5-1-2024

Does Appearance Matter? The Relationship of Perceived Body Size and Physical Appearance on Students' Attraction to Physical Activity at Recess

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DOES APPEARANCE MATTER? THE RELATIONSHIP OF PERCEIVED BODY SIZE AND PHYSICAL APPEARANCE ON STUDENTS' ATTRACTION TO PHYSICAL ACTIVITY AT RECESS

A Thesis Submitted in Partial Fulfillment of the
Requirements for the Degree of
Master of Science

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Natural and Health Sciences
School of Sport and Exercise Science
Social Psychology of Sport and Physical Activity

May 2024

This Thesis by: Danielle Jordan Belcher

Entitled: *Does Appearance Matter? The relationship of perceived body size and physical appearance on students' attraction to physical activity at recess*

has been approved as meeting the requirement for the Degree of Master of Science in College of Natural and Health Sciences in School of Sport and Exercise Science, Program of The Social Psychology of Sport and Physical Activity.

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ABSTRACT

Belcher, Danielle J. *Does appearance matter? The relationship of perceptions of body size and physical appearance on students' attraction to physical activity.* Unpublished Master of Science thesis, university of Northern Colorado, 2024.

Drastic declines in recess physical activity (PA) have been observed within recent years (Center for Disease Control (CDC), 2017). Due to recess' discretionary nature, psychosocial variables associated with PA are predictors of students' PA levels. Recess is also a time of heightened bullying occurrences (Vaillancourt et al., 2010). Appearance-based bullying is the most common type of victimization that occurs in schools, transpiring more often in children with larger body max indexes (BMI), and possibly altering students' physical self-perceptions. Physical self-perceptions have been shown to impact PA motivation, however, it is still unknown the extent to which appearance-based bullying, body size, and physical self-perceptions may impact attraction to PA in the recess environment. The overarching purpose of this research was to examine the impact of Playworks programming implementation in Aurora public school district partner schools. More specifically, the other purpose of this study was to investigate group differences in older elementary school students based on body size, grade level, gender, and race/ethnicity relative to victimization based on appearance at recess, students' attraction to physical activity, and students' self-perceptions of physical appearance as well as examine the relationship between victimization based on physical appearance at recess, perceptions of physical

appearance, and attraction to physical activity. Four research questions were posed to guide this study.

Q1 Are there group differences according to gender, race/ethnicity, grade level, and body size in perceived physical appearance at recess, victimization status relative to appearance at recess, and student's attraction to physical activity (CAPA) at recess?

Q2 What is the relationship between students' victimization relative to appearance and their attraction to physical activity during recess?

Q3 What is the relationship between students' self-perceptions of their physical appearance and their attraction to physical activity during recess?

Q4 Does victimization relative to appearance at recess impact the relationship between perceived physical appearance and students' attraction to PA levels at recess?

Students in 3rd - 5th grades (n=795, 49.3% male, 56.1% regular body size, 46.4% 4th grade, 27.3% Hispanic) completed surveys that included one self-reported body size question, a perceived victimization scale, the physical appearance subscale of the Self-Perception Profile for Children, and the Children's Attraction to Physical Activity (CAPA) scale. Group difference analyses revealed "just the right" body sized children had a significantly higher perception of their physical appearance ($p < .001$) and attraction to PA ($p < .001$) compared to smaller and bigger body sized children. Correlation analyses showed that student's perceived physical appearance had a significant direct correlation ($p < .001$, $\rho = 0.423$) with student's attraction to PA. Findings provide evidence that negative physical appearance perceptions may pose a risk and diminish a student's attraction to PA, and therefore, physical appearance perceptions may be a meaningful focus of recess interventions.

ACKNOWLEDGEMENTS

The process of writing this thesis represents the ending of my Masters' degree program at the University of Northern Colorado. The past two years have shaped me and helped me grow in so many ways, and that would not have been possible without many of my supporters. I would first like to thank my advisor, Dr. Megan Babkes Stellino. She has unswervingly supported me throughout every part of the graduate school experience. She has provided me with many optimal challenges to help me grow as a researcher, critical thinker, and person. She has impacted my life greatly and truly exemplifies what it means to be a mentor. I will forever be grateful to her for all her efforts that have selflessly been poured into me. I would also like to thank my fellow graduate school students, Lindsey and Cadie. They have both been there for me throughout this entire process and were always another person who related to what I was going through. The graduate school experience is not an easy one and would be next to impossible without fellow students going through the same thing. I also want to thank my friends and family who have supported me 100% throughout my journey. There were many days where I did not feel I was competent or capable, and they were always there to reassure me. In particular, my mother has demonstrated to me what it means to be a strong and successful woman and has been a constant role model for what is possible in my life. I am forever grateful to her and her constant encouragement. I am also incredibly grateful to my brother. He too has experienced graduate school and I have gone to him endless times for advice and he is always there to provide it. Without all of these people I would not have been able to complete my degree and grown in the

ways that I did. These people have shaped me into the person that I am today, and I am indebted to them forever for the contributions they have made to my journey.

TABLE OF CONTENTS

LIST OF TABLES

CHAPTER I

INTRODUCTION AND REVIEW OF THE LITERATURE

Recess Environment

Physical activity engagement in children and youth has been shown to have many physical health benefits including a decreased risk of cardiovascular disease development (Füssenich et al., 2015), improved management of type 1 and type 2 diabetes (Nadella et al., 2017), and increased bone density (Janz et al., 2001). Physical activity has also been shown to have psychological, social, and emotional benefits such as decreasing depression symptoms, improving self-perceptions, reducing stress, and acting as a context to form important social relationships (Brière et al., 2020; Dale et al., 2019). The recommended amount of time for youth to be engaged in physical activity is 60 minutes per day to receive health benefits (Center for Disease Control, 2017); however, currently only 24% of youth aged 6-17 years are meeting the recommended time (Dozier et al., 2020). With most children and youth spending a substantial amount of their waking hours in school, and the school day consisting of about 63% sedentary time (Egan et al., 2019), identifying certain times during the school day in which physical activity can take place could potentially help counteract the current high numbers of sedentary youth. Recess is an opportune time in the school day for students to obtain critical physical activity minutes (Wechsler et al., 2000).

Recess is one of the only non-academic curricular based times during the school day for students, providing them an opportunity to autonomously choose the activities in which they engage in (Jago & Baranowski, 2004). While this context potentially creates an opportunity for

students to engage in physical activity, the autonomous nature of recess also allows students to engage in more sedentary behaviors. Hovell and collogues (1978) found that American students spent 60% of their recess time engaged in moderate to vigorous physical activity, whereas more recent research indicated that students engaged in moderate to vigorous physical activity for less than 50% of the recess period (McKenzie et al., 1997), which indicates a significant decline in recess physical activity levels in youth.

An important contributor to physical activity motivation during recess has been established to be the satisfaction of student's basic psychological needs (Babkes Stellino & Sinclair, 2013). An individual's basic psychological needs include the need for competence, need for autonomy, and need for relatedness in order to have self-determined motivation (Deci & Ryan, 2000). The authors further explain that the satisfaction of these needs is required for psychological well-being and for optimal growth to take place. Natural processes, such as intrinsic or self-determined motivation, can only occur when one's psychological needs are met (Deci & Ryan, 2000). When an individual does not have these psychological needs met, more defensive and self-protected processes take over and no longer allow for true self-determined motivation to occur (Deci & Ryan, 2000). This theory is valid for the recess environment (Babkes Stellino & Sinclair, 2013), and therefore, satisfaction of basic psychological needs is crucial for self-determined physical activity motivation to be possible in students during recess.

The need for autonomy is satisfied through individuals feeling as though they have a choice. Autonomy shifts one's locus of control inward and away from external sources, and thus, increases the ability to feel self-determined when making decisions (Deci & Ryan, 2000). The need for competence is when a person perceives themselves as being able to perform well in a given context or on a particular task, such as physical activity (Deci & Ryan, 2000). When one

feels competent in a context or task, they are more inclined to be motivated to do that certain activity (Deci & Ryan, 2000). Autonomy is important for predicting if one experiences motivation in a self-determined way versus an externally regulated way, and competence is important for an individual's motivation or want to participate in an activity. The need for relatedness is a less strong yet relevant need influencing self-determined motivation (Deci & Ryan, 2000). Relatedness is the feeling of belonging or connectedness and can be important in providing a sense of safety to an individual (Deci & Ryan, 2000). If an individual feels safe, they may be more inclined to be motivated to engage in a certain context, such as physical activity or recess.

Certain environments and social contexts can be either need-supportive or need-thwarting depending on aspects of the climate (Vansteenkiste et al., 2020). This makes the recess social environment especially important to consider when attempting to predict student motivation to engage in physical activity. Babkes Stellino and Sinclair (2013) found that satisfaction of the need for competence, autonomy, and relatedness significantly predicted elementary students' autonomous motivation to engage in physical activity. The authors found that satisfaction of the need for competence in students was of particular importance for prediction of autonomous motivation to engage in physical activity during recess; thus, demonstrating the importance of a competence supportive recess environment. Massey and colleagues (2020a) found that when examining student's perspectives on recess; bullying, power dynamics, and gender conformity were identified as important predictors of engagement in physical activity during recess, further pointing to the importance of social aspects within the recess environment. In addition, Stanley and colleagues (2012) found that students identified barriers to engagement in physical activity during recess as largely socially and emotionally based, and include bullying, teasing, and a lack

of peer support. These studies indicate the importance of the social and emotional climate in the determination of student's motivation to engage in physically active play while at recess.

The recess environment can be a positive atmosphere for students that supports emotional and psychological health, and therefore, physical activity motivation. Recess often provides an opportunity for students to go outdoors and engage in nature-based play, which, even in small doses, has been shown to improve psychological markers (Meredith et al., 2020). The presence of organized games at recess has also been shown to increase cooperative play and intercultural interactions (Leff et al., 2004). Recess can further act as a forum for unstructured play to occur, defined as a time in which students are afforded the possibility to follow their own intuitions without a particular goal or objective (Canadian Public Health Association, 2019). Unstructured play has been shown to have many emotional and psychological benefits such as occasions to practice negotiation skills and decreasing levels of stress (McNamara, 2021). For many students, especially those in low-income neighborhoods, recess is the only time during the day in which they have the chance to engage in free and safe unstructured play (Dubroc, 2007). Lastly, recess is also an environment to engage in social interactions (McNamara, 2021). Regular social interactions contribute to feelings of connectedness and relatedness for students and are an essential part of overall well-being and motivation (Baumeister & Leary, 2017). With the high levels of outdoor, unstructured, and socially engaging play occurring at recess, it is understandably a context in which psychological needs can be met and self-determined motivation for physical activity can be fostered.

Despite the many opportunities for recess to be a positive context supporting physical activity motivation, many studies have identified negative aspects of the recess context. One area consistently identified as problematic in the recess domain is social conflict (McNamara, 2021).

For example, bullying occurs most frequently at recess compared to all other school spaces (Vaillancourt et al., 2010). Bullying is a form of negative social interaction and those that partake (both the aggressors and the victims) have been shown to have lower levels of psychological adjustment (Nansel et al., 2001). Victimization during recess has been shown to have a strong negative association with feelings of belongingness while at recess (McNamara et al., 2018). Physical violence can also be a concern at recess. McNamara (2021) found that 30% of students reported only feeling "somewhat safe" or reported feeling "not safe at all" during recess. Students also report difficulties with peer inclusion and acceptance on the playground, leading to difficulties with feelings of relatedness during recess (Doll et al., 2003). When recess is a context with abundant negative social interactions, this can make cooperative and inclusive play difficult for students to achieve (McNamara, 2021). In addition, the negative aspects within the context of recess can potentially decrease satisfaction of all three of student's basic psychological needs, and therefore, decrease autonomous motivation levels to engage in physical activity at recess.

Students' Attraction to Physical Activity

Attraction to physical activity is defined as "an individual's desire to participate in a task involving physical exertion or movement, through play, games, and sports." (Rose et al., 2009, p. 573). A child's attraction to physical activity is important in determining an individual's intrinsic motivation to participate in physical activity (Rose et al., 2009). Motivational theorists explain that students who are attracted to physical activity engagement, through enjoyment, challenge, and support from significant others, are more likely to participate in physical activity through the mechanism of motivation enhancements (Harter, 1978; Nicholls, 1990). Therefore, a child's attraction to physical activity is an important indicator of their overall motivation to engage in physical activity. Brustad (1993) first developed the Children's Attraction to Physical Activity

(CAPA) scale through open-ended conversations with third and fourth grade children. The conversations began by asking children what they thought about physical activity in general, and developed aspects that children did, or did not, like about physical activity as well as their affective experiences. Brustad (1993) found that two dimensions existed in children's attraction to physical activity; cognitive and emotional dispositions towards physical activity. Brustad (1993) also emphasized a multidimensional lens to understanding children's attraction to physical activity and found five subscales that comprise children's overall attraction to physical activity. These included: (1) Liking of Vigorous Exercise; (2) Liking of Games and Sports; (3) Importance of Exercise; (4) Peer Acceptance in Games and Sports; and (5) Fun of Physical Exertion. Liking of Vigorous Physical Activity referred to children's feelings about engaging in vigorous exercise. Liking of Games and Sports addressed the fun experienced while playing games and sports. Importance of Exercise referred to children's cognitions about the importance of engaging in physical activity for health benefits. Peer Acceptance in Games and Sports addressed children's popularity while they are participating in games and sports. Fun of Physical exertion referred to children's enjoyment of certain exertional aspects of physical activity (i.e., being out of breath; Brustad, 1993). The subscales of Liking of Vigorous Physical Activity and Fun of Physical Exertion are positively associated with physical activity levels in students and demonstrate their importance (Seabra et al., 2013a). The five subscales encompass the cognitive and affective dimensions of children's attraction to physical activity levels and were developed from aspects that children themselves identified as important to their physical activity attitudes and orientations, making it a unique and encompassing measure of children's orientations toward physical activity.

In an effort to understand many children's attraction to physical activity, the scale developed by Brustad (1993) has been used widely across various youth physical activity contexts including youth sports (Seabra et al., 2013a.), Positive Youth Development Contexts (Ullrich-French et al., 2012), and school-based physical activity environments such as physical education classes (Ernst & Pangrazi, 1999), physical-activity classroom programs (Barry et al., 2002), and after school physical activity programs (King et al., 2011). However, children's attraction to physical activity is still understudied within the recess environment. This is problematic because recess physical activity experiences, which include enjoyment levels and sometimes exclusion from peers, have been shown to affect an individual throughout their entire lifespan and influence adult participation in physical activity (Massey et al., 2021). Massey and colleagues (2021) found that memories of recess and early experiences within physical activity contexts impacted adult attitudes towards physical activity. Therefore, understanding and improving young children's attraction to physical activity within physical activity contexts, such as recess, is crucial for creating positive orientations towards movement throughout the lifespan.

The CAPA scale has been used widely in various demographic groups that may be more likely to have negative experiences at recess. Children's attraction to physical activity has been shown to vary in different demographic populations including by gender, socioeconomic status, and weight status (Brustad, 1996; Seabra et al., 2013a). Parents have also been shown to be an important influence on children's attraction to physical activity, mostly through support of their children's physical activity endeavors (Brustad, 1993; Trost et al., 2003). Psychological mechanisms have further been found to increase children's attraction to physical activity levels, such as high levels of perceived physical competence (Paxton et al., 2004; Seabra et al., 2013b; Welk & Schaben, 2004) and high self-esteem levels (Medina, 2009). Due to the many

contributing factors that influence attraction to physical activity, it is important to further understand the antecedents of attraction to physical activity.

Physical Self-Perceptions

Self-perceptions are defined as the way that people view and think about themselves (Leary & Tangney, 2003). Individual self-perceptions have been explained as both multidimensional and hierarchical (Shavelson et al., 1976). The multidimensional model of the self pinpoints six domains that an individual maintains about their self-perceptions including social, academic, employment, moral, physical, and global (Shavelson et al., 1976). Contentions of the model also assert that there is a hierarchical nature to self-perceptions, with global self-perceptions being at the apex of the model, followed by the various other domains all being sub-parts of the global self-perception (Shavelson et al., 1976). Then, each specific domain has subdomains that comprise and contribute to the larger domain (Shavelson et al., 1976). Of particular interest and potential impact on exercise and physical activity psychology are an individual's physical self-perceptions (Sabiston et al., 2019). Within the hierarchical structure of the physical-self model (Shavelson et al., 1976) the authors outline four subdomains of one's physical self-perceptions that include appearance self-perceptions, body shape self-perceptions, conditioning self-perceptions or aerobic perceptions, and strength self-perceptions. Physical self-perceptions are what determine an individual's perceptions of competence within the physical activity domain, and therefore are theoretically a critical contributor to physical activity motivation levels (Sabiston et al., 2019).

