

**Overcoming Trauma with Physical Activity: Implementing Edutainment within a High School Physical Education class**

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The onset of the COVID-19 pandemic, combined with the racial trauma in Minneapolis, Minnesota, has been named the "twin pandemics." While physical activity has numerous benefits, including mental health, physical activity declined significantly in youth during the COVID-19 pandemic. The problem of practice seeks to address high school students' low motivation within physical education classes, contributing to low levels of physical activity and poor mental and physical health, exacerbated by the twin pandemics. "Edutainment" integrates education and entertainment to enhance the participant's learning experience. The theory of improvement suggests that incorporating edutainment with physical activity will effectively increase students' participation and motivation within physical education courses to improve their exercise routines and overall health. At Henry High school, I implemented an edutainment model called PHAT Tuesday (Physically Healthy @ That). This program consists of the Minnesota National Guard working out with 9<sup>th</sup>-12<sup>th</sup> grade students weekly on Tuesdays for eight weeks during the school year (45-minute sessions) and during summer school for four weeks (130-minute sessions). Measures included post-program focus groups with districtwide summer school students housed at Henry high school and guest mentors about their perceptions of the program and its impact on the students and observations and field notes collected weekly by the primary investigator during the summer sessions. Data analysis of the focus group transcripts used the content analysis method of coding to identify key categories and

themes. The findings show adolescents increased their motivation, participation in the physical education settings, and interactions between the guest mentors and their peers. However, for future implementation of the PHAT program, district stakeholders, HPE teachers, and school administrative support must be on one accord. Policy changes may need to be implemented to allow guest mentors to attend the building regularly to teach physical education courses. Funding for a future program will ensure that PHAT can be sustained, yielding important benefits to the students and community partners.

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## **Preface**

*Ubuntu, I strive to live by this principle of this beautiful African philosophy. Ubuntu, I am what I am because You are my Village. Thank you, God, for my village and for teaching me my purpose.*

## **1.0 Naming and Framing the Problem of Practice**

### **1.1 Broader Problem Area**

The coronavirus (COVID-19) pandemic surprised the world. No one was prepared for the magnitude and uncertainty of a total shutdown in the remaining months of 2019. After the COVID-19 pandemic was declared worldwide in March 2020, the world began to shut down country by country and eventually reached a complete standstill (Raju et al., 2020). There was chaos, confusion, and increased social isolation and mental illness. However, even during these uncertain times, educators worldwide did not stop teaching. Educators had to adapt quickly and get technology to their pupils to educate the children they serve. Because of these new realities, the profession has been further complicated by the changing environment of distance learning, hybrid, and in-person learning. This new reality took a toll on teachers and students during these uncertain times due to COVID-19.

On top of the COVID stress experienced by educators and students, racial trauma and social unrest were also heightened in 2020, with Minneapolis, Minnesota, as the epicenter. National and international tragedies, like the murder incident with Mr. George Floyd, triggered racial trauma and social unrest in Minneapolis, Minnesota, and worldwide. Racial trauma and violence paired with COVID-related trauma and illness have been called "twin pandemics" (Landertinger et al., 2021). The adverse effects of these "twin pandemics" on health and wellness are an emerging area of research that we are beginning to understand more. In traumatic times, health and exercise are even more essential tools for coping and supporting overall wellness (Wunsch et al., 2022). Traumatic events cause a direct threat to your body; bodies may shut down psychologically and

physically, and some people experience deep depression. Particularly for black students who knew someone affected by COVID-19 that either died or needed their care and support (CDC, 2020). In addition, to the COVID stress, "*racial trauma*" historically affected black people with the widespread white supremacy injustices that many saw in their communities (Elias et al., 2021).

In traumatic times, health and exercise are even more essential tools for coping and supporting overall wellness (Wunsch et al., 2022). Adolescents living in stressful conditions need additional support to ensure that they are building healthy coping strategies. Physical activity can improve one's mental health. Research studies during Covid-19 showed young people dramatically stopped exercising (Puccinelli et al., 2021) as the pandemic lockdown reduced opportunities to be physically active at school and in the community. Concerns and mitigation efforts surrounding COVID-19 transmission and deaths forced people worldwide to self-isolate at home, leading to marked declines in their mental health (Okuyama et al., 2021). There has been an uptake of mental illness that could cause students harm (Delpit, 2021).

The 2018 Physical Activity Guidelines for Americans recommend that children and adolescents ages 6 through 17 participate in moderate-to-vigorous physical activity daily for 60 minutes (1 hour) or more. This includes a combination of aerobic, muscle-strengthening, and bone-strengthening activities. However, most young people do not meet the daily recommendations for exercise (2018 Physical Activity Guidelines Advisory Committee, 2018). There are many barriers to adolescents achieving the recommended levels of physical activity, such as limited space and time to effectively teach children to move their bodies to exercise 60 minutes a day (The State of Childhood Obesity, 2020).

Some research shows that physical activity can increase through physical education (PE) classes. Evidence shows that changing PE requirements may increase students' physical activity

(Zheng et al., 2021). Unfortunately, barriers include youths' negative attitudes towards physical activity combined with a lack of equipment and PE classes that do not engage students' interests and choices. Evidence shows that high school PE classes have been unengaging for adolescents due to untrained teachers, low resources/equipment, and peer social norms not encouraging physical activity (Sliwa et al., 2017). There is also evidence that children spend little time in moderate-to-vigorous physical activities during class.

It is a charge for PE teachers to ensure that students are actively working out and building healthy exercise routines both in and outside of class. It is challenging to motivate high school students who are not physically active to become concerned about their health and wellbeing, even under normal circumstances. The "twin pandemics" of COVID-19 and racial trauma have further complicated what PE teachers can accomplish with their students. It is challenging to support healthy lifestyle routines during distance and hybrid learning when students' lives have been abruptly disrupted, and motivation and engagement are low overall. However, this also presents an opportunity for the PE teacher to develop fun, innovative lessons, including implementing physical activity "*edutainment*" (education + entertainment), to improve students' physical activity behaviors, motivation, and participation in the PE classroom.\

## **1.2 Organizational System**

### **1.2.1 School District**

The Minneapolis School District was founded in 1834 and currently has a population that serves 32,722 children with a total of 96 schools. Approximately 70% of students are racial/ethnic

minorities, and 37.5% are economically disadvantaged. The district's core values are urban education and equity, and its vision is to ensure that every child is career and college ready. The school district follows Minnesota PE K-12 standards. It has a mission statement that supports all students to have the skills necessary to participate in a variety of physical activities (Minnesota K-12 Academic Standards Physical Education, 2018), including that students should:

- Know the implications and the benefits of involvement in various physical activities.
- Participate regularly in physical activity.
- Be physically fit.
- Value physical activity and its contributions to a healthful lifestyle.

The district mission statement also states that it seeks "...to enhance the healthy development of the whole child. We exist to educate and support all students in gaining the skills, knowledge, and social confidence to help students make healthy decisions throughout their lives."

Minneapolis Public Schools followed the Governor of Minnesota's quarantine policies and procedures for back-to-school safety guidelines during the pandemic of COVID-19. On March 16, 2020, the entire school district moved to online learning, and in the following school year (September 2021-2022), all educators returned to teaching in-person in the school building. During these uncertain times, the focus was on getting all students back to a school building either in-person or in a newly formed, districtwide, online K-12 program. The school district rushed back to school without teacher feedback, which led to feelings of discontentment and undervalued. Consequently, this contributed to teacher burnout and low motivation, negatively affecting their students.

### 1.2.2 Patrick Henry High School

Patrick Henry High School ("Henry") is in urban North Minneapolis, Minnesota. The school serves 951 primarily African American, Hmong, and Latinx students. There are 200 staff in the building serving in various roles, four administrators, one principal, two assistant principals, and one teacher on a particular assignment focusing on special education administration. Of the 65 teachers, the majority are white. Forty-five of the 65 teachers were new to the building in 2021-2022, indicating a high turnover rate. In the aftermath of George Floyd, the school changed the focus to integrate more training on racial equity, and many of the older staff left. The mission/vision statement for Henry is below:

***Mission:***

*Patrick Henry High School is a diverse community that values and supports the experiences of inquiry and learning through meaningful opportunities that bring intercultural understanding to our students, our staff, our neighbors, and our world.*

***Vision:***

*Patrick Henry is a community where all stakeholders will work systematically to close educational and opportunity gaps to become a stronger, higher-performing IB World school ensuring that all students are college, career, and life ready.*

The health and physical education (HPE) department have four teachers, including myself. All these teachers are white and have been at this school since graduating with bachelor's degrees. When I was hired for the 2021-2022 school year, I replaced a teacher that recently retired after teaching at Henry for 30 years. All students must take one semester of HPE courses between 9<sup>th</sup> and 12<sup>th</sup> grade for graduation, equivalent to a little less than six months throughout their high school career. This HPE course ("Fitness for Life") is held five days a week for one semester. The HPE policy was that students needed two years to graduate, but this



requirement was changed in 2014. Due to COVID-19, the district made a policy change that students no longer have to change clothing in order to participate in PE class; that policy is still in place today. No wonder students lack motivation with physical activity because the district changed these policies, essentially communicating to students and other stakeholders that physical activity is unnecessary. I am an African Trinidadian American woman who teaches high school HPE. My teaching assignment at Henry during 2021-2022 was a PE teacher primarily focused on three sections of the required PE course called "Fitness for Life." I also taught two weight training sections, an elective course. The majority of the students in my classes are upper-level students in 11<sup>th</sup> and 12<sup>th</sup> grade. COVID-19 negatively impacted the physical activity and academic performance of my students. After returning to in-person school, many students still had the mentality of not participating in a required PE course. By displaying non-participatory behaviors of refusing to do warm-ups, changing their shoes or wearing appropriate gym clothes, sitting out of class, and expecting a passing grade. This behavior I observed led me to believe that COVID-19 had a negative impact on your students' motivation and participation in physical activities. Another challenge at Henry is that the gym door divider is not working, and I must share the gym space with another teacher. My colleague teaches elective courses, and I teach most required courses. My students lack self-control and physical boundaries because the divider is not there. Hence, they often cross over to the other class to play basketball and are disrupted by other students.

COVID-19 changed the trajectory of my teaching habits. As an educator, I aim to create safe spaces and fun opportunities for my students. As an HPE teacher for Minneapolis schools, I saw a need to motivate my students during the pandemic. I created CrossFit Wednesdays with the National Guard of Minnesota at my previous high school during the

COVID-19 quarantine in the Spring of 2020. Every Wednesday throughout the school year, I taught CrossFit Wednesdays online to my students. This virtual fitness collaboration with the military implemented weekly exercise programs with high school students. At the time, I was not aware this was an edutainment with physical activity. Other individuals also joined our live sessions on various streaming platforms (i.e., Google Hangouts, Facebook Live, and YouTube). I was fortunate to be featured on the local CBS news for this new program, which was well-received by the district and other stakeholders.

## **1.3 Stakeholders**

### **1.3.1 Teachers**

Overall, the teachers' sentiments are vital to understanding my problem of practice. As I stated, teachers must change their mindset and approach to engage their students in physical education classes using in-person or online tools. I conducted empathy interviews with four secondary school teachers in Fall 2021 that work for the Minneapolis school district. These teachers' roles are to educate and deliver their subject matter curricula to their students online or in person. They all understand they are vital stakeholders in supporting students' motivation during these uncertain times. They report directly to the assistant principals and the head principal.

The stakeholder analysis revealed that the teachers are concerned with how the current policies are implemented. Teachers had two classes concurrently, and every student received a passing grade. The interviewees seemed to agree that the district did not handle the pandemic response by teaching online and supporting PE teachers because the teachers did not receive any

effective training for online PE. It was highlighted that administrators and district-level stakeholders also need to be open to changing the policies and procedures that they are currently using to adapt to these ever-changing COVID-19 circumstances. There was no policy for grading or receiving a credit, no credit, and no concrete curriculum for PE when the pandemic started in 2020. According to the teachers, they were doing more busy work than truly teaching and motivating our students, which created burnout. I conducted my interviews before the Minneapolis Teacher Strike. I have learned many teachers I interviewed are leaving the district due to the lack of support from the district union and students not participating in their courses. Unfortunately, the lack of motivation and participation is applied to the teachers and staff because teacher burnout also negatively impacts student engagement and performance.

