

FULL-LENGTH ARTICLES

Lessons Learned Using Participatory Research to Develop Physical Education Resources and Recommendations for Blind Students

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Using a participatory action research (PAR) methodology, the purpose of this manuscript was to describe the experiences of co-constructing resources and recommendations for physical education (PE) teachers, with blind individuals as research partners, aimed at enhancing PE for blind students. Four blind young adults served as research partners within the project. The project consisted of 15 meetings over 19 weeks and two stages, and took place entirely on Zoom. Stage one consisted of four meetings and focused on exploring the needs of the partners and their experiences and opinions related to improving PE for future blind students. Stage two consisted of 11 meetings and focused on constructing resources and recommendations to provide to PE teachers. A constant-comparative technique was used throughout to analyze all meeting transcriptions to help compare, keep track of, and reflect on all ideas. Three themes were constructed based on the analysis: Awareness, Accessibility, and Generalizability that fosters Individuality. We conclude this manuscript by disclosing the challenges, successes, and messiness of this project. Moving forward, we encourage researchers to continue to conduct research that involves disabled individuals as knowers, and in mindful and meaningful ways, to respect their needs.

Background

Physical activity has been shown to have numerous physiological, psychological, social, and cognitive benefits. For example, studies have identified that individuals who engage in recommended amounts of physical activity may decrease their risk for cancer, type two diabetes, cardiovascular disease (Zhao et al., 2020), osteoporosis (Ferrer et al., 2022), and obesity (Ahmadi et al., 2023), while also reducing the likelihood of mental health disorders such as anxiety (Xiaoliang & Huaping, 2022; Zhu et al., 2019), depression (D'Angelantonio et al., 2022; Zhu et al., 2019), and schizophrenia (García-Garcés et al., 2021). To access these positive benefits, the United States Department of Health and Human Services (2018) recommends that youth be physically active for 60 minutes per day. However, research shows that a high percentage of blind and visually impaired youth are not meeting physical activity guidelines (Hou et al., 2023), and therefore may not enjoy these health-enhancing benefits. A host of barriers have been identified by

blind and visually impaired youth that may influence their ability to engage in recommended amounts of physical activity, including a lack of transportation, lack of accessibility, dependence on and lack of support from others, and a variety of personal barriers (Greguol et al., 2015; Gür et al., 2020).

Physical education (PE) is a class youth participate in throughout their K-12 education that is intended to provide instruction and experiences that promote physical literacy and lifetime physical activity participation (Spencer-Cavaliere & Rintoul, 2012; Walseth et al., 2018). As such, PE is a context that may help promote movement for youth during the school day, provide education for individuals to understand the importance of physical activity, and help develop the skills to lead a physically active life outside of the school context (Centers for Disease Control and Prevention, 2022; Colabianchi et al., 2016)

Currently, there are several limitations with the strategies suggested to enhance PE for blind and visually impaired youth. For example, most strategies to teach blind and visually impaired youth have been constructed from the perspective of non-disabled individuals (Eales & Goodwin, 2022) and lack input from blind and visually impaired individuals themselves (Keene et al., 2023; Maher & Haegele, 2022). Further, most research within adapted physical activity and adapted PE has been dominated by scholarship that fails to take into account the perspectives of the individuals researchers aim to represent (Spencer & Molnár, 2022). Thus, little is known about blind and visually impaired individuals' perspectives and opinions on strategies that may promote positive PE experiences (Keene et al., 2023; Peers, 2018)

Participatory research may help support disabled people within research more positively and provide a better understanding of the issues surrounding disabled individuals' needs and interests (Fitzgerald et al., 2021). Participatory research aims to interrupt normative research beliefs and utilize practices that are mindful of and meaningful for the individuals' research aims to represent (Peers, 2018) by working with individuals as active research partners within the research process and aims to provide agency through collaboration (Vaughn & Jacquez, 2020). Research partners are most often untrained in conducting academic research, but have life experiences that can contribute to a better understanding of the needs researchers aim to represent (Vaughn & Jacquez, 2020). As such, individuals who are part of this research project are referred to as *partners* as opposed to *participants*, posited by Smith et al (2022), as this is a better reflection of their role within the research.

Participatory action research (PAR) was employed to help increase the possibility for real-world impact and help amplify the voices of blind individuals and involve them in co-creating resources and recommendations to provide to PE teachers, in order to be more attentive and proactive to their needs and to facilitate more meaningful experiences (Cook-Sather, 2002; Spencer-Cavaliere & Rintoul, 2012; Walseth et al., 2018). With that, the purpose of this manuscript is to describe the experiences, from the

perspective of the facilitator and lead researcher, of co-constructing resources and recommendations for PE Teachers, with blind individuals as research partners, with the aim of enhancing PE for blind students. This manuscript aims to contribute to the limited body of literature that includes blind individuals within the research process, and more specifically, within participatory research. Additionally, and ideally, this will also contribute to the narrow use of participatory research within adapted physical education.

