tutors at the middle school level, Klavina and Rodionova (2015) aimed to determine if teacher-to-student interactions would decrease once students with disabilities began working with trained peer tutors. Five students were identified and trained as peer tutors to work with two students with severe and multiple disabilities. Researchers determined that interactions increased between the tutees and tutors immediately after peer-mediated intervention but declined after the fourth lesson as the peer tutors had to be prompted to work with one of the students with a disability. The researchers determined that the timing of the study could potentially explain the decreased time (with more end-of-the-year testing taking place) and encouraged the study to take place from the beginning of the year and with more participants. Peer tutors must be trained in how to support and provide instructional cues to the tutee to create a successful inclusion program.

Wiskochil et al. (2007) studied the effect of trained peer tutors on Academic Learning Time in Physical Education (ALT-PE) for students with visual impairments. The researchers used purposive sampling to identify four students with visual impairments and recruited peer tutors from their respective physical education classes. The single-subject delayed baseline determined that there was a mean increase in ALT-PE of closed-skill activities by 29.4% and open-skill activities by 16.6% by the tutees once the peer tutor intervention was introduced (Wiskochil et al., 2007). Similarly, Klavina (2008) determined through a single-subject delayed multiple-baseline that trained peer tutors ($n=9$) increased the activity engagement time of tutees

($n=3$) while decreasing the number of teacher-directed conditions across 46 physical education sessions. These findings contrast with the previous finding of Webster (1987) that both trained and untrained peer tutors are almost identical in terms of mean performance. Webster (1987) found that the mean percentage of ALT-PE motor-appropriate behavior did not significantly increase for two of the three students ($M=+0.6$, $M=-26.9$, $M=3.7$) between the untrained and trained tutor phases.

Sands et al. (2019) studied the time of middle school students with disabilities ($n=8$) spent on task working with their peer tutor ($n=8$) counterparts. The peer tutors were formally trained for 45 minutes and continued to receive informal training throughout the study. The study was described as a mixed-method modified reversal A-B-A design and descriptive statistics concluded that mean levels of time on task increased from the preintervention stage ($M=64.9\%$, $SD=10.7\%$) to the peer tutor intervention phase ($M=85\%$, $SD=6.0\%$) before regressing once peer tutors had been eliminated ($M=67.8\%$, $SD=7.3\%$).

In a study to determine if training had an impact on motor skill performance of students with disabilities, Houston-Wilson et al. (1997) found that trained peer tutors increased the skill performance of the students with mild intellectual disabilities. The study was a delayed multiple baseline across subjects' design and followed two protocols: one providing three conditions of no peer tutor, untrained peer tutor, and trained peer tutor ($n=3$) and the second protocol involving no peer tutor and trained peer tutors ($n=3$). Lessons were video recorded and visual analysis was conducted to measure changes within and between the protocol conditions. Improvements in various motor skills including jumping, catching, throwing, and striking increased by 3% from no peer tutor to an untrained peer tutor in protocol one. Improvements in

motor skills continually increased by 23% from untrained to trained peer tutors. In protocol two, improvements increased by 32% between no peer tutor and trained peer tutors. Trained peer tutors were more effective in assisting participants than their non-trained counterparts and increased amounts and quality of teaching.

Park, Collins, and Lo (2020) presented similar findings while researching the effect of middle school-aged peer tutors providing simultaneous prompting on motor skills during a basketball unit to their peers with mild to moderate intellectual disabilities ($N=4$). Through the single case, experimental multiple probes across subjects' design, each participant increased their basketball shooting skill correctness and was able to maintain their performance after peer tutors were eliminated. Two participants completed one step correctly three of five times during baseline testing and increased their overall mean scores to 5.7 and 6.7. The other two participants performed zero steps correctly and increased their overall mean scores to 7.2 and 7.0 of eight attempts. All participants increased their shooting correctness from a range of 3-6 when the peer tutor intervention was introduced.

The fitness levels of students with disabilities while working with their typically developing peers has also been of interest to researchers. Lieberman et al. (2000) investigated the mean percentage improvements of moderate to vigorous physical activity (MVPA) of students in upper elementary school grades for both deaf students and trained peer tutors ($n=6$). Students were purposively matched according to age and gender. All participants' MVPA levels were recorded, and both demonstrated improvement across a minimum of eleven intervention sessions due to student absence. Lieberman et al. (2000) found through a single subject delayed baseline

design that deaf students' MVPA increased from 22% to 41.5% and peer tutors' MVPA increased from 19% to 37.9% using the System for Observing Fitness Instruction Time.

These findings are consistent with the findings of Temple and Stanish (2011), who provided a peer workout program through a local YMCA in which individuals with intellectual disabilities ($n=20$) participated in structured exercise activities with workout buddies without disabilities. The workout buddies participated in two 90-minute training sessions including topics of disability characteristics, strategies for communication, strategies for reciprocal relationships, and instructional techniques. The Physical Activity and Health Questionnaire was completed by all participants pre-and post-test. After the fifteen-week intervention, the individuals with disabilities reported more preference for moderate-to-vigorous intense activities, learning new exercises, the gain of new friends, and were overall healthier. The workout buddies also reported learning new exercises and making new friends.