High physical self-perceptions have been found to be associated with both improved psychological health (Biddle & Mutrie, 2007) and physical activity levels in elementary aged students across multiple cultures (Crocker et al., 2000; Raudsepp et al., 2002). In addition,

physical self-perceptions and physical activity levels have been shown to have even higher associations in female students as compared to male students (Inchley et al., 2011). Therefore, many physical activity interventions have focused on improving physical self-perceptions in students to increase physical activity levels. Physical self-perceptions have also been shown to be a mediator between student bullying victimization and decreased physical activity levels (Benítez-Sillero et al., 2022). Theoretically, this association can be explained in two ways: (1) through higher self-perceptions increasing physical activity participation (Annesi, 2006); or (2) through physical activity participation increasing perceptions of physical self-concept (Lubans et al., 2010; Velez et al., 2010). A meta-analysis was conducted to establish more clarity regarding the direction of this relationship; however, the data showed that there was not a clear consensus on directionality of the relationship between self-perceptions and physical activity levels (Babic et al., 2014). In terms of psychological effects, positive physical self-perceptions have also been associated with higher levels of intrinsic motivation for physical activity (Boyd et al., 2002). Physical self-perceptions have even been shown to have a stronger association with physical activity motivation than perceptions of motor competence (Ensrud-Skraastad & Haga, 2020). Physical activity motivation and self-perceptions have particularly strong associations in early adolescent girls (ages 11-16), possibly due to their changing bodies at the onset of puberty (Biddle & Wang, 2003). These findings suggest that motivation may be a mediator in the relationship between physical self-perceptions and physical activity levels; however, more evidence is needed to establish both directionality and the mediation relationship.

A specific subdomain of physical self-perceptions that is interesting to consider are the effects of appearance self-perceptions and their relationship with physical activity motivation and behavior. Physical self-perceptions pose a debate in their association with physical activity

levels. Some studies report that higher physical appearance self-perceptions are associated with higher physical activity levels in youth (ages 10-14; Crocker et al., 2000), whereas others indicate no significant relationship between physical appearance self-perceptions and physical activity levels (Planinšec & Fošnarič, 2005). A meta-analysis conducted by Babic and colleagues (2014) found a weak association between physical activity levels and perceptions of physical appearance. However, age was found as a significant moderator and the effect size was much higher in studies of early adolescents compared to studies of late adolescents (Babic et al., 2014). This suggests the varied associations found could be influenced by the sample's age. Positive perceptions of physical appearance, particularly those concerned with the body, have been shown to also protect against negative health behaviors related to physical activity such as over-exercising (Neumark-Sztainer et al., 2006). Regarding psychological effects of appearance self-perceptions and physical activity, perceptions of physical appearance have been found to affect levels of physical activity motivation (Hassandra et al., 2003). In a qualitative study, physical appearance was explained by students as a predictor for how they, or other students, would perform in physical endeavors, indicating that physical appearance perceptions effected physical activity competence perceptions (Hassandra et al., 2003). Physical appearance perceptions have also been shown to act as a catalyst for physical activity motivation, although these findings are mostly conducted with adult participants (Annesi, 2004; Vartanian et al., 2012). Clearly, the relationship between perceptions of physical appearance and physical activity motivation is a complex one which warrants further investigation to gain a more in-depth understanding of the relationship between the two constructs.

Physical activity and physical self-perceptions have been demonstrated to have a high association with one another across many studies (Babic et al., 2014); however, the directionality

of the relationship is still unknown. Particularly, the relationship between the subdomain of perceived physical appearance has been shown to affect physical activity levels and act as an important influential factor on physical activity motivation in youth (Hassandra et al., 2003). According to theoretical models, such as Self-Determination Theory (Deci & Ryan, 2000) and Competence Motivation Theory (Harter, 1978), the relationship between physical self-perceptions and physical activity levels may be explained through perceptions of physical competence; however, this relationship still requires more investigation to fully understand.

Victimization at Recess

A negative aspect putting the psychosocial environment at recess at risk is bullying victimization. Victimization, in the context of recess, is defined as the result of bullying (Volk & Lagzdins, 2009). Bullying is defined as a relationship problem characterized by a power imbalance in which a more powerful individual continually harms another individual, physically, psychologically, or emotionally (Craig & Pepler, 2003). Bullying has been reported to occur most often while at recess compared to any other space at school (Vaillancourt et al., 2010). In the context of recess, experiences of victimization are important to consider in examinations of student psychological experiences on the playground. Volk and Lagzdins (2009) demonstrated that there are various subtypes of bullying and victimization, including verbal, rumor, ethnic, threat, and sexual variations. Almost all of these subtypes are at a much higher level in schools when compared to other contexts, such as athletics (Volk & Lagzdins, 2009). McNamara and colleagues (2018) explained that there are also various aspects of identity that one could experience bullying for, including race/ethnicity, first language, and appearance. Appearance, being a subcategory of physical self-perceptions, is especially important to investigate in the context of associations with student physical activity engagement.

Appearance related bullying is a common occurrence in youth, with some studies reporting as high as 75% of students experiencing victimization resulting from teasing or bullying about their appearance (Lovegrove & Rumsey, 2005). In fact, when compared with other dimensions of victimization, appearance related bullying is by far the highest reported aspect students report being victimized about (McNamara et al., 2018). Appearance related bullying can target several aspects of a student's appearance including skin diseases (Magin, 2013), dental appearance (Seehra et al., 2011), and weight (Klinck et al., 2020). Regarding weight, appearance related bullying occurs more often in children with larger BMIs (Klinck et al., 2020). This is especially problematic because bullying has also been shown to act as a barrier for physical activity participation through increasing depression and loneliness and decreasing social networks (Castañeda-Vázquez et al., 2020). This lack in social connection may lead to a decrease in students' motivation to engage in physical activity (Castañeda-Vázquez et al., 2020). Despite this speculation, few studies have explored how appearance victimization may be related to physical activity motivation and a student's overall attraction to participate in physical activity. Within a physical activity context, appearance related bullying can be especially damaging due to potential negative effects on a students' overall physical self-perceptions. Certain identities of students should receive special attention with regard to their attraction to physical activity and physical self-perceptions due to the increased barriers they may encounter in their physical activity motivation and participation.

The Influence of Identity

Students with a variety of demographics may be at an increased risk of not engaging in physical activity while at recess. These include students that identify as a minority (Sallis et al., 2000), lower socio-economic status (Kantomaa et al., 2007), older students (Trost et al., 2002),

non-boys (Biddle et al., 2005), and students with a bigger body size (Pope et al., 2020; Ridgers et al., 2014). Many psychological mechanisms could potentially contribute to this decrease in physical activity; however, since recess is a discretionary or "free choice" time for students, individual motivation to engage in physical activity becomes especially relevant to consider in this context. In addition to basic psychological needs satisfaction, Weiss and collegues (2000) described three main factors that contribute to student's motivation to engage in physical activity. These include perceptions of physical competence, enjoyment of physical activity, and social support. Any one of these motivational antecedents could potentially be predictive of a decrease in physical activity motivation in specific demographic groups. Each identity of a student may yield varied recess experiences due to their personal experiences of their identities, and therefore; each demographic factor warrants investigation into what motivational antecedents may not be being satisfied for them within the recess environment.

Race/Ethnicity

Students who identify as non-white have been shown to have a decreased likelihood of reaching the recommended amount of daily physical activity (Sallis et al., 2000). This could be due to personal psychological factors or systemic issues that occur at schools with higher non-white populations. Students in schools with more than a 50% minority population have the lowest number of recess minutes per week and are the least likely to engage in school-based physical activity (Robert Wood Johnson Foundation, 2007). Students who identify as non-white also have reported higher levels of feeling uncomfortable or unwelcome while at recess compared to their peers who identify as white (Arnold et al., 2023), potentially impacting their motivation to engage in physical activity while at recess. Despite the increased barriers for minority students to participate in physical activity, most studies do not indicate a difference in

racial and ethnic groups' levels of physical activity during recess (Ridgers et al., 2011; Siahpush et al., 2012) Other studies even found that non-white students were more active than their white peers (Ariz et al., 2022). The discrepancies found between physical activity barriers and actual participation levels indicate a need to further investigate racially diverse students' experiences as they relate to physical activity participation during recess and if motivation antecedents to engage in physical activity may be varied among those of different racial demographic groups.

Socio-Economic Status

Another important demographic difference to assess in the context of student's physical activity levels is their socio-economic status (SES). Students in schools that have a free and reduced lunch eligibility rate of greater than 75% tend to have the lowest number of recess minutes throughout the school day (Robert Wood Johnson Foundation, 2007). This is especially problematic due to the findings that students of lower SES status have lower overall rates of engagement in daily physical activity (Kantomaa et al., 2007). This may be due to increased barriers to participate in physical activity for students in lower-income households. Students in low-income neighborhoods reported access to after-school programs, high quality local facilities (e.g., recreation facilities or community centers), and perception of safe adults as important to engage in physical activity (Romero, 2005). However, students in lower SES areas have also reported difficulties in accessing high- quality facilities (Sallis et al., 1996). Participation and membership fees for after-school programs may act as another barrier in obtaining physical activity recommendations for low-income youth. Physical activity motivation levels have also been shown to be decreased in lower income youth, possibly due to the increased barriers they experience (Hashemi Motlagh et al., 2022). Within the recess environment, students of low and high SES status have been shown to exhibit similar levels of physical activity (Baquet et al.,

2014). This may be due to the fact that recess can present an opportunity for physical activity without the barriers that exist for outside of school time physical activity participation, such as cost and access to facilities. Budgetary concerns in low-income schools could potentially pose an issue in access to high quality physical activity opportunities. Massey and colleagues (2020b) found that the quality of the recess environment was significantly associated with physical activity participation in both boys and girls, which indicated that even though individual cost barriers may be removed during recess, access to quality environments during recess may still be a barrier for low-income students and communities. The unique barriers for physical activity participation for low-income students both inside and outside of school creates a need to investigate what group differences in SES status may exist in student's motivation to engage in physical activity during recess.

Age

Elementary schools serve a wide array of students at various developmental stages, creating a necessity to understand developmental differences in each of these grade levels and their differences in attraction to physical activity. It has been shown that grade level differences exist in the total amount of physical activity engaged in throughout the day (Trost et al., 2002). Within the school environment, Stratton (1997) found that physical activity engagement, as measured by heart rate, started to increase around 9-10 years of age, peaked at 11-12 years of age, then began to decline as students emerged into adolescence. They attributed this difference in older students to either decreased enthusiasm for physical activity or delivery of the program (Stratton, 1997). Other researchers who examined grade level differences in physical education movement participation found that younger grades (1st and 2nd) had higher activity levels than older grades (Tanaka et al., 2018). Findings from Dumith and colleagues (2011) suggest that

adolescents are less active than primary school students; however, there is less known concerning activity levels in various elementary school-aged students. A reason for this decline in adolescent aged student's physical activity levels may be due to a decrease in their enjoyment of physical activity (Haas et al., 2021), which could be explained by children's' overall attitudes and attraction to physical activity. However, this area is still understudied in elementary school students, which creates a need to look at grade level differences in student's attraction to physical activity as they approach adolescence in higher elementary grade levels.

Gender

In addition to physical activity typically decreasing as students age, physical activity levels are also typically significantly lower in female students as compared to male students (Biddle et al., 2005). Female students have been shown to exhibit lower levels of physical activity than males while at recess, and, interestingly, females exhibit significantly lower levels of physical activity while at recess compared to during physical education classes (Sarkin et al., 1997). This finding is noteworthy when considering recess because during students' discretionary time, female students actively chose to not participate in as much physical activity. Sarkin and colleagues (1997) proposed that the difference in physical activity at recess may be due to conforming to certain gender roles, where boys are seen as the "active ones" and girls are seen as the "social ones."

Other researchers have found support for gender roles affecting physical activity levels in girls. Vu and colleagues (2006) conducted focus groups with young boys and girls concerning perceptions of girls' physical activity levels. Boys reported physically active girls as "too aggressive" and "tomboys," whereas girls reported physically active girls as "in shape." However, girls did report boys' perceptions as both motivators and barriers to their physical

activity participation, suggesting that girls are influenced by boys' stereotypical beliefs on the way girls are "supposed" to act in regard to physical activity. Social motives to engage in physical activity have been shown to be important for girls' motivation levels but not for boys' motivation levels when engaging in physical activity (Kopcakova et al., 2015), further illustrating the importance of social mechanisms in determining girls' physical activity motivation.

Brustad (1996) confirmed differences in motivation to engage in physical activity between genders at a young age through assessment of student's overall attraction to physical activity, and specifically found differences in dimensions of Liking of Physical Exertion and exercise. Girls in his study reported less liking of the exertion aspects of physical activity, which suggested that perceptions of vigorous physical activity were more in line with stereotypes of boys and not girls (Brustad, 1996).

In addition to female students being less likely to engage in physical activity, transgender youth have also been found to engage in less physical activity than both cisgender males and females (Voss et al., 2023). This could potentially be explained by the finding that lower self-perceptions and decreased social support have been found in transgender individuals, and both have been shown to be a mediator of the difference in physical activity for transgender and cisgender people (Muchicko et al., 2014). While several researchers have investigated transgender youth in the athletic setting, very few have studied the physical activity experience for transgender youth in other physical activity settings, such as during recess. In addition, very few researchers have studied other gender nonconforming identities (e.g., nonbinary, gender fluid) within the context of physical activity settings and how their experiences may be different compared to cisgender or traditionally identifying students. The gap in knowledge concerning

how all gender identities engage during recess warrants a call for more investigation into the physical activity and recess experience for gender nonconforming students.

Body Size

Another group of students particularly at risk of not engaging in physical activity while at recess are students with bigger body sizes. Research findings have consistently shown that higher weight status students engage in less physical activity, particularly vigorous physical activity, at recess compared to their healthy weight peers (Pope et al., 2020; Ridgers et al., 2014). A potential psychological mechanism contributing to overweight student's decreased physical activity is a lack of their basic psychological needs satisfaction while at recess, and therefore a potential decrease in their motivation to engage in physical activity during recess. Babkes Stellino and Sinclair (2013) found that basic psychological need satisfaction was a predictor in overweight student's physical activity motivation as well as their actual participation in physical activity during recess. They particularly found that competence need satisfaction was especially relevant to increased physical activity participation among overweight students (Babkes Stellino & Sinclair, 2013). Spessato and colleagues (2013) demonstrated that one of the most significant negative predictors of a child's perceived physical competence was their BMI. A higher BMI has been shown to be associated with a pre-occupation about weight and worries about physical appearance (Wadden et al., 1991). This pre-occupation with physical appearance may translate into a decrease in one's physical self-perceptions, which have been negatively associated with physical activity participation (Crocker et al., 2000).

Weight-related bullying has been shown to be a common incident on the playground, with appearance-related bullying increasing as the victim's weight gets larger (Klinck et al., 2020). An increase of bullying for students with bigger body sizes may lead to a decrease in

relatedness need satisfaction or perceived belongingness during recess in addition to a decrease in competence need satisfaction. The lack of basic psychological need satisfaction during recess may contribute to an overall lower motivation and attraction to participate in physical activity while at recess in students with bigger body sizes or weight status.

Basic Psychological needs satisfaction has been identified as a salient theoretical aspect in the development of students' autonomous motivation for physical activity at recess (Babkes Stellino & Sinclair, 2013), as well as perceptions of physical competence, enjoyment of physical activity, and social support (Weiss et al., 2000). Various contextual aspects, such as bullying or victimization, leading to the lack of these motivation antecedents being satisfied during recess could potentially contribute to lower physical activity levels and motivation to engage in physical activity in these particular identities of students during recess.

Due to the connections between children's attraction to physical activity and their motivation to engage in physical activity, understanding influences on children's attraction to physical activity is key to understanding why certain students may be choosing not to engage in physical activity during recess. Children's attraction to physical activity has been measured in many school environments (Barry et al., 2002; Ernst & Pangrazi, 1999; King et al., 2011), but an understanding of this construct in the recess environment is still lacking. Recess is a unique environment within schools, that serves as one of students' only discretionary times. This creates an environment in which understanding motivation is critical, since there is typically no pre-determined schedule of activities that dictates what students are supposed to be engaging in during recess. This makes recess an opportunity to engage in physical activity, but not a definite time in which students receive critical physical activity minutes. Therefore, understanding the psychological determinants that influence physical activity behavior in students during recess is

critical to increasing physical activity involvement during recess. Recess is also an environment in which a high amount of bullying takes place (Vaillancourt et al., 2010), especially concerning student's physical appearance (McNamara et al., 2018). Appearance based bullying can impact student's physical self-perceptions (Benítez-Sillero et al., 2022), which can then impact physical activity motivation levels (Hassandra et al., 2003). However, no study has examined the relationship between students' physical self-perceptions, their attraction to physical activity levels, and how appearance-based bullying may be related to these two constructs.

The overarching purpose of this research was to examine the impact of Playworks programming implementation in the Aurora public school district partner schools. More specifically, the other purpose of this study was to investigate group differences in older elementary school students based on body size, grade level, gender, and race/ethnicity relative to victimization based on appearance at recess, students' attraction to physical activity, and students' self-perceptions of physical appearance as well as examine the relationship between victimization based on physical appearance at recess, perceptions of physical appearance, and attraction to physical activity. Four research questions were posed to guide this study.

Q1 Are there group differences according to gender, race/ethnicity, grade level, and body size in perceived physical appearance at recess, victimization status relative to appearance at recess, and student's attraction to physical activity (CAPA) at recess?

Q2 What is the relationship between students' victimization relative to appearance and their attraction to physical activity during recess?

Q3 What is the relationship between students' self-perceptions of their physical appearance and their attraction to physical activity during recess?

Q4 Does victimization relative to appearance at recess impact the relationship between perceived physical appearance and students' attraction to PA levels at recess?