Methods

This study was rooted in a PAR approach, a qualitative research methodology that supports the participation of research partners to co-construct resources and recommendations to help enhance PE for blind students (Vaughn & Jacquez, 2020). Research partners were involved in conducting data collection, analyzing data, and constructing a product to disseminate to PE teachers and other invested parties (Baum et al., 2006). Under the assumption of an interpretivist paradigm, this PAR project aimed to construct knowledge from the perspective of the partners, instead of collecting it from passive participants (Eckhoff, 2019). The partners moved beyond traditional research power structures to make decisions within the research process and propose recommendations, resources, and ideas that may be beneficial to students and teachers, disabled and non-disabled alike. This process was demanding, required patience and time, and blended science and practice to help individuals understand one another (Bergold & Thomas, 2012).

Positionality & Reflexivity

As a researcher who identified as non-disabled, Ally aimed to be reflexive in her practice to avoid positioning herself as virtuously ethical and minimize the impact and perspective her own biases may have portrayed (Goodwin & Howe, 2016). Ally was aware that her lived experiences and assumptions may be different from those of the partners, and thus aimed to listen to the partners within this project to facilitate the research from their experiences and opinions (Adamson et al., 2022). Ally identifies as a cisgender White woman who has an interest in improving the PE experiences of blind and visually impaired youth. When the project took place, she had a master's degree in adapted physical activity and three years of experience teaching at a public school. Given the nature of their background and the proposal for this research project, Ally made every attempt to remain a facilitator of the project and allow the partners to guide the process. To do this, there were periodic check-ins to discuss needs, support, concerns, potential power imbalances, as well as roles with research partners. For example, research partners were asked if any other individual wanted to facilitate meetings, throughout the process, to check on power imbalances.

Partners

Blind individuals can provide unique, valuable perspectives on the world. As such, the willingness of the research partners to contribute to this project was invaluable, as the research could not have been completed without their knowledge, perspective, time, and efforts (Wendell, 2001). Requirements for this study included partners to have (a) self-identified as blind (B1 – i.e., no light perception in either eye or some light perception with an inability to recognize the shape of a hand at any distance or in any direction) (United States Association of Blind Athletes, n.d.), (b) no additional disabilities, (c) attended and graduated from high school in the US, and (d) been between the ages of 18-22 at the time of recruitment. Partners must also have had access a device to join interviews via Zoom and to complete any digitized information. The criteria for this study specifically required partners to be between the ages of 18 and 22 years, in order to support emotional and physical detachment from the school system (excluding school-aged students) while including participants young enough to have vivid and relevant memories when compared to those further removed from schools (excluding older participants). Additionally, perspective was able to be provided regarding reflection of their wishes and desires for PE, after experiencing physical activity opportunities and barriers post-school-age.

Research partners for this study were recruited via email using prior contacts, blindness and low vision databases, and various adapted sports organizations throughout the US. The email invitations detailed the purpose of the study, incentive structure (i.e., participants received a \$25 Amazon gift card at the completion of each meeting they attended as compensation for their time and input), and data collection procedures. As this study utilized a participatory methodology, partners agreed to participate throughout each stage of this project while maintaining autonomy to withdraw at any point in time, for any reason. An accessible Google form was used for partners to consent to participate in the study electronically. In the same online form, and on the page after completing the consent form, participants were asked to provide demographic information, reporting their age, gender, race/ethnicity, if their blindness was congenital or acquired, and what their vision level was while in high school and is currently. The questionnaire also asked potential partners to answer the following questions: ‘What year did you graduate from high school?’, ‘In which state did you attend high school?’, ‘Please describe your high school (approximately how many students, rural/suburban/urban, zoned school, vocational school, etc.)’, and ‘Can you please describe your high school physical education placement?’

Ally aimed to recruit ten partners; however, unknown circumstances and a potentially narrow criteria resulted in four individuals agreeing to participate in the study by the predetermined start date. Partners who participated in the entire project were given the option to disclose their names, providing autonomy to acknowledge their role within the project, or be presented through a pseudonym. Nina, Julia, and Andrew participated in the entire

project and each elected to disclose their actual names in the manuscript, whereas Marie is represented through a pseudonym as she opted to withdraw from the study at the conclusion of Stage One. The protocol was approved by the College Human Subjects Committee at the researcher's university at the time the research was conducted.

Nina

Nina identifies as a 22-year-old White woman whose blindness (B1) was congenital. She attended a suburban high school in New York with approximately 1200 students. She graduated from high school in 2018 and was in an adapted PE class.

Julia

Julia identifies as an 18-year-old White woman whose blindness (B1) was congenital. She attended a private high school with about 800 students, in the middle of a mid-sized city in Michigan. Julia graduated from high school in 2022 and was exempt from PE requirements during high school. Julia participated in PE throughout elementary and middle school.

Andrew

Andrew identifies as a 19-year-old White man, whose blindness (B1) was acquired prior to high school. He graduated from a public New York high school in 2021 and described his high school as being 'very small'. According to Andrew, the entire school, kindergarten through 12th grade, included approximately 500 kids; his graduating class was composed of approximately 35 students. In high school, he was in an integrated general education PE class.

Marie

Marie identifies as an 18-year-old Hispanic woman whose blindness (B1) was acquired. Marie went to three different high schools in the western US. The first one was a public school with over 2000 students. Following, she attended a school for the blind, and lastly graduated from a credit recovery school that had a class of about 150 students. Marie participated in stage one of the project and is a pseudonym for confidentiality purposes.