A follow-up study by Stanish and Temple (2012) revealed both individuals with disabilities and their trained peer partners were able to increase their overall health-related fitness and decrease their body mass index over a fifteen-week extracurricular fitness program determined by pre-post-tests. Results of repeated-measures ANOVA demonstrated that both peer tutors and tutees improved significantly on the six-minute walk test ($p < .001$) and body mass index ($p < .005$). Participants improved from a mean score of 448.9 ($SD=77.5$) to 588.6 ($SD=63.8$) during the six-minute walk while peer partners increased scores from 567.9 ($SD=48.4$) to 647.2 ($SD=69.0$). Participants' mean body mass index decreased from 25.3 ($SD=4.4$) to 24.7 ($SD=4.2$) and peer partners decreased body mass index from 23.8 ($SD=3.2$) to 20.3 ($SD=3.2$) over the 15 weeks. Researchers concluded that engaging students with and

without disabilities in a structured fitness program was beneficial and could potentially promote a sustained exercise regimen (Stanish & Temple, 2012).

At the high school level, Gobbi, Greguol, and Carraro (2017) compared the physical activity levels of students with disabilities ($N=19$) in an extracurricular peer tutor physical activity program and a school physical education class. Tutors were trained in two sixty-minute sessions discussing and practicing communication, teaching and feedback techniques, and how to assist when necessary. Participants were given an accelerometer to measure their inactive time and their time spent in light-intensity physical activity or moderate-to-vigorous physical activity. Participants were provided the Borg CR10 Scale to answer their perceived overall exertion and the physical activity enjoyment scale for children to examine their physical activity enjoyment. Overall, participants recorded higher levels of light intensity physical activity (Peer $M=13.4$, $SD=3.3$; School $M=12.7$, $SD=4.3$; $F=5.431$; $p=.032$) with less time spent inactive (Peer $M=26.9$, $SD=3.6$; School $M=28.4$, $SD=7.4$). Perceived exertion increased for students working with peer tutors (Peer $M=4.6$, $SD=2.5$; School $M=1.5$, $SD=1.5$; $p<.001$) and enjoyment (Peer $M=11.7$, $SD=0.3$; School $M=11.3$, $SD=0.6$; $p=.021$) when peer tutors were involved. These significant findings conclude that peer tutors potentially can increase the overall levels of physical activity and enjoyment when working with students with disabilities (Gobbi, Greguol, & Carraro, 2017).

Similarly, Klavina (2008) determined that peer tutors ($n=9$) increased their physical and instructional behaviors, evaluated using the Computerized Evaluation Protocol of Interactions in Physical Education (CEPI-PE) while working with three students with disabilities who spent at least 60% of their time in self-contained special education classrooms. To extend this study, Klavina and Block (2008) explored physical interaction behaviors, instructional interaction

behaviors, and social interaction behaviors by investigating the difference in interactions between students with severe multiple disabilities with adult support personnel and peer tutors. The peer tutors ($n=9$) increased their overall prompting scores during interactions and spent more time in voluntary interactions and activity engagement when compared to the other students within the PE class.

Using the CEPI-PE, Klavina et al. (2014) measured the physical and social interactions of elementary-aged students with disabilities and peer tutors. Peer tutors ($n=37$) across three different schools in Sweden significantly increased interactions during the 43 recorded classroom sessions. Qualitative data supported Klavina and Block's (2008) finding that peer tutors decreased the interaction time between students with disabilities and support personnel. Additionally, the acceptance of students with disabilities both in class and out of class settings increased through emerging qualitative themes from the school principal (Klavina et al., 2014).

The aforementioned studies have focused mainly on the outcomes for students with disabilities with little investigation on impacts on peer tutors. There is a lack of investigation on resulting impacts on peer tutors, as well as on the perceptions of peer tutors regarding their feelings of preparation and knowledge towards providing support to peers with disabilities. There is also little generalizability across contexts due to the small sample sizes that have been used for both tutors and tutees within upper elementary and middle school-aged students, with most studies focused on less than ten students with disabilities and/or peer tutors. Samples of the students with disabilities were usually recruited through purposive sampling methods while most peer tutors were selected voluntarily or with the guidance of the physical education teachers, following the guidelines set by Block (2016) and Lieberman and Houston-Wilson (2017).

Finally, as will be discussed below, the lack of a formal training protocol for peer tutors to properly be trained to assist peers with disabilities that is replicable across settings/contexts is a limitation.

Peer Tutor Training

The positive outcomes that come from the implementation of peer tutors have unfortunately not spurred one prescriptive method in how to train students for their experience as peer tutors. A literature review by Temple and Lynnes (2008) demonstrated how different researchers trained their peer tutors for inclusive settings. There were vast discrepancies between how to select peer tutors, what content should be taught during the training, and the amount of time spent on training. Most of the peer tutors were teacher selected (80%) or asked for student volunteers in terms of selection. The training was dispersed into instructional techniques/how to provide feedback (88%), the system of least prompts (63%), observation/error detection (25%), disability-specific techniques (25%), and how to give demos (25%). Finally, the time spent actively training peer tutors ranged from thirty minutes to two-and-a-half hours (Temple & Lynnes, 2008).

Types of Peer Tutor Training

Peer tutoring can be carried out in multiple formats depending on the needs of the students and the class. Reciprocal peer tutoring involves pairs of students working together in the roles of tutor and tutee. This form of peer tutoring allows students to perform the skill as well as provide instructions and feedback and has traditionally been researched on non-inclusive physical education classes (Ensergueix & Lafont, 2011) and can be an effective teaching mechanism for students with mild to moderate disabilities (Block, 2016; Cervantes, et al., 2013).

Classwide peer tutoring is similar to reciprocal peer tutoring in that pairs of students work together while switching roles. However, the entire class is involved in the tutor-tutee role reversal. Block (2016) contended that students with mild to moderate intellectual disabilities can be trained to tutor in reciprocal style learning as it applies to classwide peer tutoring.