### **1.3.2 Health and Physical Education Teachers**

There is a total of 4 HPE teachers at Henry, including myself. All the HPE teachers are white and have worked at the Henry school their entire teaching career. The PE department lead teacher has worked at Henry for over a decade. Before I started my new job at Henry, several students were killed due to gun violence. The lead PE teacher shared she could not focus on educating and delivering curricula to their students online or in person. My previous school in the district also experienced the same fate, with young men (students) being killed. The teachers understood how they play critical roles in supporting students' motivation in their classes during the pandemic. Still, unfortunately, they were facing trauma and unrest that directly impacted their teaching of the students in Minneapolis. All the teachers were concerned about the wellbeing of the student's mental health and noted decreased motivation and participation in their HPE classes.

### **1.3.3 Students**

Students are essential stakeholders. Many of my students are youth of color from North Minneapolis, living in a city that has increased gun violence. Students tell me their parents will not allow them to exercise or play at the park due to social unrest and safety concerns. All students suffered challenges with social skills and lack of physical activity. Many noted their mental health had been the most significant factor affecting their participation in school. The pandemic contributed to social and academic delays in students, the ramifications of which are still seen and experienced today within the PE classroom.

In addition, many of the students could not be physically active during the pandemic. Therefore, my challenge is knowing that "Fitness for Life" is a required course for graduation, yet many of my students are not motivated to do activities after returning to school. My students are not motivated to get a grade because, during COVID-19, every student received a passing credit score; unfortunately, many still have that mentality.

The central problem is that students view elective classes they can choose as more fun than the required classes, such as "Fitness for Life." I must change the students' mindset toward this required course to engage these young people in participating and learning fitness tools they can use later in life. My students experience many challenges influencing their motivation and participation in school learning activities. However, I aim to turn this mindset into positive encounters with guest mentors and edutainment.

### 1.3.4 Community Partners

The community is an important stakeholder and essential to running schools and programs effectively. I have recently developed a relationship with the Minnesota National Guard, who have been great partners in assisting with physical activity programming within the PE classroom. According to the website, the MN National Guard values its partnerships with agencies and organizations across the state, saying, "*We serve in the community and want to be representative of all communities, cultures, and ethnicities in the state*" (2022 Minnesota National Guard, 2022). In addition, it has been a win-win collaboration with having the military attend the classes. During empathy interviews and discussions during the school year with the Guard members, they informed me that many young people who apply for Bootcamp do not pass the physical tests. Therefore, they are invested in my high school students to promote their health and wellbeing, an essential matter for individuals and national security. Many of my upper-level students have enjoyed these guest mentors. I have three students that have committed to attending college and joining the pathway of the ROTC captain school for the military. In addition to the military, I have brought professional athletes and health coaches to the classrooms. In the past, I have seen these community partnerships contribute to an increase in student participation and motivation. For example, students have asked military Bootcamp follow-up questions, and the experience piqued their interest in healthy lifestyles.

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*of all communities, cultures, and ethnicities in the state"* (2022 Minnesota National Guard, 2022). In addition, it has been a win-win collaboration with having the military attend the classes. During empathy interviews and discussions during the school year with the Guard members, they informed me that many young people who apply for Bootcamp do not pass the physical tests. Therefore, they are invested in my high school students to promote their health and wellbeing, an essential matter for individuals and national security. Many of my upper-level students have enjoyed these guest mentors. I have three students that have committed to attending college and joining the pathway of the ROTC captain school for the military. In addition to the military, I have brought professional athletes and health coaches to the classrooms. In the past, I have seen these community partnerships contribute to an increase in student participation and motivation. For example, students have asked military Bootcamp follow-up questions, and the experience piqued their interest in healthy lifestyles.

#### **1.4 Statement of the Problem of Practice**

The problem of practice is Henry high school students' low motivation in PE class, exacerbated by the twin pandemics of COVID-19 and social unrest, contributing to low physical activity levels and poor mental and physical health overall. The students have suffered with the twin pandemics, and it is time to show care and support to our students that have been affected for too long. The public health crises of childhood obesity and mental health can be addressed with physical activity and support from family, peers, community, and teachers. Physically healthy students do better in their core academics. In addition, students that learn fitness fundamentals earlier in life will do better in their adult years.

My PE students have exhibited a lack of motivation at Henry. The students refused to participate in PE class, did not change their clothes when they participated and were socially behind due to being out of school for a year during the pandemic. These many factors have been attributed to their lack of participation and motivation. This past year has been extremely challenging for students, families, and school stakeholders with the COVID-19 pandemic, ongoing social unrest, and the Minneapolis Teacher Strike. Students have witnessed friends die from gun violence and drug overdose, plus it has not been safe to walk down the street to the park for fear of random gunfire. Due to these safety problems, having fun and safe school spaces is paramount to being physically active. As an HPE teacher with the honor of being chosen Minnesota Teacher of the Year Finalist 2021, I am in an optimal role to increase the physical activity levels of my students. Any slight change introduced into the system to impact students' motivation and participation within the PE setting is feasible, given my current role.

### **1.5 Review of Supporting Knowledge**

In the following section, I review the supporting knowledge to support understanding the problem of high school students' low motivation and participation in PE class and low levels of physical activity. These barriers to physical activity for high school students are further compounded by the "twin pandemics" of COVID-19 and the racial trauma and social unrest that followed the murder of George Floyd. I end with reviewing some promising approaches to promote physical activity in adolescents and the strengths and limitations of edutainment to increase their physical activity.

### **1.5.1 The effect of COVID-19 on adolescents' health and wellbeing**

While young people were not stricken as harshly by COVID-19 compared to adults, they faced many unintended consequences as a result of the closure of schools and other public places. Adolescents were negatively affected by not being able to be with friends socially or participate in physical activity at school or in their communities. Mental health issues also increased among children and adolescents during school closures. A systematic review of 36 studies from 11 countries reported high anxiety and depressive symptoms among children following the COVID-19 pandemic (Viner et al., 2022). Screen time and social media usage also increased, contributing to depression, anxiety, poor sleep, and low physical activity (Cachón-Zagalaz et al., 2021). Increased sedentary time has also contributed to higher levels of obesity because of the pandemic, which was already higher in racially/ethnically minoritized populations. Cumulatively, these studies revealed the adverse effects of the pandemic on adolescents' mental health and physical activity.

### **1.5.2 Trauma Awakening to Racism**

While the COVID-19 pandemic resulted in mental health trauma for many adolescents, the world simultaneously encountered the "twin pandemics" of COVID-19 and racial trauma. Minneapolis, MN, was the epicenter of this racial trauma in May 2020. George Floyd was killed horrifically by the Minneapolis Police Department, and his death was filmed by an African American Minneapolis high school student. The world saw the brutality of what racism looks like in real-time, and the world erupted in protests, and the city unrest became unbearable.



All creeds and colors joined in the fight for racial unity. White people had an awakening that they may not have seen before with the trauma associated with black people in the aftermath of Gorge Floyd (Onwuachi-Willig 2021). White people essentially shifted their thinking on the components of the "cultural trauma narrative." Racial trauma disproportionately affects the African American community more than others due to our country's history and makeup (Landertinger et al., 2021). Unlike their peers, African Americans must combat racial traumas daily, and it's imperative to relieve the stressors to help their mental health.

### **1.5.2.1 The Benefits of Physical Activity**

Physical activity is a significant health behavior that can promote mental health and healing from trauma; however, most young people do not meet the daily recommendations for exercise (Biddle et al., 2011). The Physical Activity Guidelines for Americans recommend that young people be active for at least 60 minutes per day (Physical activity guidelines advisory committee, 2018). Regular physical activity is associated with many benefits in children and youth, including reduced depression and anxiety, increased focus, and improved mood. Other benefits include increased muscular tissue that will assist in developing their joints, bones, and muscles. Regular physical activity can also improve adolescents' cardiovascular system by making their hearts and lungs more robust, creating stamina to sustain an exercise routine. Students will eventually develop more coordinated and controlled movements, enhancing their neurological awareness. Physical activity helps to maintain a healthy body weight and to address the childhood obesity epidemic.

Moreover, evidence suggests that physical activity can positively affect students' academic achievement. Physical activity has been linked to improved reading and mathematics due to the brain's functions, and physical activity and aerobic fitness enhance the cognitive ability to pay

attention. Given the numerous benefits of physical activity, schools should pay attention to and implement long-term physical activity programs to improve health and benefit the whole student (Donnelly & Lambourne, 2011; Kohl, 2013).

### **1.5.2.2 The Role of Physical Education (PE) in Physical Activity Promotion**

School settings are ideal for students to participate in physical activity. Children can accumulate most of their daily physical activity in school via PE class, recess, activity breaks, and active transport to school (Biddle et al., 2011). Physical activity minutes can be accumulated in PE classes, and public health organizations have designated students to spend more time in PE classes. Some research shows that physical activity can be increased through PE classes in school. For example, there is evidence that changing PE requirements alone may increase a student's physical activity (Gao et al., 2015). Another study by Palmer et al. (2018) showed that when students were given a choice of fun activities in PE class, their motivation and overall physical activity slightly increased. However, researchers have also found that students who participated in PE were not sufficiently active or met physical activity guidelines, even before the COVID-19 pandemic (Kohl et al., 2012). The 2018 Physical Activity Guidelines for Americans recommend that children and adolescents ages 6 through 17 participate in moderate-to-vigorous physical activity daily for 60 minutes (1 hour) or more. This includes a combination of aerobic, muscle-strengthening, and bone-strengthening activities. However, most young people do not meet the daily recommendations for exercise (2018 Physical Activity Guidelines Advisory Committee, 2018).

For high school students, PE classes may also present barriers to physical activity (Ferreira et al., 2022). For example, many difficulties are limited space and time to effectively teach children to move their bodies to exercise 60 minutes a day (The State of Childhood Obesity, 2020).

Unfortunately, PE classes also have reduced instruction time which has not given students an adequate amount of physical activity (Physical activity guidelines for Americans advisory committee, 2018). In addition to PE classes being too short and students not getting the recommended amount of exercise, students do not have to take required courses throughout the year due to shortened one-semester schedule requirements. Finally, the challenge of having adequate equipment also takes away the enjoyment of the activities (*The Public Health Advocate*, 2019).

### **1.5.2.3 Promising Approaches to Encourage Adolescents' Physical Activity**

PE teachers should structure their courses to include three fundamental principles of instruction to increase adolescent physical activity and engagement within the PE class: choice, social connections, and fun. PE teachers will succeed by following this approach and hopefully improve students' motivation for physical activity in PE class and over their lifetime. Physical activity by enforcement is not successful with youth. Sports are typically limited to one skill set in that activity. Researchers have suggested the only way to improve adolescent health is through a multilayered approach that comprises learning PE and structured interventions of compelling opportunities for intentional daily physical activity.

*Offering choice.* One principle for physical activity instruction is offering students a choice of activities. Researchers in one study found when they offered students choices of different activities (e.g., racquetball, team games), the students were more active than when they did not have choices (Corder et al., 2013). In this study, 73.7% of students enjoyed PE courses with various options, particularly fitness classes, weight room, dancing, and racquet sports. Adolescents showed interest in more types of physical activity with the opportunity to choose courses offered throughout the day. Importantly, this study brings into question typical current PE

practice. Usually, students are not offered a choice as a part of their schooling. However, this study suggests that they would benefit from having those choices.

*Attending to social needs.* Another principle for improving physical activity in adolescents is carefully listening to their social needs. One way this can be done is through offering opportunities to exercise with family or friends. Social connections are essential needs of belonging to a group. Social connections are a psychological need desired by humans, which begins at inception and throughout our natural life (Murphy, B. 2015). A study was conducted among minority youth and found that peer interactions played an essential role in PE courses (Gill et al., 2017). This study also concluded that family support is necessary for students of color to participate in physical activity outside school. Another study showed that in schools with a positive environment, including feelings of safety and a sense of connectedness with peer support, adolescents' physical activity increased, and fights in school decreased (Rajbhandari-Thapa et al., 2022). Social connections, including encouragement from peers, family members, and schools, have been associated with improved physical activity participation in youth (Hohepa et al., 2007).

*Making physical activity enjoyable.* Another principle for increasing physical activity in adolescents is incorporating the fundamental principle of fun or integration of enjoyable activities. Young people benefit from having enjoyable experiences and will increase their physical activity when physical activities are fun (Weiss et al., 2000). In this review of over twenty studies, the author concluded that children and adolescents enjoyed high-action games and opportunities, affirming the importance of social connections and friendships during play.

Rowland and Freedson (1994) coined the term "turning children on" to physical activity. Turning children on to physical activity will help young people become excited to exercise and keep them returning for lifelong fitness. This is a crucial part of the role of PE

teachers. Enjoyment has to do with increased physical capability, which further encourages activity. Increasing a student's physical competence will boost their self-esteem and predicts motivation to participate in fitness activities in the future (Weiss et al., 2000).