Procedure

This project took place entirely on Zoom for the convenience of all partners, as they were located in different geographic regions of the US. Meetings were scheduled based on the availability of each of the research group members. All meetings began with a statement reiterating the researcher's appreciation for the partners' commitment to the project, reminding partners to respect the privacy of others in the group, and restating their autonomy to withdraw or refrain from participating in any aspects of the project.

This study was composed of two stages of meetings. Stage one was composed of four Zoom meetings that consisted of group members sharing experiences, opinions, and discussions centered on how and what to provide to PE Teachers to improve PE for current blind students. This stage had two aims; The first, to understand the needs of the partners to successfully engage in the project, and the second, to learn about the partners' experiences and opinions regarding improving PE for future generations (Vaughn & Jacquez, 2020). Stage two was composed of 11 meetings and two individual working sessions. This stage involved constructing resources and recommendations to provide to PE teachers to help enhance PE for blind youth. Within each of these stages, and according to the Institute of Development Studies (n.d.), the facilitator was careful to avoid facipulation. Facipulation can happen when a facilitator manipulates the conversation in ways that force a set agenda or steers conversations in a particular direction because of preconceived opinions or feelings (Institute of Development Studies, n.d.). As such, the facilitator aimed to let the research partners guide meetings, times, and the duration of meetings as they saw fit. For example, most of the meetings were facilitated by Ally who provided open-ended questions to guide the meetings, such as "Is there anything you have reflected upon that you would like to share with the group?" "Do you have any ideas for how to construct something we can give to PE teachers to provide them with your recommendations?" "What do we want to work on next?" Within the responses and discussions that were prompted by the questions, thoughts and ideas shaped more questions, and eventually led to a group consensus of a product as well as a multitude of ideas for information to provide within the product.

Meetings began in October of 2023 and concluded in February of 2024. When the project began, the research group planned to meet each week. However, due to scheduling conflicts and other responsibilities, the weekly schedule was deemed to be unreasonable to maintain, and therefore, some weeks were skipped to reflect the availability of all participating individuals. Meetings ranged in time from 39 to 78 minutes, and most often concluded when partners had other obligations to attend to or expressed fatigue.

Data Analysis

After each meeting, Ally transcribed and reflected upon the conversations that occurred using a constant-comparative technique in order to consistently compare and reflect on the data presented (Boeije, 2002). Doing so allowed for the possibility of answering questions that had been previously posed and aided in the discovery of relationships between categories (Boeije, 2002). Additionally, this technique required the group to keep track of all ideas, which increased the probability of creating a product that is clear, close to the data, and could be well integrated and operationalized for use by PE teachers (Glaser, 1965). To ensure group consensus and accuracy, Ally verbally reported their findings from the previous meeting at the beginning of each meeting and provided space and time for group members to provide feedback and discuss any changes. Within the constant-comparative analysis,

Ally constructed three themes, which were discussed, modified, and agreed upon by all group members over the course of several meetings. When disagreements arose, they were discussed, and the group came to a consensual agreement. The themes highlighted both the opinions and desires of the research partners and guided the content of the resources and recommendations: *Awareness*, *Accessibility*, and *Generalizability that Fosters Individuality*.

The first theme, *Awareness*, described instances where the partners reflected about a desire to have been more aware of resources as a high school student, wanting to promote awareness of resources for future blind students and their teachers, and wanting to construct recommendations that brought about awareness to PE teachers of perspectives of being a blind student in PE class. The second theme, *Accessibility*, described the importance of the constructed online resource being usable and beneficial for both teachers and students, as well as the importance of accessibility for blind students to access and share materials. Lastly, *Generalizability that fosters Individuality* described the need to create resources and recommendations that could be used by a wide variety of individual preferences. These themes are embedded and exemplified throughout the subsequent meetings section and discussed further in the reflection section.

Meetings

We elaborate on the variable, confusing, and unclear situations that arose when completing this research project to provide clarity to future researchers as suggested by Fitzgerald et al. (2021). This includes direct quotes from research partners that highlight how and why some decisions were made throughout the process, in an attempt to minimize participants' feelings of being misrepresented, alienated, or betrayed (Peers et al., 2014). Stage one is presented below in a chronological order, which reflects the various tasks completed in each of the meetings. Due to the messy nature of stage two, which is not uncommon to participatory research (Fitzgerald et al., 2021), this stage is described in a task-based manner.

Stage One

Meeting One

The first meeting began with Ally providing space for the partners to introduce themselves and share about their personal experiences. Ally began by reading the following prompt:

This research is designed to learn about your PE experiences and how your experiences and opinions can help improve PE for future generations. Why don't we have each person share with the group a little bit about yourself and a quick synopsis of the experiences you had in high school PE that you recounted in the first interview with me.

After each partner shared their experiences, Ally shared their findings from a recent study exploring high school PE experiences among blind people (citation anonymized), which included three categories of information: meaningful recollections, what teachers could have done better, and what students wish they had learned. Ally. After providing this information, Ally verbally asked for the partners' initial thoughts and opinions. The partners then had an open discussion, during which Ally took notes and occasionally asked clarifying questions. The group verbally determined that they wanted the resource to be a framework for teachers, not a prescription, and that it was important for this resource to be made easily available and accessible to both teachers and students, centering blind individuals' voices, highlighting *accessibility*, and being a tool that could be *generalizable but foster individuality*. The second half of the meeting provided space for the group to discuss roles, needs and concerns, time to schedule the next meeting, and encouraged partners to reflect on the meeting after it concluded. At the end of the meeting, and throughout subsequent meetings, Ally let the partners know that they could contact her via email or phone if they wanted to discuss anything privately or wanted additional support.