Classwide peer tutoring has been successful in skill development with students with mild to moderate disabilities including Autism Spectrum Disorder (Ward & Ayvazo, 2006). Ward and Ayvazo (2006) determined that using classwide peer tutoring increased the total amount of catches and number of correct catches made by students with disabilities ($n=4$) in an A-B-A-C single-subject withdrawal design study. Between the baseline data and second classwide peer tutoring intervention, students with disabilities were able to increase their correct catching performance by a minimum of four catches. In a similar study, Ayvazo and Ward (2010) found that two students with disabilities increased their total striking attempts and correct striking attempts from baseline to classwide peer tutoring intervention. Through an A-B-A-B single-subject withdrawal design, student one increased the total trials from baseline one of 0-8 to second CWPT intervention of 4-23. The number of correct trials increased from baseline one of 0-3 to second CWPT intervention of 0-15. Student two was absent during baseline one testing but scored 0-21 total trials and zero correct trials in the first CWPT intervention. Student two's total trials increased from 5-14 and correct trials from 0-3 during the second CWPT intervention. These findings exemplify the positive effect of having a peer tutor to help facilitate and support students with disabilities in motor performance.

However, Ayvazo and Aljadeff-Abergel (2014) found discrepancies when dealing with students in both third and eighth grades while implementing classwide peer tutoring. While 87%

of third-grade students responded that they enjoyed participating in CWPT, only 64% of the eighth-grade students found it enjoyable. Third graders were more open to continuing CWPT (97%) but eighth-graders answered they would not like to continue with CWPT due to the repetitive content and routine (73%) (Ayvazo & Aljadeff-Abergel, 2014).

The focus of the current study will be on unidirectional peer tutoring, the most widely used model of peer tutoring (Cervantes et al., 2013). In unidirectional peer tutoring, one student of a pair is trained (student without a disability) to help teach their partner (student with a disability) providing more individualized instruction (Temple & Lynnes, 2008). Lieberman and Houston-Wilson (2017) asserted that this form of peer tutoring allows students to always know their roles and is most effective when working with students with more severe disabilities. Unidirectional peer tutoring does not require that the same students always be paired together, and switching partners is encouraged to increase social interactions (Block, 2016) and to increase the responsibility and leadership of the tutor (Lieberman & Houston-Wilson, 2017). However, it is important to note that peer tutors must be trained to provide support to their peers with disabilities; otherwise, they are solely peers providing interaction time rather than an instructional tool (Lieberman & Houston-Wilson, 2017).

Components of Peer Tutor Training Programs

There are two resources providing components that should be included in peer tutor training. A peer tutor training manual was designed by Klavina and Block (2008) for elementary-aged students and has been used in multiple studies for training both elementary and middle school-aged students (Klavina, 2008; Klavina et al., 2014; Klavina & Rodionova, 2015; Vonlintel et al., 2017). The manual provides examples of questions to ask students on disability

awareness and Tips for Teaching, Assisting, and Practicing (TIP-TAP) during classes. The TIP-TAP steps are outlined with examples of what to say and a worksheet is provided to help remind peer tutors of what steps come next.

Similarly, Liberman and Houston-Wilson (2017) have provided examples of worksheets that can be utilized throughout the peer tutoring process. The Peer Tutor Training Handout provides definitions and examples of instructional techniques such as cueing, assistance, modeling, and feedback as well as scenarios the peer tutors may encounter. Additionally, there is an application to become a peer tutor, a parent permission form, a quiz on information from the handout, an example of a peer tutor skill checklist for basketball, and a peer tutor evaluation checklist to determine the ability of the peer tutor.

Within the peer tutor training process, students should be selected to be peer tutors and they should receive training on how to be a peer tutor. During the beginning stages of training, students must gain an appreciation for differences through disability awareness activities. A literature review from Vonlintel et al. (2017) revealed that there are three main categories amongst peer tutor researchers: communication, prompting, and feedback. Prompting and feedback have been further defined as instructional strategies (Lieberman & Houston-Wilson, 2017). Finally, the evaluation of peer tutors should conclude the training sessions to evaluate if peer tutors can successfully implement instructional strategies and techniques. These six components of a peer tutor training program are important for the success of implementing peer tutors.

The Selection of Peer Tutors. Considerations for selecting peer tutors are generally agreed upon amongst researchers within the field (Block, 2016; Klavina & Block, 2008; Klavina

et al., 2014; Lieberman & Houston-Wilson, 2017). First, peer tutors should be volunteers and should want to partake in the role of a peer tutor. It is also recommended that peer tutors have higher levels of skill performance to be able to demonstrate and break down the skills being learned (Lieberman & Houston-Wilson, 2017). Teachers may also look for positive qualities including students who are caring, enthusiastic, and positive (Block, 2016; Lieberman & Houston-Wilson, 2018). Some peers may have also demonstrated behaviors during PE or throughout the school day that indicate they would be successful in this role, such as helping a peer with a disability complete a task or including that peer in group work (Klavina & Block, 2008). Block (2016) encourages looking towards school organizations or groups that may encourage peer buddy or support programs as areas to look for peer tutors.

Once peer tutors have been selected, it is suggested that an application procedure be held. Lieberman and Houston-Wilson (2018) suggested that the application contains availability times for tutoring, experience working with individuals with disabilities, and a section on why the student wishes to be a peer tutor. This formal approach to peer tutoring is recommended but is not necessary if the aforementioned selection process is utilized to produce quality peer tutors (Houston-Wilson & Lieberman, 1997; Klavina & Block, 2008; Lieberman et al., 2000; Wiskochil et al., 2007).