PE teachers should have multiple strategies to motivate their students and reinforce their personal improvement goals. These strategies include but are not limited to providing positive feedback (praise) and sharing fitness scores that indicate students' physical fitness (Rink, 2013). Researchers have suggested that adolescents' essential markers are the goals of the attraction to physical activity. For example, the satisfaction in various sports such as "club volleyball, Little League baseball, age-group swimming, and high-level figure skating" (Scanlan & Simons, 1992). Full-bodied group and single exercises demonstrated secure social connections, support, and participation from parents, teachers, coaches, and peers. These positive interactions resulted in personal achievements of completing mastery in a particular sport or activity followed by a change in progressive behavior motivation.

#### **1.5.2.4 Edutainment to Support Adolescents' Physical Activity**

The COVID-19 pandemic and the unrest in Minneapolis, Minnesota, happened simultaneously when students in Minneapolis had to stay home due to the social distancing rules. The streets were also unsafe to participate in physical activity because of gun violence and the uprising of various groups traversing the roads. Mental health was at an all-time high for everybody, especially children. Edutainment applications for young children became the new normal for multiple subjects in distance learning. It was not the norm to use edutainment applications in physical education classes, but I had to adapt my traditional PE activities practices quickly to effectively engage students in the online learning environment.

Before the COVID-19 pandemic, edutainment applications for children focus on providing sound entertainment and educational aspects. Still, to enhance the mental health crisis in children, edutainment applications should also consider a child's emotional state during interaction in school (Guran et al., 2022). Furthermore, developing healthy emotions through testing the ideas of an edutainment curriculum for children should positively influence the learning outcomes in school.

One study shows PA game-based edutainment methods are in-line with the development of children's mental and social benefits to promote students' devotion to learning and abilities to internalize knowledge. This method shows students enhance their focus, pushing up the "psychological satisfaction" and "psychological pleasures" (Shi et al., 2020). The research results shed the importance of developing an edutainment curriculum to increase student mental health.

There are several ways of incorporating edutainment and Technogym fitness equipment (<https://www.technogym.com>) into PE classrooms. A novel technology to promote physical activity in young people incorporating virtual reality within the PE classroom can promote excellent outcomes in motivating young people to exercise (Gil-Espinosa et al., 2022). Young people's motivation to play video games is an enticing opportunity to incorporate exercise with active video game technology. Choices are also crucial with active video games to promote physical activity in children and youth (Biddiss, & Irwin, 2010.) Other strategies include smartphone technology to promote physical activity and decrease adolescent sedentary time. One study used exergaming by testing virtual reality interventions to increase youth physical activity enjoyment, self-efficacy, and motivation (Faric et al., 2019). Virtual reality can aid users in experiencing physical activity in new and exciting settings or circumstances, which can help the user's exercise performance (Tal & Wansink, 2011).

Edutainment is an enhancement of the traditional educational process. Multiply ways edutainment could be organized into categories. "Interactive and participatory where children can play and participate in the game, and non-interactive and spectator Edutainment by purpose and content consists of informal education which is to improve learners' life control and skills education which is to give experiences, like simulations." Motivation-oriented edutainment centers focus on student groups. These learners have the same interest and age range (Rapeepisarn et al., 1970).

More cost-effective edutainment approaches could include bringing community partners or guest speakers to interact with PE students to provide a novel and fun experience. Children learn through various educational opportunities. There is evidence that bringing in guest speakers has been effective in a classroom setting, for example, in history class reading about the Holocaust and meeting a survivor (Ballis & Schwendemann, 2021). I could not find any literature that specifically detailed the use of guest speakers/mentors/community partners in a PE setting to enhance learning. However, having guest mentors participate in physical activity with high school students has the potential to be successful since it has worked in other classroom settings.

## **1.6 Synthesis**

The “*twin pandemics*” have resulted in a lack of motivation and participation in PE classes, and physical inactivity in youth remains a public health crisis. Researchers have suggested the only way to improve adolescent health is through a multilayered approach that comprises learning PE and structured interventions of compelling opportunities for intentional daily physical activity. However, physical activity by enforcement is not successful with youth. Traditional sports are

typically limited to one skill set in that activity with a focus on stamina, agility, and physical power. In PE classes, non-competitive youth are able to participate in physical activity without overdoing their muscles. They also lack embarrassment if they do not have the skillset for that sport. Promoting physical activity during play is essential for students to get the recommended amount of physical activity per day. Teachers need to find ways to encourage options for physical activity to entice adolescents and help them overcome their health challenges. One way of improving the psychological responses of adolescents in PE is by introducing edutainment tools in the classroom. Most teens have Smartphone technology and video game systems, but using this technology is usually for personal gains with sit-down activities. However, there is promising news with increasing adolescents' physical activity by using a variety of interventions not used in previous PE classrooms (Digelidis et al., 2003).



## **2.0 Theory of Improvement and Implementation Plan**

### **2.1 Theory of Improvement**

My problem of practice is adolescent students' low motivation and participation within the PE setting at Henry High School. This decline in physical activity has negatively affected their mental health and performance at school. My theory of improvement is to increase Henry high students' participation and motivation in PE courses by improving student self-efficacy, support for physical activity, and increasing resources and equipment. I hypothesize that these minor improvements will change students' lack of motivation when they see everyone invested in their wellbeing. My theory of improvement is represented in the driver diagram (**Appendix A**), which includes change ideas that improve upon the primary and secondary drivers to enhance participation in the PE setting at Henry High School.

#### **2.1.1 AIM Statement**

By 2023-2024, we aim to increase adolescent students' motivation and participation within the PE setting at Henry High School

#### **2.1.2 Primary Drivers**

The three primary drivers are *physical activity self-efficacy*, *support for physical activity*, and *resources and equipment*. By improving upon these three primary drivers, I hypothesize that

we will enhance students' motivation and participation in PE courses. Self-efficacy is the belief that a person can believe and achieve the goal they set and have the confidence to complete that goal (Bandura, 2000). Physical activity self-efficacy beliefs are essential because one can exercise, even given constraints and barriers such as feeling fatigued or overwhelmed with stressors. Motivation and participation are associated with exercise, knowing one can keep the body moving for an active livelihood (Bandura, 2000).

Students need support from their families, peers, and the community to make healthy choices and become motivated to exercise. Once the support comes for families, exercising with their children will increase their motivation to exercise and participate (Solomon-Moore et al., 2017).

Having physical activity resources and equipment to motivate students are essential (Sierra-Díaz et al., 2019). My high school students struggle with the same old routine or lack of equipment in PE courses. I have seen firsthand that bringing in the National Guard and partaking in edutainment routines increased motivation and participation, especially with physically inactive students. Our high school-aged students have also enjoyed a bike program, interacting with experts on routes and learning how to fix bikes through these programs for the past years in summer school. The teens were excited to learn from these guest mentors, and capitalizing on these relationships could increase student participation throughout the school district. Theoretically increase exercise and participation and improve student outcomes in PE courses.

### **2.1.3 Secondary Drivers**

A range of secondary drivers influencing the primary drivers will need to be impacted and improved upon to achieve my overall aim. For the primary driver of physical activity self-efficacy,

the secondary drivers are *physical activity health knowledge and awareness, physical activity and motor skills, and previous experience with physical activity and sports participation*. The secondary drivers will support and foster students' physical activity self-efficacy if improved. Physical activity, health knowledge, and awareness are essential for high school students to understand health and fitness terminology, exercise benefits, and build awareness of how they can obtain a healthy life (Sierra-Díaz et al., 2019). Physical activity motor skills are essential skills that most people develop at an early age. Students who have not learned specific physical activity motor skills may become embarrassed participating in a particular activity (Rink, 2013). Learning physical activity motor skills is necessary to feel confident in physical activity. At the same time, not a modifiable variable, students' previous experience with physical activity and sports participation will also determine their self-efficacy (Landertinger 2021). Students will feel responsible and accountable for participating in their learned sports.

For the primary driver of physical activity support, the secondary drivers are *family support for physical activity, peer support/social norms, and community support/social norms*. Family support for physical activity is essential to encourage trying different activities and building physical activity skills (Hohepa et al., 2007). Doing physical activity as a family, having transportation to physical activity, or encouragement during physical activity are all ways families can support their child's physical activity, especially at younger ages (Solomon-Moore et al., 2017). At the same time, peer support and physical activity social norms drive physical activity in adolescence. Adolescents who participate in physical activities may have their friends join the sports or activities for wellness. In addition, the support of their peers is a motivating factor to continue exercising and participating in that physical activity (Solomon-Moore et al., 2017). Youth who live in communities and neighborhoods with more physical activity resources and

support are more physically active than those living in neighborhoods without those supports (Kellstedt et al., 2021). Community partnerships can support the development of healthy physical activity in youth (Guidelines for school and community programs to promote lifelong physical activity among young people, 2007). All types of support are essential to motivate and encourage participation in PE settings in high school.

For the primary driver of physical activity resources and equipment, the secondary drivers are *existing school resources and facilities* and *funding for novel technologies*. Existing school resources and facilities are required for our students to be successful. As an HPE teacher, I have witnessed affluent schools with beautiful equipment, resources, and facilities for PE courses. It looked like a college campus in the same district. Unfortunately, at Henry High School (the former middle school building), the space is insufficient for the number of students we serve. Currently, we lack gymnasium space and classroom space for PE courses. The research shows that schools with PA equipment resources are associated with higher physical activity levels among their students (Sierra-Díaz et al., 2019). Updates and extensions to current resources and facilities are necessary for our students to want to participate and have a sense of belonging at their school.

The community also has barriers regarding the lack of space for physical activity. Many urban schools do not have physical spaces for PE classes and use classrooms or multipurpose rooms (Sliwa et al., 2017). Funding for novel technologies could address these barriers and the lack of space creatively with minimal funds. Unfortunately, PE teachers do not have a budget; therefore, any funding must come from grants. Writing grants is a way of bringing money into the budget for the physical education classrooms and going on field trips to various edutainment activity sites. In addition to the funding, it's critical to have volunteers and Community Partners

connecting with the school and having these Community Partners' wellbeing an asset to the school and the physical education program. For example, when I take students biking. It was no way I could take an entire class by myself. Some volunteers and Community Partners from the bike clubs came to assist me on school road trips.

I had the opportunity to receive a \$20,000 grant for my students from my previous school (same district) for more fitness equipment. Funding could provide Technogym equipment in the classroom, for example, Zwift equipment similar to the Peloton machine. This funding will improve physical activity, with students having fun exercising while playing a video game with others worldwide on a bike. Funding is a way to introduce different technologies to improve the outcome of motivation and participation with students.

#### **2.1.4 Change Ideas**

I have identified three potential change ideas that can make small improvements within the organizational system and impact the secondary and primary drivers to achieve my overall aim. These change ideas include (1) *Delivering education sessions within PE class on the benefits of physical activity and disease risks of inactivity*, (2) *Incorporating edutainment for physical activity (e.g., PHAT Tuesdays) into PE class*, and (3) *Applying for grants to purchase novel equipment/technologies (e.g., Zwift) into PE class*. I received my master's in health education and learned about the Whole School, Whole Community, and Whole Child model (CDC, 2021). Health classes are essential in teaching students knowledge of their bodies. Unfortunately, many students do not receive the same instruction in PE courses. Therefore, educating students on the benefits of physical activity and the disease risks of inactivity is critical. Young people have seen many shows on TV like "Biggest Loser" and "My 600-pound Life" and may wonder how people

could get morbidly obese or have misinformation regarding health and disease. The black community has disproportionately suffered from obesity-related diseases, and the lack of funding and cutting of PE courses may have contributed to this lack of knowledge. I desire to change students' mindsets regarding PE. Teaching and educating my students on the benefits of physical activity is necessary to pursue lifetime fitness and understand the risks of inactivity.

A second change idea is to implement edutainment for physical activity (e.g., PHAT Tuesdays) into PE classes. The challenge is to motivate students to be active when the action is not fun. Implementing edutainment is fun and brings forth peer interaction to encourage others while participating in the program. Peers have a significant influence on one another. When they see each other exercising while having fun, most peers will join in to participate and do not want to be left out of all the excitement.

Therefore, integrating edutainment in a high school PE setting may be successful. Edutainment is educating and entertaining students with physical activity simultaneously. That is the goal of this change idea. Students will have an excellent opportunity to see something new and do something fun that is entertaining while also exercising. These change ideas will significantly increase adolescent students' motivation and participation within the PE setting at Henry High School. In the school, healthy behaviors will increase and hopefully extend beyond into the health of Minneapolis' Northside community. The COVID-19 pandemic forced teachers to teach online and think outside the box. I came up with the idea to work with the National Guard of Minnesota and create a boot camp class: CrossFit Wednesday. I had students who had never participated in PE courses when we met in person, but I had a great turnout online. I suspect it was due to this class being fun and novel.