Meeting Two

Meeting two revisited key points from the partners' prior experiences, and then inquired about their thoughts or recommendations that might be beneficial to provide to PE teachers, skills or knowledge they wished they had learned to promote physical activity as they transitioned into adulthood, their ideas for the construction of a product, and their thoughts about the next steps. The research partners were vocal that "it'd be really cool to do something online for the simple fact that then anybody could access it, and that is a really powerful tool" (Nina), noting the importance of *accessibility*. Julia furthered that statement, acknowledging Nina's thoughts:

I think having something that students can also find, might be really useful. And not all of the sections will be relevant to students, but having a space where students can have access to a compilation of 'this is what I could advocate for, if I so desire'.

Julia furthered the conversation of creating an accessible product that included resources that would promote *awareness* and *individuality*. After collectively agreeing to create a product that would be housed online, it was noted that "maybe, since we have a few sessions and stuff together, I think maybe dividing them [key points] up into topics and kind of trying to tackle one topic at a time might be really helpful" (Nina), who furthermore expressed:

I think talking about resources might be a good place to start because we all have different knowledge of them. I think that that could inform future discussions on techniques and different things available.

From this point, the group decided to discuss resources they knew about or had previously used and found helpful. Discussion took shape about organizations, adaptive equipment, self-advocacy, funding, and adaptations. At times Ally interjected to pose questions, such as “would you want to be part of that game with all of the other students who are sighted?” or “have you read through that?” in reference to a book recommendation, as the group moved through voicing their opinions and experiences regarding different resources.

Meeting Three

After analyzing the data from meetings one and two, Ally independently concluded that it was necessary to ask more in-depth questions to each of the partners to gain more clarification and insight regarding their individual opinions. Therefore, Ally structured the third meeting to inquire about the partners’ opinions on what they enjoyed within their PE experiences, how PE could have been a more positive experience for them, any beneficial resources that were accessed while they were high school students, and how they thought we could account for individual preferences within the group. Unique to other meetings, this meeting was heavily led by Ally, while partners answered questions regarding their opinions and experiences. This helped facilitate partner reflections on a broader range of topics and provided space for each partner to listen to the experiences and opinions of the other partners with specific regard to this line of questioning and thinking.

Aside

Prior to meeting four, Marie asked to further discuss the project in an individual meeting with Ally, inquiring about the pace of the project, her role, and her opinions on the discussion points up to this point in the project. After the conclusion of the aforementioned meetings, Ally analyzed the data from the first three meetings, and discussed it with the group during the fourth meeting.

Meeting Four

At the beginning of meeting four, the final meeting of stage one, Ally asked reflective questions about the partners’ needs and opinions of the project up to this point. Some of the questions posed included: Do you need any support within this project that you have not received? Do we want to redefine any of the roles? Do you have any other thoughts or concerns? Overall, there were no concerns, and the partners wanted to proceed with the way things were currently structured. Ally continued the meeting by explaining to the partners how she read, reread, coded, and developed themes from the data that was previously collected using a constant comparative method (Boeije, 2002).

The initial topics Ally identified as important for the construction of the content centered on accessible fitness opportunities, adaptive equipment, communication, PE relevance, and teacher qualities. Each of these topics

aligned well with the themes; for example, the partners wanted teachers and students to be *aware* of accessible fitness opportunities, options for adaptive equipment that could be used or purchased, how teachers could communicate with students, what PE elements would be most beneficial for blind students, and what teacher qualities they valued. The group then discussed the topics and organized them into two overarching sections, with three subsections each. The first section, 'Dear Teachers,' included the subsections *Teachers Attitudes, Behaviors, and Beliefs*, *Teaching Strategies*, and *PE Curriculum*. The second, 'Resources,' included *Accessible Fitness Opportunities*, *How to Adapt*, and *Advocacy*. At this stage, the two sections and three subsections represented manageable categories that became the outline for the website content. After this final meeting of Stage One, Marie decided to discontinue her participation, citing personal reasons.

Stage One Reflection

Throughout Stage One, various research intricacies were discussed, such as authorship, anonymity, how and what type of website to use to disseminate the product, how to avoid 'inspiration porn' (Young, 2012), website disclaimer decisions, and ethics, in which the group came to autonomous, and when necessary, unanimous decisions. Within this stage, it was noted that the partners wanted to ensure that the product highlighted that it was not representative of the needs or opinions of all blind people, emphasizing the need for the recommendations and resources to support *individuality*. The research partners spoke up and created a space themselves that was mindful of pronouns and other disabilities, as well as had an *awareness* of those within the group who had not spoken up and provided a space for them to share, voicing that their opinions and experiences also mattered.