Training Time. Possibly the largest area of discrepancy in previous research is the amount of time devoted to peer tutor training. Some studies have held peer tutor training sessions for less than an hour (Strickland et al., 2005; Ward & Ayvazo, 2006). However, these studies found no significant change in tutors' resulting skills and development (Strickland et al., 2005;

Ward & Ayvazo, 2006). The limited amount of time devoted to training peer tutors and assessing the skills of peer tutors could potentially have caused the lack of change in peer tutors' skills.

Many researchers suggest that peer tutor training sessions should last between an hour and two-and-a-half hours in duration (Houston-Wilson et al., 1997; Klavina & Block, 2008; Lieberman et al., 1997; Lieberman et al., 2000; Wiskochil et al., 2007). Block (2016) and Klavina (2008) advise that peer tutors be trained in at least three sessions for twenty to thirty minutes per session. Similarly, Lieberman and Houston-Wilson (2018) recommended the training sessions happen over the course of one to two weeks to promote the retention and application of knowledge learned. Sessions ranging from one hour to one-and-a-half hours have resulted in an increase in quality teaching behaviors by peer tutors (Houston-Wilson et al., 1997), increased interactions between peer tutors and tutees, and a decrease in interactions between the tutees and teachers/paraprofessionals (Klavina & Block, 2008). Training sessions lasting longer than an hour and a half have shown to result in an increase in academic learning time for the tutees (Wiskochil et al., 2007) and both tutors and tutees (Lieberman et al., 1997). Lieberman et al. (2000) also discovered an increase for tutors and tutees in levels of average MVPA by almost twenty percent. The outcomes of these studies suggest that a minimum of an hour-long training session can positively impact tutor instruction and both tutor and tutee interactions and behaviors.

Disability Awareness. For peer tutors to better understand their tutee, disability awareness training has been found to promote more positive attitudes towards inclusion (Morin et al., 2017). Students without disabilities who have limited experience working alongside students with disabilities may view students with disabilities as a disruption to physical

education and are most likely to have negative attitudes (Block, 2016). For example, McKay, Haegele, and Block (2019) found that before a disability sports program, students without disabilities perceived disability as a difference from their idea of normal and the inability to participate in sport. According to Hutzler (2003), to change behaviors towards individuals with disabilities, attitudes must be positive towards inclusion and adapted physical education (Block, 2016).

A review of prior studies by Qi and Ha (2012) indicated two different types of disability awareness training: empathy and sensitivity or disability-specific knowledge. It is recommended that students with little experience or stereotypical beliefs towards their peers with disabilities undergo awareness activities that promote empathy and sensitivity towards differences (Block, 2016). Klavina and Block (2013) suggested asking questions about differences in people. Klavina's Peer Tutor Training Manual (2007) furthered this by suggesting the teacher ask for similarities and differences between the peer tutor and classmates as well as identifying self-areas of strengths and weaknesses. During this time, peer tutors should identify why they want to be a tutor and what their expectations are during the program (Klavina, 2008; Klavina & Block, 2013b).

Beyond a teacher-led discussion, Block (2016) recommended having students fill out a Circle of Friends (Pearpoint, Forest, & O'Brien, 1996) to help peer tutors appreciate the importance of accepting and befriending their peers. The original Circle of Friends involves four circles that students fill in according to their own lives: circle of intimacy, circle of friendship, circle of participation, and circle of exchange. Block (2016) offered that this can be revised for physical education with three circles including whom they play and interact with daily in class,

those they occasionally interact with, and finally, those whom they do not play or interact with during class.

Cervantes et al. (2013), Lieberman and Houston-Wilson (2017), and Wiskochil et al. (2007) contend that it is important for peer tutors to understand the disabilities of peers they are working alongside. These researchers have provided resources that include a variety of descriptions of disabilities that could be used in a training program that can be modified depending on age level. Furthermore, Grenier and Miller (2015) suggested that peer tutors may need to understand the communication skills of students with various disabilities. Peers that gave support were provided a variety of scripts and cues to follow based on a dictionary designed for one particular student in class based on her nonverbal cues. This allowed all students to communicate more effectively and enhanced academic and social engagement.

Applying a mixture of empathy/sensitivity and disability-specific knowledge for disability awareness has been the most recent avenue for attitudinal change through Paralympic School Day (PSD), an educational program that creates awareness towards Paralympic sport (Grenier et al., 2014; McKay, Haegele, & Block, 2019; Wilhite et al., 1997). A positive impact on changing attitudes has taken place as students are taught both disability-related content knowledge and awareness activities promoting empathy and sensitivity (Liu, Kudlacek, & Jesina, 2010; Panagiotou et al., 2008).

During a non-inclusive summer camp based on PSD, Panagiotou et al. (2008) utilized the *Children's Attitudes Toward Integrated Physical Education-Revised Inventory (CAIPE-R)* to survey and compare an experimental group ($n=86$) and control group ($n=92$) fifth and sixth-grade students on their attitudes towards children with disabilities, general attitudes towards

disability and attitudes towards sport specific modifications. A one-way ANOVA revealed significant ($p < .05$) differences from the experimental group in general attitudes towards disabilities (Panagiotou et al., 2008). This suggests that even without the presence of individuals with disabilities, the overall attitude of individuals without disabilities can be influenced positively.