CHAPTER II

METHODOLOGY

Participants

Participants for this study (n= 787) included third, fourth, and fifth grade students from nine different schools in a large urban school district in the Rocky Mountain region of the United States. The participants had a relatively even spread of gender, race/ethnicity, grade and body size. Refer to Table 2.1 for detailed participant demographic characteristics. The participants came from nine schools, geographically spread across the district boundaries and spanned a large array of socio-economic characteristics. The percentage of students eligible for free and reduced lunch ranged from 38.2% to 89.7% across schools. The percentage of students across the schools that were English learners, or students determined to require linguistic support to achieve standards in grade-level content in English, ranged from 3.8% to 44.3%. The percentage of students that were English Language Arts (ELA) proficient ranged from 12.7% to 86.4% and the percentage of students that were math proficient ranged from 6.5% to 78.9%. Refer to Table 2.2 to see all school-related demographics.

Table 2.1

Participant Sample Demographics

Characteristic	*f*	%
Race/Ethnicity		
Asian	47	6.0
Black	129	16.4
White/Caucasian	134	17.0
Other	260	33.0
Gender		
Boy	393	49.9
Girl	364	46.3
Gender nonconforming	30	3.8
Grade		
3rd	72	9.1
4th	371	47.1
5th	344	43.7
Body Size		
Small	192	24.4
"Just the right"	446	56.7
Big	149	18.9

Note. $N = 787$

Table 2.2

Participant School Demographics

School Number	Free and Reduced Lunch Eligible (%)	English Learner (%)	ELA Proficient (%)	Math Proficient (%)
1	68.7	29.1	21.4	12.6
2	70.7	21.9	32.2	22.6
3	49.3	16.6	28.9	25.4
4	88.1	44.3	20.1	11.6
5	80.7	N/A	12.7	6.5
6	89.7	N/A	12.7	6.5
7	38.2	3.8	86.4	78.9
8	72.0	29.8	26.7	13.6
9	84.0	44.2	16.4	13.0

Measures

The survey used in this study included the Children's Attraction to Physical Activity Scale (CAPA; Brustad, 1993), a self-reported body size question (CDC, 2023), a checklist style question about victimization at recess due to appearance (McNamara et al., 2018), questions derived from the Self-Perception Profile for Children regarding physical appearance (Harter, 2012), and various demographic questions including gender, grade, and race/ethnicity. Each measure is described below.

Student's Attraction to Physical Activity

The Children's Attraction to Physical Activity (CAPA; Brustad, 1993) scale attempts to assess student's overall attraction to various aspects of participation in physical activity. Brustad (1993) found five dimensions to represent student's attraction to physical activity through open discussions with third and fourth grade students from which he developed the CAPA scale to include subscales representing five dimensions. The dimensions included liking of vigorous physical activity (VPA), liking of games and sports (LGS), importance of physical activity (IPA), peer acceptance in games and sports (PAG), and fun of physical exertion (FPE) (Brustad, 1993). Example questions for each subscale, respectively, included "I enjoy exercising," "Playing games and sports is my favorite thing," "I think the more exercise I get the better," "I get told by other kids that I am good at games and sports," and "I like the feeling of being out of breath when I play hard." The original CAPA questionnaire utilized Harter's (1985) structured alternative format which contains an "either or" option with sort of true and really true options on either side of the response, aimed at reduction of socially desirable responses (Refer to Appendix A for an example of a structured alternative response format). However, the original response format was changed in the present study to first person statements that mostly avoided

negative language with a 4-point Likert response format in that students circled/marked the degree to which they agreed with a statement. This was done because the structured alternative format has been shown to be confusing for students (Ries et al., 2009). Specifically for prepubescent students, Marsh and MacDonald Holmes (1990) found that 31% of students responded to structured alternative formatted questions incorrectly. In contrast, Rose et al. (2009) found the 4-point Likert response format to be reliable when the CAPA was administered to young students. Therefore, the 4-point Likert scale with responses of "never," "sometimes," "most of the time," and "always" were utilized in the present study. The questions were also formatted in a way to eliminate negative language, as negatively oriented questions have been shown to cause young students difficulty in responding appropriately (Marsh, 1986). A shortened version of the CAPA with a total of 15 items, three items for each dimension, was included in the present study as opposed to the 26 items on the original CAPA. The 15-item version utilizes the three questions from each subscale that had the strongest factor loadings of the original longer version of the CAPA, as utilized by Soignier (2002). The CAPA section in this study was prompted on the survey by the header "What I am like…" to encourage students to answer the CAPA questions with reference to their overall attitudes towards physical activity, not exclusively while at recess (Refer to Appendix B for the entire CAPA scale utilized in the present study). The CAPA was originally developed with Caucasian middle-socioeconomic status students (Brustad, 1993), however it has been used in other studies and evidence has been established of the CAPA to be reliable in diverse populations including varying socio-economic statuses (Brustad, 1996; Rose et al., 2009) and for use in non-white race/ethnicities (Seabra et al., 2013a.). The CAPA scale has been shown to exhibit acceptable internal reliability with Cronbach (1951) alphas ranging from .62 -.78 for each subscale (Brustad, 1993). The CAPA scale has also

been shown to be a valid measure in young age groups confirmed though factor analysis (Rose et al., 2009). The scale was scored by assigning a 1 to the response of "never," a 2 to the response of "sometimes," a 3 to "most of the time," and a 4 for "Always." Three items on the CAPA were negatively oriented questions reading "I really DO NOT like to exercise," "I get teased by other kids when I play games and sports," and "I feel bad when I run hard," in which the scoring was reversed. Then, all scores for a specific subscale were summed to get the total score and divided by the number of questions in each subscale to get the mean scores for each subscale.

Self-Perceptions of Physical Appearance

Questions regarding student's physical self-perceptions were derived from Harter's Self-Perceptions Profile for Children (1985). Specifically, four questions out of the six total were chosen from the Physical Appearance subscale within the Self-Perception Profile for Children for this study (Refer to Appendix B for specific questions used in this study). The four questions with the highest and most consistent factor loading (Harter, 2012) were chosen to include in this study to maintain conciseness of the survey. Example questions included "I am happy with the way I look," and "I like my body the way it is." The response format for the scale was originally in the structured alternative format (Harter, 1985) however, the questions were again, as described above in the above section on the CAPA, rephrased into first person statements that avoided negative language with a 4-point Likert response format. The response format had options of "1 = never," "2 = sometimes," "3 = most of the time," and "4 = always." The participants were instructed to circle/mark the response they felt most closely described themselves. The self-perceptions of physical appearance section in this study was also prompted by the header "What I am like…" to encourage students to answer the self-perception questions in regard to their general feelings about themselves, not exclusively how they regard themselves

during recess. Harter's self-perception profile scale has previously been used numerous times and has been shown to be reliable in populations of varied socioeconomic status, Caucasian students, and students from several different countries (Harter, 2012). In the Self-Perception Profile for Children: Manual and Questionaries (Harter, 2012) the author compared eight studies and found the Cronbach (1951) alpha statistic for the physical appearance subscale to be in the acceptable reliability range (0.76-0.88) for all studies. The population for all studies were from Colorado, lower-middle socioeconomic class to upper-middle socioeconomic class, and 90% Caucasian. The Self-perception Profile has also been shown to be reliable in other populations such as in Dutch students (Muris et al., 2003) and students in the United Arab Emirates (Eapen et al., 2000). Harter (2012) also found acceptable exploratory factor validity in six samples, ranging from third grade to eighth grade students. The scale was created for use within grades 3-6 in elementary schools and has been primarily used in Caucasian middle socioeconomic class samples from Colorado, however, the scale has clearly expanded its use and proved reliable in other populations. The scoring method was similar to the CAPA, in which the response "never" was assigned a 1, "sometimes" was assigned a 2, "most of the time" was assigned a 3, and "Always" was assigned a 4. No questions in the scale were negatively oriented, so no reversed scoring was necessary. The scores for each question were then averaged to get a mean self-perception of physical appearance score for each participant.

Self-Reported Body Size

The self-reported body size question was derived from the Youth Risk Behavior Surveillance System Questionnaire (YRBSS) from the CDC (2023) (Refer to Appendix A for the original question). It has been found that self-reported weight varies from objective height and weight measurements in students (Himes & Story, 1992), with students reporting their self-

perceptions of their weight as lower than objective measurements. Self-perceived body size was intentionally utilized in this study to understand student's psychological constructions of their weights instead of objective measurements. The construct was also altered from the original format that asked about student's perceptions of weight, into asking about student's perceptions of their own body size (Refer to Appendix B for the modified question used in the present study). The question was changed to understand students' perceptions of their bodies instead of the one dimension of their weight. The revised question read, "circle/mark how **you** describe your body size." Participants had five response choices including "Very small body size," "Slightly smaller body size," "Just the right body size," "Slightly bigger body size," and "Very big body size." The responses were coded into ascending numbers with 1 being assigned to the "Very small body size" response and 5 being assigned to the "Very big body size" response. The responses were then combined into three groups with the first two responses of "Very small body size" and "Slightly smaller body size" being grouped into small body size responses, the middle response of "Just the right body size" being its own group, and the last two responses of "Slightly bigger body size" and "Very big body size" being grouped as big body size responses.

Appearance Based Victimization

One question focused on the students' victimization status regarding appearance during recess, and was derived from McNamara and collegues (2018) measure of recess victimization status. This scale was adapted from the Ontario Ministry of Education's (2009) sample school climate survey. The particular question used in this study was a part of a larger list of similar questions on the survey with the question stem, "Do others make you feel unwelcome or uncomfortable during recess because of any of the following?" Participants were then presented with a checklist style "yes/no" response format. The other questions focused on race, family's

income, and hobbies, however, the present study only utilized participants' responses to the question about appearance (Refer to Appendix B for the question utilized in the present study). Participant responses were coded into either a 1 for the response of "yes" or a 2 for the response of "no."

Demographics

Demographic questions included participants' school, gender, race/ethnicity, and grade. The demographic question concerning school was a write-in style question with the word school followed by a blank line on paper surveys and a drop-down selection style menu containing the nine schools that participated in the larger project for online surveys (Refer to Appendix B for the question used). The participants were then instructed to write the full name of their school on the line or to select their school from the drop-down menu depending on the style of survey administered. Each of the nine schools were assigned a number, and the surveys were coded according to the school number.

Gender was reported with a question that stated, "Your Gender (circle/mark)" and provided the options of "Boy," "Girl," "Transgender," and "Nonbinary," as well as another write-in option at the bottom if participants did not identify with any of the genders listed (Refer to Appendix B for the gender demographic question used in the present study). The response of "Boy" was assigned a 1, "Girl" was assigned a 2, "Transgender" was assigned a 3, "Nonbinary" was assigned a 4, and if the student chose the write in option, their response was assigned a 5. The responses were then later grouped into three categories of Boy, Girl, and Gender-Nonconforming according to the majority of answers.

The demographic question of race/ethnicity was asked as, "Your Race/ Ethnicity (circle/mark)," and the participants were provided eight options as well as Other with write-in

space for their response (Refer to Appendix B for the race/ethnicity question utilized in the present study). The responses were coded as follows: Asian as a 1, Black as a 2, White/Caucasian as a 3, Mexican/Hispanic/LatinX as a 4, Native American as a 5, Indian as a 6, Pacific Islander as a 7, Prefer not to say as an 8, and the other/ write-in option was coded as a 9. The responses were subsequently grouped into four categories of White/Caucasian, Black, Mexican/Hispanic/LatinX, and Other based on majority responses.

Grade in school was asked through the question, "What grade are you in (circle/mark)" with response choices of 3rd, 4th, and 5th grade (Refer to Appendix B for the grade level question utilized in the present study). The response of 3rd grade was coded as a 3, 4th grade was coded as a 4, and 5th grade was coded as a 5.

Procedures

The present study was a part of a larger study conducted to evaluate play equity at recess and the effectiveness of the Playworks Relay program. Ethics approval to conduct this study was obtained in Summer 2022 through the University of Northern Colorado's Institutional Review Board (Refer to Appendix C for validation of IRB approval). Schools were recruited through initial inquiry emails sent to various school principals that were a part of Aurora Public Schools and currently enrolled in the Playworks Relay program. A list of eligible principals/schools for the study was provided by the Playworks leadership team. Playworks is a recess intervention program in which a recess coach is employed by the organization and sent to schools during their recess times to facilitate game play and attempt to improve health and well-being in students (John W. Gardner Center, 1999). In the Relay program, each Playworks coach is split between two schools and acts as the recess coach for half of the total school days at each school.

To initiate the study, recruitment letters were distributed to school principals in Aurora public schools that were currently participating in the Playworks relay program (Refer to Appendix D for the recruitment letter used and for the recruitment email sent to principals). After principals volunteered and permission was obtained to have their schools participate in the larger project, passive consent forms were provided to principals to distribute to participants' parents or guardians. The schools included the passive consent form in newsletters sent to parents via email and posted on school websites. The form contained information about the study's purpose and overview of data collection content and protocols, the principal investigators, and contact information for UNC's Institutional Review Board if parents had any additional inquiries about the study. The passive consent form also contained a link to an online Qualtrics survey that the parents were instructed to fill out if they wished to opt their child out of participation in the study (Refer to Appendix E for the passive consent form provided to principals). If the form was not completed, passive consent was assumed from parents. Directly before surveys were distributed, assent was obtained from all student participants after a verbal overview of the study was provided. This was done through informing participants of the study's purpose, confidentiality procedures, and what was required of the students to participate in the study. Then, students were asked to provide a thumbs up if they agreed to participate, acting as a sign of their assent to participate and proceed with completion of the survey (Refer to Appendix E for the assent script used in survey administration). If the students chose not to participate, they were instructed to ask their teacher for an alternative activity while other students completed their survey, and they were not handed a survey during distribution by the researcher or research assistant.

A combination of paper surveys and online surveys were used to obtain information about students' past week recess experiences and were distributed to each student that agreed to

participate within the nine schools that partook in the larger project. Paper surveys were printed and completed with pencils, whereas the online surveys were completed though a Qualtrics link on iPad tablets provided to the students. The paper and online surveys matched exactly and followed the same structure and ordering of questions. Both types of surveys were given to participants through researcher or research assistant facilitation. Students were spaced apart at different desks or tables and instructed not to talk to one another to ensure students were completing their own survey independently without the help or influence of others. The researcher or research assistant introduced the survey, obtained assent, and then distributed either iPads or paper surveys to all students present that wished to participate in the study. The students were instructed to complete the survey based on their experience at recess during the past week. Emphasis was placed on the time period in which the students should consider when completing the survey. This was done through the researcher or research assistant reinforcing that the most recent week of recess is what students should think about when detailing their recess experiences to increase consistency across participants. During the last section of the survey containing attraction to physical activity and self-perceptions of appearance questions, students were instructed to fill out these sections based on their overall attitudes of themselves, not exclusively their attitudes while at recess. This was done to gain a more widespread understanding of the association between events occurring at recess and students' overall attitudes towards physical activity and physical self-perceptions. The survey responses used for this study were completed at the end of the 2022-2023 academic school year in May 2023. The surveys used in this study were a part of a larger longitudinal study that occurred during four various time points throughout the 2022-2023 school year. The study comprised of four equally spaced-out time points, and consisted of recess surveys, recess observations, and teacher surveys (See Appendix

F for an overview of the larger longitudinal study). Time four surveys were utilized in this instance because the students were most familiar with the survey at this point by having already completed the survey three previous times. Following the assent process, students were instructed to either follow along and answer questions as the researcher or research assistant read the surveys out loud, or to complete the survey silently at their own pace. The researcher or research assistant then read through the entire survey, giving students adequate time to answer each question before reading the next question. The students were also encouraged to ask any questions they had before, during, or after completing the surveys.

All questions that came up throughout the process were answered to the best of the researcher or research assistant's knowledge. Common questions asked by students were "What race/ ethnicity am I?" "What does physical activity mean?" and other general questions concerning formatting and meaning of specific words on the survey. Researchers were trained to answer these questions as consistently as possible and to the best of their knowledge through providing students with definitions of words, while ensuring to exclude any personal bias as to not influence participants' responses. An example of a response would be "I cannot tell you what race/ethnicity you are, but your race/ethnicity may be associated with where your family is from or the color of your skin."

The surveys took students approximately 20 to 25 minutes to complete, including initial instructions. After all surveys were finished, researchers collected all paper surveys or iPads and checked to ensure the surveys were adequately completed by participants. If a survey was found to have not been fully finished, the survey was handed back to the participant and they were asked to answer any missing questions. Occasionally, participants opted out of the survey

midway through in which case the survey was collected by the researcher or research assistant and was later determined if it was viable for analyses or not.

After completed surveys were collected, they were given to the project coordinator for organization and were only seen by the principal investigators or other research assistants associated with the project to ensure confidentiality. Each participant was also immediately assigned a participant number to ensure anonymity throughout the process. All online responses were stored in a password protected Qualtrics account that only the principal investigators or project coordinator had access to. The paper surveys were either kept in a locked office or were given to project research assistants to code into an excel sheet on a password protected Microsoft OneDrive account. After coding was completed by research assistants, the surveys were immediately given back to the project coordinator and stored in a locked office.

Design and Data Analysis

The design of this study was quantitative and cross-sectional to assess a large number and variety of student's perspectives at one point in time. Although the cross-sectional design has certain limitations, it has been widely used in the sport and exercise psychology literature, mostly for practical considerations with a large sample set (Hagger & Chatzisarantis, 2009). Quantitative data are also advantageous in making more broad generalizations to populations compared to qualitative designs. The present study had a large number of participants, so the cross-sectional quantitative design was chosen to assess as many students as possible in a realistic and efficient manner.