Stage Two

Stage two was composed of 11 meetings and two individual working sessions. When needed, adjustments to meeting days or times were considered when individuals requested to make last-minute changes. On two separate occasions, research partners worked independently to provide feedback on the co-constructed resources and recommendations, and then reviewed each other's feedback as a group during the next meeting. Stage two started with Ally initiating a discussion focused on what information the group thought was appropriate to put within each section and subsection of the content (stage two, meeting one). The group verbally decided that the content should be a tool for teachers to use that promotes critical thinking and teacher-student collaboration versus a prescription, as *individual preferences* for accommodations, modifications, and feeling included may be different.

Worksheet Creation

When discussing information regarding the website content, a pivotal conversation occurred during the first meeting of stage two, which resulted in the creation of a worksheet intended to facilitate teacher-student collaboration. In particular, when discussing accommodations, modifications, and feeling included, Julia first noted:

I would want to go about it activity by activity to consider with the teacher what I might like to do, either instead, or to make it more accessible. I would want to bring some ideas, but I also would hope that a teacher would bring in ideas, too, because I know about my experience of being blind, but I wouldn't necessarily know about the objectives of all of the activities or the ins and outs of activities. And then, I think, with any accommodations, it's so important to think about what the learning outcomes that you are expecting from the sighted students, because if you're trying to make an adaptive situation, you need to make sure that those learning outcomes are constant, ideally you have basically the same activity. But if that's not possible, how do you still get the same learning outcomes?

As this conversation continued, Nina noted the importance of *awareness*, *accessibility*, and *fostering individuality*, touching upon each of the identified themes described in our analysis. Nina also highlighted the importance of creating equitable experiences for blind students in PE, acknowledging that safety also needed to be taken into account. However, it was not only the needs of blind students that were taken into consideration, but also the goal of providing teachers with a resource that would be beneficial to them long-term. Nina specifically commented:

I think outlining more of the thinking process that someone can creatively come up with some ideas on their own, as opposed to going sport by sport by sport. I think that can help them adapt their own stuff, and where to look for equipment and stuff. Versus oh, for the sport do this, for this sport do that, cause that's out there.

Julia continued the conversation, highlighting that providing an equitable experience in PE is not solely reliant on providing accommodations. She stated:

One more thing to add is the social component when you're considering these accommodations or adaptations, right? So, it's the learning outcomes, make sure those are the same, and then trying to minimize the social cost whether that be a student feels uncomfortable working with a partner, because they don't

have someone athletically equal to them, or whether that be, the student not wanting to miss out on the activity. There is a real social benefit to participating, or find[ing] an alternative, partly because of the social anxiety one can feel around PE as a blind person. I think that's also an important part of the equation.

Within the conversation, the need for autonomy was recognized, as was the secondary, and sometimes more important, benefits of students feeling included in PE. Andrew additionally noted:

I think it also depends on the person itself, because what might work for a fully blind person might not work for someone who has a little bit more vision.

Based on the preceding conversation, it became apparent that it was important to highlight the variance in accommodation needs within PE, not only due to differences between student personalities and preferences, but also vision level, stressing the need for *individuality*. This has not always been taken into consideration when providing adaptation recommendations for blind and visually impaired students within PE (Ruin et al., 2021). Nina additionally reinforced the desire to create a product that would provide teachers with a tool that would encourage autonomous decision making for both teachers and students. She stated:

I think that us illustrating the process is really important, because that teaches teachers and students how to think critically about the activity in a new way, and how to think through it and come up with alternatives on their own, because, maybe there's a specific school thing that they do. I think it's really important to show people how to figure that out on their own by giving them examples and resources, but also by outlining sort of step by step, of things to think about and ways to approach it, I think that's really important cause that is not out there as much, as you know.

Nina reiterated that there were many resources already created that describe ways to adapt sports and activities, whereas the thought process to providing adaptations and modifications should be individualized. As this conversation continued, Nina suggested that we should create a worksheet to help teachers initiate a conversation with students, as her experiences indicated that a lot of PE teachers don't know how to talk about successfully integrating blind students into PE. This conversation reinforced the many perspectives the group took into account throughout the project. For each member of the group, the importance of producing recommendations that recognized the need to consider both the teacher and the student, as well as the *individuality* of each student, informed a desire not to provide a set prescription that may only be relevant or helpful to a select few.

The group collectively agreed and proceeded with constructing the key elements of the worksheet, which would later be named “Collaborative Planning Tool for PE Accommodations” (e.g. Appendix A). Ally took detailed notes throughout the duration of that meeting, and then constructed the worksheet based upon the discussion. Partners independently reviewed the worksheet and provided their opinions for alterations after the meeting and over the course of the following week, using a feedback method of their choice. Julia and Ally met separately on this particular week, prior to the rest of the group, due to a scheduling conflict. They discussed the feedback provided by each of the partners. When the rest of the group reconvened (stage two, meeting two), Ally, Nina, and Andrew discussed each of the partners’ feedback, including the content of the discussions Ally and Julia had, as well as the wording of various elements. When the entire group met again during meeting three, they came to an agreement on the content of the two major sections, a *Teacher Section* and a *Collaboration Section*. They also wrote instructions and provided a place for the teacher and student to denote a chosen activity and a follow-up meeting time.