The final change idea is applying for grants to purchase novel equipment/technologies (e.g., Zwift). Personally, the pandemic changed my exercise routine, and the iFit treadmill machine helped me with my mental health while we had to be stuck inside. I want my students to experience the same opportunity and benefits such equipment afforded me. To receive these resources for students to have fun and be entertained, one must have money for this Technogym equipment. This change idea is to apply for grants to receive funding to purchase indoor training gear and memberships for Zwift, an indoor cycling app, so the students can participate in biking expeditions worldwide without leaving the classroom.

## **2.2 Systems Measures**

### **2.2.1 Process Measures**

To identify whether the change ideas are being executed as planned, I could survey students' attendance and participation during the edutainment classes and have students give feedback to learn if I need to make changes to the programming and if they are having fun.

### **2.2.2 Driver Measures**

Driver measures evaluate the secondary and primary drivers in the driver diagram. I could calculate the level of students' participation on the bikes and collect data for each student's completion of the bike app activity. Components of the program could affect the student's motivation and participation in physical activity. To assess if physical activity self-efficacy is

developing, I could observe the students' desire to complete their warm-up exercises posted on the board without redirecting and probing them to achieve their warm-ups. I could also assess students' knowledge of the benefits of physical activity and the risk of inactivity. Finally, regarding the support for physical activity, I could use family feedback by sending home a physical activity survey to see how many people participate with their loved ones.

### **2.2.3 Outcome Measures**

I hope to achieve increased motivation and participation for adolescent students. I could assess students' attitudes towards warm-ups and overall involvement in physical activity during the class.

### **2.2.4 Balance Measures**

While pursuing the aim, there are possibilities for imbalances throughout this system. The change idea could disrupt other classes because of a lack of resources, i.e., gymnasium space. Currently, the gym divider is not working, and students from other courses see what I teach and implement in my classroom. This may upset faculty members when I bring in guest mentors and disrupt students' participation in my colleague's courses. Some colleagues may not see the importance of technology for physical activity and implementing bike apps for classes. Unfortunately, many teachers have a negative disposition and perception toward PE. This may upset some teachers if I get a classroom space for indoor cycling to implement this change idea.



### **2.2.5 Inquiry Questions**

I believe students' lack of motivation and participation in high school PE courses can be improved by fostering support for physical activity with edutainment by increasing connections between students, guest mentors, and teachers. The change idea implemented in the current PDSA cycle is an edutainment program delivered by the MN National Guard in a PE course with students at Henry High School. The following inquiry questions will guide the project:

1. What are the perceptions of the Minnesota National Guard guest mentors on the PHAT Tuesday program and its impact on the students?
2. What are the students' perceptions of the PHAT Tuesday program and its impact on them?

### **2.2.6 Intervention Description**

I implemented a weekly in-school edutainment program, PHAT (Physical Healthy @ That) Tuesday, for my change idea. This program seeks to increase students' motivation and participation in my PE course. During the 2021-2022 school year, I held the PHAT Tuesday program for 45 minutes each session for eight weeks. This summer was a four-week program for 130 minutes. The program occurred in the weight room. The program incorporated 9<sup>th</sup>-12<sup>th</sup>-grade students; however, only 11<sup>th</sup> - 12<sup>th</sup> graders were included in the assessments. There were no 9<sup>th</sup> or 10<sup>th</sup>-grade students in the evaluations due to low attendance during summer school. I gave an orientation to the school grounds and introduced the administration and other school stakeholders to the Minnesota National Guard mentors. All mentors understood the program's purpose and structure.

Physical activities and self-efficacy-building activities were the core components of this program. During the school year, on PHAT Tuesdays, we performed circuit training workouts in the weight room and gymnasium. The lesson for the day was displayed on the whiteboard with a brief discussion of the agenda. Students knew the plan for that day and performed the exercises independently during warm-ups. All activities were implemented by the Minnesota National Guard Staff Sergeant Pace and supervised by me, the lead Henry High School PE teacher. Some classes include guest mentors (e.g., YMCA Beacon's Staff) and volunteer staff (e.g., Fast Track) who observed the guest mentors doing physical activities with students.

## **2.3 Methods and Measures**

### **2.3.1 Program Participants**

All 11<sup>th</sup>-12<sup>th</sup> grade summer school students at Henry High School who were enrolled in the HPE summer school courses were invited to participate and attend the 4-week PHAT Tuesday program. The students received notification regarding this inquiry project and could opt out of the PHAT Tuesday program and focus groups. The number of enrolled students in the class was 24 students. The Institutional Review Board (IRB) at the University of Pittsburgh confirmed that the study did not meet the definition of research, and approval was not necessary before beginning any study protocols.

### 2.3.2 Measures

*Student Focus Groups:* Making changes to the curriculum without conducting focus groups could jeopardize the efforts of your change idea (Natishan et al., 2000). Student perceptions are a successful tool to analyze a change idea by receiving their input. Using a semi-structured discussion guide (**Appendix B**), I gathered 24 students' perceptions of the PHAT Tuesday program at Henry and the program's impact and presence of the Minnesota National Guard on their motivation and participation in their PE class. Three student focus groups (~7+ students per group) were in-person during school hours. Focus group sessions were audio recorded using an iPad app.

*Guest Mentor Focus Group:* Conducting the focus group with the Minnesota National Guard was essential to learn their perceptions of the PHAT program and their recommendations for what is necessary to omit or add to the program moving forward. Using a semi-structured discussion guide (**Appendix C**), I gathered guest mentors' perceptions of the PHAT program at Henry and the impact of the program on students' motivation and participation in the PE class. One focus group with three mentors was conducted virtually at a time convenient for the mentors. Focus group sessions were conducted remotely via Zoom and recorded and transcribed using the Zoom app.

*Observations and field notes:* I, the lead researcher, observe students' participation in the weekly activities with guest mentors. Took field notes on student participation in warm-up exercises and monitored students' overall effect, comments, and engagement with the physical activity sessions with the MN National Guard. After each session, I reviewed field notes and observations for accuracy and completeness

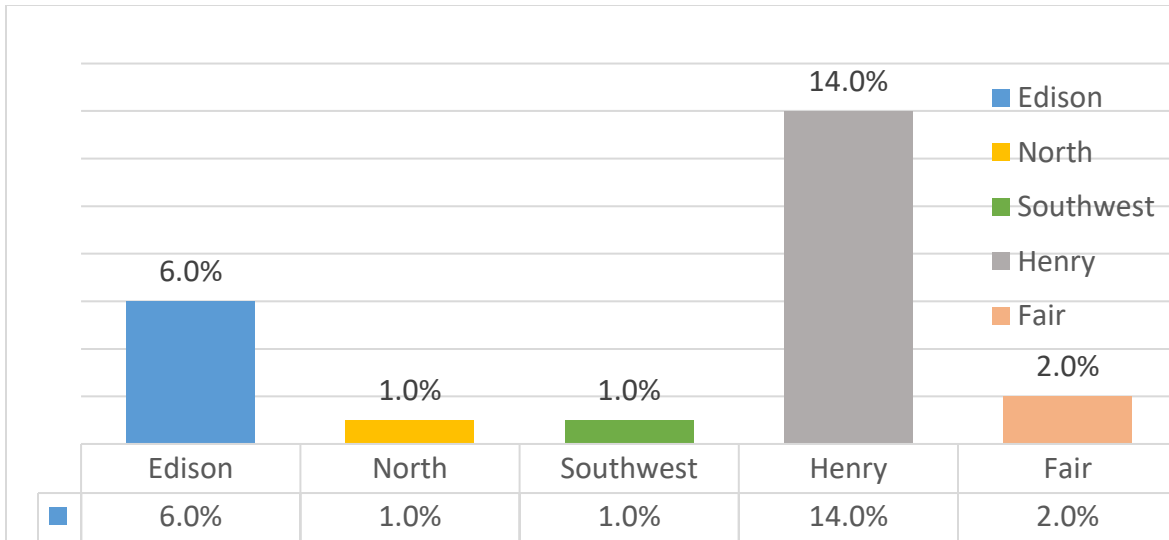
### **2.3.3 Analysis Plan**

Focus group audio recordings were transcribed verbatim and verified against the original audio file by the lead researcher. Focus group transcripts and field notes were qualitatively coded and examined for any themes or patterns in the data using content analysis (Erlingsson & Brysiewicz, 2017).

### 3.0 PDSA Results

#### 3.1 Participants Demographics

My study enrolled a total of twenty-four (24) Minneapolis Public School (MPS) students throughout the MPS district housed at Henry high school who were part of the Physical Healthy @ That (PHAT) Program during the 2021/2022 school year. All the students enrolled completed the study assessments representing an overall participation rate of 100%. The students came from diverse ethnic backgrounds: two students were White, six students were Asian, four students were Latinx, and twelve students were of African descent. Among the 24 participants, six had previous experience participating in CrossFit Wednesday, four were new to the PHAT program, and fourteen were Henry high school students. All the students were 11<sup>th</sup>-12<sup>th</sup> grade students, and one needed this required physical education course to graduate from high school this summer (**Figure 1**). Summer school students across the MPS district (100%) participated in the PHAT program at Henry High school. The students in the PHAT program came from Five different high schools across the district. Fair is located in downtown Minneapolis and has no physical education classes because the school building has no gymnasium. Fitness for Life is required for graduation; consequently, any students attending Fair must attend summer school to obtain their PE credit. All the Guest mentors (3) completed the focus group discussion. All guest mentors were males (White, Latinx, and African American) from the Minnesota National Guard.



**Figure 1. High Schools Represented Across Minneapolis School District in PHAT Program.**

### **3.2 PHAT Program Implementation**

Twenty-four students, two National Guard mentors, and me, the PE teacher (primary investigator), participated in the PHAT program. Initially, three National Guard mentors participated in the PHAT program, but one had to attend active training halfway through the summer program. All guest mentors were trained during the school year, and the PHAT session continued when I was out due to a medical injury on the job. In the first morning session of PHAT, all the students participated in class, but several students were consistently late because they did not get out of bed early enough to attend class. All students were on time for the second and third-afternoon sessions and participated with the guest mentors. Throughout the remaining three mornings of PHAT program sessions, students continued to arrive at the program late but would jump right into the PHAT program after arrival. One student in the afternoon did not participate in the workouts but attentively listened to the National Guard mentors. One of the guard members

said to the students, "*I see you listening but sitting in the chair; sitting doesn't burn calories or build muscles. Please join us.*" The student refused but displayed active listening skills throughout the sessions. I observed the students' interactions in the PHAT program and collected field notes when the Minnesota National Guard guest mentors were teaching the courses.

### **3.3 Qualitative Data Analysis Results**

Qualitative analysis of focus groups transcripts revealed three overarching themes surrounding the students, and mentor's experience with the PHAT program: (1) Familiarities with Physical Activity; (2) Positive and negative experiences within the PHAT program; and (3) Recommendations for a future PHAT program (**Table 1**).

**Table 1. Themes, core categories, and descriptions from the qualitative data analysis.**

<b>Themes</b>	<b>Core Categories</b>	<b>Category Descriptions</b>
<b>Theme 1: Familiarities with Physical Activity</b>	<ul style="list-style-type: none"> <li>• Physical Activity Beliefs</li> <li>• Beliefs about PE Class</li> <li>• Physical Activity Motivators</li> </ul>	<ul style="list-style-type: none"> <li>• Students' mindset toward physical education and Gym class</li> <li>• Facilitators' mindset on physical education and students' participation</li> <li>• How physical activity motivates individuals</li> </ul>
<b>Theme 2: Positive and negative experiences within the PHAT program</b>	<ul style="list-style-type: none"> <li>• Building relationships</li> <li>• Other Benefits of PHAT</li> <li>• Challenges with PHAT</li> </ul>	<ul style="list-style-type: none"> <li>• PE should be a resource to help students build relationships</li> <li>• Community partnerships with guest mentors</li> <li>• Difficulties created and/or compromised by COVID-19 with PE classes</li> </ul>
<b>Theme 3: Recommendations for future a PHAT program</b>	<ul style="list-style-type: none"> <li>• Frequency recommendation</li> <li>• Content recommendations</li> <li>• Approach recommendations</li> </ul>	<ul style="list-style-type: none"> <li>• Suggestions frequency of PHAT program</li> <li>• Suggestions for what to include in PHAT program</li> <li>• Suggestions on the approaches to PHAT program</li> </ul>

Further explanation of these themes is provided in the following sections, incorporating descriptive categories of each theme with illustrative quotes.



### 3.4 Theme 1: Familiarities with Physical Activity

This theme uncovered students' and facilitators' mindsets toward physical activity and physical education. This category highlighted fundamental insights into students' attitudes toward physical education and was noted throughout all the focus groups.

In the focus groups, students discussed the difficulties of understanding conceptually what physical activity (PA) encompasses. As the focus group facilitator, I faced barriers with students not understanding the question, particularly in the morning student focus group. After that session, I learned to use the word 'gym' or 'exercise' when talking about PA for the students to understand the focus group questions. The prominent theme during discussions was students enjoyed physical education (PE) classes, which was their favorite class during the school day. However, one student noted that a PE teacher they had in the past was very mean and took the fun out of the curriculum by focusing more on engagement and hitting the goals of PE participation in the classroom. When discussing PA and PE, all the participants mentioned they enjoyed working out. The benefits of having a PE class and participation in indoor/outdoor exercises and sports clubs help them with their motivation and energy. Having peers and family participate in PA with them increased participants' desire to improve their overall wellness.

In the mentor focus group, when asked, "*What do you think motivates a young person to participate in physical activity or exercise?*" one mentor responded:

***Mentor 1:*** "*A desire to improve abilities for sports is where I think it starts for many young people.*"

Mentors also felt students needed to "*be part of the group,*" which gives them a sense of "*identity*" and builds "*confidence.*" The mentors concurred that belonging to a team or a group will

help motivate young people. The mentors also focused on the benefits of mental health with the correlation with participating in PA.

**Mentor 3:** *"I think the first thing I typically see in people and myself is that psychological benefit. Because regardless of this, a lot of people do programs that sometimes are more effective than others or vice versa. Still, I always see that immediate glow or confidence where people invest in themselves."*

Generally, the mentors were excited about the physical fitness and wellness of themselves and others. They stated it is also a matter of "national security" that many people are not physically fit to join the military. It's crucial to reach these young students early in life and stop obesity and health-related diseases preventable through exercise and fitness. Students shared their experiences with working out:

**Focus Group 2, Student 1:** *"It depends on what kind of state you're in when you start working out. If you work out mad, it might help you relieve some of that stuff that you have in a smart way."*

**Focus Group 3, Student 6:** *"It helps your body feel different. When you work out consistently, you start feeling different, like your energy is higher, your energy rises better."*

**Focus Group 1, Student 2:** *"Sometimes I feel like it makes me feel happier. I don't know if it makes me feel more upbeat afterward."*

The students also were aware of the benefits of PA, and they continued to say how PA benefits them by calming them down when upset and mad. This outlet makes them move through the day feeling good and having energy. Although they mentioned feeling body aches from the PA sometimes, it was still good for them to participate in the exercise because students stated it

made them look better physically. They also recognized that it helped their overall mental capacity and brought down the stressors in their lives. The students genuinely enjoyed PE and PA when it came to working out with their peers and family because it motivated them to continue to exercise due to the support of the people surrounding them. Students and mentors shared similar comments throughout the focus groups.

### **3.5 Theme 2: Positive and Negative Experiences with the PHAT Program**

Students and mentors shared the benefits and challenges of the PHAT program and insights about how critical partnerships with students and mentors could continue to grow the PHAT program long-term.

Relationship building was a significant issue that the Minnesota National Guard participants discussed. Unfortunately, according to two mentors' statements, during Covid and the racial unrest in Minneapolis, the military's morale was low. This community partnership could change the students' and community's negative perceptions of the military throughout the school district and bring positive relationships with students and staff. The military saw a need to recruit students to join the Guard but noticed that many were not passing the fitness requirements due to preventable factors (e.g., passing the mile run and push-up test). This new relationship with the student body through the PHAT program opened doors for military recruitment and positively fostered relationships with all students and staff at Henry high school.

***Mentor 2:*** "I think having the opportunity to connect with you and connect with the students was huge. Because we love making an impact, as in the National Guard, our goal

*is for people to see a positive in us and be around us. And seeing that and us partake in that helps because I think it makes them know that we're there for the people, community, and students."*

**Mentor 3:** *"We're recruiters. Part of the reason we were in the school programs is to not only work with students and see who might be interested in something like this or joining the National Guard. But another responsibility as a recruiter is we represent the National Guard, so we do a lot of community events that no one is old enough to join. Still, we do this for community building."*

**Mentor 1:** *"Each one of us is representative of the Guard. One responsibly, we're looking for people interested in joining. There's a big discrepancy between real life and what's on TV. So that's a dual role, which is why initially we were looking at getting into the program."*

Students also discussed the PHAT program benefits of having the Minnesota National Guard mentors embedded in the HPE summer school curriculum. During this pilot intervention, students became very comfortable with the routine of the PHAT program and seeing the military mentors every week during the summer program. The students stated they enjoyed these challenging workouts but were also not what they expected, that the "military members would be mean and not friendly;" it was a great collaboration.

**Focus Group 2, Student 4** *"Because I was expecting them to be really mean, "Do it this way, do that, do that." But they're actually really nice, and they're likable."*

**Focus Group 2, Student 1** *"Well, besides the workouts, I liked PHAT because you can talk to the military firsthand. You're right in front of the source; you get to know stuff, tips, tricks, maybe. I like how to work out or go into a military career."*

## Barriers to Participation in Physical Activities at the School

The mentors saw that students did not change clothing for the PE class, which created difficulties in doing different physical activities and impacted their engagement. One barrier mentioned by a military mentor was the students wearing the "crocs shoes."

***Mentor 3:*** *"I observed kids working out with Crocs, stuff like that. It was just playing basketball in Crocs, running in Crocs. It's wild."*

***Mentor 2:*** *"...Students are no longer changing into a gym outfit or something like that. And now they're wearing regular clothing that they wouldn't want to hurt or get dirty or something like that. So, they're just participating in flip-flops. So, whenever we've been going to schools in the last couple of years, we've seen a shift in how there's almost no engagement. And there are a few engaging people, but some students aren't engaging at all."*

Another challenge that students and mentors observed was the lack of equipment in the weight room. Possibly because of the shutdown of COVID-19, people may have walked away with the weights and never returned the equipment, and the school did not have complete sets for the students to work out. Another challenge for the students was that we did not have access to various spaces during the summer, for example, the gym, because other team sports (e.g., volleyball and basketball) used the gym for practice. In addition to team sports using the gym space for practice, many summer programs also used the gym while sharing limited resources. Also, it was mentioned by many students it was too hot to use the gym with a heat index of 90 degrees outside, which meant that no one could use the gym because it was not air-conditioned, and heat exhaustion was a possibility.

### 3.6 Theme 3: Recommendations for a Future PHAT Program

Students had many recommendations on the PHAT program, with suggestions for dates and a schedule to accommodate a future PE course. Students shared that PHAT was very motivational, and they enjoyed the Minnesota National Guard military guest mentors and wanted to include other military branches in the future. Although most students were tired from the workouts, they suggested breaking up the monotony of the challenging activities by implementing academics 50% of the class time. Students indicated that there should be beginning, intermediate, and advanced classes with various guest mentors to teach smaller class sizes because they enjoyed the summer program with smaller student numbers. Also, students said they would love to have different workout spaces, for example, going outside, using the gym, or even boxing. However, most students said there's nothing to change with the PHAT program.

**Focus Group 3, Student 8** *"Three times or two times a week, they could work out and then the rest of the week, education. Balanced. So, be balanced, like three times or twice a week. And then the rest, they teach you what to do."*

**Focus Group 3, Student 5** *"I think if this was to be a thing for the whole school year, there would need to be... Let's say there's boxing. I think there would also need to be a second category of something else in case people didn't want to box."*

**Focus Group 3, Student 10** *"I wish they could be at all schools. Different schools? Not just Henry. Like, how they were at Edison, but they moved. They're not at Edison anymore. I wish that more schools had PHAT."*

**Focus Group 1, Student 6** *"PHAT should go outside sometimes"*

**Focus Group 3, Student 6** *"They could come every day."*

**Focus Group 2, Student 2** *"PHAT was a lot. I went to sleep when I went home"*

**Focus Group 2, Student 4** *"People have different interests and things that they want to do; not everyone wants to do the exact same thing."*

**Focus Group 3, Student 7** *"I would say maybe more equipment to use. I don't really know the names of all of them, but there's the bench press there, but it was limited."*

The guest mentors suggested that the PHAT program take field trips to some military facilities. They train recruits at boot camp facilities and would like students to experience what the trainees encounter.

The mentors and students gave excellent feedback to change the PHAT program in the future. It will broaden the student's horizons, allowing them to see different military units and possibly other exercises knowledge. Students wanted the chance to have the PHAT program implemented most days throughout the week. They were curious to see if they could have the military teach academic portion classes in addition to Fitness courses. The purpose behind these courses would be to enhance students' pliability and confidence without hindering the student's weightlifting or circuit training knowledge by being in a general class of beginners. All the suggestions that could implement the change idea for future programs for a PHAT were remarkable.

## **4.0 Learning and Actions**

### **4.1 Discussion**

My dissertation in practice aimed to implement an edutainment change idea to impact enjoyment and motivation with PA and PE in adolescents at Henry High School. COVID-19 changed the trajectory of teaching and students' perceptions of school. The PHAT program created opportunities for students to bring fitness back into their lives after being cooped up in the house during the pandemic. This change idea allowed mentors to collaborate with students by thinking outside the box for typical PE courses. The goal is to increase PE participation by bringing military members and the student body to merge the idea of edutainment in a physical education classroom. Mentors can work with high school students regularly in a PE class. The student focus groups revealed that the guest mentors participating in HPE class during the PDSA cycle brought a positive encounter with students by bringing down student stressors and enjoyment into their lives. This new awareness became a catalyst for creating Physically Healthy @That program throughout the school year and performing the pilot program. After conducting the program, key findings emerged from the PHAT Program evaluation. I have listed these findings below and the next steps for the future.



#### **4.1.1 Key Findings 1: Friends and family are motivators for students; students perceive benefits and enjoy PA/PE, but the challenge is having activities that are engaging and fun.**

The evidence showed the impact of the PHAT program, with students primarily motivated to participate. During the focus group, it was revealed that friends and family are high motivators for physical activity, and the engagement of this PA must be enjoyable. Self-determination theory supports this finding with its focus on “relatedness and competence,” suggesting that family and friends can empower youth to participate in PA via self-efficacy and social support (Jago et al., 2009).

The focus group observations and field notes revealed peer interactions played a massive role in participation. During the PHAT program, one student did not know how to do a particular exercise on the exercise ball. I observed their friend demonstrate that exercise and encouraged the student to participate and perform the exercise without me or the guest mentor probing. Friendships can bring forth positive and desirable attributes among youth. Low participation could be eliminated in a PE setting when peers positively encourage their friends (Craggs et al., 2011).

The child's motivation to exercise could be attributed to learning these behaviors early in life. Self-determination theory suggests family dynamics can hinder or enhance a child's motivation for PA (Solomon-Moore et al., 2017). Implementing family exercise time was noted during the focus groups. One of my students mentioned that she exercised weekly with her father. She said she did not like that he pushed her, but now she is used to the exercise routine when her dad is not around by implementing intrinsic motivation to perform these exercises.

As noted, fun and enjoyment are critical components of PA participation. The PHAT program was a success with the students potentially due to the perceived notion of the activities being fun.

They enjoyed the fun activities that guest mentors facilitated. There is a distinction between fun and enjoyment, according to research. Enjoyment enhances their positive attitude toward PE, but the fun usually is not an outcome of the curriculum in PE (Dismore et al., 2011). The focus groups revealed having fun was expressed multiple times by the students and attributed to the reasons for enjoying the PHAT program. Many stated that these guest mentors should replace the PE teachers at their schools. Having fun was observed to be a common reason for the enjoyment of the PHAT program. Students stated that to be motivated and participate in PE or PA, the excitement of that activity must be present. Allowing student input is a must moving forward throughout the PHAT curriculum to enhance student learning.

To enhance PA and PE, fun, friends, and family should support and encourage the implementation of PA interventions. “Friendship groups affect both the initiation and maintenance of youth physical activity” (Jago et al., 2009). Youth are engaged in different ways, and the focus groups showed multilayer ways of reaching these goals. To promote PA and PE and be effective, fun, enjoyment, and parental/caregiver involvement are requirements for encouraging young people to engage in PA.

#### **4.1.2 Key Findings 2: Bringing in guest mentors builds relationships, increases resources to the school, and mutually benefits the Minnesota National Guard.**

The focus groups revealed the impact of guest mentors and how building relationships nurtured that environment to participate in PE. Schools should "create a protective nurturing context in which all young people can grow and develop" (Ayalon 2011, p. 11). Bringing in guest mentors showed students a non-trivial way of including a nurturing community partnership in the PE classroom. In addition, it was a mutual benefit to the school at large. Schools that establish

community mentors create a sense of belonging where students feel connected to all the stakeholders involved, which may lead to less student truancy and higher academic achievements (Koepka et al., 2020).

Furthermore, the students and the mentors connected with community partners, creating opportunities for other teachers to see a need for collaboration in their classrooms. During the PHAT Tuesday school year program, a teacher was interested in seeing what I was doing in my classrooms and asked me to talk with the National Guard. Of course, I introduced Sargent Pace to the robotics teacher that wanted to implement military expertise into her classroom. I was excited to learn that the military partnered with that teacher and their students in the classroom. Schools that foster community partners open up relationships throughout the school building (Fredriksen & Rhodes, 2004 ).

The head principal was a supportive stakeholder, possibly because his undergraduate degree was in physical education, and he understood the importance of promoting PA. This stakeholder empowered me and encouraged others to build a sense of belonging and bring in community partnerships. The military came freely into the school building and participated in my classroom and with other stakeholders. Because of this collaboration, many students joined the Minnesota National Guard in the ROTC program as juniors in high school. A couple of my graduates have enrolled in the captain school. The PHAT program emphasizes bringing in guest mentors to increase PA and build positive connections between students and adults in the schools by addressing the lack of motivation and engagement in a PE setting. Addressing students' concerns and needs creates positive relationships between adults and students and may establish a climate in schools to enhance student well-being (Weinberger & McCombs, 2003).

### 4.1.3 Strengths and Weaknesses

The PHAT program had noted strengths and weaknesses throughout the yearly high school program and the summer intervention PDSA cycle. Strengths consisted of the Minnesota National Guard's willingness to participate in the PHAT program and volunteering their time every week on Tuesdays to come to the school for the whole year. I was fortunate enough to have the military personnel continue with the PHAT program when I came to Henry. By participating at a different location Henry High School, they were not out of jurisdiction (the National Guard has orders to be at specific school locations throughout the Twin Cities). One more strength was the students that participated in the PHAT program. All the students were juniors and seniors during the summer school program. This led to maturity and willingness to participate in the intervention pilot program for all my HPE courses. In addition to that strength, five schools had the opportunity to participate in the PHAT program, and it was not just limited to Henry high school students. Without the students participating in summer school, I would not have had the opportunity to validate the need to have PHAT districtwide. This sample of students attending summer school may have been more at-risk and less motivated than other students who passed or already took the HPE course. The fact that we demonstrated positive results in this sample is noteworthy. Finally, another strength was the willingness of the academic stakeholders to support the PHAT program during the summer. Summer school program administrators and district staff could have stopped me from having the military come to the building. Still, they were more than willing to accommodate this community partnership.

I faced difficulties during the PHAT program when I was out of school for over a month. It was challenging to motivate students to participate with a substitute teacher who did not understand the purpose of the Minnesota National Guard coming to PE classes. Another challenge

was the lack of equipment in the weight room. This challenge led to students only being in one space participating in the downstairs weight room, a smaller space. Finally, this intervention was conducted during a worldwide pandemic, Covid-19. Students mentioned it was difficult breathing with their masks on and working out simultaneously during the school year, although the mask mandate was lifted towards the end of the year. Many students still wore their face coverings during the summer program; some complained about breathing and the heat in the building, and they preferred to go outside.

## **4.2 Next Steps and Implications**

### **4.2.1 Implications for Practice**

#### **4.2.1.1 Next Steps for the PHAT program**

The mentors and students gave excellent feedback to enhance and improve the PHAT program for the future. Core recommendations relate to supporting community partners and incorporating student feedback for class structure, frequency, and content.

For PHAT to be successfully implemented, we must better support our community partners through funding and district buy-in. The mentors wanted to include more equipment for the students to use and wanted to find a way to get and utilize funding sources to support the PHAT program. Also, they recommended they reinstate the policy to change clothes for PE class, as it impacts students' participation in the class. Not all guest mentors can partner with community schools by volunteering their time and energy without a budget. In the past, I worked hard to recruit

guest mentors to volunteer their time but moving forward, that may not be realistic. Policy changes may need to be implemented to allow guest mentors to attend the building regularly to teach PE courses. For that to happen, I would have to speak to the board and the superintendent and present my findings as the change agent in the PE curriculum in Minneapolis Public schools.

Incorporating students' recommendations is critical to creating buy-in and providing choices for students to enjoy the PHAT program. Students recommended having PHAT a least twice a week and including an educational component into the PHAT program. Implementing academic lessons will allow teachers and guest mentors to collaborate on topics relevant to students today (e.g., mental health, nutrition, and body image). Conceptually understanding physical activity could be emphasized through teaching and also through case studies so students will learn about the connection between physical activity and understand how incorporating regular everyday physical activity can contribute to a healthy lifestyle. Implementing these curriculum changes would enhance the PHAT program.

Additional changes can be made to the structure and frequency of the program. Students were tired in the morning, which impacted their participation and motivation; therefore, midday or after-school programs are preferred. Students also asked for smaller classes. The summer school was excellent for them because it was a small class size versus the school year with 30+ students in a class. Students and mentors also emphasized that beginner and advanced classes should be included in the PHAT program moving forward. Additional space will also be necessary to implement the PHAT educational component, as it is challenging to teach a class in the gymnasium given space and other limitations (e.g., seating, acoustics).

#### **4.2.1.2 Program Sustainability**

I will apply what I learned during the focus groups and engage the stakeholders at my organization to begin advocating for PHAT to be implemented districtwide. For this effort, I will need to connect with the superintendent and other PE teachers to begin discussions about their understanding of the problem and the feasibility of this approach. Administrators have an opportunity to support school-wide wellness by promoting the PE-required class Fitness for Life to students and staff. To further promote program sustainability, building relationships with the military is critical. Incorporating students' input on the military branches to participate in this program would be a phenomenal way to expand and help sustain the program. Besides the military being guest mentors, additional community partnerships could support the program. For example, the current afterschool Beacons program through the YMCA could enhance sustainability, and the YMCA has funding to be sustainable districtwide. In addition to having administration support, the Health and Physical Education departments must collaborate with the HPE teachers districtwide to create buy-in and foster additional support for the PHAT program. All schools must be of one accord. Learning from this improvement science idea, a PHAT curriculum could be created to be distributed across schools and standardize the content and approach. Applying for grants, written in collaboration with community partners, could cover essential costs and compensate guest mentors, substitute teachers, and afterschool staff to help sustain the program.

#### **4.2.2 Implications for Research**

As a scholarly practitioner, the improvement science project was very beneficial in learning how to enrich the PHAT program. A deeper understanding of implementing academic

lessons into the physical component of the class is very advantageous to increase students' learning about their bodies and how to be fit for life. PHAT has the words 'physically' and 'healthy' in the acronym. Although students are becoming healthy, if they do not understand nutrition, negligence could be displayed to continue to eat foods that are not healthy. In addition, I would like to collect more data on students' mental health. As I stated before, Minneapolis was under social and racial unrest, and as the lead teacher, I know this took a toll on my own mental health. Young people may not be able to articulate what they faced and what they are still facing with violence in their communities. Due to violence in the community, I want to collect student surveys and conduct focus groups on adolescents' perspectives on incorporating a mental health component in the PHAT program. This data will allow me to get funding for teaching social and emotional learning techniques during the academic portion as a whole class and let students have a one-on-one with mental health professionals if needed. I would combine this data with ongoing, longitudinal data of participants' physical health indicators. It would also be interesting to evaluate additional programs and partnerships and their impact on students' perceptions. For example, see whether other school-community programs impact relationship-building with different community partners (e.g., Minneapolis Fire/Police Department).



## 5.0 Reflection

### 5.1 Reflection

Improvement science aims to implement the PDSA cycle, learn whether the intervention works in the setting, and adjust appropriately to enhance the possibilities of providing and maintaining the preferred outcomes-(Reed et al., 2016). Initially, I had identified and pursued a different problem of practice and improvement idea. However, I quickly changed my focus when the social determinants of health worsened when the nation faced global COVID-19 and the Twin-Pandemics. I was beside myself, and if I was at my breaking point, how were my students feeling? Teachers were forced to think outside the box when all schools went to distant learning. I came up with the idea to teach CrossFit Wednesday with the Minnesota National Guard in my PE high school courses. That opportunity gave me notoriety on the local CBS news, and my late friend Ash said, *"this is your research blueprint."* I want to thank *Ashlesh Baichoo* for changing my dissertation focus (Black Educator Stress Disorder) and opening my eyes to new prospects.

As an HPE teacher, I seek to motivate students to increase their overall wellness. I saw firsthand the disadvantaged groups being discriminated against in the school system and the city I lived when the Minneapolis Police Department murdered George Floyd. I needed to make a difference with my students, and although we were under this pandemic and enduring the city unrest, I still believed students could be Physically Healthy @ That. I changed my perspective on my dissertation and started focusing on improving the PHAT Program to be an agent of change within my school district.

My new PDSA cycle was born. I needed to come up with the name because CrossFit is patented and used throughout the country in various exercise clubs, so I created the name PHAT Tuesdays Program. Very similar to what I did before at my former school, I wanted a fresh start and a new beginning at my new school with a new name. I worked with the same military personnel at my former school and started a new program at Henry high school. This opportunity allowed students to foster relationships throughout the school year. However, it was not an easy transition.

In 2021 I became a [Minnesota teacher of the year finalist](#), which gave me more exposure to advocate and implement the program at a new school. Although the setting was not ideal, I could move right into showing students and staff the process of implementing PHAT schoolwide. Because of my new notoriety, I was able to speak to an individual on the Zwift program to try to receive grant monies for the bike program for novel technologies. However, when I was ready to implement the program during the school year, I received a concussion and was out of school for a month. Although I was gone, the PHAT program went on smoothly, with the Minnesota National Guard continuing to come weekly during the school year, and that's when my change idea intervention was pushed to summer school due to my injury.

I learned quickly through my intervention that students were coming from all over the MPS district, not just Henry students. At first, I was a bit nervous, but I felt it was an excellent opportunity for all teenagers to experience the PHAT program. The support I received from districtwide summer school stakeholders and administrators was overwhelming because I was a leader and advocate for youth physical activity in Minnesota. Again, I had no setbacks implementing the pilot PDSA program at Henry high school. My only setback was when I returned to school from my concussion; more equipment in the weight room disappeared. I was informed we could not use the gym space due to other programs, and summer school team sports were

practiced in the facilities. However, I had staff and administrative support throughout the summer, and the military enjoyed coming to the school with no hesitation and was welcome.

The University of Pittsburgh's EdD health and physical activity program (HPA) taught me to *"trust the process"* I would move to Pittsburgh for this program. Still, I learned from the previous cohort members who told me not to move due to significant disruptions, a change in school, and a new doctoral degree that may lead me not to do well in school. I traveled monthly, flying from Minnesota to Pennsylvania, and had no idea how I would complete this doctorate program but trusting in God allowed me the opportunities thus far. I came to the University with a great view of developing and figuring out the health and well-being of Black educators who are disproportionately discriminated against while in silos at their educational institutions. "Black Educators Stress Disorder," BESD a term that I developed but also endured throughout the several districts I worked in Minnesota. I was adamant about researching this topic due to the pain and suffering I experienced. That was my focus, and that was my dissertation; however, as a practitioner, I had to learn to *"trust the process,"* I'm glad I did because the three years taught me to think outside the box. Although BESD is still near and dear to my heart and a problem of practice I seek to address with future inquiries, everything changed when COVID-19 happened. Everything became a sense of urgency. The pandemic, combined with the Murder of George Floyd and the unrest in Minneapolis, taught me that anything could change and nothing stays the same. Due to these experiences, I developed as a scholar-practitioner. I gained the knowledge to transform ideas with my students and become an advocate in the community I serve.

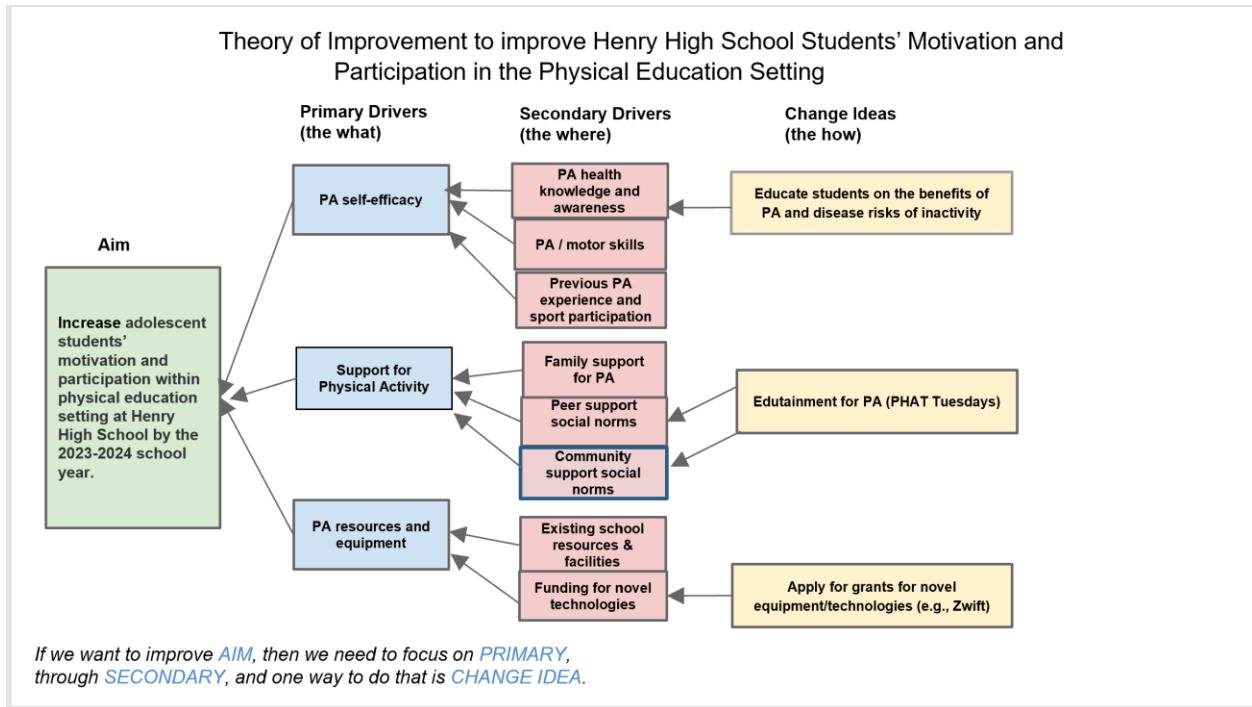
The HPA EdD area of concentration prepared me to build my skillsets. Experiences that expounded on were public speaking opportunities, improving my writing skills, and reading qualitative and quantitative data and case studies in all the EdD courses. This training broadened

my understanding and knowledge by preparing me to be the next change agent in my place of practice. The University opportunities allowed me to provide my input to several classmates. We documented our expertise in teaching PE across the nation during COVID on the toolkit: [Road Map for K-12 Education - Recess and Physical Education](#). I also had the opportunity to contribute to a blog with the American Collect of Sports Medicine (ACSM) Health Equity group called [The Urgency of Now: Achieving equity in school physical activity policies and practices during the COVID-19 pandemic. Following this blog, I was invited to speak on a panel](#) with distinguished researchers throughout the country and speak at the American College of Sports Medicine (ACSM) conference in San Diego, CA, in 2022. Being on writing teams to talk and write practitioner-focused publications was a phenomenal opportunity. I want to thank my advisor, Dr. Ross, and the University of Pittsburgh EdD program for believing in the talents afforded to me.

As I face adversities, I know I must push forward because I have a purpose and gift to teach young people. I am changing the narrative by seeing an African Trinidadian American in an education setting and showing young people they can aspire to be anything. I desire to continue to teach PE from an academic lens and encourage my colleagues throughout the school districts to do the same by embracing my saying, "*a gym is a place, not a class.*" My mission is to continue to encourage students to be motivated in PA/PE and change the traditional paradigms from the status quo of teaching traditional PE to an edutainment self-efficacy curriculum. I challenge all PE classroom teachers around the nation: Let's be Physically Healthy @ That.

## Appendix A Driver Diagram

Appendix A. Driver Diagram depicts the theory of improvement to improve Henry high school students' motivation and participation in physical education.



**Appendix Figure 1. Theory of Improvement to improve Henry High School Students' Motivation and Participation in the Physical Education Setting**

## Appendix B Focus Group Discussion Guide – National Guard Guest Mentors

Objective: To understand Guest mentors' (MN National Guard members') perceptions of the PHAT Tuesday program, its impact on the students, and their recommendations moving forward.

### **Welcome/Introduction (2-3 min)**

Introduce yourself

Ground rules: Please talk loudly and clearly and speak clearly.

Remind them of confidentiality, session recorded, etc.

Ask questions and Have fun!

### **Opening Question (2-3 min)**

1. Please share your name and your favorite physical activity you like to do in your free time.

### **Introductory Question (5-10 min)**

2. What connection do you see between physical activity and health and wellness?  
Probe: physical, mental, social, and emotional health

### **Transition Questions (10 min)**

3. In general, what do you think motivates a young person to participate in physical activity or exercise?
  - a. Probe: personal interests, social norms, family/peer support, community resources

### **Essential Questions (40-50 min)**

4. You have been involved in both the PHAT Tuesday and Cross Fit Wednesday programs. What made you want to get involved in the PHAT Tuesdays / Cross Fit Wednesdays program?
5. How do you think the PHAT program impacted students in the PE classroom?
  - a. Probe: motivation, participation, support, social norms
6. In your opinion, what worked well in the PHAT program?
7. In your opinion, what did not work well in the PHAT program?
8. What recommendations do you have to improve the PHAT Tuesday program to meet its goal of increasing students' motivation and participation in the PE classroom?
  - i. Probe: resources, equipment, facilities, activities, staff support, etc.

**Concluding Questions (10 min)**

9. Is there anything else you would like to share about your experience with the PHAT Tuesday program or the students' physical activity?

**The facilitator gives a summary of the main points covered and findings from her notes:**

Ex. "So far today, we have talked about [...], and you all mentioned that [...]. Do you think this summary covers the main points we talked about today? Is there anything I forgot to say or should leave out?"

Thank the participants for their time.  
Dismiss them.

## Appendix C Focus Group Discussion Guide – Students

**Objective:** To understand students' perceptions of the PHAT Tuesday program, its impact on their motivation and participation in the physical education course, and their recommendations for the program moving forward.

### **Welcome/Introduction (2-3 min)**

Introduce yourself

Ground rules: Please talk loudly and clearly and speak one at a time so we can hear everyone. Be courteous; to hear from each person.

Remind them of confidentiality, session recorded, etc.

Ask questions and Have fun!

### **Opening Question (2-3 min)**

1. Please share your name and your favorite physical activity you like to do in your free time.

### **Introductory Question (5-10 min)**

2. What connection do you see between physical activity and health and wellness?  
Probe: physical, mental, social, and emotional health

### **Transition Questions (10 min)**

3. In general, what motivates you to participate in physical activity or exercise?
  - a. Probe: personal interests, social norms, family/peer support, community resources

### **Essential Questions (40-50 min)**

4. How do you feel about physical education class compared to your other classes?
5. How is the PHAT program different than your normal PE classroom?
  - a. Probe: motivation, participation, support, social norms
6. In your opinion, what do you like about the PHAT program?
7. In your opinion, what do you not like about the PHAT program?
8. What would you change about the PHAT program to make it better next time?
  - i. Probe: resources, equipment, facilities, activities, staff support, etc.

### **Concluding Questions (10 min)**

10. Is there anything else you would like to share about your experience with the PHAT Tuesday program or PE class?



**The facilitator gives a summary of the main points covered and findings from her notes:**

Ex. “So far today, we have talked about [...], and you all mentioned that [...]. Do you think this summary covers the main points we talked about today? Is there anything I forgot to say or should leave out?”

Thank the participants for their time.

Dismiss them.

## Appendix D IRB Letter



Office of Research Protections  
Human Research Protection Office

Hieber Building, Suite 401  
3500 Fifth Avenue  
Pittsburgh, PA 15213  
412-383-1480  
[www.hrpo.pitt.edu](http://www.hrpo.pitt.edu)

### MEMORANDUM

TO: Lauren Wheeler

FROM: Human Research Protection (HRP)

DATE: July 20, 2022

SUBJECT: IRB# 2207004: Overcoming Trauma with Physical Activity: Implementing Edutainment within a High School Physical Education Class

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The above-referenced project has been reviewed by the Institutional Review Board. Based on the information provided, this project has been characterized as being an activity that does not meet the formal definition of research, according to the federal regulations at 45 CFR 46.102(l)

That is, the proposed activity is not a systematic investigation, including research development, testing, and evaluation, designed to develop or contribute to generalizable knowledge. Should the scope of this project change such that the definition of research is subsequently met, the investigator must notify the IRB immediately.

Given this determination, you may now begin your project.

### Appendix Figure 2. IRB Letter

## Bibliography

- Ayalon, A. (2011). Teachers as mentors: Models for promoting achievement with disadvantaged and underrepresented students by creating community. Stylus Pub.
- Ballis, A., & Schwendemann, L. (2021). 'in any case, you believe him one hundred percent, everything he says.' trustworthiness in holocaust survivor talks with high school students in Germany. *Holocaust Studies*, 28(2), 191–220. <https://doi.org/10.1080/17504902.2021.1915016>
- Barnett, A., Cerin, E., & Baranowski, T. (2011). Active video games for youth: A systematic review. *Journal of Physical Activity and Health*, 8(5), 724–737. <https://doi.org/10.1123/jpah.8.5.724>
- Bandura, A. (2000). Exercise of human agency through collective efficacy. *Current Directions in Psychological Science*, 9(3), 75–78. <https://doi.org/10.1111/1467-8721.00064>
- Biddiss, E., & Irwin, J. (2010). Active video games to promote physical activity in children and Youth. *Archives of Pediatrics & Adolescent Medicine*, 164(7). <https://doi.org/10.1001/archpediatrics.2010.104>
- Cachón-Zagalaz, J., Zagalaz-Sánchez, M. L., Arufe-Giráldez, V., Sanmiguel-Rodríguez, A., & González-Valero, G. (2021). Physical activity and daily routine among children aged 0–12 during the COVID-19 pandemic in Spain. *International Journal of Environmental Research and Public Health*, 18(2), 703. <https://doi.org/10.3390/ijerph18020703>
- Corder, K., Atkin, A. J., Ekelund, U., & van Sluijs, E. M. F. (2013). What do adolescents want in order to become more active? *BMC Public Health*, 13(1). <https://doi.org/10.1186/1471-2458-13-718>
- Craggs, C., Corder, K., van Sluijs, E. M. F., & Griffin, S. J. (2011). Determinants of change in physical activity in children and adolescents. *American Journal of Preventive Medicine*, 40(6), 645–658. <https://doi.org/10.1016/j.amepre.2011.02.025>
- Delpit, L. (2021). Teaching when the world is on fire: Authentic classroom advice, from climate justice to black lives matter. The New Press.
- Dismore, H., & Bailey, R. (2011). Fun and enjoyment in physical education: Young People's Attitudes. *Research Papers in Education*, 26(4), 499–516. <https://doi.org/10.1080/02671522.2010.484866>

- Digelidis, N., Papaioannou, A., Laparidis, K., & Christodoulidis, T. (2003). A one-year intervention in 7th Grade Physical Education classes aiming to change motivational climate and attitudes towards exercise. *Psychology of Sport and Exercise*, 4(3), 195–210. [https://doi.org/10.1016/s1469-0292\(02\)00002-x](https://doi.org/10.1016/s1469-0292(02)00002-x)
- Donnelly, J. E., & Lambourne, K. (2011). Classroom-based physical activity, cognition, and academic achievement. *Preventive Medicine*, 52. <https://doi.org/10.1016/j.ypmed.2011.01.021>
- Elias, A., Ben, J., Mansouri, F., & Paradies, Y. (2021). Racism and nationalism during and beyond the COVID-19 pandemic. *Race and Ethnicity in Pandemic Times*, 65–75. <https://doi.org/10.4324/9781003206521-6>
- Erlingsson, C., & Brysiewicz, P. (2017). A hands-on guide to doing content analysis. *African Journal of Emergency Medicine*, 7(3), 93–99. <https://doi.org/10.1016/j.afjem.2017.08.001>
- Faric, N., Yorke, E., Varnes, L., Newby, K., Potts, H. W. W., Smith, L., Hon, A., Steptoe, A., & Fisher, A. (2019). Younger adolescents' perceptions of physical activity, exergaming, and virtual reality: Qualitative intervention development study. *JMIR Serious Games*, 7(2). <https://doi.org/10.2196/11960>
- Ferreira Silva, R. M., Mendonça, C. R., Azevedo, V. D., Raoof Memon, A., Noll, P. R., & Noll, M. (2022). Barriers to high school and university students' physical activity: A systematic review. *PLOS ONE*, 17(4). <https://doi.org/10.1371/journal.pone.0265913>
- Fredriksen, K., & Rhodes, J. (2004). The role of teacher relationships in the lives of students. *New Directions for Youth Development*, 2004(103), 45–54. <https://doi.org/10.1002/yd.90>
- Gao, Z., Chen, S., Pasco, D., & Pope, Z. (2015). A meta-analysis of active video games on Health Outcomes Among Children and Adolescents. *Obesity Reviews*, 16(9), 783–794. <https://doi.org/10.1111/obr.12287>
- Gil-Espinosa, F. J., Nielsen-Rodríguez, A., Romance, R., & Burgueño, R. (2022). Smartphone applications for physical activity promotion from Physical Education. *Education and Information Technologies*. <https://doi.org/10.1007/s10639-022-11108-2>
- Gill, M., Chan-Golston, A. M., Rice, L. N., Roth, S. E., Crespi, C. M., Cole, B. L., Koniak-Griffin, D., & Prelip, M. L. (2017). Correlates of social support and its association with Physical Activity Among Young Adolescents. *Health Education & Behavior*, 45(2), 207–216. <https://doi.org/10.1177/1090198117714826>
- Guidelines for school and community programs to promote lifelong physical activity among young people. (1997). *Journal of School Health*, 67(6), 202–219. <https://doi.org/10.1111/j.1746-1561.1997.tb06307.x>
- Guran, A.-M., Cojocar, G.-S., & Dioşan, L.-S. (2022). The next generation of edutainment applications for young children—a proposal. *Mathematics*, 10(4), 645. <https://doi.org/10.3390/math10040645>

- Hohepa, M., Scragg, R., Schofield, G., Kolt, G. S., & Schaaf, D. (2007). Social support for youth physical activity: Importance of siblings, parents, friends and school support across a segmented school day. *International Journal of Behavioral Nutrition and Physical Activity*, 4(1), 54. <https://doi.org/10.1186/1479-5868-4-54>
- Jago, R., Brockman, R., Fox, K. R., Cartwright, K., Page, A. S., & Thompson, J. L. (2009). Friendship groups and physical activity: Qualitative findings on how physical activity is initiated and maintained among 10–11 Year Old children. *International Journal of Behavioral Nutrition and Physical Activity*, 6(1), 4. <https://doi.org/10.1186/1479-5868-6-4>
- Kellstedt, D. K., Schenkelberg, M. A., Essay, A. M., Welk, G. J., Rosenkranz, R. R., Idoate, R., Ramos, A. K., Grimm, B., & Dzewaltowski, D. A. (2021). Rural Community Systems: Youth physical activity promotion through community collaboration. *Preventive Medicine Reports*, 23, 101486. <https://doi.org/10.1016/j.pmedr.2021.101486>
- Koenka, A. C., Anderman, E. M., Anderman, L. H., & Won, S. (2020). Associations between ethnic identity and motivational beliefs in internationally adopted youth and the mediating role of school belonging. *Learning and Individual Differences*, 81, 101909. <https://doi.org/10.1016/j.lindif.2020.101909>
- Kohl, H. W., Craig, C. L., Lambert, E. V., Inoue, S., Alkandari, J. R., Leetongin, G., & Kahlmeier, S. (2012). The pandemic of physical inactivity: Global Action for Public Health. *The Lancet*, 380(9838), 294–305. [https://doi.org/10.1016/s0140-6736\(12\)60898-8](https://doi.org/10.1016/s0140-6736(12)60898-8)
- Landertinger, L., Cooper, M., Greene, E., & Hopson, A. (2021, March 31). Emotional and mental health support for black students: Responding to racial trauma and white terror amidst covid 19. Laura C. L. Landertinger, Anita Hopson, Elijah Greene, and Miracle Cooper. *issuu*. Retrieved June 21, 2022, from [https://issuu.com/aaua10/docs/twin\\_pandemics/s/11997062](https://issuu.com/aaua10/docs/twin_pandemics/s/11997062)
- Metcalf, B., Henley, W., & Wilkin, T. (2012). Effectiveness of intervention on physical activity of children: Systematic review and meta-analysis of controlled trials with objectively measured outcomes (earlybird 54). *BMJ*, 345(sep27 1). <https://doi.org/10.1136/bmj.e5888>
- Minnesota K-12 Academic Standards Physical Education 2018 - perpich. (2017, December 26). Retrieved June 22, 2022, from <https://perpich.mn.gov/wp-content/uploads/2020/11/2018-MN-K-12-Standards-in-Physical-Education.pdf>
- Murphy, B. (2015). *Social: Why our brains are wired to connect*. by Matthew D. Lieberman. pp. X, 374. Oxford, Oxford University Press, 2013, £18.99. *The Heythrop Journal*, 56(3), 488–489. [https://doi.org/10.1111/heyj.12249\\_32](https://doi.org/10.1111/heyj.12249_32)
- Natishan, M. E., Schmidt, L. C., & Mead, P. (2000). Student Focus Group results on Student Team Performance Issues. *Journal of Engineering Education*, 89(3), 269–272. <https://doi.org/10.1002/j.2168-9830.2000.tb00524.x>

- Okuyama, J., Seto, S., Fukuda, Y., Funakoshi, S., Amae, S., Onobe, J., Izumi, S., Ito, K., & Imamura, F. (2021). Mental health and physical activity among children and adolescents during the COVID-19 pandemic. *The Tohoku Journal of Experimental Medicine*, 253(3), 203–215. <https://doi.org/10.1620/tjem.253.203>
- Onwuachi-Willig, A. (2021, April). The trauma of awakening to racism: Did the tragic killing of George Floyd result in cultural trauma for whites? Scholarly Commons at Boston University School of Law. Retrieved June 25, 2022, from [https://scholarship.law.bu.edu/faculty\\_scholarship/2773/](https://scholarship.law.bu.edu/faculty_scholarship/2773/)
- Palmer, S. E., Bycura, D. K., & Warren, M. (2018). A Physical Education Intervention Effects on Correlates of Physical Activity and Motivation. *Health Promotion Practice*, 19(3), 455–464. <https://www.jstor.org/stable/27008339>
- Physical Activity Guidelines Advisory Committee. (2018). 2018 Physical Activity Guidelines Advisory Committee Scientific Report. Retrieved from Washington, DC: U.S. Department of Health and Human Services
- Physical activity among U.S. high school students. *The State of Childhood Obesity*. (2020, September). Retrieved June 22, 2022, from <https://stateofchildhoodobesity.org/high-school-physical-activity/>
- Puccinelli, P. J., da Costa, T. S., Seffrin, A., de Lira, C. A., Vancini, R. L., Nikolaidis, P. T., Knechtle, B., Rosemann, T., Hill, L., & Andrade, M. S. (2021). Reduced level of physical activity during COVID-19 pandemic is associated with depression and anxiety levels: An internet-based survey. *BMC Public Health*, 21(1). <https://doi.org/10.1186/s12889-021-10470-z>
- Rapeepisarn, K., Wong, K. W., Fung, C. C., & Depickere, A. (1970, January 1). Similarities and differences between "learn through play" and "edutainment". Murdoch University Research Repository. Retrieved June 21, 2022, from <https://researchrepository.murdoch.edu.au/id/eprint/993/>
- Rajbhandari-Thapa, J., Metzger, I., Ingels, J., Thapa, K., & Chiang, K. (2022). School climate-related determinants of physical activity among high school girls and boys. *Journal of adolescence*, 94(4), 642–655. <https://doi.org/10.1002/jad.12052>
- Reed, J. E., & Card, A. J. (2015). The problem with plan-do-study-act cycles. *BMJ Quality & Safety*, 25(3), 147–152. <https://doi.org/10.1136/bmjqs-2015-005076>
- Reg Chapman. (2020, April 29). Coronavirus In Minnesota: Minnesota National Guard Hosts CrossFit Wednesdays Aimed At School Kids. <https://minnesota.cbslocal.com/2020/04/29/coronavirus-in-minnesota-minnesota-national-guard-hosts-crossfit-wednesdays-aimed-at-school-kids/>
- Rink, J. E. (2013). Measuring teacher effectiveness in physical education. *Research Quarterly for Exercise and Sport*, 84(4), 407–418. <https://doi.org/10.1080/02701367.2013.844018>

- Scanlan, T. K., Babkes, M. L., & Scanlan, L. A. (2005). Participation in sport: A developmental glimpse at emotion. In J. L. Mahoney, R. W. Larson, & J. S. Eccles (Eds.), *Organized activities as contexts of development: Extracurricular activities, after-school and community programs* (pp. 275–309). Lawrence Erlbaum Associates Publishers.
- Shi, J., & Huang, Y. (2020). Application of edutainment in curriculum design of Mental Health Education. *REVISTA ARGENTINA DE CLINICA PSICOLOGICA*. <https://doi.org/10.24205/03276716.2020.388>
- Sierra-Díaz, M. J., González-Víllora, S., Pastor-Vicedo, J. C., & López-Sánchez, G. F. (2019). Can we motivate students to practice physical activities and sports through models-based practice? A systematic review and meta-analysis of psychosocial factors related to physical education. *Frontiers in Psychology*, 10. <https://doi.org/10.3389/fpsyg.2019.02115>
- Sliwa, S., Nihiser, A., Lee, S., McCaughtry, N., Culp, B., & Michael, S. (2017). Engaging students in physical education: Key challenges and opportunities for physical educators in urban settings. *Journal of Physical Education, Recreation & Dance*, 88(3), 43–48. <https://doi.org/10.1080/07303084.2017.1271266>
- Solomon-Moore, E., Sebire, S. J., Thompson, J. L., Zahra, J., Lawlor, D. A., & Jago, R. (2017). Are parents' motivations to exercise and intention to engage in regular family-based activity associated with both adult and child physical activity? *BMJ Open Sport & Exercise Medicine*, 2(1). <https://doi.org/10.1136/bmjsem-2016-000137>
- Tal, A., & Wansink, B. (2011). Turning virtual reality into reality: A checklist to ensure virtual reality studies of eating behavior and physical activity parallel the real world. *Journal of Diabetes Science and Technology*, 5(2), 239–244. <https://doi.org/10.1177/193229681100500206>
- Taverno Ross S., Hasson R., Johnson M., Nocera V, Sallis J., Simon L., Wheeler L., & the ACSM Strategic Health Initiative on Health Equity., (2020). The urgency of now: Achieving equity in school physical activity policies and practices during the COVID-19 pandemic. American College of Sports Medicine Blog post. 2020. Available at: <https://www.acsm.org/blog-detail/acsm-blog/2020/09/24/urgency-equity-school-physical-activity-policies-practices-during-covid-19-pandemic>
- Taverno Ross S., Mussington M., Roberts L., Wheeler L., (2020). Roadmap for K-12 Education: Recess & Physical Education. Perkins & Will Toolkit. 2020. Available at: [https://issuu.com/perkinswill/docs/recess\\_physical\\_education\\_guidance\\_for\\_re-openin](https://issuu.com/perkinswill/docs/recess_physical_education_guidance_for_re-openin)
- Viner, R., Russell, S., Saule, R., Croker, H., Stansfield, C., Packer, J., Nicholls, D., Goddings, A.-L., Bonell, C., Hudson, L., Hope, S., Ward, J., Schwalbe, N., Morgan, A., & Minozzi, S. (2022). School closures during Social Lockdown and Mental Health, health behaviors, and well-being among children and adolescents during the first COVID-19 wave. *JAMA Pediatrics*, 176(4), 400. <https://doi.org/10.1001/jamapediatrics.2021.5840>

- Weinberger, & McCombs, B. L. (2003). Applying the LCPs to High School Education. *Theory into Practice*, 42(2), 117–126. [https://doi.org/10.1207/s15430421tip4202\\_5](https://doi.org/10.1207/s15430421tip4202_5)
- Weiss, M. R., Corbin, C., & Pangrazi, B. (2000). Motivating kids in physical activity. *PsycEXTRA Dataset*. <https://doi.org/10.1037/e603522007-001>
- Wheeler L., (2022). Boots on the ground: Perspectives from a PE teacher during COVID-19. Presented as part of a Symposium Session entitled: “The urgency of now: Achieving equity in school physical activity policies and practices during COVID-19 and beyond.” American College of Sports Medicine Annual Meeting, San Diego, CA. June 2022.
- Wunsch, K., Kienberger, K., & Niessner, C. (2022). Changes in physical activity patterns due to the COVID-19 pandemic: A systematic review and meta-analysis. *International Journal of Environmental Research and Public Health*, 19(4), 2250. <https://doi.org/10.3390/ijerph19042250>
- Zheng, W., Ma, Y.-Y., & Lin, H.-L. (2021). Research on blended learning in physical education during the COVID-19 pandemic: A case study of Chinese students. *SAGE Open*, 11(4), 215824402110581. <https://doi.org/10.1177/21582440211058196>