Data analyses consisted of several steps including descriptive analyses, preliminary analyses, group differences analyses, and correlation analyses. First, preliminary analyses were conducted to investigate reliability and descriptive statistics. Cronbach's (1951) alpha statistics

were calculated to measure reliability for each of the five subscales of the CAPA and for the physical appearance self-perception subscale. An alpha value of .70 was determined as the lowest acceptable level of reliability. If Cronbach (1951) alpha statistic did not meet the reliability threshold of .70, items were removed, and reliability was re-calculated to determine if certain questions needed to be left out of subsequent analyses. In addition to reliability statistics, the Shapiro-Wilik test for normality was administered to determine if the data were parametric or non-parametric. All variables were found to have a significance of $p < .001$, and therefore, determined to be non-parametric. For demographic variables including school, gender, race/ethnicity, grade, and reported body size, frequency analyses were conducted to analyze what percentage of participants belonged to each demographic grouping. Means and standard deviations were computed for overall and subscale CAPA scores and scores on physical self-perceptions. Means and standard deviations and frequency analysis were also calculated on responses to the victimization relative to appearance question used in this study.

The second set of analyses was done to address the first research question.

Q1 Are there group differences according to gender, race/ethnicity, grade level, and body size in perceived physical appearance at recess, victimization status relative to appearance at recess, and student's attraction to physical activity (CAPA) at recess?

Kruskal-Wallis tests were conducted on participants' gender, race/ethnicity, grade, and self-reported body sizes on overall and individual CAPA subscale scores as well as perceived physical appearance scores and victimization relative to appearance at recess responses. Then, mean rank analyses and pairwise comparisons were conducted on each significant Kruskal-Wallis H-value to determine where specific significant differences existed within groups as well as mean ranks within groups.

The third set of analyses were conducted to address the second, third, and fourth research questions.

Q2 What is the relationship between students' victimization relative to appearance and their attraction to physical activity during recess?

Q3 What is the relationship between students' self-perceptions of their physical appearance and their attraction to physical activity during recess?

Q4 Does victimization relative to appearance at recess impact the relationship between perceived physical appearance and students' attraction to PA levels at recess?

To assess these questions, separate Spearman Rho correlations were conducted on predictor independent variables (victimization status scores and physical self-perception scores) relative to the criterion dependent variables (total CAPA scores and CAPA subscale scores). Then, a partial correlation analysis was conducted to assess the association between perceived physical appearance and total CAPA when victimization status relative to appearance at recess was controlled for.

CHAPTER III

DOES APPEARANCE MATTER? THE RELATIONSHIP OF PERCEIVED BODY SIZE AND PHYSICAL APPEARANCE ON STUDENTS' ATTRACTION TO PHYSICAL ACTIVITY AT RECESS

This chapter has not been previously published

Contributions of Authors and Co-Authors

Manuscript in chapter IV

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Contributions: Developed the study idea. Developed and implemented the study design. Lead and conducted data collection. Organized and analyzed data. Wrote first draft of the manuscript.

Co-Author: Dr. Megan B. Stellino

Contributions: Helped develop the study idea and design. Provided guidance throughout the process. Reviewed and edited the manuscript.

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Contributions: Reviewed and edited later drafts of the manuscript.

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Contributions: Helped develop the study idea and design. Aided in data collection.

Introduction

Physical activity (PA) has been demonstrated to be crucial for various physical, emotional, and social health benefits in children (CDC, 2017); however, currently only 24% of youth meet the recommended amount of PA per day (Dozier et al., 2020). Most children today

spend a substantial amount of their time within schools, in which 63% of the day is spent sedentary (Egan et al., 2019), making schools a highly effective area for PA intervention. Recess is an opportune time during the school day in which critical PA can be achieved (Wechsler et al., 2000), however, only 50% of students are choosing to engage in PA during recess (McKenzie et al., 1997). Simply providing students with an opportunity to engage in PA therefore may not be sufficient to increase their PA. The typically autonomous and unstructured nature of recess highlights the importance of individual motivation levels relative to the amount of PA students engage in during recess and provokes a necessity to understand student PA motivation before effective PA interventions can be implemented and sustained during recess.

Children's attraction to PA encompasses both children's cognitive and affective orientations towards PA (Brustad, 1993), making the construct representative of multiple facets of how children feel and think about PA and thus important in understanding students' PA motivation (Rose et al., 2009). Public health efforts must focus on students' PA orientations within the context of school due to the impacts that recess has into later adulthood. Massey and colleagues (2021) found that adults' reflections of their recess experiences largely shaped their current views and orientations towards PA. Therefore, understanding children's attraction towards PA at recess is crucial not only for understanding children's motivation to engage in PA during recess, but also their lifelong attitudes towards PA.

According to Self-Determination Theory the extent to which basic psychological needs (autonomy, competence, and relatedness) are met or thwarted determines intrinsic motivation levels (Deci & Ryan, 2000). Babkes Stellino and Sinclair (2013) found that satisfaction of the need for competence, autonomy, and relatedness all significantly predicted students' autonomous

motivation levels to engage in recess PA, establishing evidence of the critical role of psychosocial factors in students' PA motivation.

Bullying has been reported to occur at recess more than any other space at school (Vaillancourt et al., 2010), and has the potential to create an extremely negative psychosocial environment for students. Appearance-based bullying has been reported as, by far, the most common type of bullying occurring at recess, with reports as high as 75% of students being victimized by this type of bullying (Lovegrove & Rumsey, 2005). Appearance-based bullying has furthermore been found to impact one's self-perceptions of physical appearance (Benítez-Sillero et al., 2022). Physical self-perceptions impact an individual's perceptions of competence within PA (Benítez-Sillero et al., 2022) and have been explained by children to be indicators for how they evaluate themselves and others in terms of PA performance (Hassandra et al., 2003). Physical self-perceptions have even been shown to have a higher association with PA motivation than motor competence perceptions (Ensrud-Skraastad & Haga, 2020). However, the subdomain of appearance self-perceptions is still understudied, and debate remains regarding whether appearance self-perceptions specifically impact PA motivation levels in children.

Certain groups of students have been identified as having inequities regarding meeting the recommended amount of PA per day, including students identifying as non-white (Sallis et al., 2000), as non-male (Biddle et al., 2005), older students (Dumith et al., 2011), and students with larger body sizes (Pope et al., 2020). These inequities are often attributed to environmental factors (Van Dyke et al., 2018) however; the psychosocial environment has largely been neglected in examinations of factors related to variations in students' PA according to their identities. Moreover, students' physical appearance self-perceptions as a factor associated with PA motivation and impacted by the recess psychosocial environment has been understudied. The

overarching purpose of this research was to examine the impact of Playworks programming implementation in the Aurora public school district partner schools. More specifically, the other purpose of this study was to investigate group differences in older elementary school students based on body size, grade level, gender, and race/ethnicity relative to victimization based on appearance at recess, students' attraction to physical activity, and students' self-perceptions of physical appearance as well as examine the relationship between victimization based on physical appearance at recess, perceptions of physical appearance, and attraction to physical activity.

Methods

Participants

Participants for this study (N = 787) included third (n=72), fourth (n=371), and fifth (n=344) grade students from nine different schools in one large urban school district in the Rocky Mountain region of the United States. The participants were 49.9% boys, 46.3% girls, and 3.8% gender non-conforming. The sample consisted of students who identified as 6.0% Asian, 16.4% Black, 17.0% White, 27.6% Mexican/Hispanic, and 33.0% "other" race/ethnicity. Participants' self-reported body sizes were 24.4% small body size, 56.7% "just the right" body size, and 18.9% bigger body size. A large array of socio-economic characteristics was included in the sample with the percentage of students eligible for free and reduced lunch ranging from 38.2% to 89.7% across schools. The percentage of students across the schools that were English learners, or students determined to require linguistic support to achieve standards in grade-level content in English, ranged from 3.8% to 44.3%. The percentage of students that were English-Language Arts (ELA) proficient ranged from 12.7% to 86.4% and the percentage of students that were math proficient ranged from 6.5% to 78.9%.

Instrumentation

Demographics

Demographic questions were placed at the beginning of the survey and included students self-report of their gender, race/ethnicity, grade, and body size. Gender and race/ethnicity questions respectively provided options for students to mark followed by a write-in option if they did not identify with any of the listed options. Grade and body size questions provided a list of answers to choose from, with grade answers that ranged from 3rd-5th grade and body size answers that included very small body size to very big body size options.

Appearance Based Victimization

One question focused on the students' victimization status regarding appearance during recess, and was derived from McNamara and collegue's (2018) measure of recess victimization status. The item used in this study was among a larger list of similar questions on the survey with the question stem, "Do others make you feel unwelcome or uncomfortable during recess because of any of the following?" Participants were then presented with a checklist style "yes/no" response format. The other questions focused on race, family's income, and hobbies, however, the present study only utilized participant's responses to the question about appearance.

Self-Perceptions of Physical Appearance

Questions regarding student's physical self-perceptions were derived from Harter's Self-Perceptions Profile for Children (1985). Four questions of the original six were chosen from the Physical Appearance subscale within the Self-Perception Profile for Children for this study. The response format for the scale was originally in the structured alternative format (Harter, 1985) however, the questions were rephrased into first person statements as well as statements that avoided negative language with a 4-point Likert response format due to this response type's

increased reliability in young students (Marsh, 1986; Marsh & MacDonald Holmes, 1990). Example questions included “I am happy with the way I look,” and “I like my body the way it is.”

Children’s Attraction to Physical Activity

The 15-item version of the Children’s Attraction to Physical Activity (CAPA; Brustad, 1993) scale was used in this study to assess student’s overall attraction to various aspects of participation in PA. The scale included five subscales, that had three items each, including liking of vigorous physical activity (VPA), liking of games and sports (LGS), importance of physical activity (IPA), peer acceptance in games and sports (PAG), and fun of physical exertion (FPE; Brustad, 1993). Example questions for each subscale, respectively, included “I enjoy exercising,” “Playing games and sports is my favorite thing,” “I think the more exercise I get the better,” “I get told by other kids that I am good at games and sports,” and “I like the feeling of being out of breath when I play hard.” The original response format was also structured alternative (Harter, 1985); and the questions were, again, rephrased into first person statements that avoided negative language with a 4-point Likert response format.

Procedures

The current study was a part of a larger project conducted to assess play equity and the effectiveness of the Playworks Relay model intervention. The larger project was longitudinal and included four separate time points that were evenly spaced throughout the 2022-2023 school year and consisted of recess surveys, recess observations, teacher surveys, administrator interviews, and focus groups with students. After IRB approval was obtained, schools were recruited through initial inquiry emails distributed to principals of schools that had the Playworks Relay program implemented. Once permission was obtained from principals, passive consent forms were

distributed to participants' parents via email and school newsletters. Parents were instructed to fill out a Qualtrics survey if they did not wish for their child to participate in the study. If the form was not completed, consent was assumed from parents. Student assent was also obtained before any survey administration commenced.

Surveys administered at time four were chosen for analysis in the present study due to the students being most familiar with the survey after completion three times prior. Surveys were completed in classrooms by students in approximately 20-25 minutes and administered on paper or online through an iPad. Surveys were read aloud to students by research assistants and students had the option to either follow along or complete the survey silently at their own pace. Students were instructed to stay silent during surveys to ensure independent completion. For any questions that arose during the process, research assistants were trained to answer the questions to increase comprehension while ensuring they did not influence student responses. Commonly asked questions by students were "What race/ ethnicity am I?" "What does physical activity mean?" and other general questions concerning formatting and meaning of specific words on the survey. Researchers were trained to answer these questions as consistently as possible through providing students with definitions of words, while ensuring to exclude any personal bias as to not influence participants' responses. An example of a response would be "I cannot tell you what race/ethnicity you are, but your race/ethnicity may be associated with where your family is from or the color of your skin." All completed surveys were organized, and responses were numerically coded into a spreadsheet.

Data Analysis

This quantitative cross-sectional study assessed the research questions with collected data through descriptive analyses, preliminary analyses, group differences analyses, and correlation

analyses. Preliminary analyses consisted of Cronbach's (1951) alpha statistics to measure reliability, Shapiro-Wilk test for normality, and descriptive statistics for all scales. An alpha value of .70 was determined as the lowest acceptable level of reliability. Group difference analyses consisted of Kruskal-Wallis tests conducted on participants' gender, race/ethnicity, grade, and self-reported body sizes on overall and individual CAPA subscale scores as well as perceived physical appearance scores and victimization relative to physical appearance at recess responses. Then, mean rank analyses and pairwise comparisons were conducted on each significant Kruskal-Wallis H-value to determine where specific significant differences existed within groups and mean ranks within groups. Correlation analyses consisted of Spearman Rho correlations on predictor independent variables (victimization status scores and physical self-perception scores) relative to the criterion dependent variables (total CAPA scores and CAPA subscale scores). Then, a partial correlation analysis was conducted to assess the association between perceived physical appearance and total CAPA when victimization status relative to appearance at recess was controlled for.

Results

All scales met a satisfactory reliability level ($\alpha > 0.7$) except for the CAPA subscale of Fun of Physical Exertion, which was excluded from subsequent analyses. All variables had a non-normal distribution, and nonparametric analyses were used. The mean CAPA score for the sample was 2.85 (SD = 0.62) and the mean self-perceptions of physical appearance score was 3.02 (SD = 0.82), both used a 4-point scale.

Group difference analyses revealed that students in the smaller body size group had significantly lower scores on CAPA compared to "just the right" body size students ($p = .001$). Both smaller ($p < .001$) and larger body size ($p = .001$) students had significantly lower scores on

perceived physical appearance compared to students in the "just the right" body size group. Smaller body sized students ($p = .021$) also significantly more often reported "yes" to being victimized at recess due to their appearance compared to "just the right" body size students. Results also revealed that students that identified as girls ($p = .014$) or gender nonconforming ($p = .030$) had significantly lower scores on perceived physical appearance. In addition, girls ($p < .001$) and gender non-conforming ($p < .001$) students had significantly lower CAPA scores. Gender nonconforming students reported being victimized at recess due to appearance significantly more than boys ($p < .001$) and girls ($p = .003$), but boys and girls had no significant difference.

CAPA scores were significantly ($p < .001$) related to perceived physical appearance scores ($\rho = 0.421$). Peer Acceptance had the strongest relationship with Self-Perceptions of Physical Appearance ($\rho = 0.455$; $p < .001$). Victimization relative to appearance at recess was also significantly ($p < .001$) correlated with CAPA ($\rho = 0.167$). Peer Acceptance had the strongest relationship to victimization relative to appearance at recess ($\rho = 0.269$; $p < .001$) of all the CAPA subscales. A significant ($p < .001$) correlation existed between perceived physical appearance and CAPA when Victimization relative to appearance at recess was controlled for ($\rho = 0.396$).

Discussion

The overarching purpose of this research was to examine the impact of Playworks programming implementation in the Aurora public school district partner schools. More specifically, the other purpose of this study was to investigate group differences in older elementary school students based on body size, grade level, gender, and race/ethnicity relative to victimization based on appearance at recess, students' attraction to physical activity, and

students' self-perceptions of physical appearance as well as examine the relationship between victimization based on physical appearance at recess, perceptions of physical appearance, and attraction to physical activity. To our knowledge, the relationship that physical appearance perceptions and appearance-based bullying victimization has with children's attraction to PA in a recess environment had not been studied. These results provide unique insight into the association that appearance-based bullying and perceptions of appearance have on children's attraction to PA and shed light on the specific demographic differences within these variables that have been overlooked in previous research.

To address the purpose, group difference analyses were performed and revealed several new insights into potential student identity differences. Previous research has indicated gender differences exist in children's attraction to PA, with boys having significantly higher levels compared to girls (Brustad, 1996). The present findings confirm gender differences existing between boys' and girls' CAPA levels and extend these findings to suggest that an even greater difference exists between boys and gender-nonconforming students. Gender-nonconforming students have been largely ignored in previous attraction to PA research, and the present findings suggest a need for further investigation into the gap that exists in various gender identities' CAPA levels. In addition, the present findings suggest that students identifying with smaller body sizes had a significant difference in their attraction to PA levels compared to students identifying as "just the right" body size, even more so than students identifying with bigger body sizes. This finding extends current research in which focus has been placed on bigger body size students (Pope et al., 2020; Ridgers et al., 2014), and the significance of smaller body size students' attraction to PA has been disregarded. This difference existed exclusively for smaller body size students and not larger body size students in the CAPA subscales of Liking Games and Sports,

Peer Acceptance, and Importance of Physical Activity. Smaller body size students reporting lower levels of Importance of Physical Activity is particularly interesting because many PA education programs have been targeted towards overweight students, emphasizing the importance of maintaining a healthy weight. However, the current findings suggest that smaller body size students may have been overlooked in this education and a gap resulted in their perceptions of the importance of PA.

Girls and gender nonconforming students also had significantly lower perceptions of their physical appearance compared to boys. Previous research has found that transgender individuals have lower levels of overall self-perceptions in PA contexts (Muchicko et al., 2014). The current findings suggest that this may extend beyond transgender individuals and apply to even broader gender-nonconforming identities. Students identifying as bigger and smaller body sizes reported significantly lower perceptions of their physical appearance than students identifying as "just the right" body size. Students with larger body sizes reported the lowest levels of liking their physical appearance. Previous literature has found that larger body size students tend to want to change their physical appearance (Rolland et al., 1996), but have not found the same for smaller body size students. The current findings suggest that smaller and larger body size students may be dissatisfied with their appearance compared to their peers.