Throughout stage two, there were times when suggestions were mentioned, and partners freely expressed their agreement or disagreement with suggestions. For example, when discussing how students would follow up with the teacher regarding the accommodations, the research group had varying opinions. Nina voiced:

I agree. But I also, disagree. I agree in the sense that we don’t want to alienate blind students, and I think this should be instituted for all students. But I disagree in terms of, I think it might be a good idea even if we don’t make a formal [follow-up] worksheet or survey, but we give suggestions. Because we don’t want the collaborative worksheet tool to be completed in a vacuum, right?

Comments like these opened discussion points, which allowed for the research group to share varying opinions. Some partners reflected on their personal experiences, while others described and questioned hypothetical scenarios where they contemplated their desires for collaboration and a safe and supportive PE environment. At times, Ally would also provide their opinions from their experiences as a PE teacher. Through these conversations the group was able to come to agreements about how they wanted to construct the worksheet and proceed with the project. Overall, it took three meetings, and one independent working session, to construct the worksheet, that each member of the research group was satisfied with disseminating.

Website Content Creation

After the construction of the worksheet, the group decided to work through the *Resource* section (stage two, meetings 4-7) and then the *Dear Teacher* section (stage two, meetings 7, 9-11) of the website content. As

the group worked through the *Resource* section, it was reinforced that they didn't want to 'reinvent the wheel' in terms of creating new resources, but rather, they identified resources they wanted to recommend, including those that have been constructed well by others or have been created or endorsed by blind individuals. Highlighting individual preference, when discussing some of the resources, not all members liked or used each of the suggested resources. However, they noted that was due to their personal physical activity/exercise preferences and they wanted to include a variety of resources that would appeal to a variety of individual preferences. For example, Nina stated that she "love(d) mainstream things, like apple fitness, where [she] can share it with sighted friends, and both get something out of it," whereas Julia expressed that she "use(s) so few fitness apps" and "likes to use [her] brain as [her] fitness app", to which Andrew agreed. Similarly, Andrew and Julia both expressed loving to run with a tether, and opposingly, Nina would "personally, absolutely hate that." Overall, it was important to the group to bring about *awareness* of a variety of resources that were *accessible* and provided individuals with choices based on their individual needs and desires.

Similar to the construction of the worksheet, the content of the Website sections was discussed; Ally took detailed notes, and after meetings concluded she transcribed and organized the information into the Website document. Research partners then reviewed the document to ensure it aligned with the discussions and that they agreed with the information that was included. Occasionally, partners identified changes that were needed, such as adding how certain apps could be made *accessible*, providing explanations for certain information, navigating how some information overlapped with multiple sections, and discussing how we should best organize the data for consumers to access. The group also decided when they wanted to take on tasks independently, for example, Julia independently wrote a statement about advocacy, and Julia and Andrew wrote about their opinions under the *Teacher attitudes, behaviors, beliefs*, and *Teaching strategies* sections. Upon completion of those independent pieces, the group reviewed, edited, and agreed upon the wording and details for each section. Attention to detail was pivotal among the group, and they oftentimes scrutinized the structure, wording, and placement of each element to help ensure that critical details were not overlooked.

Throughout the discussions of which resources to include, the missions of the organizations that were being included were highlighted and debated. For instance, the group did not want to include organizations they found via Google search but did not have any personal experience with, as they thought that they might not be a safe and beneficial resource for blind individuals. Supporting this, Julia noted that 'if people want to find it, they can find it by Googling that. If I found it on the internet, anyone can find it on the internet.' There was also some disagreement regarding the inclusion of one

organization that aims to cure blindness, but oftentimes provides generous funding for blind students to receive adaptive equipment. Ultimately, the group decided to keep the resource listed within the content, noting:

Let's add it, because it's up to the people to make their choice. I know a lot of people have had success with it and I don't want to discount that option, especially in somewhere where adaptive sports isn't really super developed yet. (Nina)

Additionally, the partners were frustrated with some of the resources not being fully *accessible*, or easy to access, despite them being a resource for blind or other disabled individuals. However, it was also decided to list them within the content, since they found the resources themselves valuable, but noted that accessing some of them was “gonna be a miserable experience” (Julia).

Approximately halfway through the project, Ally, Angela and Justin decided to, after discussion, share content with and interview PE teachers to evaluate the product and provide their opinions on the usefulness, practicality, and comprehensibility of the content, after its completion. This was not part of the original plan of the research project, but was viewed as being an important addition to the project authentically developed by the research partners. During meeting eight, the group discussed who specifically should be recruited to offer feedback. Julia noted:

I think traditional PE teachers are probably most useful, but I wonder how many disabled students these teachers might have encountered, and I was thinking that might be helpful to get people who have both teaching experience, but also some more direct experience with disability. And teaching physical education specifically for disability... but in terms of getting different cross sections of people who have different perspectives on education and/or disability, and what that looks like from an educator's perspective.

Others shared their opinion based on their experiences with PE and adapted PE teachers, and how we could maximize feedback from varying perspectives. The group discussed and wrote questions that would be asked to the focus groups regarding their opinions of the content. Due to time constraints, Ally conducted the focus groups, the results of which will be part of a separate publication. It should be noted that this manuscript specifically aimed to provide information regarding the construction of the resources and recommendations to provide to PE Teachers of blind students.

Future Directions

The project will continue in other stages that will include revisions of the website content and the planning tool based on the initial PE Teacher feedback. Furthermore, dissemination strategies will be discussed and implemented, and both PE Teachers who currently teach blind students and

blind students will evaluate the utility and usefulness of the constructed resources and recommendations. Lastly, other evaluation and revision elements that arise, will be implemented, in order to continually evaluate and improve the website content.