McKay, Block, and Park (2015) studied the impact of PSD on sixth-grade students ($n=143$) using a pre-test post-test format of the CAIPE-R survey and Siperstein's *Adjective Checklist* (2006). Students took part in a Paralympic athlete's story as well as station rotations to experience disability sports activities and a reflection station. Independent-samples *t*-tests determined a positive skew towards disability and inclusion (Adjective Checklist, $t(141) = -0.28$, $p = .779$; CAIPE-R, $t(141) = -0.10$, $p = .923$; CAIPE-R inclusion subscale, $t(141) = -1.92$, $p = .057$) when comparing those who participated in the PSD intervention and those in the control group. The post-test results, however, indicated significantly higher scores towards integrated physical education. Attitudes of students who received PSD were significantly higher than the control group (PSD: $M = 33.68$, $SD = 4.90$; control: $M = 31.67$, $SD = 4.54$, $\eta^2 = .04$). Similarly, students who participated in the PSD intervention scored significantly higher on the CAIPE-R inclusion subscale (PSD: $M = 21.15$, $SD = 2.68$; control: $M = 19.53$, $SD = 2.44$, $\eta^2 = .05$). The changes in perceptions are similar to the findings of McKay, Haegele, and Block's (2019) work focusing on sixth-grade students and their attitudes towards disability and disability sport. The combination of knowledge and activities within PSD allowed students to break down stereotypes while learning interaction skills with individuals with disabilities (Grenier et al., 2014; McKay et al., 2015; Panagiotou et al., 2008).

Communication. Training students on how to communicate effectively with one another is an essential component to promote learning. Cervantes et al. (2013) supported training peer tutors in disability or student-specific modes of communication including assistive technology to promote communication between students. Additionally, peer tutors should understand the difference between expressive and receptive communication, depending on the tutee's preferred form of communication. Students who utilize receptive communication may need peer tutors to understand non-verbal cues including body language and facial expressions (Lieberman & Houston-Wilson, 2017). Other forms of communication that peer tutors may need to use include sign language, picture charts or communication boards, or computer/technology-assisted synthesizers (Block, 2016; Cervantes et al., 2013; Lieberman & Houston-Wilson, 2017)

Instructional Techniques. Lieberman and Houston-Wilson (2017) contended that it is important for peer tutors to have a good understanding of the system of least prompts developed by Dunn, Morehouse, and Fredericks (1986). Within this system, peer tutors should attempt to allow the tutees to perform skills with as little dependency as possible. First, peer tutors prompt the tutee with a verbal cue. If the student does not respond or respond with the correct skill, the peer tutor then moves to a demonstration of the skill. If the tutee does not respond again appropriately, the peer tutor then provides physical assistance as needed. It is further suggested to provide scenarios of real-life examples throughout the training process (Cervantes et al., 2013; Houston-Wilson, Dunn, et al., 1997; Houston-Wilson, Lieberman, et al., 1997; Lieberman & Houston-Wilson, 2017). The Peer Tutor Training Manual also included TIP-TAP steps including instructing, demonstrating, physical assistance, feedback, and error collection as an easier way

for tutors to remember the steps of providing instruction (Klavina, 2008; Klavina & Block, 2008).

Evaluation of Knowledge. For peer tutors to be able to provide support to their peers, they must be knowledgeable and capable in the content and skills that are being worked on in physical education (Houston-Wilson et al., 1997; Lieberman et al., 2000; Lieberman & Houston-Wilson, 2018; Wiskochil et al., 2007). After the completion of training, it is recommended that tutors are evaluated on their knowledge of the content and application of instructional strategies with a passing rate of 90% on a peer tutor evaluation quiz (Klavina & Block, 2013a; Lieberman & Houston-Wilson, 2017) before the start of their peer tutoring program. If the tutor does not pass the knowledge piece, it is recommended that they be reinstructed in the areas of weakness. Forms have been created to determine knowledge such as the Peer Tutor Training Evaluation Form (Block, 2016) or the Peer Tutor Quiz and Peer Tutor Evaluation Checklist (Lieberman & Houston-Wilson, 2017).

Peer Tutor Training Settings

The majority of peer tutor training that has taken place in physical education has been led by researchers in a face-to-face format. This, however, poses issues when physical educators are being faced with conducting their own peer tutor training outside of research settings. Teachers have reported their lack of confidence in providing appropriate modifications and accommodations when it comes to inclusive physical education (Hodge et al., 2004). This could potentially lead to incomplete or insufficient training for peer tutors if physical educators do not feel confident in their ability to implement these pedagogical techniques themselves. Another drawback to teachers utilizing a peer tutor program may be linked to a lack of time available to

appropriately train students to become tutors. Studies that have utilized trained peer tutors have conducted the training during physical education classes (Klavina & Block, 2008), lunchtime (Strickland et al., 2005), or during recess or after school (Houston-Wilson, Lieberman, et al., 2013; Lieberman et al., 2000). This takes away from academic learning time within physical education classes, social interactions, and free time during lunch and recess, and inhibits students from participating in other opportunities after school.

Online training. Providing a quality online training format could allow for peer tutors to be able to learn both in school and out-of-school settings. There are currently no known online peer tutor training programs within physical education or extracurricular sports nor research evaluating the effectiveness of this method of delivery. However, comparisons might be drawn from professional development training held online for physical educators focused on learning and applying peer tutoring in their classrooms. Healy, Block, and Kelly (2019) conducted a study to determine the effectiveness of online training for physical educators towards implementing a peer tutor program in physical education. The training was based on adult learning theory with specific design principles based on Mayer's (2001) cognitive theory of multimedia learning. The training was composed of four podcasts through which information and pictures were presented accompanied by audio: a) an introduction to peer tutoring and preparation for peer tutoring, b) training in communication and instruction for peer tutors, c) training in feedback and motivational techniques for peer tutors, and d) how to execute the program appropriately and safely. Of the four topics for the podcasts, each was aligned with the steps and components within the literature for training peer tutors. Teachers were randomly placed in either an experimental ($n=23$) or control group ($n=23$). The experimental group completed the course

while the control group was on a waitlist. After the completion of the training over four weeks, teachers were assessed on their content knowledge (pre/post-test) validated by an expert group ($n=4$) and their self-perceived ability to implement the various components of a peer tutoring program (self-report). The pre/post-test scores content knowledge indicated that the experimental group demonstrated a significant increase ($M=34.94$, $M=67.69$) while the control group's mean scores decreased by two points ($M=36.12$, $M=34.13$). Teachers who did not or were not able to implement peer tutoring stated that they either wanted to finish the course content first ($n=2$) or because there was no time, no approval by administrators, or no students with disabilities ($n=1$) (Healy, Block, & Kelly, 2019).

Similarly, Sato, Haegele, and Foot (2017) utilized a qualitative case study design with in-service physical educators ($n=6$) to determine their experiences within two online graduate-level adapted physical education courses based on adult learning theory. The two courses consisted of an introduction to APE and practicum experience. Through journal reflections and open-ended interviews, it was found that the educators appreciated the real-time application of content learned and that assessment of students using statistical analyses was difficult even when provided content. While peer tutors would not be asked to complete this same task, the physical educators noted that their own lack of experience using the instruments such as the Test of Gross Motor Development-II (Ulrich, 2000) could affect the validity and reliability of the assessments. This comparison could be drawn with the assessments peer tutors would make of the tutee if they do not feel confident in their ability to properly assess a student.

In an extension of the study on online professional development, Sato and Haegele (2017) found that through peer review and practice, physical educators were able to learn how to

utilize the instruments more effectively and increase their confidence in conducting assessments based on the occupational socialization theory. An exploratory case study ($n=9$) found three themes: a) ambiguous roles of APE teachers, b) the need for specialized expertise while teaching students with severe disabilities, and c) dealing with unpredictable behaviors (Sato & Haegele, 2017).

Healy, Block, and Judge (2014) found that there were advantages and disadvantages to online education of adapted physical educators. A nationwide survey ($n=106$) of open and close-ended questions revealed two advantages: flexibility and increased learning opportunities. Flexibility was noted in terms of the ability to work in the participants' free time, the elimination of travel, and the ability to work at the participants' speed. Increased learning opportunities, including increased access to experts and exposure to educational media, provided educators with the ability to utilize more information and access to equitable training. Disadvantages included the inability to have social interaction with students, a lack of practical experience, and technology issues. The advantages of online education could apply to an online training method for peer tutors in terms of flexibility and working at the participant's own speed. Similarly, the lack of social interactions could be a limitation of online training but may be resolved by scenario-based learning.

Furthermore, Healy et al. (2017) recommended best practices for the implementation of an online adapted physical education class that could be translatable to an online peer tutor training program. First, learners should be presented with clear goals and expectations to ensure the success of learning. Second, the information should be provided in multiple formats including slide information, voice-overs, media, and references to more material. Third, there

should be multiple opportunities for active learning by applying the content to activities. Fourth, there should be an opportunity for feedback throughout the course mainly through instructor-to-student interactions. These four principles can be applied to the training program to support the learning of peer tutors.

These results indicate that future research should be conducted using online training modules for peer tutors to actively be involved in learning the components (Healy et al., 2017) of peer tutoring. Online modules allow for peer tutors to self-pace their learning (Sato & Haegele, 2017) and students can potentially gain more knowledge and confidence towards working with their peers with disabilities (Kwon & Block, 2017). Online modules provide the flexibility to be completed either during a student's free time or during a scheduled time before, during, or after school instead taking up regular instructional time. Additionally, a qualitative piece to understand how the components of peer tutoring impact the application of content would provide insight into how well students were able to grasp and implement the pieces of peer tutoring.

Instructional Design

The Cognitive Theory of Multimedia Learning (CTML) contends that there are three assumptions when dealing with meaningful learning in the human processing system: dual channels, limited capacity, and active processing (Mayer, 2005). First, through both visual and auditory channels of learning, individuals gain and integrate new knowledge with prior knowledge during the learning process (Greer, Crutchfield, & Woods, 2013; Mayer, 2005). Second, humans are limited in the amount of information that can be processed through visual and auditory processes at the same time. Therefore, individuals must engage in active learning to

organize relevant information being absorbed and to then incorporate it with what the individual already knows (Mayer, 2005).

Training Modules. Following these three assumptions, the four modules used in this study to train peer tutors were created to provide meaningful learning to middle school-aged students. The modules are comprised of scripted Powtoons videos that give the learner relevant information on being a peer coach. Each of the videos not only has auditory information, but also provides visual representations through written word and images to help guide the learning process. Assuming that individuals have limited memory capacity, each module and video has highlighted content to emphasize importance and repeats information throughout the module or in multiple modules to stress important information. Finally, active learning is involved through the use of multiple interactive activities during each module. Learners are asked to reflect, answer checks for understanding and complete charts based on their own experiences.

Almasseri and AlHojailan (2019) applied CTML with eight-grade Saudi Arabian computer science students ($n=67$). The researchers found through a quasi-experimental design that the experimental group scored higher in applying, analyzing, and evaluating, and that learners with limited prior knowledge to the content scored higher overall (Almasseri and AlHojailan, 2019). This finding may be translatable to the modules created for peer coaches for middle school students in higher levels of thinking. Boster et al. (2007) similarly found that sixth and eighth grade students performed better on mathematics tests after watching instructional video podcasts than their peers who experienced regular classroom instruction.