Findings also revealed that gender-nonconforming students reported significantly higher feelings of uncomfortable or unwelcome at recess due to their appearance compared to both boys and girls. This finding is meaningful in that previous research indicated a decrease in social support for transgender individuals (Muchicko et al., 2014), and the current findings suggest that a lack of social support may translate into gender-nonconforming individuals internalizing feeling uncomfortable or unwelcome in PA environments, such as recess. Students with smaller

body sizes reported being significantly more uncomfortable or unwelcome at recess because of others due to their appearance compared to students with “just the right” body size. In contrast to previous literature (Klinck et al., 2020), a significant difference was not observed in larger body size students’ experience of appearance-based bullying compared to “just the right” body size students. The disparity existing in smaller body sized students indicates that more attention needs to be given to these students concerning appearance-based bullying interventions.

To address the another aspect of the purpose, correlational analyses were conducted to investigate the relationship that variables may have had with each other. The strongest relationships found were between perceptions of physical appearance and CAPA scores. Specifically, the subscale of Peer Acceptance had the highest correlation value of 0.445 indicating that students’ perceptions of their physical appearance has a relationship with their overall feelings of peer acceptance in PA contexts. This finding is possibly explained through previous qualitative research in which students detailed that one’s appearance is used as a predictor for PA competence and motivation levels (either for themselves or others; Hassandra et al., 2003). Students may be using both their self-perceptions of appearance and perceptions of other’s appearance to predict how that individual is going to perform in a social PA setting, such as recess, and this predetermination may then affect the level of peer acceptance students experience in PA contexts.

Another important factor that may impact this relationship is students’ experiences of appearance based bullying victimization at recess. A small, but significant, correlation between appearance bullying victimization and student’s attraction to PA was present ($\rho = 0.167$). Peer acceptance had a noticeably higher correlation with appearance bullying victimization ($\rho = 0.269$) compared to all other subscales. This finding confirms the socially isolating effect that bullying

can have on students (Castañeda-Vázquez et al., 2020) and explains the specific attraction to PA dimension that bullying affects the most in regard to PA motivation at recess.

The partial correlation had a coefficient of 0.396, slightly lower than when bullying victimization was not controlled for. The decrease in correlation indicated that feeling uncomfortable or unwelcome at recess based on appearance did have an impact on the extent to which perceived physical appearance effected student's attraction to PA. However, the strong correlation existed even when bullying victimization was controlled also indicated that other factors besides bullying affect student's perceptions of physical appearance. Student's self-perceptions of physical appearance have complex factors impacting them and simply targeting bullying, while somewhat effective, will still leave large gaps in improving student's perceptions of their appearance and therefore also their attraction to participate in PA at recess.

Implications for School Health

Due to school recess being a common setting for PA interventions, it is critical that teachers, staff, and school health professionals understand factors that impact student's motivation to engage in PA during recess for meaningful and long-lasting change to occur. School employees should understand that students' perceptions of how they appear are important not only for student's psychological well-being, but also their physical well-being. School employees could aim to better support students when either appearance-based bullying takes place or negative self-talk about one's appearance occurs in classrooms or on the playground. School administrators could recognize the importance of students' perceptions of themselves and integrate learning strategies and emotional or psychological interventions aimed at improving students' self-perceptions. These interventions should also be targeted towards students identified in this study to be more likely to experience both decreased physical self-perceptions and

decreased PA motivation levels, particularly those who identify as smaller and larger body sizes, gender nonconforming and girl students.

It is also crucial for school health professionals to recognize the factors impacting PA motivation to have a lasting impact on students' PA levels. Findings from this study support that recess PA interventions need to not only target the "well-known" students (i.e., girls and larger body size students) who are at risk for having lower PA motivation and self-perceptions, but also students who may have been overlooked such as smaller body size and gender-nonconforming students. The evidence from this study suggests a more individualized approach to specific demographics of students may be the most effective strategy to increase student's positive orientations towards PA. These findings establish invaluable information to both school health personnel to be able to target specific factors that potentially decrease student's PA motivation though identifying a specific motivational antecedent of positive perceptions of one's physical appearance as being a key influence on student's overall attitudes and motivation to engage in recess PA.

Limitations

A few limitations of this study must be acknowledged. First, this study was conducted within a larger study that involved students survey participation three times prior. The repetitiveness of the survey may have increased the likelihood that students did not read through the survey carefully and repeated the same answers as the time before. The surveys used in this study were also conducted at the end of the 2022-2023 school year. The weather being relatively hot at the end of the school year may have influenced students' feelings towards PA. The school year of data collection was relatively recent after the COVID-19 pandemic in 2020 and there may have been lingering impact on students' social-emotional health, which physical self-

perceptions are largely influenced by. The demographic question of race/ethnicity also seemed to be confusing to some students, so self-identified race/ethnicity from students may have some discrepancies to their actual race/ethnicity. Lastly, while a significant number of gender-nonconforming students participated in the study, only 3.8% students identified as gender-nonconforming. Future research should aim to gain a more representative sample of gender-nonconforming students when investigating how self-perceptions and attraction to PA may vary according to reported identities.

Conclusions

The results of this study indicated that, regarding PA recess interventions, taking a "one size fits all" approach will not create a meaningful impact in relation to attraction to PA due to the many group differences that exist between various identities of students. Individualized approaches must be taken to target groups of children that have been ignored (i.e., smaller body size and gender-nonconforming students) in regard to improving attraction to PA levels. The results also establish evidence that students' perceived physical appearance is a significant contributor to students' attitudes towards PA levels, and therefore, must be considered and targeted in efforts to increase students' overall motivation to engage in PA. Recess provides students with an opportunity to increase overall PA on a widespread scale, but aspects of the psychosocial recess environment such as appearance-based bullying and perceived physical appearance must first be addressed by school health professionals before meaningful change will occur in students' desire to engage in PA during recess and throughout their lifetimes.

CHAPTER IV

RESULTS

Preliminary Analyses

Reliability

Cronbach (1951) alpha statistic was used for reliability analyses. A threshold of 0.70 was used to determine acceptable reliability, where a scale with a Cronbach alpha of greater than 0.70 was deemed reliable and a scale with a Cronbach alpha lower than 0.70 was deemed not reliable and left out of subsequent analyses. Cronbach alpha tests were conducted on all variables that utilized multiple items to create the overall score, including the overall CAPA, the 5 CAPA subscales, and the self-perceptions of physical appearance scale. The overall CAPA had a Cronbach alpha of 0.879. The subscales within the CAPA had Cronbach alpha scores as follows: vigorous physical activity $\alpha = 0.831$, liking games and sports $\alpha = 0.768$, importance of physical activity $\alpha = 0.757$, peer acceptance $\alpha = 0.705$, and fun of physical exertion $\alpha = 0.613$. Lastly, self-perceptions of physical appearance had a Cronbach alpha score of 0.834. Therefore, only the CAPA subscale of fun of physical exertion was deemed unreliable and excluded from subsequent analyses. The other scales met the threshold of reliability and were kept in for all analyses.

Normality

Shapiro-Wilik tests for normality were conducted on overall CAPA, CAPA subscales, self-perceptions of physical appearance, and victimization relative to appearance at recess. To determine if the scale or variable had a sufficient normal distribution, the test's significance had to have been above .05. If the significance was less than .05, then the data were determined to

not be normally distributed. All variables had a significance value determined by $p < .001$. Therefore, all variables were considered to not be normally distributed and nonparametric tests were used in subsequent analyses.

Descriptive Statistics

Descriptive statistics were conducted on all variables. The total number of participants for the study was $n = 787$. Means and standard deviations were calculated for all variables used in the study including overall CAPA scores, CAPA subscale scores, self-perceptions of physical appearance, and victimization relative to appearance at recess (see Table 4.1 for mean and standard deviations of the variables).

Table 4.1

Descriptive Statistics

Variable	*M*	*SD*
Overall CAPA	2.85	0.62
Vigorous Physical Activity	2.97	0.87
Liking Games and Sports	2.86	0.96
Importance of Physical Activity	3.03	0.83
Peer Acceptance	2.60	0.72
Self-Perceptions of Physical Appearance	3.02	0.84
Victimization Relative to Appearance at Recess	1.77	0.42

Note. CAPA – Children's Attraction to Physical Activity

Demographic Group Differences

To assess group differences, Kruskal-Wallis tests were conducted on all variables (overall CAPA, CAPA subscales, self-perceptions of physical appearance, and victimization relative to appearance at recess). A separate Kruskal-Wallis test was done for each variable and for groups according to gender, race/ethnicity, grade, and self-identified body size. Then, mean ranks and

pairwise comparisons were conducted on any significant H-values from the Kruskal-Wallis tests to identify where specific group differences existed. All p-values in pairwise comparisons used a Bonferroni adjustment to protect against a type-1 error since no MANOVA analysis was possible due to the nonparametric nature of the data.

Gender

Kruskal-Wallis tests revealed significant differences between gender groups for the variables of overall CAPA, vigorous physical activity, liking games and sports, importance of physical activity, peer acceptance, self-perceptions of physical appearance, and victimization relative to appearance at recess (see Table 4.2 for results from the Kruskal-Wallis tests for gender). Since all variables had significant H-values, pairwise comparisons and mean ranks were conducted on all variables relative to gender groups to identify specific differences between groups. Pairwise comparisons and mean ranks revealed that boys had significantly higher scores on Overall CAPA, vigorous physical activity, peer acceptance, importance of physical activity, and self-perceptions of physical appearance compared to both girls and gender nonconforming students, but no significant difference were found between girls and gender nonconforming students on any of the above variables. Pairwise comparison and mean ranks analyses revealed that significant differences between all three groups of gender identities, with boys reporting highest, followed by girls, and gender nonconforming students with the lowest reports emerged regarding liking games and sports. Lastly, victimization relative to appearance at recess pairwise comparisons and mean ranks analyses indicated that boys and girls had significantly lower reports of being victimized at recess due to appearance compared to gender nonconforming students, but no significant difference between boy and girl identifying students existed (see

Table 4.3 for all variable's pairwise comparison results and Table 4.4 for all variable's mean ranks by gender groups).

Table 4.2

Kruskal-Wallis Results (Gender)

Variable	*H*	*p*
Overall CAPA	126.73	<.001
Vigorous Physical Activity	58.38	<.001
Liking Games and Sports	118.25	<.001
Importance of Physical Activity	49.46	<.001
Peer Acceptance	58.65	<.001
Self-Perceptions of Physical Appearance	12.39	<.001
Victimization Relative to Appearance at Recess	16.21	<.001

Note. CAPA – Children's Attraction to Physical Activity

Table 4.3

Pairwise Comparison results (Gender)

Comparison Groups	*Test Statistic*	*p*
Overall CAPA		
1-3	236.50	<.001
1-2	175.21	<.001
3-1	61.28	0.455
Vigorous Physical Activity		
1-3	171.93	<.001
1-2	116.05	<.001
3-1	55.88	0.566
Liking Games and Sports		
1-3	280.48	<.001
1-2	157.14	<.001
3-1	123.34	0.011
Importance of Physical Activity		
1-3	140.38	0.003
1-2	109.52	<.001
3-1	30.85	1.000
Peer Acceptance		
1-3	204.09	<.001
1-2	110.72	<.001
3-1	93.37	0.086
Self-Perceptions of Physical Appearance		
1-3	122.02	0.014
1-2	42.23	0.030
3-1	79.79	0.196
Victimization Relative to Appearance at Recess		
1-3	123.86	<.001
1-2	20.25	0.290
3-1	103.62	0.003

Note. Group 1 = Boys, Group 2 = Girls, Group 3 = Gender Non-conforming.

Table 4.4

Mean Ranks by Gender

Variable	*M* Ranks		
	Group 1	Group 2	Group 3
Overall CAPA	479.63	304.42	243.13
Vigorous Physical Activity	452.66	336.62	280.73
Liking Games and Sports	476.98	319.84	196.50
Importance of Physical Activity	449.01	339.49	308.63
Peer Acceptance	450.44	339.72	246.35
Self-Perceptions of Physical Appearance	415.58	373.34	293.55
Victimization relative to Appearance at Recess	406.61	386.37	282.75

Note. Group 1 = Boys, Group 2 = Girls, Group 3 = Gender Nonconforming

Race/Ethnicity

Group difference analyses showed a significant difference between the five race/ethnicity groups used in the study for the variables of liking games and sports, importance of physical activity, peer acceptance, and self-perceptions of physical appearance. Vigorous physical activity, overall CAPA, and victimization relative to appearance at recess did not have any statistically significant differences between the categories of race identities (see Table 4.5 for results from the Kruskal-Wallis tests). After Bonferroni adjustments were applied during pairwise analysis, liking games and sports also did not meet the statistical significance threshold between any groups. Students who identified as Mexican/Hispanic had statistically significant lower scores on importance of physical activity compared to students whose race/ethnicity fell into the “other” category. White/Caucasian identifying students had significantly higher scores on peer acceptance compared to students who identified in the “other” race/ethnicity category. Lastly, White/Caucasian students had significantly higher scores on self-perceptions of physical

appearance compared to Mexican/Hispanic students (see Table 4.6 for results from pairwise race/ethnicity comparisons and Table 4.7 for all variable's mean ranks by race/ethnicity groups).

Table 4.5

Kruskal-Wallis Results (Race/Ethnicity)

Variable	*H*	*p*
Overall CAPA	7.26	0.123
Vigorous Physical Activity	7.29	0.122
Liking Games and Sports	9.92	0.042
Importance of Physical Activity	11.93	0.018
Peer Acceptance	9.71	0.046
Self-Perceptions of Physical Appearance	15.53	0.004
Victimization Relative to Appearance at Recess	7.50	0.112

Note. CAPA – Children's Attraction to Physical Activity

Table 4.6

Significant Pairwise Comparison results (Race/Ethnicity)

Comparison Groups	*Test Statistic*	*p*
Importance of Physical Activity		
4-0	68.49	0.009
Peer Acceptance		
2-0	-70.39	0.038
Self-Perceptions of Physical Appearance		
2-4	98.10	0.001

Note. Group 1 = Asian, Group 2 = Black, Group 3 = White/Caucasian, Group 4 = Mexican/Hispanic, Group 0 = Other.

Table 4.7

Mean Ranks by Race/Ethnicity

Variable	*M* Ranks				
	Group 0	Group 1	Group 2	Group 3	Group 4
Overall CAPA	394.44	386.97	434.21	372.34	371.84
Vigorous Physical Activity	403.91	364.81	428.74	386.57	368.78
Liking Games and Sports	378.71	417.46	436.65	359.96	402.91
Importance of Physical Activity	418.60	407.69	402.67	401.46	350.11
Peer Acceptance	373.35	396.33	443.74	371.59	395.23
Self-Perceptions of Physical Appearance	389.95	391.15	452.91	397.86	354.81
Victimization relative to Appearance at Recess	388.81	369.68	380.75	380.10	418.24

Note. Group 1 = Asian, Group 2 = Black, Group 3 = White/Caucasian, Group 4 = Mexican/Hispanic, Group 0 = Other.

Grade

Analyses to examine differences between grades revealed statistically significant differences for the variables of overall CAPA, vigorous physical activity, importance of physical activity, self-perceptions of physical appearance, and victimization relative to appearance at recess. There were no statistically significant differences in the variables of liking games and sports and peer acceptance between grade groupings (see Table 4.8 for results from the Kruskal-Wallis tests). Pairwise comparisons and mean rank analysis showed that for the variables of vigorous physical activity, importance of physical activity, and overall CAPA 5th graders had a statistically significantly lower score compared to 3rd graders; however, no significant difference existed between 4th and 5th graders or 3rd and 4th graders. A significant difference also existed between 3rd and 5th graders as well as between 4th and 3rd graders for self-perceptions of physical appearance scores, with both 5th and 4th graders reporting significantly lower on their

self-perceptions of physical appearance compared to 3rd graders. No significant difference existed between 4th and 5th graders on scores of self-perceptions of physical appearance. Lastly, 4th graders reported being victimized at recess due to their appearance significantly more than both 3rd and 5th graders. No significant difference existed between 3rd and 5th graders for victimization relative to appearance at recess (see Table 4.9 for pairwise comparison results and Table 4.10 for mean ranks by grade).

Table 4.8

Kruskal-Wallis Results (Grade)

Variable	*H*	*p*
Overall CAPA	8.72	0.013
Vigorous Physical Activity	9.78	0.008
Liking Games and Sports	3.70	0.158
Importance of Physical Activity	11.54	0.003
Peer Acceptance	2.80	0.247
Self-Perceptions of Physical Appearance	13.92	<.001
Victimization Relative to Appearance at Recess	16.12	<.001

Note. CAPA – Children's Attraction to Physical Activity

Table 4.9

Pairwise Comparison results (Grade)

Comparison Grades	*Test Statistic*	*p*
	Overall CAPA	
5-4	21.91	0.583
5-3	85.89	0.011
4-3	63.96	0.087
	Vigorous Physical Activity	
5-4	23.31	0.492
5-3	89.97	0.006
4-3	66.57	0.064
	Liking Games and Sports	
5-4	13.67	1.000
5-3	54.88	0.170
4-3	41.21	0.450
	Importance of Physical Activity	
5-4	28.93	0.254
5-3	95.85	0.003
4-3	66.99	0.060
	Peer Acceptance	
5-4	-0.319	1.000
5-3	46.48	0.334
4-3	46.80	0.321
	Self-Perceptions of Physical Appearance	
5-4	21.03	0.634
5-3	108.83	0.001
4-3	87.80	0.007
	Victimization Relative to Appearance at Recess	
5-4	-32.70	0.027
5-3	45.79	0.102
4-3	78.49	0.001

Table 4.10

Mean Ranks by Grade

Variable	*M* Ranks		
	Grade 3	Grade 4	Grade 5
Overall CAPA	456.86	392.88	370.97
Vigorous Physical Activity	462.25	395.68	372.37
Liking Games and Sports	435.90	394.70	381.03
Importance of Physical Activity	465.44	398.52	369.59
Peer Acceptance	432.90	386.10	386.42
Self-Perceptions of Physical Appearance	479.53	391.73	370.70
Victimization relative to Appearance at Recess	448.46	369.97	402.67

Body Size

Group difference analyses showed significant differences existed among all variables according to body size (see Table 4.11 for Kruskal-Wallis results). Students with smaller body sizes had statistically significant lower scores on liking games and sports, importance of physical activity, peer acceptance, and victimization relative to appearance at recess compared to students identifying as “just the right” body size. No difference existed between students who identified as bigger body sizes and “just the right” body size or between students of bigger and smaller body sizes for these variables. For vigorous physical activity and self-perceptions of physical appearance, children who identified as smaller and bigger body sizes both significantly reported lower scores than students who identified as “just the right” body size, however, no significant difference existed on these variables between smaller and bigger body size identifying students (see Table 4.12 for pairwise comparison results and Table 4.13 for mean ranks by Body Size).

Table 4.11

Kruskal-Wallis Results (Body Size)

Variable	*H*	*p*
Overall CAPA	14.72	<.001
Vigorous Physical Activity	16.71	<.001
Liking Games and Sports	7.32	0.026
Importance of Physical Activity	10.90	0.004
Peer Acceptance	10.86	0.004
Self-Perceptions of Physical Appearance	36.96	<.001
Victimization Relative to Appearance at Recess	9.24	0.010

Note. CAPA – Children's Attraction to Physical Activity

Table 4.12

Pairwise Comparison results (Body Size)

Comparison Groups	*Test Statistic*	*p*
Overall CAPA		
1-3	-17.95	1.000
1-2	-69.04	0.001
3-2	51.09	0.052
Vigorous Physical Activity		
1-3	10.53	1.000
1-2	-60.99	0.005
3-2	71.53	0.005
Liking Games and Sports		
1-3	-39.23	0.323
1-2	-51.91	0.021
3-2	12.68	1.000
Importance of Physical Activity		
1-3	-42.70	0.246
1-2	-63.86	0.003
3-2	21.16	0.960
Peer Acceptance		
1-3	-22.38	1.000
1-2	-60.99	0.005
3-2	38.61	0.212
Self-Perceptions of Physical Appearance		
1-3	48.89	0.142
1-2	120.61	<.001
3-2	-71.72	<.001
Victimization Relative to Appearance at Recess		
1-3	-5.85	1.000
1-2	-38.95	0.021
3-2	33.10	0.114

Note. Group 1=Small body size, Group 2 = “just the right” body size, Group 3= Big body size.

Table 4.13

Mean Ranks by Body Size

Variable	*M* Ranks		
	Group 1	Group 2	Group 3
Overall CAPA	346.91	415.95	364.86
Vigorous Physical Activity	359.30	420.29	348.77
Liking Games and Sports	356.16	408.07	395.39
Importance of Physical Activity	348.16	412.03	390.86
Peer Acceptance	352.27	413.26	374.65
Self-Perceptions of Physical Appearance	359.34	431.06	310.45
Victimization relative to Appearance at Recess	368.73	407.68	374.58

Note. Group 1=Small body size, Group 2=”just the right” body size, Group 3= Big body size.

Correlations

Spearman-rho correlation analyses were conducted to assess the relationship between overall CAPA, CAPA subscales, self-perceptions of physical appearance, and victimization relative to appearance at recess. Overall CAPA or CAPA subscales were treated as the dependent variable and either self-perceptions of physical appearance or victimization relative to appearance at recess was treated as the independent predictor variable. Then, after Spearman-rho correlations were conducted, a non-parametric partial correlation was conducted with self-perceptions of physical appearance as the independent predictor variable, overall CAPA as the dependent variable, and victimization relative to appearance at recess being controlled for to see if victimization status was related to the association between self-perceptions of physical appearance and overall CAPA.

A positive relationship between self-perceptions of physical appearance and overall CAPA existed, was significant ($p < .001$), and had a correlation coefficient with a value of 0.421. Self-perceptions of physical appearance was also statistically significant and had a positive relationship with all five CAPA subscales ($p < .001$). The strongest relationship existed between peer acceptance and self-perceptions of physical appearance ($\rho = 0.455$), which had an even stronger relationship than overall CAPA. Vigorous physical activity had the next strongest relationship with self-perceptions of physical appearance ($\rho = 0.322$) followed by liking games and sports ($\rho = 0.279$), and importance of physical activity having the weakest relationship ($\rho = 0.278$).

A smaller, yet still statistically significant, positive relationship also existed between victimization relative to appearance at recess and overall CAPA ($\rho = 0.167$; $p < .001$). Significant direct relationships were found between victimization relative to appearance at recess and some of the CAPA subscales. Peer acceptance, again, had a stronger relationship than overall CAPA and the highest correlation coefficient out of all the CAPA subscales ($\rho = 0.269$; $p < .001$) with victimization relative to appearance at recess. Liking games and sports ($p < .001$) and vigorous physical activity ($p = .010$) also had statistically significant positive relationships with victimization relative to appearance at recess with liking games and sports having a correlation coefficient slightly below overall CAPA ($\rho = 0.122$) and vigorous physical activity having an even lower correlation coefficient ($\rho = .092$). Importance of physical activity did not have a significant relationship with victimization relative to appearance at recess.

Lastly, results of the partial regression revealed self-perceptions of physical appearance and overall CAPA had a statistically significant positive relationship ($p < .001$; $\rho = 0.396$) when victimization relative to appearance at recess was controlled for. The relationship decreased

slightly when victimization relative to appearance at recess was controlled for, but not by a large or meaningful amount.

REFERENCES

Annesi, J. J. (2004). Relationship of perceived health and appearance improvement, and self-motivation, with adherence to exercise in previously sedentary women. *European Journal of Sport Science*, *4*(2), 1-13.

Annesi, J. J. (2006). Relations of physical self-concept and self-efficacy with frequency of voluntary physical activity in preadolescents: Implications for after-school care programming. *Journal of Psychosomatic Research*, *61*(4), 515-520.

Ariz, U., Fernández-Atutxa, A., Rivas-Fang, O., & Ruiz-Litago, F. (2022). Physical activity at school recess: a key element in balancing social disparities. *Journal of School Health*, *92*(10), 1005-1012.

Arnold, J. P., Belcher, D. J., Stellino, M., & Massey, W. V. (2023). *"Unwelcome or unsafe" at recess? Differences based on gender and racial identities"* Oral presentation presented at 2023 Northwest Student Sport and Exercise Psychology Symposium, Bellingham, Washington.

Babic, M. J., Morgan, P. J., Plotnikoff, R. C., Lonsdale, C., White, R. L., & Lubans, D. R. (2014). Physical activity and physical self-concept in youth: Systematic review and meta-analysis. *Sports Medicine*, *44*, 1589-1601.

Babkes Stellino, M., & Sinclair, C. D. (2013). Psychological predictors of children's recess physical activity motivation and behavior. *Research Quarterly for Exercise and Sport*, *84*(2), 167-176.

Baquet, G., Ridgers, N. D., Blaes, A., Aucouturier, J., Van Praagh, E., & Berthoin, S. (2014). Objectively assessed recess physical activity in girls and boys from high and low socioeconomic backgrounds. *BioMed Central Public Health*, *14*(1), 1-6.

Barry, M. J., Moore, B. M., Webb, T., Hill, J. O., & Kohl, H. W. (2002). Elementary school children's attraction to physical activity in a classroom-based program: Take 10! *Medicine & Science in Sports & Exercise*, *34*(5), S300.

Baumeister, R. F., & Leary, M. R. (2017). The need to belong: Desire for interpersonal attachments as a fundamental human motivation. *Interpersonal development*, 57-89.

Benítez-Sillero, J. D., Ortega-Ruiz, R., & Romera, E. M. (2022). Victimization in bullying and cyberbullying and organized physical activity: The mediating effect of physical self-concept in adolescents. *European Journal of Developmental Psychology*, *19*(6), 810-827.

Biddle, S. J., & Mutrie, N. (2007). Motivation through feelings of competence and confidence: I think I can, I think I can, I know I can… In B.S. Biddle & N. Mutrie (Eds.) *Psychology of physical activity: Determinants, well-being and interventions*. (pp.96-114). Routledge.

Biddle, S. J., & Wang, C. J. (2003). Motivation and self-perception profiles and links with physical activity in adolescent girls. *Journal of Adolescence*, *26*(6), 687-701.

Biddle, S. J., Whitehead, S. H., O'Donovan, T. M., & Nevill, M. E. (2005). Correlates of participation in physical activity for adolescent girls: a systematic review of recent literature. *Journal of Physical Activity and Health*, *2*(4), 423-434.

Boyd, M. P., Weinmann, C., & Yin, Z. (2002). The relationship of physical self-perceptions and goal orientations to intrinsic motivation for exercise. *Journal of Sport Behavior*, *25*(1). 1-18.

Brière, F. N., Imbeault, A., Goldfield, G. S., & Pagani, L. S. (2020). Consistent participation in organized physical activity predicts emotional adjustment in children. *Pediatric Research*, *88*(1), 125-130.

Brustad, R. J. (1993). Who will go out and play? Parental and psychological influences on children's attraction to physical activity. *Pediatric Exercise Science*, *5*(3), 210-223.

Brustad, R. J. (1996). Attraction to physical activity in urban schoolchildren: Parental socialization and gender influences. *Research Quarterly for Exercise and Sport*, *67*(3), 316-323.

Canadian Public Health Association. (2019, March 12). *Children's unstructured play.* Position statements. cpha.ca/childrens-unstructured-play.

Castañeda-Vázquez, C., Moreno-Arrebola, R., González-Valero, G., Viciana-Garófano, V., & Zurita-Ortega, F. (2020). Possible relationship between bullying and physical activity: a systematic review. *Journal of Sport and Health Research*, *12*(1), 94-111.

Center for Disease Control. (2017, January 24). *Youth physical activity guidelines toolkit.* Center for Disease Control healthy schools. https://www.cdc.gov/healthyschools/physicalactivity/guidelines_backup.htm#:~:text=Children%20and%20adolescents%20should%20have,least%203%20days%20a%20week

Center for Disease Control. (2023, April 27). *YRBSS Questionnaires.* Adolescent and school health. https://www.cdc.gov/healthyyouth/data/yrbs/questionnaires.htm

Craig, W. M., & Pepler, D. J. (2003). Identifying and targeting risk for involvement in bullying and victimization. *Canadian Journal of Psychiatry*, *48*, 577-582.

Crocker, P. R., Eklund, R. C., & Kowalski, K. C. (2000). Children's physical activity and physical self-perceptions. *Journal of s=Sports Sciences*, *18*(6), 383-394.

Cronbach, L. J. (1951). Coefficient alpha and the internal structure of tests. *Psychometrika*, *16*(3), 297-334.

Dale, L. P., Vanderloo, L., Moore, S., & Faulkner, G. (2019). Physical activity and depression, anxiety, and self-esteem in children and youth: An umbrella systematic review. *Mental Health and Physical Activity*, *16*, 66-79.

Deci, E. L., & Ryan, R. M. (2000). The" what" and" why" of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry*, *11*(4), 227-268.

Doll, B., Murphy, P., & Song, S. Y. (2003). The relationship between children's self-reported recess problems, and peer acceptance and friendships. *Journal of School Psychology*, *41*(2), 113-130.

Dozier, S. G., Schroeder, K., Lee, J., Fulkerson, J. A., & Kubik, M. Y. (2020). The association between parents and children meeting physical activity guidelines. *Journal of Pediatric Nursing*, *52*, 70-75.

Dubroc, A. M. (2007). *Is the elimination of recess in school a violation of a child's basic human rights?* Unpublished manuscript. Retrieved from https://eric.ed.gov/?id=ED495814

Dumith, S. C., Gigante, D. P., Domingues, M. R., & Kohl, H. W., III. (2011). Physical activity change during adolescence: a systematic review and a pooled analysis. *International Journal of Epidemiology*, *40*(3), 685-698.

Eapen, V., Naqvi, A., & Al-Dhaheri, A. S. (2000). Cross-cultural validation of Harter's self-perception profile for children in the United Arab Emirates. *Annals of Saudi Medicine*, *20*(1), 8-11.

Egan, C. A., Webster, C. A., Beets, M. W., Weaver, R. G., Russ, L., Michael, D., Nesbitt, D., & Orendorff, K. L. (2019). Sedentary Time and Behavior during School: A Systematic Review and Meta-Analysis. *American Journal of Health Education, 50*(5), 283-290.

Ensrud-Skraastad, O. K., & Haga, M. (2020). Associations between motor competence, physical self-perception and autonomous motivation for physical activity in children. *Sports*, *8*(9), 120.

Ernst, M. P., & Pangrazi, R. P. (1999). Effects of a physical activity program on children's activity levels and attraction to physical activity. *Pediatric Exercise Science*, *11*(4), 393-405.

Füssenich, L. M., Boddy, L. M., Green, D. J., Graves, L. E. F., Foweather, L., Dagger, R. M., McWhannell, N., Henaghan, J., Ridgers, N. D., Stratton, G., & Hopkins, N. D. (2015). Physical activity guidelines and cardiovascular risk in children: a cross sectional analysis to determine whether 60 minutes is enough. *BMC Public Health, 16*(1).

Haas, P., Yang, C. H., & Dunton, G. F. (2021). Associations between physical activity enjoyment and age-related decline in physical activity in children—results from a longitudinal within-person study. *Journal of Sport and Exercise Psychology*, *43*(3), 205-214.

Hagger, M. S., & Chatzisarantis, N. L. (2009). Assumptions in research in sport and exercise psychology. *Psychology of Sport and Exercise*, *10*(5), 511-519.

Harter, S. (1978). Effectance motivation reconsidered. Toward a developmental model. *Human Development*, *21*(1), 34-64.

Harter, S. (1985). Self-perception profile for children. *Hispanic Journal of Behavioral Sciences*.

Harter, S. (2012). Self-perception profile for adolescents: Manual and questionnaires. *Denver, CO: University of Denver, Department of Psychology*, 31-45.

Hashemi Motlagh, S., BaniAsadi, T., Chaharbaghi, Z., & Moradi, L. (2022). The effects of parental socioeconomic status on children's physical activity: Mediating role of motivation. *International Journal of Pediatrics*, *10*(8), 16538-16544.

Hassandra, M., Goudas, M., & Chroni, S. (2003). Examining factors associated with intrinsic motivation in physical education: a qualitative approach. *Psychology of Sport and Exercise*, *4*(3), 211-223.

Himes, J. H., & Story, M. (1992). Validity of self-reported weight and stature of American Indian youth. *Journal of Adolescent Health*, *13*(2), 118-120.

Hovell, M. F., Bursick, J. H., Sharkey, R., & McClure, J. (1978). An evaluation of elementary students' voluntary physical activity during recess. *Research Quarterly American Alliance for Health, Physical Education and Recreation*, *49*(4), 460-474.

Inchley, J., Kirby, J., & Currie, C. (2011). Longitudinal changes in physical self-perceptions and associations with physical activity during adolescence. *Pediatric Exercise Science*, *23*(2), 237-249.

Jago, R., & Baranowski, T. (2004). Non-curricular approaches for increasing physical activity in youth: a review. *Preventive Medicine*, *39*(1), 157-163.

Janz, K. F., Burns, T. L., Torner, J. C., Levy, S. M., Paulos, R., Willing, M. C., & Warren, J. J. (2001). Physical activity and bone measures in young children: the Iowa bone development study. *Pediatrics*, *107*(6), 1387-1393.

John W. Gardner Center: For Youth and their Communities. (1999). *Playworks: Supporting Play and Physical Activity in Low-Income Elementary Schools report.* https://gardnercenter.stanford.edu/sites/g/files/sbiybj24036/files/media/file/supporting_play_and_physical_activity_issue_brief.pdf

Kantomaa, M. T., Tammelin, T. H., Näyhä, S., & Taanila, A. M. (2007). Adolescents' physical activity in relation to family income and parents' education. *Preventive Medicine*, *44*(5), 410-415.

King, K. M., Ogletree, R. J., Fetro, J. V., Brown, S. L., & Partridge, J. A. (2011). Predisposing, reinforcing and enabling predictors of middle school children's after-school physical activity participation. *American Journal of Health Education*, *42*(3), 142-153.

Klinck, M., Vannucci, A., Fagle, T., & Ohannessian, C. M. (2020). Appearance-related teasing and substance use during early adolescence. *Psychology of Addictive Behaviors*, *34*(4), 541.

Kopcakova, J., Dankulincova Veselska, Z., Madarasova Geckova, A., Kalman, M., Van Dijk, J. P., & Reijneveld, S. A. (2015). Do motives to undertake physical activity relate to physical activity in adolescent boys and girls?. *International Journal of Environmental Research and Public Health*, *12*(7), 7656-7666.

Leary, M. R., & Tangney, J. P. (2003). The self as an organizing construct in the behavioral and social sciences. *Handbook of Self and Identity*, *15*, 3-14.

Leff, S. S., Costigan, T., & Power, T. J. (2004). Using participatory research to develop a playground-based prevention program. *Journal of School Psychology*, *42*(1), 3-21.

Lovegrove, E., & Rumsey, N. (2005). Ignoring it doesn't make it stop: Adolescents, appearance, and bullying. *The Cleft Palate-Craniofacial Journal*, *42*(1), 33-44.

Lubans, D. R., Aguiar, E. J., & Callister, R. (2010). The effects of free weights and elastic tubing resistance training on physical self-perception in adolescents. *Psychology of Sport and Exercise*, *11*(6), 497-504.

Magin, P. (2013). Appearance-related bullying and skin disorders. *Clinics in Dermatology*, *31*(1), 66-71.

Marsh, H. W. (1986). Negative item bias in ratings scales for preadolescent children: A cognitive-developmental phenomenon. *Developmental Psychology*, *22*(1), 37.

Marsh, H. W., & MacDonald Holmes, I. W. (1990). Multidimensional self-concepts: Construct validation of responses by children. *American Educational Research Journal*, *27*(1), 89-117.

Massey, W. V., Neilson, L., & Salas, J. (2020a). A critical examination of school-based recess: what do the children think? *Qualitative Research in Sport, Exercise and Health, 12*(5), 749-763.

Massey, W. V., Stellino, M. B., & Geldhof, J. (2020b). An observational study of recess quality and physical activity in urban primary schools. *BioMed Central Public Health*, *20*, 1-12.

Massey, W. V., Szarabajko, A., Thalken, J., Perez, D., & Mullen, S. P. (2021). Memories of school recess predict physical activity enjoyment and social-emotional well-being in adults. *Psychology of Sport and Exercise*, *55*, 101948.

McKenzie, T. L., Sallis, J. F., Elder, J. P., Berry, C. C., Hoy, P. L., Nader, P. R., Zive, M. M., & Broyles, S. L. (1997). Physical Activity Levels and Prompts in Young Children at Recess: A Two-Year Study of a Bi-Ethnic Sample. *Research Quarterly for Exercise and Sport, 68*(3), 195-202.

McNamara, L. (2021). School recess and pandemic recovery efforts: Ensuring a climate that supports positive social connection and meaningful play. *Facets*, *6*(1), 1814-1830.

McNamara, L., Lodewyk, K., & Franklin, N. (2018). Recess: a study of belongingness, affect, and victimization on the playground. *Children & Schools*, *40*(2), 114-121.

Medina, A. (2009). *The relationship between self-esteem in children from lower socioeconomic families and their attraction to physical activity*. [Unpublished master's thesis]. California State University, Fullerton.

Meredith, G. R., Rakow, D. A., Eldermire, E. R. B., Madsen, C. G., Shelley, S. P., & Sachs, N. A. (2020). Minimum Time Dose in Nature to Positively Impact the Mental Health of College-Aged Students, and How to Measure It: A Scoping Review. *Frontiers in Psychology, 10*.

Muchicko, M. M., Lepp, A., & Barkley, J. E. (2014). Peer victimization, social support and leisure-time physical activity in transgender and cisgender individuals. *Leisure/Loisir*, *38*(3-4), 295-308.

Muris, P., Meesters, C., & Fijen, P. (2003). The self-perception profile for children: Further evidence for its factor structure, reliability, and validity. *Personality and Individual Differences*, *35*(8), 1791-1802.

Nadella, S., d, J. A., & Kamboj, M. K. (2017). Management of diabetes mellitus in children and adolescents: engaging in physical activity. *Translational Pediatrics, 6*(3), 215-224.

Nansel, T. R., Overpeck, M., Pilla, R. S., Ruan, W. J., Simons-Morton, B., & Scheidt, P. (2001). Bullying behaviors among US youth: Prevalence and association with psychosocial adjustment. *Journal of American Medical Association*, *285*(16), 2094-2100.

Neumark-Sztainer, D., Paxton, S. J., Hannan, P. J., Haines, J., & Story, M. (2006). Does body satisfaction matter? Five-year longitudinal associations between body satisfaction and health behaviors in adolescent females and males. *Journal of Adolescent Health*, *39*(2), 244-251.

Nicholls, J. G. (1990). What is ability and why are we mindful of it? A developmental perspective. In R. J. Sternberg & J. Kolligian, Jr. (Eds.), *Competence considered* (pp. 11–40). Yale University Press.

Ontario Ministry of Education. (2009). School climate survey: A survey for students in grades 4 to 6 about equity and inclusive education and bullying/harassment. http://www.edu.gov.on.ca/eng/safeschools/survey4to6.pdf

Paxton, R. J., Estabrooks, P. A., & Dzewaltowski, D. (2004). Attraction to physical activity mediates the relationship between perceived competence and physical activity in youth. *Research Quarterly for Exercise and Sport, 75*(1), 107-111.

Planinšec, J., & Fošnarič, S. (2005). Relationship of perceived physical self-concept and physical activity level and sex among young children. *Perceptual and Motor Skills*, *100*(2), 349-353.

Pope, Z. C., Huang, C., Stodden, D., McDonough, D. J., & Gao, Z. (2020). Effect of children's weight status on physical activity and sedentary behavior during physical education, recess, and after school. *Journal of Clinical Medicine*, *9*(8), 2651.

Raudsepp, L., Liblik, R., & Hannus, A. (2002). Children's and adolescents' physical self-perceptions as related to moderate to vigorous physical activity and physical fitness. *Pediatric Exercise Science*, *14*(1), 97-106.

Ridgers, N. D., Saint-Maurice, P. F., Welk, G. J., Siahpush, M., & Huberty, J. (2011). Differences in physical activity during school recess. *Journal of School Health*, *81*(9), 545-551.

Ridgers, N. D., Saint-Maurice, P. F., Welk, G. J., Siahpush, M., & Huberty, J. L. (2014). Non-overweight and overweight children's physical activity during school recess. *Health Education Journal*, *73*(2), 129-136.

Ries, F., Granados, S. R., & Galarraga, S. A. (2009). Scale development for measuring and predicting adolescents' leisure time physical activity behavior. *Journal of Sports Science & Medicine*, *8*(4), 629.

Robert Wood Johnson Foundation. (2007). Recess rules: Why the undervalued playtime may be America's best investment for healthy kids and healthy schools report. Retrieved from https://philanthropynewsdigest.org/features/research-briefs/recess-rules-why-the-undervalued-playtime-may-be-america-s-best-investment-for-healthy-kids-and-healthy-schools

Rolland, K., Farnill, D., & Griffiths, R. A. (1996). Children's perceptions of their current and ideal body sizes and body mass index. *Perceptual and Motor Skills*, *82*(2), 651-656.

Romero, A. J. (2005). Low-income neighborhood barriers and resources for adolescents' physical activity. *Journal of Adolescent Health*, *36*(3), 253-259.

Rose, E., Larkin, D., Hands, B., Howard, B., & Parker, H. (2009). Evidence for the validity of the Children's Attraction to Physical Activity questionnaire with young children. *Journal of Science and Medicine in Sport*, *12*(5), 573-578.

Sabiston, C. M., Pila, E., Vani, M., & Thogersen-Ntoumani, C. (2019). Body image, physical activity, and sport: A scoping review. *Psychology of sport and exercise*, *42*, 48-57.

Sallis, J. F., Prochaska, J. J., & Taylor, W. C. (2000). A review of correlates of physical activity of children and adolescents. *Medicine & Science in Sports and Exercise*, *32*(5), 963-975.

Sallis, J. F., Zakarian, J. M., Hovell, M. F., & Hofstetter, C. R. (1996). Ethnic, socioeconomic, and sex differences in physical activity among adolescents. *Journal of Clinical Epidemiology*, *49*(2), 125-134.

Sarkin, J. A., McKenzie, T. L., & Sallis, J. F. (1997). Gender differences in physical activity during fifth-grade physical education and recess periods. *Journal of Teaching in Physical Education*, *17*(1), 99-106.

Seabra, A. C., Mendonça, D., Maia, J., Welk, G., Brustad, R., Fonseca, A. M., & Seabra, A. F. (2013a). Gender, weight status and socioeconomic differences in psychosocial correlates of physical activity in schoolchildren. *Journal of Science and Medicine in Sport*, *16*(4), 320-326.

Seabra, A. C., Seabra, A. F., Mendonça, D. M., Brustad, R., Maia, J. A., Fonseca, A. M., & Malina, R. M. (2013b). Psychosocial correlates of physical activity in school children aged 8–10 years. *The European Journal of Public Health*, *23*(5), 794-798.

Seehra, J., Newton, J. T., & DiBiase, A. T. (2011). Bullying in schoolchildren – its relationship to dental appearance and psychosocial implications: an update for GDPs. *British Dental Journal*, *210*(9), 411-415.

Shavelson, R. J., Hubner, J. J., & Stanton, G. C. (1976). Self-concept: Validation of construct interpretations. *Review of Educational Research*, *46*(3), 407-441.

Siahpush, M., Huberty, J. L., & Beighle, A. (2012). Does the effect of a school recess intervention on physical activity vary by gender or race? Results from the Ready for Recess pilot study. *Journal of Public Health Management and Practice*, *18*(5), 416-422.

Soignier, J. A. C. (2002). *Cross -cultural analysis of Navajo children's attraction to physical activity and perceived parental socialization influences* (Publication No. 3071868). [Doctoral Dissertations, University of Northern Colorado]. ProQuest Dissertations & Theses Global.

Spessato, B. C., Gabbard, C., Robinson, L., & Valentini, N. C. (2013). Body mass index, perceived and actual physical competence: the relationship among young children. *Child Care, Health and Development, 39*(6), 845-50.

Stanley, R. M., Boshoff, K., & Dollman, J. (2012). Voices in the playground: A qualitative exploration of the barriers and facilitators of lunchtime play. *Journal of Science and Medicine in Sport*, *15*(1), 44-51.

Stratton, G. (1997). Children's heart rates during British physical education lessons. *Journal of Teaching in Physical Education*, *16*(3), 357-367.

Tanaka, C., Tanaka, M., & Tanaka, S. (2018). Objectively evaluated physical activity and sedentary time in primary school children by gender, grade and types of physical education lessons. *BioMed Central Public Health*, *18*(1), 1-10.

Trost, S. G., Pate, R. R., Sallis, J. F., Freedson, P. S., Taylor, W. C., Dowda, M., & Sirard, J. (2002). Age and gender differences in objectively measured physical activity in youth. *Medicine and Science in Sports & Exercise*, *34*(2), 350-355.

Trost, S. G., Sallis, J. F., Pate, R. R., Freedson, P. S., Taylor, W. C., & Dowda, M. (2003). Evaluating a model of parental influence on youth physical activity. *American Journal of Preventive Medicine*, *25*(4), 277-282.

Ullrich-French, S., McDonough, M. H., & Smith, A. L. (2012). Social connection and psychological outcomes in a physical activity-based youth development setting. *Research Quarterly for Exercise and Sport*, *83*(3), 431-441.

Vaillancourt, T., Brittain, H., Bennett, L., Arnocky, S., McDougall, P., Hymel, S., Short, K., Sunderani, S., Scott, C., Mackenzie, M., & Cunningham, L. (2010). Places to Avoid: Population-Based Study of Student Reports of Unsafe and High Bullying Areas at School. *Canadian Journal of School Psychology, 25*(1), 40-54.

Van Dyke, M. E., Cheung, P. C., Franks, P., & Gazmararian, J. A. (2018). Socioeconomic and racial/ethnic disparities in physical activity environments in Georgia elementary schools. *American Journal of Health Promotion*, *32*(2), 453-463.

Vansteenkiste, M., Ryan, R. M., & Soenens, B. (2020). Basic psychological need theory: Advancements, critical themes, and future directions. *Motivation and Emotion*, *44*(1), 1-31.

Vartanian, L. R., Wharton, C. M., & Green, E. B. (2012). Appearance vs. health motives for exercise and for weight loss. *Psychology of Sport and Exercise*, *13*(3), 251-256.

Velez, A., Golem, D. L., & Arent, S. M. (2010). The impact of a 12-week resistance training program on strength, body composition, and self-concept of Hispanic adolescents. *Journal of Strength and Conditioning Research*, *24*(4), 1065-1073.

Volk, A. A., & Lagzdins, L. (2009). Bullying and victimization among adolescent girl athletes. *Athletic Insight*, *11*, 15-33.

Voss, R. V., Kuhns, L. M., Phillips, G., II, Wang, X., Wolf, S. F., Garofalo, R., Reisner, S., & Beach, L. B. (2023). Physical Inactivity and the Role of Bullying Among Gender Minority Youth Participating in the 2017 and 2019 Youth Risk Behavior Survey. *Journal of Adolescent Health, 72*(2), 197-206.

Vu, M. B., Murrie, D., Gonzalez, V., & Jobe, J. B. (2006). Listening to girls and boys talk about girls' physical activity behaviors. *Health Education & Behavior*, *33*(1), 81-96.

Wadden, T. A., Brown, G., Foster, G. D., & Linowitz, J. R. (1991). Salience of weight-related worries in adolescent males and females. *International Journal of Eating Disorders*, *10*(4), 407-414.

Wechsler, H., Devereaux, R. S., Davis, M., & Collins, J. (2000). Using the school environment to promote physical activity and healthy eating. *Preventive Medicine*, *31*(2), S121-S137.

Weiss, M. R., Corbin, C., & Pangrazi, B. (2000). Motivating Kids in Physical Activity. PsycEXTRA Dataset.

Welk, G. J., & Schaben, J. A. (2004). Psychosocial correlates of physical activity in children-A study of relationships when children have similar opportunities to be active. *Measurement in Physical Education and Exercise Science*, *8*(2), 63-81.

APPENDIX A

EXAMPLE OF ORIGINAL QUESTIONS

Structured alternative format

Really True for me	Sort of True for me				Sort of True for me	Really True for me
☐	☐	Some kids often *forget* what they learn	BUT	Other kids can remember things *easily*	☐	☐

Original Self-Reported Weight Question

How do **you** describe your weight?
A. Very underweight
B. Slightly underweight
C. About the right weight
D. Slightly overweight
E. Very overweight

APPENDIX B

SURVEY ITEMS

CAPA Questionnaire

What I am like…. (Circle <u>your</u> answer)

1. **I have more fun playing games and sports than anything else**:
Never Sometimes Most of the time Always

2. **I like to exercise a whole lot**:

Never Sometimes Most of the time Always

3. **I get told by other kids that I am good at games and sports**:

Never Sometimes Most of the time Always

4. **I get teased by other kids when I play games and sports**:

Never Sometimes Most of the time Always

5. **I think the more exercise I get the better**:
Never Sometimes Most of the time Always

6. **I enjoy exercising**:

Never Sometimes Most of the time Always

7. **I like to run**:
Never Sometimes Most of the time Always

8. **I like the feeling of being out of breath when I play hard**:
Never Sometimes Most of the time Always

9. **I think it is very important to always be in good shape**:
Never Sometimes Most of the time Always

10. **Playing games and sports is my favorite thing**:
Never Sometimes Most of the time Always

11. **I get told by other kids that I am good at games and sports**:

Never Sometimes Most of the time Always

12. **I am popular with other kids when I play games and sports**:
Never Sometimes Most of the time Always

13. **I really <u>DO</u> <u>NOT</u> like to exercise**:
Never Sometimes Most of the time Always

14. **I feel bad when I run hard**:
Never Sometimes Most of the time Always

15. **I try hard to stay in good shape**:

Never Sometimes Most of the time Always

Perception of Physical Appearance Subscale

What I am like…. (Circle <u>your</u> answer)

16. I am happy with the way I look:

Never Sometimes Most of the time Always

17. I like my body the way it is:

Never Sometimes Most of the time Always

18. I like my physical appearance as it is:

Never Sometimes Most of the time Always

19. I think I am attractive or good looking:

Never Sometimes Most of the time Always

Self-Reported Body Size Question

Circle how **you** describe your body size:

a. Very small body size

b. Slightly smaller body size

c. Just the right body size

d. Slightly bigger body size

e. Very big body size

Victimization Relative to Appearance at Recess Question

Do others make you feel unwelcome or uncomfortable during recess because of any of the following? (Circle <u>your</u> answer)

1. My appearance: Yes No

School Demographic Question

School

- Side Creek Elementary
- Yale Elementary
- Vista Peak Exploratory
- Dalton Elementary
- Clara Brown Entrepreneurial Academy
- Sixth Avenue Elementary
- Aurora Quest K-8
- Dartmouth Elementary
- Clyde Miller P-8

Gender Demographic Question

Your Gender (circle):

Boy Girl

Transgender Non-binary

Other (write it in): _____

Race/Ethnicity Demographic Question

Your Race/Ethnicity (circle):

Asian

Black

White/Caucasian

Mexican/ Hispanic/LatinX

Native American

Indian

Pacific Islander

Prefer not to say

Other (write in): _____

Grade Demographic Question

What grade are you in (circle): 3rd 4th 5th

APPENDIX C

INSTITUTIONAL REVIEW BOARD APPROVAL LETTER

UNIVERSITY OF
NORTHERN COLORADO

Institutional Review Board

Date:	05/25/2022
Principal Investigator:	Megan Stellino
Committee Action:	**Expedited Approval - New Protocol**
Action Date:	05/25/2022
Protocol Number:	2205038882
Protocol Title:	Play Equity: An evaluation of the Playworks 'Relay' program in Colorado
Expiration Date:	

The University of Northern Colorado Institutional Review Board has granted approval for the above referenced protocol. Your protocol was approved under expedited category (7) as outlined below:

Category 7: Research on individual or group characteristics or behavior (including, but not limited to, research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices, and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies. (NOTE: Some research in this category may be exempt from the HHS regulations for the protection of human subjects. 45 CFR 46.101(b)(2) and (b)(3). This listing refers only to research that is not exempt.)

All research must be conducted in accordance with the procedures outlined in your approved protocol.

If continuing review is required for your research, your project is approved until the expiration date listed above. The investigator will need to submit a request for Continuing Review at least 30 days prior to the expiration date. If the study's approval expires, investigators must stop all research activities immediately (including data analysis) and contact the Office of Research and Sponsored Programs for guidance.

If your study has not been assigned an expiration date, continuing review is not required for your research.

For the duration of the research, the investigator(s) must:

UNIVERSITY OF
NORTHERN COLORADO

Institutional Review Board

- Submit any change in the research design, investigators, and any new or revised study documents (including consent forms, questionnaires, advertisements, etc.) to the UNC IRB and receive approval before implementing the changes.
- Use only a copy of the UNC IRB approved consent and/or assent forms. The investigator bears the responsibility for obtaining informed consent from all subjects prior to the start of the study procedures.
- Inform the UNC IRB immediately of an Unanticipated Problems involving risks to subjects or others and serious and unexpected adverse events.
- Report all Non-Compliance issues or complaints regarding the project promptly to the UNC IRB.

As principal investigator of this research project, you are responsible to:

- Conduct the research in a manner consistent with the requirements of the IRB and federal regulations 45 CFR 46.
- Obtain informed consent and research privacy authorizations using the currently approved forms and retain all original, signed forms, if applicable.
- Request approval from the IRB prior to implementing any/all modifications.
- Promptly report to the IRB any unanticipated problems involving risks to subjects or others and serious and unexpected adverse events.
- Maintain accurate and complete study records.
- Report all Non-Compliance issues or complaints regarding the project promptly to the IRB.

Please note that all research records must be retained for a minimum of three (3) years after the conclusion of the project. Once your project is complete, please submit the Closing Report Form.

If you have any questions, please contact Nicole Morse, Research Compliance Manager, at 970-351-1910 or nicole.morse@unco.edu. Please include your Protocol Number in all future correspondence. Best of luck with your research!

Sincerely,

Michael Aldridge
IRB Co-Chair, University of Northern Colorado: FWA00000784

Carter Hall 2008 | Campus Box 143 | Greeley, CO 80639 | Office 970-351-1910

UNIVERSITY OF
NORTHERN COLORADO

Institutional Review Board

Silvia Correa-Torres
IRB Co-Chair, University of Northern Colorado: FWA00000784

APPENDIX D

RECRUITMENT MATERIALS

Recruitment letter

CONSENT FORM FOR HUMAN PARTICIPANTS IN RESEARCH

UNIVERSITY OF NORTHERN COLORADO

Project Title: **Play Equity: An Evaluation of the Playworks 'Relay' Program in Colorado**

Researcher(s): Megan Stellino, Ed.D., School of Sport & Exercise Science

William Massey, Ph.D., Oregon State University

Phone: 970-351-1809

E-mail: megan.stellino@unco.edu

Purpose and Description: The primary purpose of this research and evaluation is to examine the impact of Playworks programming implementation in the Aurora Public School District partner schools.

As the principal of a school in Aurora Public School District that has implemented Playworks programming, your permission and consent is requested for the following for students and teachers:

- Permission and access to solicit the participation of 4th and 5th grade students to electronically complete a 'Recess Experience Survey' at four time points during the school year (end of August, October, January and April) that will ask them to respond to questions about their demographics (age, grade, gender, race/ethnicity, body size) and experiences during recess. This survey will take approximately 10-

12 minutes to complete each time and all responses will be assigned a unique numeric identifier in order to maintain confidentiality.

- Permission and access to solicit the participation of 2nd – 5th grade students for focus group interviews about their recess experiences that will be conducted at the end of the school year (e.g., April). Focus group interviews will be audio-recorded, last approximately an 1 hour and will include a student narrated "tour" of the school recess environment and playgrounds.

- Permission to conduct observations of recesses at your school on two days (one day with a Playworks Coach present and one day without a Playworks Coach) at four time points during the school year (end of August, October, January and April) using the Observations of Playground Play instrument that tallies the number of students engaged in a variety of particular activities during recess through non-specific student identified field notes and without any video recording.

- Permission and access to solicit teachers in grades 1st – 5th to electronically complete surveys about social and emotional functioning of five purposefully chosen students in their class at four time points during the school year (end of August, October, January and April) that will take approximately 3-5 minutes per student for a total of approximately 25 minutes total. Teachers will be thanked

with a $10 gift card after each of the four time points of providing survey responses for their students.

Your permission and consent are also requested for you to participate in two separate interviews, one at the beginning of the school year (e.g., August) and the other at the end (e.g., April) with one of the lead researchers. Interviews will focus on understanding recess policies/practices, student behavior and school climate related to the implementation of Playworks programming. Interviews will be audio-recorded, take place at a convenient time/location/mode, last approximately 45 minutes to 1 hour in length and be transcribed verbatim. Upon completion of participation by you, the teachers and students in your school, and as a thank you for participation, a $250 gift card will be provided for use by the school on recess and/or playground equipment.

Following the completion of this research and evaluation, we would be happy to share your data with you at your request. We will take every precaution to protect your anonymity and keep all information confidential. We will assign numerical codes to your, teachers', and students' information. Only the lead researchers, project coordinator and their assistants will know the name connected with any participant numerical code. When we report data and findings, actual individual and school names will not be used. All information and data collected and analyzed for this study will be kept in a locked cabinet in the lead researcher's office and on password protected computers, which are only accessible by the researchers, project coordinator and their graduate students.

Potential risks in this project are minimal. No risks to participation in this study beyond those that are present in everyday life are foreseen. Participation is voluntary. You may decide not to participate in this study and if you begin participation, you may still decide to stop and withdraw at any time. Your decision will be respected and will not result in loss of benefits to which you are otherwise entitled. Having read the above and having had an opportunity to ask any questions, please sign below if you would like to participate in this research. A copy of this form will be given to you to retain for future reference. If you have any concerns about your selection or treatment as a research participant, please contact Nicole Morse, Office of Research & Sponsored Programs, University of Northern Colorado, Greeley, CO; 970-351-1910 or nicole.morse@unco.edu.

Principal's/Participant's Signature Date School Name

Researcher's Signature Date

Recruitment Emails

Schools that signed district support letter:

Ellen - thank you so much for the introduction!

Principal XXXX –

We are excited to partner with Playworks and Aurora Public Schools this year to evaluate the impact of Playworks programming. Attached is the 1-pager brief summary of the evaluation project planned for this year, again, for ease of review.

First and foremost, thank you for your initial interest and participation in signing the letter of support. The project has now been approved by APS and we would love to start onboarding schools as soon as possible.

If you are still interested in being a partner in this study, I would love to set up a quick call and ensure we can answer any questions you might have. Please let me know what times you are available, and myself or research partner can plan on connecting with you then. Alternatively, if email communication is easier, we can go that route as well.

Looking forward to hearing back from you and excited about our potential partnership this year!

Take care,

Megan

Schools that didn't sign the district support letter:

Ellen - thank you so much for the introduction!

PRINCIPAL –

We are excited to partner with Playworks and Aurora Public Schools this year to evaluate the impact of Playworks programming. Attached is the 1-pager brief summary of the evaluation project planned for this year, again, for ease of review.

The project is approved by APS and while the start of the new school year is upon us, we would love to start onboarding schools as soon as possible. We'd love to have your school involved in this evaluation project.

Please let us know if Murphy Creek Elementary School is interested in being a partner in this study at your earliest convenience. Then, I would love to set up a quick call or visit and ensure we can answer any questions you might have. Please let me know what times you are available, and myself or research partner can plan on connecting with you then. Alternatively, if email communication is easier, we can go that route as well.

Looking forward to hearing back from you and excited about our potential partnership on this evaluation project this year!

Take care,

Megan

Cell#: 303-250-4382

Follow-up to schedule first meeting

PRINCIPAL –

Hello! Thanks for your swift response and willingness to participate in the Playworks evaluation project.

Let me what time would be most convenient on Friday, August 12th and I can plan to call you, or if you'd prefer, I can stop by the school, for a brief chat about what the entire project entails and answer any questions you have.

Looking forward to partnering with you and Dalton Elementary school teachers and students on this project.

Take care,

Megan

Cell#: 303-250-4382

OR

Ashley –

Hello! Thanks for your swift response and willingness to participate in the Playworks evaluation project.

Would you have time on Friday, August 12th before 9:30am or after 11am so I can plan to call you, or if you'd prefer, I can stop by the school, for a brief chat about what the entire project entails and answer any questions you have?

Looking forward to partnering with you and Yale Elementary school teachers and students on this project.

Take care,

Megan

Cell#: 303-250-4382

No initial reply – follow up after a week or so

Dear Principal XX,

I just wanted to send a quick follow-up to gauge your interest in partnering with our Playworks evaluation this year. I know the beginning of the year can be quite hectic so just wanted to circle back and see if you were able to review our previous note.

Thanks again.

Megan

OR

Dear Principal Forrest,

Hello – this is a quick follow-up to gauge your interest in partnering with our Playworks evaluation this year. Thank you for your initial support – the project has been approved by APS. I know the beginning of the year can be quite hectic so just wanted to circle back and see if you were able to review our previous note.

I've attached the 1-page information on the project again for ease of review.

Hope you'll consider having Clyde Miller Elementary School involved.

We can wait to meet until the week of the 22nd so that the beginning of the school year can calm down a bit.

Thanks for your consideration and hope students coming back this week goes smoothly!

Take care,

Megan

Cell#: 303-250-4382

Or

Dear Angelica & Ron,

Hello – this is a quick follow-up to gauge your interest in partnering with our Playworks evaluation this year. The project has been approved by APS.

I know the beginning of the year can be quite hectic so just wanted to circle back and see if you were able to review our previous note.

I've attached the 1-page information on the project again for ease of review.

Hope you'll consider having Elkhart Elementary School involved.

We'd like to schedule a brief chat to answer any questions and then get an initial meeting scheduled for the week of the 22nd so that the beginning of the school year can calm down a bit.

Thanks for your consideration and hope the start of the school year is going smoothly!

Please reply at your earliest convenience regarding interest and availability to schedule a brief chat.

Take care,

Megan

Cell#: 303-250-4382

Playworks: Elkhart Evaluation Project Participation/Involvement

APPENDIX E

CONSENT MATERIALS

Parent passive consent form

CONSENT FORM FOR HUMAN PARTICIPANTS IN RESEARCH
UNIVERSITY OF NORTHERN COLORADO

Project Title: **Play Equity: An Evaluation of the Playworks 'Relay' Program in Colorado**
Researcher(s): Megan Stellino, Ed.D., School of Kinesiology, Nutrition & Dietetics (KiND)
William Massey, Ph.D., Oregon State University
Phone: 970-351-1809
E-mail: megan.stellino@unco.edu

Purpose and Description: The primary purpose of this research and evaluation is to examine the impact of Playworks programming implementation in the Aurora Public School District partner schools.

As the parent of a student in a school in Aurora Public School District that has implemented Playworks programming, your permission and consent is requested for participation. If your child is given permission, they may be involved in the following study activities:

- If your child is in 4th or 5th grade, permission and consent for them to electronically complete a 'Recess Experience Survey' at four time points during the school year (August/September, late Fall, early Winter and Spring) that will ask them to respond to questions about their demographics (age, grade, gender, race/ethnicity, body size) and experiences during recess. This survey will take approximately 10-12 minutes to complete each time and all responses will be assigned a unique numeric identifier in order to maintain confidentiality.

- If your child is in the 2nd – 5th grade, permission and consent for their teacher to potentially complete a short social-emotional development assessment at four time points during the school year (August/September, late Fall, early Winter and Spring). This information will not be shared with anyone but the research team.

- If your child is in 2nd – 5th grade, permission and consent for them to potentially participate in one focus group interview about their recess experiences that will be conducted at the end of the school year (e.g., April). Focus group interviews will be with 6-8 students in either 2nd/3rd grades or 4th/5th grades, audio-recorded, last approximately 1 hour and will include a student narrated "tour" of the school recess environment and playgrounds.

We foresee no risks to your child in participation in this study beyond those that are normally encountered in their school classroom or during school recess. Your child's participation will be solicited and completed during times during the school day that do not disrupt or detract from

their learning. Be assured that we intend to keep all information gathered stored in a locked office on the UNCO campus and/or on password protected computers. To further help maintain confidentiality, your child's name will be replaced by a numerical identifier. Their name will not appear in any professional report of this research.

The potential benefits of this study are numerous. Results of this study will provide information on the impact of recess programming which could directly impact school district policy and result in increased access and opportunities in your child's school.

If your child does not want to participate in this study, it will not affect them. They will still be included in all otherwise scheduled school activities. If your child participates in this study, they can stop whenever they want without affecting anything, including opportunities or relationships with their teachers, or any other school personnel. Thank you for assisting us with our research.

Sincerely,

Dr. Megan B Stellino

Participation is voluntary. You may decide not to allow your child to participate in this study and if (s)he begins participation you may still decide to stop and withdraw at any time. Your and your child's decision will be respected and will not result in loss of benefits to which you or they are otherwise entitled. If you have any concerns about your selection or treatment as a research participant, please contact Nicole Morse, Office of Research & Sponsored Programs, University of Northern Colorado, Greeley, CO; 970-351-1910 or nicole.morse@unco.edu.

If you do not want your child to participate in any parts of the research, please complete this brief form: https://unco.co1.qualtrics.com/jfe/form/SV_3ELO8IuuYFXah6K

Student Assent Script

Student Assent Process:

- Introduce yourself, briefly tell the kids why you are there (e.g., that you are doing a survey about recess, and that you need their help)
- Tell students that it's "Time 4" and remind them that they completed this survey before. It's the same survey but we're interested in their recess experience NOW (in April/May 2023).
- Remind them what a survey is (not a test, just asking your opinions, no right or wrong answers), and that if they would like to help out, they will answer some questions about recess for us.
- Let them know that all their answers will be kept private, their parents, teachers and principals will not be able to see their answers so please be honest.
- Taking the survey probably won't help or hurt you, but it will help us know more about recess.
- Their parents said that it is okay for you to do this survey, but it is up to you if you would like to participate. If you ever feel like you don't want to take the survey anymore, let us know and your teacher will help us find something else for you to do.
- If you would like to participate, please put your hand on your head so we know you would like to participate.

APPENDIX F

OVERVIEW OF LARGER STUDY

Play Equity: An evaluation of the Playworks 'Relay' Program in CO (Study Implementation Plan)

	Study Activities	Timeline			
		April 1- Aug 15 2022	Aug 15- Dec 31 2022	Jan 1 – May 30 2023	June 1- Oct 1 2023
1.	Prepare and submit ethics and approval documents				
	Research team to submit for study approval to University of Northern Colorado Institutional Review Board.	X			
	Playworks Colorado to identify who in Aurora Public Schools (APS) is the necessary contact to support research application.	X			
	Research team to work collaboratively with Playworks Colorado and Aurora Public Schools to identify acceptable data collection practices and timelines for a successful application submission.	X			
	Research team to submit final proposal and timeline to APS.	X			
2.	Study Recruitment				
	Playworks Colorado and APS team to identify specific partner schools that will support data collection	X	X		
	Research team to work collaboratively with Playworks Colorado and APS to disseminate and collect consent forms across all waves of participants	X	X		
	Research team to meet with schools to discuss research timelines, schedules, and procedures involved in data collection	X	X		
3.	Wave 1 Data Collection (first two weeks of school year)				

	Conduct interviews with school principals to gain their perspective of recess policies, procedures, and challenges **prior** to Playworks implementation		X		
	Conduct baseline surveys of all eligible 4th and 5th grade students focusing on their perspective of recess **before** being introduced to Playworks		X		
	Conduct assessment of teacher reported executive functioning for 5 children per class in 10 classrooms per school.		X		
	Observations of Playground Play (OPP) – 1 recess per each grade per school with coach and without		X		
	4. Wave 2 Data Collection (October)				
	Conduct surveys of **all** eligible 4th and 5th grade students focusing on their current perspective of recess		X		
	Conduct an assessment of teacher reported executive functioning for 5 children per class in 10 classrooms per school.		X		
	Observations of Playground Play (OPP) – 1 recess per grade per school with coach and without		X		
	5. Wave 3 Data Collection (January)				
	Conduct surveys of all eligible 4th and 5th grade students focusing on their current perspectives of recess			X	
	Conduct an assessment of teacher reported executive functioning for 5 children per class in 10 classrooms per school.			X	
	Observations of Playground Play (OPP) – 1 recess per grade per school with coach and without			X	
	6. Wave 4 Data Collection (April)				
	Conduct surveys of all eligible 4th and 5th grade students focusing on their current perspective of recess			X	
	Conduct an assessment of teacher reported executive functioning for 5 children per class in 10 classrooms per school.			X	

	Observations of Playground Play (OPP) – 1 recess per grade per school with coach and without			X	
	Conduct interviews with school principals to gain their perspective of recess policies, procedures, and challenges since Playworks implementation			X	
	Conduct focus groups with 2nd-5th grade students at select schools to better understand experiences with Playworks			X	
	Existing Data request from APS			X	X
7. Data Analysis and Dissemination					
	Transcribe, code, and interpret qualitative data findings		X	X	X
	Data analysis of quantitative findings			X	X
	Final report to Playworks and other stakeholders				X