Reflection

This research project was conducted in an attempt to position the *partners* as knowers, collaborators, and researchers to narrow the axiological gap within research and provide strategies to enhance PE for future generations of blind students (Peers, 2018). This study aimed to consider the need for non-disabled researchers in PE to more thoroughly take into consideration the knowledge, truths, and opinions of blind individuals (Peers, 2018). In alignment with Fitzgerald et al. (2021), we used this manuscript to expose the interworking of this participatory project to paint an authentic picture of the facilitator's experience with the process.

This project began without a clear vision for how the project would take shape, but with the hope that the research partners would have ideas and suggestions and lead the project in the ways they thought best, based on their personal opinions and lived experiences, deepening the collaboration (Muller-Schoof et al., 2023). For example, the decision to create a worksheet to facilitate discussion between a blind student and their physical education teacher was a unique idea constructed by the research partners. Notably, we attempted to deviate from cultural norms, by providing information within the constructed product about the need for teachers to consider student feelings and subjective experiences, that may have perpetuated unwritten and systematic exclusionary practices within PE (Kristén et al., 2022). Each meeting brought about new suggestions and ideas, shaping the product in ways that the group thought beneficial for blind students and PE teachers of blind students. In total, the construction of the first draft of the product, as described in this manuscript, took 19 weeks, with the group meeting as frequently as schedules permitted.

Based on the constant-comparative analysis, three themes that highlighted both the opinions and desires of the research partners, as well as the content of the resources and recommendations, were constructed by Ally: *Awareness*, *Accessibility*, and *Generalizability that Fosters Individuality*. These themes, in addition to this manuscript, were member checked and edited by all of the other authors. *Awareness* was highlighted throughout the project, as the partners wished for more awareness from their PE teachers, themselves, and others, reinforcing this in ways that took into account intersectionality, diversity, and personal preferences. *Accessibility* was also key, noting the importance of blind students' ability to equitably access PE class, and the product being accessible for both teachers and blind students. Lastly, within the theme *Generalizability that Fosters Individuality*, it was critical that the product was available for utilization by a wide variety of individuals and could be tailored to personal preferences. Overarchingly, it was pivotal to note that the *awareness* of blind students' needs and desires for accessible PE should

be prioritized and fostered through *individual* needs and preferences, which reinforced Charlton's (1998) "nothing about us without us" (p. 3) call to include disabled people in the development of resources, recommendations, and products that affect this population.

Toward the beginning of this project, Ally struggled with some suggestions that were made, afraid that this would become a resource of ideologies similar to those constructed by non-disabled, sighted individuals. For example, when discussing recommendations and resources, previously constructed recommendations for teaching blind students in PE were often referenced. In response to a call from Spencer and Molnár (2022) to examine paradigmatic trends in adapted physical activity research, Ally reflected upon, and furthermore discussed with the group, whose knowledge is privileged, and attempted to be mindful that if this resource recommended information constructed by sighted, non-disabled individuals, could perpetuate harmful normative practices (Eales & Goodwin, 2022). With the desire to advance understanding, challenge ideas, and change injustices, through meaningful research (Peers, 2018), Ally reflected and asked questions of the partners to gain a deeper understanding of their beliefs and opinions. As such, Ally believes that this type of transparency and discussion is necessary within participatory research in an attempt to address power imbalances and provide the opportunity for partners to voice concerns, challenges, and opinions.

The concept of creating a novel resource was challenging. Ally took the time to reflect upon how to communicate the goal of the project, wanting to amplify the partners' voices, while respecting their opinions, experiences, preferences, and views. Novice to participatory methodology, and with limited literature that includes disabled people other than as a participant within PE research (Spencer & Molnár, 2022), Ally leaned on Angela, who has extensive participatory research experience, for guidance on ways to address challenges and encourage group members to embrace and contribute to their full potential, which was complex (Muller-Schoof et al., 2023). Oftentimes, this meant discussing recommendations for next steps and Ally's reflexivity and positionality as the researcher and facilitator, wanting to ensure she was supporting the autonomy of and working with the partners and avoiding facipulation as much as possible (Institute of Development Studies, n.d.). At times, this also meant reminding the research partners that their experiences and opinions were valuable, without incorporating non-disabled voices; at other times, the partners would remind each other. For Ally, this reinforced the ideal that knowledge-production within participatory research should be a joint process between scholars, practitioners, and those with lived experience (Bergold & Thomas, 2012). Echoing prior research, and the sentiments of the partners within this group, collaboration was often key and demonstrated that perhaps a combination of knowledge and experience from blind individuals and PE specialists may result in better outcomes for blind students (Keene et al., 2023).

Throughout the project, there were times the partners acknowledged that “they didn’t know what they didn’t know,” such as not being familiar with resources, recommendations, or accommodations that might be available that they had never been exposed to (Muller-Schoof et al., 2023). A major strength of the three participating partners was their willingness to challenge narratives, assumptions, Ally, and each other. For example, Nina interjected during an early meeting regarding the use of pronouns, asking “would we be able to go over everyone’s pronouns? Because I just realized when we’re referring to each other, I don’t know how everyone prefers to be referred to.” An oversight on Ally’s behalf, as she had had individual conversations with each partner prior to the group meetings, this willingness to speak up helped create a higher level of respect among group members and acknowledgement of intersectional attributes. This is an important consideration for future researchers engaging in PAR with blind individuals.