Each of the modules is comprised of several short videos with a maximum of six minutes per video to aid in the retention of information and decrease information overload (Guo et al.,

2014; Mayer, 2005). It is recommended for middle school-aged students to engage in short length videos to encourage information processing (Slemmons et al., 2018). Students at the middle school level self-reported that they were more engaged in content and had enhanced focus on ten minute videos than longer twenty minute videos (Slemmons et al., 2018). Between the content videos, interactive activities allow the learners to test their knowledge and apply what they have just learned within the video. It is recommended that worked samples are provided for the learners to allow for independent practice and to give real-life examples and solutions (Mayer, 2005). Several of the interactive activities allow the learner to problem solve scenarios and then receive feedback to different approaches of completing the task.

Action Research Framework

The goal of action research is to facilitate change through addressing a specific problem in a practice-based setting (Herr & Anderson, 2015; Merriam & Tisdell, 2015). This form of research is commonly utilized in classrooms, workplaces, and organizations (Merriam & Tisdell, 2015) and can bring authentic information to make places more equitable for all individuals (Caro-Bruce, Flessner, Klehr, & Zeichner, 2007). Through the documentation of researching a new strategy, the researcher may determine the most effective solutions to the practice-based problem (Merriam & Tisdell, 2015). For this study, the problem previously diagnosed was the lack of an evidence-based peer coach training for middle school aged students that is replicable across multiple locations and settings for the Prime Time Games® organization. The Prime Time Games® is an inclusive sports organization designed for individuals with and without disabilities to play and work together in an athletic season.

Action research is comprised of three main components to investigate a practical problem (Petersen et al., 2014). First, research must be intervention focused to understand the problem. Second, there must be an iterative cycle for the intervention to be improved upon through multiple action research cycles. Thirdly, the action researcher should be a participatory and active piece of the cycle by implementing the intervention (Petersen et al., 2014).

French and Bell (1973) describe action research through four different types. Diagnostic, participatory, empirical, and experimental. Diagnostic action research involves the researcher providing a solution to the presented problem without being involved in the intervention application. Participatory action research involves the researcher in later steps by having the organization share their experiences of the intervention. Empirical action research involves the collection of data to determine the effect of the intervention. Experimental action research involves multiple iterations of the intervention to provide improvements. This study will apply elements of both participatory action research and experimental action research as described in the sections below (French & Bell, 1973).

Petersen, et al. (2014) utilized a two-phase approach including the iterative action research process and a case study approach as evaluation. During phase one a diagnosis was made, action planning and design of the intervention took place, the intervention was applied and followed up by reflection. This process was followed in three iterations to provide improvements to the intervention instrument. Phase two involved the evaluation of the intervention instrument through a case study design.

Conclusion

Peer tutors are a proven pedagogical technique that can be used to help support and engage students with disabilities in inclusive physical education. Teachers' and coaches' lack of training and knowledge (Haegele et al., 2018; Hersman & Hodge, 2010; Lirgg et al., 2017; Vargas, Beyer, & Flores, 2018), alongside larger class sizes (Ammah & Hodge, 2006; Haegele, Zhu, & Davis, 2018) and type and severity of students' or players' disabilities (Conatser, Block, & Gansneder, 2002) are challenges that limit their ability to provide appropriate accommodations and modifications. This can result in negative attitudes toward inclusion in physical education by educators (Block & Obrusnikova, 2007; Vargas, Beyer, & Flores, 2018). Furthermore, students with disabilities have reported that when their support or instructional needs are not met, their competence and ability levels are questioned by their teachers and peers without disabilities (Goodwin & Watkinson, 2000).

Trained peer tutors can aid in the support and engagement of students with disabilities (Klavina et al., 2014; Lieberman & Houston-Wilson, 2017). Research proves that academic engagement (Hutzler, Fliess, Chacham, & van den Auweele, 2002), fitness and motor skill behaviors (Lieberman et al., 2000; Stanish & Temple, 2012), and social interactions between tutors and tutees increase when peer tutors are properly trained (Klavina, 2008; Klavina & Block, 2008). However, while there are recommendations for what should be included in peer tutor training, there is no one prescriptive way of training peer tutors. There is also minimal research conducted on what the peer tutors perceive as effective training or of the use of an online peer tutor training program for this age group or context. Between the teachers' perceived lack of training and the time it takes to train peer tutors, having online modules facilitate the training of

peer tutors would allow a prescriptive training program that is replicable, reliable, and cost-effective regardless of setting.

Appendix O: Extended List of References

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Appendix P: Outline of Module Objectives and Components

	Topic	Objectives	Components---Ideas
Module 1	Rules and Roles of Tutors/Team Prime Time Info	<ul style="list-style-type: none"> • Understand PT roles and responsibilities during program • Identify mission/purpose of TPT • Describe person first language and explain its importance 	<ul style="list-style-type: none"> - Rules and Roles of Peer Tutor (Block, 119) <ul style="list-style-type: none"> ○ Being friendly, talking softly, providing praises, asking questions, working together, etc. - Person first language <ul style="list-style-type: none"> ○ Definition of PFL, why is it important? - Identify why he/she wants to be PT?*** <ul style="list-style-type: none"> ○ Purpose and leadership (PTG Intro, 1) - TPT info <ul style="list-style-type: none"> ○ Definition of a peer coach (PTG Intro, pg 3) ○ The Prime Time Way slide ○ Roles of a Peer Coach <ul style="list-style-type: none"> ▪ Your goal as a Peer Coach Slide ▪ Providing the “Varsity Experience” (PTG Intro, 1 & 3) ▪ Demonstrating and facilitating (PTG Intro, 3) ○ PEER:PAIR slide <ul style="list-style-type: none"> ▪ What it is ▪ What it looks like ▪ Why it is critical for success (PTG Intro, 1, 5, 8) ○ Rules Consistent from Sport to Sport (PTG Intro, 9) <ul style="list-style-type: none"> ▪ Space, pace, and safety ○ The Prime Time Games Sports slide ○ Reminder... Ask yourself... slide (<i>here or DA?</i>)

	Disability Awareness	<ul style="list-style-type: none"> • Increase the knowledge and awareness of PT towards disability • Minimize myths behind stereotyping? • Understanding the importance of friendship (accepting and befriending) 	<ul style="list-style-type: none"> ○ Final question slide - What is disability? How is disability defined? How do you think society views disability? - Identifying similarities and differences between self and others in class/program – Identifying strengths and weaknesses (Peer Tutor Training Manual, 116) <ul style="list-style-type: none"> ○ “I experience Autism too” questions ○ Revisit why they want to be a peer tutor - Look specifically at: <ul style="list-style-type: none"> ○ Autism Spectrum Disorder ○ Down Syndrome - Common interests slide <ul style="list-style-type: none"> ○ Common interests and shared experience (PTG Intro, 5) - Circle of friends (Block, 278) <ul style="list-style-type: none"> ○ Identifying supports, how IWD may not have same supports - “My Name is David” video
Module 3	Instructional Strategies	<ul style="list-style-type: none"> • Identify each TIP-TAP step and when/what to do in various scenarios 	<p>Prompting, providing specific cues, modeling or demo</p> <ul style="list-style-type: none"> - Tip-TAP steps of instruction (Block, 119) <ul style="list-style-type: none"> ○ Step 1: Say what you are going to do ○ Step 2: Tell what to do to get the task done correctly <ul style="list-style-type: none"> ▪ Providing verbal cues ▪ Performing skill together ○ Step 3: Demonstrate how to do the task

			<ul style="list-style-type: none"> ▪ Peer modeling (PTG, Intro 6) ▪ Interaction strategies (PTG Intro, 6) ○ Step 4: Help your peer do the activity ○ Step 5: Give praise or correct a mistake <ul style="list-style-type: none"> ▪ Types of feedback-Positive general feedback vs positive specific feedback ▪ Verbal Praise (PTG Intro, 6) - Scenario based examples
<p>Module 4</p>	<p>Communication/Feedback</p>	<ul style="list-style-type: none"> • Demonstrate when/how to appropriately use physical assistance • Differentiate between types of feedback • Recognize various modes of communication that could be used during program 	<p>Prompting, assistance, positive reinforcement</p> <ul style="list-style-type: none"> - Forms of communication <ul style="list-style-type: none"> ○ Receptive vs expressive - Various modes of communication-demos, pictures, gestures, etc. - How to give physical assistance <ul style="list-style-type: none"> ○ Asking to give/receive help ○ Appropriate assistance ○ When to use it <ul style="list-style-type: none"> ▪ Scenarios incorporating three bullet points? - Peer tutor training handout (Lieberman, 93-95) - Ping-Pong communication (PTG Intro, 6) - Scenario videos at end of training PPT <ul style="list-style-type: none"> ○ Is there more info somewhere on behaviors they may face?

Appendix Q: Module Outline of Video Content and Interactives

Legend:

Video

Interactive

Instrumentation

Intro to the Prime Time Games	<ul style="list-style-type: none"> ● Qualtrics Cover Letter ● Introduction video to the PTG ● Peer coach intro survey <ul style="list-style-type: none"> ○ Demographic survey ○ Knowledge evaluation ● Roles in the PTG ● Scenarios for head coach intervention ● Athletes and peer coaches ● Thank you coaches ● Jobs of a peer coach
Disability Awareness	<ul style="list-style-type: none"> ● General disability awareness ● PEERS in the PTG ● Perspective survey ● Person-first language ● Autism and Down Syndrome ● My name is David ● What is Down Syndrome? ● Review: autism and Down Syndrome ● Strengths and weaknesses ● Common and restricted interests ● Common interest reflection survey ● Common interest reflection follow up ● Strategies for support ● Circle of friends ● Circle of friends activity ● Circle of friends example
Instructional Strategies	<ul style="list-style-type: none"> ● Attention module ● How to get an athlete’s attention ● TIP TAP module ● Scenario 1: Denise ● Scenario 1: Denise (explanation) ● Instructional step review ● Scenario 2: Oscar ● Scenario 2: Oscar (explanation)

Communication and Feedback	<ul style="list-style-type: none">• Communication and feedback introduction• Forms of communication• Instructions for ping pong communication• Ping pong communication• Give and take (expressive/receptive communication)• Common interests• Common interests (explanation)• Processing time• Giving feedback• Feedback review• Communication review• Usability Survey• Knowledge evaluation
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Appendix R: Confirmation Email for Interviews

Dear Head Coaches/Prime Time Game Directors,

Thank you again for your participation in the study. Below you will find the final scheduled date and time for the focus group interview to take place. As a reminder, the interviews are intended to be completed in 25-30 minutes and will be completed via Zoom. Internet connections will need to be stable for completion.

Date of focus group interview: _____

Time of focus group interview: _____

Please respond to this email with one of the following responses:

- "I accept this date and time for the interview to take place"
- "I need to reschedule my interview time"

If you have any questions regarding participation in this study, please contact Maggie Roberts via email at mar0076@mix.wvu.edu or Dr. Andrea Taliaferro via email at Andrea.Taliaferro@mail.wvu.edu.

Thank you again for your participation in this study.

Sincerely,

Maggie Roberts, M.S.

Andrea Taliaferro, Ph.D.