Seemingly, each partner was willing to be vulnerable, step in where they saw necessary, and admit where their knowledge or experiences were lacking. When Ally inquired about additional resources that would support the partners throughout the project, none were requested, however, it was noted to reach out to her in the event something arose that would support their involvement. Ally had concerns that the partners would not speak up if there was something they needed, due to power dynamics or other factors, and tried to provide multiple avenues for partners to contact her or express concerns, such as providing them with her personal cell phone number (Fitzgerald et al., 2021). There were two occasions where partners requested and met with Ally independently, once due to scheduling conflicts, and another to gain further clarification and insight regarding the previous meeting. However, equal power distribution could have been evaluated more often throughout the project, between the research partners and Ally (Muller-Schoof et al., 2023). Ally would suggest that future PAR facilitators provide multiple, and potentially anonymous, avenues for partners to provide feedback, should they desire to do so.

In this project, listening to, respecting, and amplifying the voices of research partners to help develop products to enhance PE practices for future blind students was central to our goals, objectives, and ideals. With that, it seems fitting to conclude our reflection about the project by displaying an unaltered reflection from one of the research partners, Julia, about her experiences within this product. We do so here for readers to gain an understanding of the process by exposing the views of those who engaged within it, differing from those of Ally:

Participating in this project was an exciting opportunity to help shape physical education instruction. I participated in the research because when I was in high school, I had no idea how to adapt PE class, and my teachers decided I should be exempted from it. Although I didn’t mind this much at the time, looking back, I am disappointed in all of the learning I missed out on and

think that the lack of information I had was unfortunate. I had some accommodations in elementary and middle school PE class, but it wasn't until after graduation that I learned about the scale of adaptive PE opportunities. Because I was exempted from PE class in high school, I often felt that I did not have much to contribute to the research. I did have opinions on everything we discussed from my broader experience of blindness, my accessible physical activity since high school and my limited PE class in elementary and middle school, but I often felt like I was learning much more than I was adding to the conversation. The format of the research felt like a productive way to integrate various experiences from blind individuals, and the facilitation was an excellent guide, without influencing the content. Ally's experience as an educator was an invaluable resource, since none of the blind individuals had any sort of background in education, and we needed some working knowledge of curriculum development. I think the product of the research could have been richer with more participants, and I would have appreciated more individual voices as part of our synthesis. I am very glad I participated in this research; I was able to learn a lot and contribute to a resource that will hopefully improve PE education for future blind children.

Conclusion

In an attempt to produce research that is mindful of and meaningful for the individuals research aims to represent (Peers, 2018) and more positively support youth through research (Fitzgerald et al., 2021), this paper presents an attempt to move towards methodologies that challenge current research and prioritizes real-world impact by working with such individuals (Vaughn & Jacquez, 2020). We must continue to challenge current practices and provide opportunities for disabled individuals to infiltrate and positively engage with research (Fitzgerald et al., 2021), ideally helping to mitigate prior research that has been poor and tokenistic (Smith et al., 2022). In alignment with suggestions from Fitzgerald et al. (2021), we encourage researchers to be transparent about their experiences with participatory research, ideally adding to the conversation and approaching participatory research with greater scrutiny and awareness. Moving forward, in order to disseminate the product, scholars, practitioners, and others will need to be employed in order for the resource to reach as many individuals as possible, as the journals in which the research from this study will be published oftentimes do not reach the individuals whom they aim to impact (Chen et al., 2010).

Footnote

Identity first language is used (i.e., disabled person) in line with a social relational understanding of disability that supports the values and beliefs of identifying disability as being socially constructed through oppressive

systems (Adamson et al., 2022; Bogart & Dunn, 2019). The social relational model recognizes that physical activity can be impacted by both society and impairment and may differ based on a plethora of factors (Martin, 2013).

Additionally, the website that was created as a result of this project can be found here: <https://www.odu.edu/movement-health-disability/resources-and-recommendations-for-pe-teachers>.

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Appendix A

Collaborative Planning Tool for PE Accommodations

Instructions:

This worksheet was created by blind individuals and is intended to help PE teachers talk with their blind students to create a more equitable PE experience that meets the needs of the student and the objectives of the lesson plan. Please keep in mind that this worksheet is meant to facilitate teacher-student collaboration.

Teacher Section (complete prior to meeting with student):

Unit:

Learning Objective(s):

Skill Application (outside of PE):

Collaboration Section (teacher and student complete together)

Adaptations to Class Activity (changes that make the activity more equitable to the blind student, such as the use of adaptive equipment)

Teacher's ideas:

Student's ideas:

Activity Alternatives (if desired, but should still meet the learning objectives and application to the greatest extent possible)

Teacher's ideas:

Student's ideas:

Concerns (Think about concerns you both have about the original activity, adaptations, and alternatives)

Teacher:

Student:

Chosen activity/accommodations (should be agreed upon by the teacher and the student):

Follow-up: How often and how do you (student) want to check in?

Next meeting date: