THE RELATIONSHIP BETWEEN HEAD START TEACHERS’ ATTITUDES ABOUT PHYSICAL ACTIVITY PROMOTION AND THEIR IMPLEMENTATION OF ACTIVITIES THAT PROMOTE PHYSICAL ACTIVITY

A dissertation defense presented by

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Submitted to
The Department of Counseling and Applied Educational Psychology in partial fulfillment of the requirements for the degree of

Doctor of Philosophy
in the field of
School Psychology

Northeastern University
Boston, Massachusetts
November 18, 2014
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This project was only possible through the help and support of many along the way. First, I would be remiss not to thank the School Psychology faculty at Northeastern University who guided and encouraged my growth as a student and researcher. I also need to recognize the Child Obesity Prevention Research Team and Cathy Wirth from Healthy Kids, Healthy Futures whose valuable feedback strengthened this project. Finally, I owe my deepest gratitude towards my dissertation chair, dissertation committee, ABCD Head Start, and my family.

I want to begin by acknowledging and thanking Dr. Jessica Hoffman who was not only my dissertation chair but also my advisor and research mentor throughout my time at Northeastern. Through all of my interactions with Dr. Hoffman, her devotion to student learning is readily apparent in the time and thoughtful feedback she is always willing to provide. Her expertise in research design, community based collaboration, and child obesity prevention programming greatly contributed to the development of this project. And despite the challenges, her support, positivity, and unique ability to provide constructive feedback that is always clear and encouraging helped me feel as if I was always making progress. Dr. Hoffman’s mentorship has extended beyond the dissertation and she has provided guidance in various areas over the years. Regardless of whether I had a clinical question or needed help on internship essays, I always held her feedback and advice in high esteem. I am grateful for Dr. Hoffman’s commitment and for all I have learned while working with her.

I also need to extend a deep sense of gratitude and appreciation to my dissertation committee, Drs. Mariya Shiyko, Amy Briesch, and Carmen Castaneda Sceppa, for to all of their effort and support. I greatly appreciated their timely feedback and flexibility throughout the entire process. Their generosity with their time was evident in their willingness to meet with me
over the summer and the depth of feedback they provided on various drafts. Each committee member provided expertise in varying areas, and I was fortunate to have such a knowledgeable and supportive team. Dr. Shiyko’s expertise in statistical analyses and her ability to mentor me throughout the process was invaluable. Dr. Briesch’s extensive knowledge and understanding of intervention fidelity and in depth feedback greatly informed my development of research questions and design. Dr. Sceppa’s background in community based collaboration and expertise in child obesity and physical activity promotion guided my focus on developing a project that provided meaningful findings to the programs being evaluated. Thank you all for your time and support.

Next, it is important to acknowledge that this project would not have been possible without the blessing and support of so many people within ABCD Head Start. I was incredibly fortunate to work with such a dedicated group of Administrators, Education Directors, Teachers, and Assistant Teachers who devoted both time and effort to the project. Considering participation on this project was voluntary, I am indebted to the Head Start staff for their willingness to meet with me on several occasions, provide feedback on various issues, and help with implementing this project. Although I am not able to include everyone who contributed to this project, I do need to recognize and thank Sonia Cater, the Nutrition Coordinator, for her invaluable support and generosity of time. Thank you for taking my calls, meeting with me whenever was convenient, and answering all of my detail oriented and big picture questions. Your help significantly contributed to my ability to complete this project in a timely manner.

Finally, I would like to thank my family and wife for their unwavering support, patience, and love. I am grateful for being taught the importance of drive and persistence from both my parents (Clay and Mary Kay) and also having the opportunity to take a break whenever I needed
and heading home to relax and enjoy a home cooked meal. My brother (Shane), sister (Maura),
sister in law (Nina), and nephew (Xavier) were immensely supportive and provided many words
of encouragement, an open ear, perspective, and laughs along the way. And last, but of course
not least, my deepest thank you to the light of my life and wife, Lisa, for always making me
smile when I wanted to sulk, laughing when I was not feeling upbeat, and remembering the
positives when I wanted to focus on the negatives. I am blessed having you by my side and
knowing that whether I need you to read through my Literature Review for the fifth time or help
carrying several boxes of surveys home you’ll be there for me unconditionally. You are my
queen, rock, and life partner. Your strength, grace, and resilience inspire and amaze me on a
daily basis.
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Chapter 1

Abstract

Preschool-age children are identified as overweight or obese at alarmingly high rates. Due to the health consequences associated with obesity, preventative efforts have focused on the childcare setting. This literature review highlights both preschool-based interventions that promote physical activity and teacher attitudes toward physical activity programming. Although preschool teachers are often responsible for promoting physical activity within the classroom, there is a gap in the literature regarding whether their attitudes influence program implementation.
Literature Review

Obesity Prevalence Among Preschool-Age Children

Obesity levels among preschool-age children continue to raise concerns among health professionals. Nationally, 12.1% of children between the ages of 2-5 years were obese (i.e., BMI $\geq 95^{\text{th}}$ percentile), and 26.7% were classified as overweight or obese (i.e., BMI $\geq 85^{\text{th}}$ percentile; Ogden, Carroll, Kit, & Flegal, 2012) in 2009 to 2010. Recent evidence suggested obesity levels have plateaued (Pan, Blanck, Sherry, Dalenius, & Grummer-Strawn, 2012), and an encouraging new study indicates that the prevalence of obesity has decreased to 8.4% (Ogden, Carroll, Kit, & Flegal, 2014). Despite this potential sign of progress, obesity is still recognized as a critical public health problem (Karnick & Kanekar, 2012; White House Task Force on Childhood Obesity, 2010), and obesity levels among children of color and children from low-income households remain at concerning levels (Ogden et al., 2014). Moreover, obesity levels among low-income and minority children have often showed the greatest increases, highlighting the importance of interventions that target this population (Ogden et al., 2012; Wang & Beydoun, 2007).

According to data from the Center for Disease Control Pediatric Nutrition Surveillance System (PedNSS), obesity levels among low-income preschool-age children increased from 12.4% in 1998 to 14.6% in 2008 (Sharma et al., 2010). Prevalence rates continue to be disproportionately higher among Black and Hispanic students (Ogden et al., 2014), and obesity levels have increased faster for Black and Hispanic children than for Caucasian children. Given this disproportionality, low-income children and children of color are particularly vulnerable to experiencing obesity related problems (Ogden et al., 2012; Wang & Beydoun, 2007).
Risks of Childhood Obesity

Many health risks are associated with childhood obesity. For young children, obesity can be a precursor to type II diabetes, hypertension, cardiovascular disease, osteoarthritis, asthma, and certain cancers (Center for Disease Control and Prevention, 2012; Reilly & Kelly, 2011). The effects of obesity can be long lasting, and children who are categorized as obese are more likely to be obese as adults (Biro & Wien, 2010; Guo, Wei, Chumela, & Roche, 2002). In a longitudinal study that tracked weight for boys and girls, early childhood weight status was found to be a significant predictor of weight status at age 20 (Magarey, Daniels, Boulton, & Cockington, 2003). Additionally, weight status at an early age has also been found to limit healthy activities throughout an individual’s lifespan (Goldfield, Harvey, Grattan, & Adamo, 2012). Together, these findings highlight the importance of early childhood obesity prevention and intervention.

In addition to physical risks, child obesity is associated with serious negative psychological and social outcomes. Overweight and obese children are more likely to experience social isolation (Strauss & Pollack, 2003) and bullying (Lumeng et al., 2010). As obese or overweight children age, they may endure stigmatization from peers, educators, and parents, further intensifying negative psychological and psychosocial outcomes (Puhl & Latner, 2007). Moreover, obesity at an early age can have a negative impact on children’s self esteem, self-image, and self-concept (Cornette, 2008; Strauss, 2000).

Overall, obesity places young children at a higher risk of enduring medical, psychological, and social challenges throughout adolescence and adulthood. The considerable health risks obese children experience may also result in shortened life expectancy (Olshansky et al., 2005). Although obesity prevention programs have generally focused on school-age children,
recent research suggests that this approach has had minimal success (Birch & Ventura, 2009). Consequently, there has been a recent shift towards targeting preschool-age and younger children to promote positive health behaviors and to address factors related to obesity (Institute of Medicine, 2011). Given the severity of these health risks, implementing obesity prevention programs targeted at preschool-age children is critical.

**Physical Activity as a Contributing Factor to Obesity**

Environmental, behavioral, and genetic factors are significant contributors to obesity (Karnik & Kanekar, 2012). Although the interaction between genetic, behavioral, and environmental factors is complex, public health researchers have focused on behavioral and environmental factors due to concerning changes in nutritional and physical activity patterns (Biro & Wien, 2010). The literature highlights how weight gain among children is likely associated with poor diet and low physical activity levels.

Obesity is related to the imbalance of calories consumed and calories expended (Center for Disease Control and Prevention, 2012: Office of the Surgeon General, 2010). The rise in the prevalence of snacking (Jahns, Siega-Riz, & Popkin, 2001), consumption of sugar-sweetened drinks (Ludwig, Peterson, & Gortmaker, 2001), and portion size (Fisher, Liu, Birch, & Rolls, 2007; McConahy, Smiciklas-Wright, Mitchell, & Picciano, 2004) has been associated with increased energy intake among children. Additionally, low physical activity and increased sedentary behavior are associated with excess adiposity and children’s weight status (Must & Tybor, 2005). Although multiple interconnected factors have contributed to the rise in childhood obesity, this review focuses on physical activity and why low levels of physical activity can be detrimental to preschool-age children.
Preschool-age children engage in high levels of sedentary behavior. Anderson, Economos, and Must (2008) found that 60% of boys and 55% of girls were found to spend more than 2 hours per day in front of a television or computer. This is concerning considering watching more than two hours of television places children at higher risk for being overweight or obese (Mendoza, Zimmerman, & Christakis, 2007). Additionally, in a study focusing on low-income children, both hours spent watching television and having a television in the bedroom were found to be significant risk factors for obesity (Dennison, Erb, & Jenkins, 2002). For the children in low-income households, opportunities to engage in physical activity may be limited due to neighborhood safety concerns (Lovasi, Hutson, Guerra, & Neckerman, 2009) and minimal access to parks, walkable sidewalks, and recreation centers (Singh, Siahpush, & Kogan, 2010).

Research is conflicted regarding whether environmental factors like playgrounds and walkability directly contribute to obesity levels (Burdette & Whitaker, 2004; Lovasi et al., 2013). However, physical activity has been identified as a protective factor against weight gain and body fat (Klesges, Klesges, Eck, & Shelton, 1995; Moore, Nguyen, Rothman, Cupples, & Ellison, 1995), and as having a positive influence on several indicators of cardiovascular health, adiposity in overweight youth, and blood pressure in hypertensive adolescents (Strong et al., 2005).

**Health Benefits Associated with Physical Activity**

In addition to protecting against obesity, physical activity has been associated with various health and cognitive benefits. Physically, research suggests that physical activity during childhood may have a long-lasting positive effect on skeletal health (Gunter, Almstedt, & Janz, 2012) and gross motor skills (Bellows, Davies, Anderson, & Kennedy, 2013). Recent studies have highlighted the positive relationship between motor skills and participation in physical activity (Williams et al., 2008; Fisher et al., 2005). It is suggested that children with more
advanced gross motor skills are more likely to engage in physical activity. Overall, engaging in appropriate levels of physical activity may not only reduce the risks related to obesity, but foster children’s development by strengthening their gross motor skills and skeletal health.

There is also emerging support suggesting that physical activity is associated with positive effects on children’s social emotional health and cognitive functioning. According to an extensive literature review, there is modest evidence that physical activity may have a positive influence on self-concept, anxiety, and depression (Strong et al., 2005). In one study, adolescents who were exposed to high intensity aerobic exercise for 25 to 30 minutes twice per week reported less stress than participants in the control groups (Norris, Carroll, & Cochrane, 1992). Additionally, in a sample including 10 to 16 year olds \((N=92)\), scores on a self-esteem scale improved for children who engaged in high-level physical activity (Strauss, Rodzilsky, Burack, & Colin, 2001).

In regard to cognitive benefits, results from a meta-analysis suggest that physical activity is positively related to cognitive development among elementary school children (Sibley & Etnier, 2003). The overall effect size was 0.32, demonstrating a small yet positive association with cognitive development. There is also growing evidence that physical activity promotes executive function capabilities and improves children’s ability to exert effortful and goal directed behavior (Best, 2010). In a randomized controlled study, children who engaged in high dose exercise (i.e., 40 minutes per session) achieved higher scores on a cognitive subtest related to executive function when compared to a no exercise control group (Davis et al., 2007).

Within the school setting, physical activity has been associated with positive indicators of academic performance (Strong et al., 2005). Specifically, self-reports of high physical activity were associated with higher grade point averages for high school seniors (Field, Diego, &
Sanders, 2001) and time spent in physical education classes was associated with increased reading and math scores for female kindergarten students (Carlson et al., 2008). Relatedly, physical activity may be associated with increased behavioral control among pre-school age children (Campbell, Eaton, & McKeen, 2002). Specifically, children who engaged in higher levels of physical activity performed better on inhibitory tasks. Although research on the relationship between physical activity and student performance needs to be explored further, the initial results are promising.

Given the numerous benefits associated with physical activity, it is important to reduce sedentary behavior and promote physical activity among children. Moreover, there is growing evidence suggesting that physical activity levels and health in childhood are related to physical activity levels and health in adulthood (Malina, 2001). Together, these findings highlight the importance of promoting physical activity with young children to prevent childhood obesity and to instill healthy habits at a young age.

**Physical Activity Interventions in Childcare Settings**

Preschool-age children spend a considerable amount of time in childcare outside the home (Story, Kaphingst, & Simone, 2006). Therefore, childcare programs offer an important opportunity to promote physical activity among this age group. Since the 1970s, families’ reliance on childcare has grown due to societal changes in family structure, gender roles, and families’ need for financial security (Story et al., 2006). From 1970 to 2000, the labor force among women with children increased from 38% to 68% (National Research Council, 2003). Current estimates suggest 60% of mothers with preschool-age children are employed, with 70% working full time and 30% working part time. Relatedly, approximately 80% of preschool-age children with working mothers are enrolled in childcare for an average of 40 hours a week.
On average, 41% of preschool children spend 35 or more hours a week in childcare; another 25% spend 15 to 34 hours a week, and 16% spend 1 to 14 hours a week in childcare (Capizzano, Tout, & Adams, 2000b). Although childcare can occur within various settings, the majority of children over three years old are placed in center-based care (Cappizzano, Adams, & Sonenstein, 2000a). Center-based childcare is typically situated in nonresidential settings, such as businesses, schools, or churches (Story et al., 2006). For the purposes of this review, the primary focus will be on preschools in center-based care.

Although children from all racial and ethnic backgrounds are enrolled in childcare, African American children tend to spend the majority of their time in preschool programs as compared to any other ethnic group (Capizzano, Adams, & Ost, 2006). One prominent program that primarily serves children of color and low-income children is Head Start, a federal preschool program that serves children from birth to five. The primary goal of Head Start is to provide comprehensive programming to low-income preschool children that addresses their educational, emotional, social, health, and nutritional needs (Head Start, n.d.). Ultimately, Head Start programs are in a unique position to promote physical activity, as they serve as a vehicle in providing children with opportunities to engage in the appropriate levels of physical activity during the school day (Kaphingst & Story, 2009) and to foster the adoption of a physically active lifestyle (Ward, 2010). To further understand Head Starts’ efforts to promote physical activity, it is important to describe preschool-age children’s current physical activity levels.

**Current Physical Activity Levels within the Preschool Setting**

According to the National Association for Sport and Physical Education (2002), preschool-age children should engage in 120 minutes of physical activity per day, consisting of 60 minutes of structured activity and 60 minutes of unstructured activity. Furthermore, children
are encouraged to engage in 60 minutes of moderate to vigorous physical activity (MVPA) per day to maintain a healthy weight (U.S Department of Health and Human Services, 2010). Despite these national recommendations, there is considerable variability regarding how states regulate childcare centers and more specifically, physical activity within these centers. Only three states, Massachusetts, Alaska, and Delaware, specify the amount of time preschool-age children need to engage in physical activity during the day (Benjamin, Cradock, Walker, Slining, & Gillman, 2008; Kaphingst & Story, 2009). Although physical activity is recognized as an important component of children’s health, many childcare centers are not provided with clear guidelines on how often they should implement physical activity programming.

One concern with the inconsistent regulation of physical activity across states is that children are not engaging in appropriate levels of physical activity. Research suggests that many preschool students are not meeting the recommended levels for physical activity (Pate, McIver, Dowda, Brown, & Addy, 2008; Pate, Pfeiffer, Trost, Ziegler, & Dowda, 2004). When measuring student activity levels across nine preschools, results indicated that students exhibited low levels of vigorous activity and high levels of inactivity (Pate et al., 2004). In another observational study, preschool students exhibited minimal MVPA and they were observed completely stationary for over 50% of the observation (Pate et al., 2008). These findings were also consistent with a study that focused on Head Start programs. Specifically, Head Start students were found to spend more time in sedentary and light physical activity and less time in MVPA (Shen, Reinhart-Lee, Janisse, Brogan, Danford, & Jen, 2012). Across studies, the observed low levels of physical activity results are alarming, especially because they place children at greater risk for obesity and adiposity (Trost, Sirard, Dowda, Pfeiffer, & Pate, 2003).
Despite the overall low levels of MVPA observed in these studies, researchers identified significant variations in physical activity among children. Specifically, gender appeared to have significantly contributed to variability in physical activity levels where boys were found to engage in significantly more MVPA than girls (Pate et al., 2004). Additionally, preschool quality has been found to contribute to children’s physical activity levels. Children demonstrated higher physical activity levels in preschools with policies (Dowda, Pate, Trost, Almeida, & Sirard, 2004; Pate et al., 2004) and programming (Bower et al., 2008) that focused on promoting physical activity during the day. Importantly, these results highlight the potential impact structured policies and programming can have on children’s physical activity levels. Given that many preschool-age children are not meeting the recommended levels, there is a need for preschools to implement formal physical activity policies and programming.

Head Start programs differ from other childcare settings because they are required to provide physical activity programming. According to Head Start Program Performance Standards and Other Regulations (2006), children should be provided with “… sufficient time, indoor and outdoor space, equipment, materials, and adult guidance for active play and movement that support the development of gross motor skills (Education and Early Child Development, Performance Standard: 1304.21). Unfortunately, the guidelines are broad and they do not provide specific information regarding the type and frequency of activity that should be provided (Ward, Vaughn, McWilliams, & Hales, 2009). Although the provision of physical activity standards is a positive step, the lack of clear guidelines places a significant amount of responsibility on the Head Start sites to develop their own physical activity programming.

Obesity prevention programs may provide a valuable resource for preschools that are interested in implementing structured physical activity programming for students. To date, the
outcomes for many obesity prevention programs have been modest (Haynos & O’Donohue, 2011). Although research suggests that multilevel approaches and multiple modes of intervention delivery may be the most effective (Campbell & Hesketh, 2007), it has been argued that there is a critical need to focus on interventions targeting physical activity (Larson, Ward, Neelon, & Story, 2011). In a national survey, Head Start programs reported using a multilevel approach targeting the school, home, and community in child obesity prevention programming (Gooze, Hughes, Finkelstein, & Whitaker, 2010). However, it is not clear whether these efforts have led to increases in children’s physical activity levels. To further understand current efforts to promote physical activity within preschool settings, it is beneficial to review the literature and determine what prevention programs have been implemented and how they have impacted children’s physical activity levels.

**Physical Activity Prevention Programs in Preschool Settings**

Research evaluating physical activity promotion programs with young children is limited. In a systematic review of the literature on obesity prevention programs in childcare settings that target physical activity, nineteen intervention studies met the liberal criteria for inclusion, allowing studies with diverse outcomes and various research designs (Ward et al., 2010). However, only six studies included childcare programs within the United States, focused on preschool school age children (i.e., three to five year olds), and evaluated physical activity outcomes. Research in this area is relatively new as most of the available studies were published between 2006-2008. At this point, there are questions regarding how to promote physical activity effectively in preschool settings (Trost, Fees, & Dzewaltowski, 2008) and current efforts have taken several approaches. For the following review, the focus will be on physical activity interventions targeting pre-school age children within childcare settings. In the available
research, interventions have consisted of implementing curriculum-driven programming (Annesi, Smith, & Tennant, 2013; Bellows, Davies, & Kennedy, 2013; Binkley & Specker, 2004; Deal, 1993; Fitzgibbon et al. 2011; Trost et al., 2008), providing children with increased opportunities for physical activity (Alhassan, Sirard, & Robinson, 2007), and altering their environment (Hannon & Brown, 2008).

**Curriculum-driven physical activity programming.** Several studies have evaluated the effects of curriculum-driven and structured physical activity programming. These programs often follow a curriculum that may include descriptive lesson plans, learning objectives, or teacher resources. In one randomized controlled study, preschool students in the treatment group were provided with multiple opportunities to engage in MVPA (Trost et al., 2008). The teachers in this study utilized activities from *Let's Move, Learn, and Have Fun*, and integrated them throughout all aspects of their regular curriculum. Specifically, teachers were expected to implement at least two activities from the curriculum for at least 10 minutes everyday. Both observational and accelerometer data were used to evaluate children’s response to the *Let's Move, Learn, and Have Fun*. Results from this study demonstrated that after four weeks of the intervention, children in the treatment group exhibited significantly more MVPA than children in the control group (Trost et al., 2008). Additionally, observational data conveyed that children in the intervention group were more likely to engage in MVPA during circle time or free choice time outdoors. Although these results suggest that physical activity interventions are feasible, the small sample size (N= 42) from one childcare center limits the generalizability of the findings.

Another randomized controlled intervention program, the *Hip Hop to Health Jr. Obesity Prevention Effectiveness Trial*, focused on controlling weight gains among African American Head Start children (Fitzgibbon et al. 2011). This 14-week program was a comprehensive
intervention that targeted both physical activity and nutrition habits of preschool children. Similar to Trost et al. (2008), teachers integrated physical activities into their curriculum. In the classroom component of the *Hip Hop to Health Jr.* program, teachers would lead structured exercises to music for three 45-minute sessions every week. According to the collected accelerometer data, findings from this evaluation showed that children in the intervention schools demonstrated higher levels of MVPA than the control schools. These results differed from the initial implementation of *Hip Hop to Health Jr.*, where no significant differences in physical activity levels were detected (Fitzgibbon et al., 2005). Although both studies evaluated the same intervention, comparison of results between these two studies is difficult given that one study used parent report for measurement of physical activity (Fitzgibbon et al., 2005), whereas the other relied on accelerometer data (Fitzgibbon et al. 2011). The most recent evaluation of *Hip Hop to Health Jr.* indicates that children within the treatment group were engaged in 109.9 minutes of MVPA per day compared to 102.2 minutes for the control group (Fitzgibbon et al. 2011). Although these results suggest that teacher-led interventions can correspond with slight increases in physical activity, it is important to note the time spent in MVPA is still less than the recommended level of 120 minutes (National Association for Sport and Physical Education, 2002). Moreover, the difference in physical activity estimates between groups was approximately eight minutes, which may not be related to any practical benefits.

These findings were similar to another randomized controlled study where an intervention was implemented across preschools serving African American students (Annesi et al., 2013). Teachers implemented an 8-week physical activity program, *Start for Life*, across 21 schools. Students were randomly assigned to the treatment and control groups. Teachers within the treatment group received four hours of additional training and were provided with structured
lesson plans that utilized cognitive behavioral techniques, such as long and short-term goal setting, self monitoring of progress, and rewards for achievements related to physical activity. The *Start for Life* program consisted of 30 minute structured physical activities (e.g., running, jumping, leaping) intertwined with age appropriate behavioral procedures (e.g., positive reinforcement through an “Achievement Chart,” providing specific feedback, goal setting). Each session included light, moderate, and vigorous levels of activity (Annesi et al., 2013). Results obtained from accelerometer data suggested that children in the treatment group engaged in higher levels of MVPA during the program. Specifically, weekly MVPA averages for children who were exposed to the intervention increased by 56 minutes following the 8-week program. Although these results appear modest, they are larger than the effects found in other research-based intervention programs (Ward et al., 2009).

An alternative approach that has demonstrated some success is utilizing programming that targets gross motor skills. For example, Binkley and Specker (2004) conducted a randomized control trial with 178 preschool-age children. Children in the intervention group engaged in a gross motor program that focused on large muscle activities for 30 minutes per day, 5 days a week for 12 months, while children in the control group engaged in fine motor activities (e.g., arts and crafts). Results from accelerometer readings demonstrated that children in the intervention group exhibited significantly higher levels of physical activity at the midpoint, endpoint, and six months post intervention during a follow up visit (Binkley & Specker, 2004). It is important to note that participants in both the treatment and control groups were randomly assigned to take a calcium supplement. Therefore, these findings are limited in drawing direct correlations between the gross motor activity program and physical activity levels.
Another physical activity program targeting gross motor skills also resulted in positive increases in physical activity. Deal (1993) evaluated the impact of the Developmental Preschool Movement Program on children’s physical activity levels. This intervention involved undergraduate volunteers guiding children through various movement skills (e.g., locomotion, manipulation, and large motor) for 2-hour sessions, 2 days a week, for 8 weeks (Deal, 1993). The small sample size and lack of a controlled research design limit the findings. However, results suggested that children can engage in MVPA for extended periods of time. Specifically, the children engaged in 21 to 32 minutes of vigorous activity and 59 to 69 minutes of moderate activity (Deal, 1993). Similar to Binkley and Specker (2004), children were provided with guidance and support during these gross motor activities.

Despite these studies highlighting positive results, some programs have not been found to have an impact on physical activity. Specifically, the Food Friends: Get Movin’ with Mighty Moves intervention was implemented across four Head Start sites (Bellows et al., 2013). This teacher-led intervention focused on increasing opportunities for physical activity and promoting motor development among preschool children (Bellows, 2007). In a random design study, children in the treatment group were provided with 18 weeks of skill-based activities lasting 15 to 20 minutes, targeting specific gross motor skills (Bellows et al., 2013). Although findings from this study indicated that children in the treatment group demonstrated significant improvements in gross motor activity, there were no significant group differences in physical activity levels (Bellows et al., 2013). The authors concluded that the 15 to 20 minute dosage of the intervention across 18 weeks may not have been sufficient.

Overall, several studies have demonstrated that structured curriculum-driven programs can have a positive effect on children’s physical activity levels, yet their effects have been
modest and it is not clear whether these effects can be replicated and whether they are sustainable. Only a few studies from this group evaluated maintenance effects, and the initial results indicate that physical activity increases were not maintained at follow up measurements (Binkley & Spector, 2004; Fitzgibbon et al. 2011).

**Providing opportunities for physical activity.** Another form of physical activity promotion focuses on increasing the amount of time allocated for children to engage in unstructured activity. The idea behind this approach is that children will engage in physical activity without prompting or guidance from teachers. Only one study evaluated this approach in a randomized controlled pilot study where the effects of unstructured outdoor play on physical activity levels were assessed with 32 Latino children for four consecutive days (Alhassan, Sirard, & Robinson, 2007). Children in the intervention group were provided with 60 minutes of extra recess time, and children in the control group participated in circle time and fine motor activities. Accelerometers measured students’ physical activity levels and the analyses evaluated students’ average activity during the school day and entire day. Results demonstrated that there were no significant differences in physical activity levels between groups (Alhassan at al., 2007). Additionally, children were observed to spend around 90% of their day involved in sedentary activities. Although this study included a small sample from one Head Start site, the lack of change in physical activity following a 60-minute increase in recess is alarming. Observations from the study suggested that students frequently chose to engage in activities during recess that required minimal physical exertion (e.g., playing in the sandbox, swings, and slide; Alhassan et al., 2007). These results suggest that more adult guidance and structure may need to be provided for children at this age to promote MVPA during recess.
Modifying the physical activity environment. Another approach to increasing children’s levels of physical activity involves environmental modifications, such as providing playground equipment. One study explored this approach by adding playground equipment to a preschool to determine if this would increase children’s physical activity levels (Hannon & Brown, 2008). Although teachers supervised the students’ activity, they did not provide directions for the children to be active. Results collected from accelerometer readings demonstrated that children engaged in more light, moderate, and vigorous activity and less sedentary behavior following the introduction of new playground equipment (Hannon & Brown, 2008). There are several limitations of this pretest/posttest quasi-experimental study, such as the small sample size of predominately Caucasian students and a limited number of observations (Hannon & Brown, 2008). However, results suggested that including low-cost and age-appropriate equipment (e.g., hurdles, hoops, and tunnels) may encourage more physical activity among students.

Summary of the evidence base. Overall, the findings from these intervention programs are mixed. Given differences in measurement (e.g., pedometer, self report, accelerometer), direct comparisons across studies are challenging. However, several programs were associated with increases in physical activity, indicating the viability and possible effectiveness of physical activity programming within preschools’ daily structure. Considering the disproportionate obesity rates among children from low-income backgrounds, it is not surprising that several of these interventions were implemented within Head Start programs (Alhassan et al., 2007; Bellows et al., 2013; Fitzgibbon et al. 2011). Because these programs serve children that are most at risk for obesity, an effective and feasible physical activity program is critical.
One program that deserves particular attention, despite a lack of evaluation data regarding the effect of the program on children’s levels of physical activity, is the *I am Moving, I am Learning* (IM/IL) program because of its wide-spread national dissemination through Head Start programs. Results from a national survey suggested that 74% of Head Start teachers provided children with 30 minutes of structured gross motor activity and 30 minutes of unstructured gross motor activity per day (Whitaker, Gooze, Hughes, & Finkelstein, 2009). Despite these responses, the quality of physical activity programming within Head Start is unknown. To address this concern, many Head Start programs implemented IM/IL, an obesity prevention program that aims to increase the quantity and quality of physical activity programming within Head Start sites. Though minimal research has been conducted on the outcomes associated with IM/IL, the program may provide Head Start with a feasible and effective approach to promote physical activity. To further understand IM/IL, both the program and evaluation findings are discussed below.

**Background**

In 2005, IM/IL was piloted in 17 Head Start programs throughout West Virginia (Finkelstein et al., 2007). IM/IL was developed to promote healthy behavior and address rising obesity rates among Head Start students. Stemming from the success of initial programming, IM/IL was implemented throughout 53 programs within Head Start’s Region III in 2007 (i.e., West Virginia, Virginia, Pennsylvania, Maryland, District of Columbia, and Delaware). Prior to implementation, staff members from programs in these states attended a training-of-trainers (TOT) event where they learned how to tailor the IM/IL model to their Head Start program (Fox
et al., 2010). Currently, IM/IL has been implemented throughout all 12 Head Start regions at various locations, and free training opportunities are available for Head Start grantee programs.

**IM/IL Goals**

IM/IL was designed to align with Head Start Program Performance Standards (i.e., 1304.23, 1304.21) so that it could be implemented seamlessly within current programming (Fox et al., 2010). The Head Start Child Outcome Framework (i.e., Domain 8) already focused on the importance of physical activity and provided guidelines for teachers on how to promote gross motor skills, fine motor skills, and children’s health status (U.S. Department of Health and Human Services, 2003). With this pre-existing framework in place, IM/IL was developed as a tool to supplement and enhance physical activity programming.

To increase the feasibility of IM/IL implementation, Head Start sites are allowed considerable flexibility in how they use IM/IL to meet their program’s needs (Finkelstein et al., 2007). Moreover, IM/IL utilizes a unique “training of trainers” (TOT) approach, which delegates implementation responsibility to stakeholders at each site (Fox et al., 2010). Critical staff members attend IM/IL training and the expectation is for them to train colleagues and develop an IM/IL implementation plan that is appropriate for their site. Although IM/IL is not prescriptive or structured program, training attendees are provided with materials (e.g., CDs, pedometer, handouts) and instructional support to help them promote IM/IL’s three goals (Fox et al., 2010).

The three goals of IM/IL are (a) to increase the quantity of time children spend in MVPA during their daily routine to meet national guidelines for physical activity, (b) to improve the quality of structured movement experiences that are intentionally facilitated by teachers and adults, and (c) to promote healthy food choices for children every day (Fox et al., 2010). Two of
the three goals are related to physical activity, and they focus on both the quantity and quality of physical activities. The current review focuses exclusively on the physical activity components of IM/IL.

**Implementation**

In 2006, Head Start’s Office of Planning, Research, and Evaluation contracted with Mathematica Policy Research to conduct a three-stage evaluation of IM/IL: Stage I involved a mail survey sent to program directors ($N=53$); Stage II included telephone interviews with IM/IL coordinators and lead teachers ($N=26$); and Stage III involved site visits ($N=14$) (Fox et al., 2010). Stage I and Stage II results suggested that 96% of the participating programs attempted to implement IM/IL after the training (Finkelstein et al., 2007; Fox et al, 2010). Moreover, around half of the programs also reported that they were successful in implementing IM/IL. Because IM/IL is not a prescribed program, site coordinators are able to select which components are most appropriate for their Head Start program. Even with this autonomy, more program directors reported adding components addressing MVPA and structured movement than those addressing nutrition activities (Finkelstein et al., 2007). For example, 85% of programs reported using equipment and/or structured movement vocabulary to promote physical activity.

Head Start programs reported taking several steps to implement IM/IL. During Stage II interviews, 25 out of the 26 programs reported purchasing equipment and materials to support IM/IL implementation (Fox et al., 2010). Many programs purchased products that involved “Choosy” the IM/IL mascot, such as music CDs and posters. Only nine programs reported purchasing equipment for outdoor activities and props for indoor activities. Sites also reported using a variety of activities to increase MVPA and to enhance structured movement skills. Some of the activities implemented were moving and dancing to music, running outdoors, aerobic
routines, and walking on balance beams (Fox et al., 2010). All programs reported implementing IM/IL activities both indoors and outdoors. Of note, the majority of teachers reported using music in combination with dancing to promote MVPA and playing songs from the *Choosy CD* were popular (Fox et al., 2010).

Despite teacher endorsements of implementing IM/IL activities targeting MVPA, class observations during Stage III revealed significant variability in PA levels across classrooms (Fox et al., 2010). Although the data collected during all stages of the evaluation were limited by a small sample size and lack of randomization, observation results from Stage III indicated that some programs were unsuccessful in increasing children’s engagement in MVPA during the day.

**Implementation Challenges.** Several sites experienced challenges associated with IM/IL implementation. Over half of the programs involved in the Stage II interviews reported they received insufficient training (Fox et al., 2010). Responses differed between teachers and site coordinators. Teachers expressed wanting more resources and better instruction on how to implement activities and monitor children’s movement skills and site coordinators conveyed wanting more guidance on how to sustain IM/IL. Another shared challenge for many sites was a perceived lack of time for IM/IL implementation (Fox et al., 2010). For both teachers and site coordinators, finding time to plan and implement IM/IL activities and/or develop trainings was a barrier. Other challenges that were identified but not shared across most sites were space, funding, and monitoring IM/IL activities (Fox et al., 2010). Because this evaluation only focused on a small sample of programs, there may be additional challenges experienced by Head Start staff implementing IM/IL.
Head Start Teachers’ Perceptions of IM/IL

Head Start staff is responsible for implementing the IM/IL program and it is important to understand their perceptions of IM/IL. Responses from Head Start teachers on whether obesity is a major health problem and whether obesity is a priority varied across sites (Finkelstein et al., 2007). Specifically, when asked to rank obesity alongside concerns about asthma and oral health, only 20% of the respondents ranked obesity as the highest concern (Finkelstein et al., 2007). Moreover, around one-third of the programs did not identify obesity as a significant problem for their students. Although teacher perceptions regarding the serious health risk obesity poses may have shifted since this study, these findings suggested that there was not universal agreement in acknowledging childhood obesity as a major health risk during initial IM/IL implementation.

Despite these varying teacher opinions, all programs attempted to implement IM/IL and only a few reported that their staff had lost interest in IM/IL (Finkelstein et al., 2007). When asked about staff enthusiasm, 71% of the respondents categorized their staff as enthusiastic about IM/IL. Related to physical activity, site coordinators reported that 73% of their staff members were excited about increasing MVPA and improving structured movement activities (Finkelstein et al., 2007). Although Stage I and Stage II of the evaluation differed in methodology (i.e., mail responses vs. telephone interviews), this attitude may have shifted as results from Stage II suggested that staff enthusiasm may have decreased. Specifically, around half of the programs reported that staff buy-in was a barrier to implementation (Fox et al., 2010). Staff feedback indicated that they viewed IM/IL as an additional requirement placed upon their busy schedules and they worried that implementation would impact the quality of other programs. Although buy-in was not a significant concern in the smaller subset of programs that participated in Stage
III of the evaluation process (Fox et al., 2010), it is not clear how this initial lack of buy in impacted staff’s implementation of IM/IL programming.

**Limitations of the IM/IL Evaluation**

These initial evaluation results suggest that many Head Start programs implemented activities to address IM/IL’s goals related to physical activity. However, the impact and sustainability of these efforts is unknown. Following the initial training, only half of the programs reported having a written plan for IM/IL implementation (Finkelstein et al., 2007). Given the lack of standardized curriculum, IM/IL provides sites with autonomy over how they intend to utilize the program to promote physical activity. To date, no additional studies have investigated how Head Start programs are using IM/IL to promote physical activity. Because systematic monitoring and feedback have been found to enhance effort to implement programs (Fixsen, Naoom, Blase, Friendman, & Wallace, 2005), it would be beneficial to evaluate IM/IL implementation and determine whether programs are meeting the physical activity goals outlined by IM/IL.

**Teacher Factors Related to Implementation**

Head Start teachers are responsible for delivering the physical activity components of IM/IL. Currently, there is minimal research on how Head Start teachers’ knowledge and beliefs regarding their role in obesity prevention programming impacts their practice (Lanigan, 2012). Although prior research has explored preschool teachers’ attitudes and beliefs about implementing obesity prevention programming (Copeland, Cassandra, Saelens, Kalkwarf, & Sherman, 2012; Derscheid, Umoren, Kim, Henry & Zittel, 2010; Huberty, Dinkel, Coleman, Beighle, & Apenteng, 2012), it is not clear how teacher attitudes and beliefs are associated with physical activity promotion program implementation.
There is a need for research exploring the relationships between teachers’ attitudes, perceptions, beliefs and intentions to implement physical activity in classroom (Goldfield et al., 2012). Understanding how teachers’ attitudes toward a program impact their delivery of the program would help to address an important gap in the literature. Moreover, understanding teacher variables that contribute to program implementation may provide important information on how to improve implementation fidelity.

**Attitude Towards Physical Activity**

Preschool teachers’ knowledge of, and attitudes toward, physical activity varies. There is a common belief that young children are already active and constantly running. However, previous research suggests that preschool teachers overestimate children’s level of physical activity (Dyment & Coleman, 2012) and they have misconceptions about the recommended level of active play for preschool-age children (Derscheid et al., 2010). Focus groups with Head Start teachers conveyed various interpretations of policies related to physical activity and their roles in implementing programming (Derscheid et al., 2010). Specifically, while one teacher expressed scheduling 45 minutes of physical activity per day, another reported only scheduling 20 minutes per day so the children can burn excess energy. Another important observation highlighted in a focus group with preschool teachers is that many teachers did not believe that being involved in children’s physical activity was a major part of their role (Coleman & Dyment, 2013). Even though the qualitative nature and small sample size of these interviews limits the generalizability of these responses, data from these focus groups suggest that preschool teachers’ conceptualization of children’s physical activity levels and how often physical activity should be promoted are inconsistent.
Benefits of Physical Activity

Preschool teachers appear to have an overall positive perception of physical activity. Beliefs expressed during focus groups with preschool teachers indicated that they felt physical activity could prevent obesity, provide stress relief, improve children’s moods, and improve gross motor skills (Copeland et al., 2012). Moreover, some teachers reported that physical activity promotes confidence, self-esteem, and peer relations (Copeland et al., 2012; O’Connor & Temple, 2005) and benefits students’ academic performance (Huberty et al., 2012). Relatedly, some preschool teachers reported that physical activity has a positive impact on students’ energy levels and ability to focus (Huberty et al., 2012). In a study that focused on Head Start teachers, data suggested that teachers felt physical activity is critical for overall health and that daily movement is important (Derscheid et al., 2010).

Despite the perceived benefits of physical activity, many teachers expressed differing thoughts on how it should be promoted. In one study, childcare teachers in Australia felt children’s physical activity should be self-guided, and teachers should avoid controlling their play activities (Cashmore & Jones, 2008). Moreover, these teachers did not feel the need to lead structured physical activity sessions (Cashmore & Jones, 2008; O’Connor & Temple, 2005). Results from different focus groups suggest teachers hold varying ideas about how they should promote physical activity. Specifically, early elementary school teachers felt verbal encouragement and modeling were important teacher behaviors (Huberty et al., 2012), while in another focus group preschool teachers expressed that they did not need to model or engage in physical activity with children (Derscheid et al., 2010).
Gap in the Literature

There are currently no available studies describing how teacher beliefs and attitudes towards physical activity influence their usage of physical activity interventions. Research has only begun to investigate the association between teacher characteristics and their participation in early childhood interventions (Baker, Kupersmidt, Voegler-Lee, Arnold, & Willoughby, 2010). Moreover, the existing literature indicates that teachers implement interventions with considerable variability in both quantity and quality. In a study that explored characteristics associated with preschool teachers’ implementation of a school readiness curriculum, results suggested that teachers’ concerns about the intervention predicted lower levels of participation (Baker et al., 2010). Additionally, teachers’ perceptions of their jobs and work environments were positively related to teachers’ levels of participation. Although Baker et al.’s (2010) study did not focus on obesity prevention, it is likely that teacher attitudes could have a similar effect on their level of participation in implementing physical activity programs.

Current research provides some insight into teachers’ perceptions of physical activity and whether programming should be implemented within the childcare setting. However, the childcare setting contributes to a significant amount of variation in children’s physical activity level (Pate et al., 2008; Pate et al., 2004; Trost, Ward, & Senso, 2010), and it is not clear whether teachers’ attitudes towards physical activity interventions impact this observed difference. Although research has not investigated this specific issue, existing research on implementation integrity within the school setting and existing theories may provide an appropriate framework to understand why teacher attitudes and beliefs may contribute to their implementation of obesity prevention programming. Specifically, through considering theory and current research, it may
be possible to better understand why teachers’ attitudes and beliefs predict their inclusion of physical activity programming in their daily activities.

**Assessing the Relationship between Preschool Teachers’ Attitudes and their Implementation of Physical Activity Promotion Programming**

Given the gap in the literature regarding the influence of teacher attitudes on physical activity, it is important to understand what factors are related to teacher variability in physical activity program implementation. The current literature in this area only includes examples of teachers expressing varied perceptions of their role in providing physical activity programming (Coleman & Dyment, 2013; Derscheid et al., 2010) and interpretations of Head Start policies (Derscheid et al., 2010). Therefore, research should begin to address how preschool teachers’ attitudes influence their implementation of physical activity promotion programming.

**Theoretical framework**

The theory of planned behavior provides a useful guide to explain why teachers’ attitudes towards an intervention may predict their implementation of physical activity promotion programming. According to Ajzen (1991), individual behavior is influenced by three considerations: (1) beliefs about the outcome of a behavior (i.e., behavioral beliefs); (2) beliefs about normative expectations (i.e., normative beliefs); (3) and beliefs about perceived behavioral control (i.e., control beliefs). With regard to behavioral beliefs, Ajzen (1991) argues that prior to engaging in a behavior, individuals will reflect on the likely outcomes of that behavior. This will lead to a favorable or unfavorable attitude towards the behavior. Normative beliefs refer to the idea that individuals also consider the normative expectations of others, which may result in perceived social pressure and motivation to comply with norms. Last, control beliefs refer to the idea that individuals consider the presence of variables that either facilitate or impede
engagement in a behavior. All three of these considerations are likely to influence an individual’s intention to perform a behavior (Ajzen, 1991). There has been considerable research evaluating the relationship between intentions and actions, and overall, individuals’ intentions have been shown to predict behavior with strong accuracy (Ajzen, 1988; Sheppard, Hartwick, & Warshaw, 1988).

Consistent with the theory of planned behavior, teachers’ attitudes toward an intervention are likely to influence their level of implementation. Specifically, teachers who hold more favorable attitudes toward a behavior (e.g., physical activity promotion in the classroom) are more likely to engage in the behavior (Ajzen, 1991). For example, teachers’ attitudes about a physical activity promotion program may impact the fidelity with which they implement the program. Studies have demonstrated that teachers within the same school implement programs differently (Rohrbach, Graham, & Hansen, 1993; Taggart, Bush, Zuckerman, & Theiss, 1990). Given the observed variance in children’s physical activity levels within evaluated programs (Bower et al., 2008; Dowda et al., 2004; Pate et al., 2004), it is likely that teachers’ implementation of physical activity programming contributes to this difference.

On an individual level, teacher enthusiasm, self-efficacy, and preparedness have been associated with higher levels of implementation (Rohrbach et al., 1993). However, teachers’ implementation of an intervention may be related to additional factors beyond personal attitudes. Teachers often consider the amount of time required to implement a program (Elliot, 1988; Reimers, Wacker, & Koeppel, 1987) and whether they believe the program will be effective (Von Brock & Elliott, 1987). Therefore, teachers are likely to consider personal attitudes toward an intervention and also practical factors related to implementation (e.g., feasibility within the classroom). Both the theory of planned behavior and empirical research suggest that teachers’
attitudes toward a program, including their perceptions about implementation feasibility, contribute to their willingness to implement a program.

Given the complexity of program implementation, additional considerations are also likely to influence a teachers’ willingness to implement a physical activity program. For example, treatment acceptability, (i.e., whether an individual feels the intervention is fair or appropriate) (Kazdin, 1980), is often highlighted as an important factor related to intervention usage (Chafouleas, Briesch, Neugebauer, & Riley-Tillman, 2011). Despite acceptability’s frequent inclusion in the school literature, the strength of the relationship between acceptability and intervention fidelity is unclear (Eckert & Hintze, 2000). Additional factors such as teachers’ understanding of what the program is and how to use it may be important to consider (Reimers, Wacker, & Koeppl, 1987). Additionally, complexity of an intervention has been found to be a consistent predictor of treatment adherence (Allen & Warzak, 2000; Perepletchikova & Kazdin, 2005). For example, in a study that explored parental involvement in a behavioral intervention program for children with autism, parental knowledge of the intervention was positively associated with implementation (Solish & Perry, 2008). Overall, teachers’ acceptability and understanding of a program can contribute to their willingness to implement a physical activity program.

Perceived behavioral control is another relevant construct from the theory of planned behavior. Individuals are more likely to engage in a behavior when they feel external factors facilitate the behavior (Ajzen, 1991). Within the school context, there are multiple external factors that impact teachers’ implementation of programs or interventions. For example, administrator support has been found to influence maintenance and quality of intervention implementation (Rohrbach et al., 1993). Moreover, administrative support influences teachers’
implementation of new programs (Han & Weiss, 2005; Ransford, Greenberg, Domitrovich, Small, & Jacobson, 2009). For example, during the initial implementation of IM/IL, some teachers expressed concern that IM/IL would be an additional requirement that reduces the quality of other programming (Fox et al., 2010). Additionally, teachers reported that they wanted better instruction on how to implement programming (Fox et al., 2010). Because IM/IL is an obesity prevention program rather than an academic program, it is likely that teachers did not receive extensive pre-service training in this area. Given this sentiment, administrator support is potentially a critical factor influencing teachers’ delivery of physical activity programming. Therefore, it is likely that teachers will deliver more physical activity promotion programming within an environment that facilitates implementation (e.g., administrative and staff support, adequate training).

**Summary and Gaps in the Literature**

In order to address the rising levels of obesity and sedentary behavior among preschool age children, preschools have begun incorporating physical activity programs into their daily programming. Considering the growth in attendance within childcare settings, there is great potential to help children meet the recommended levels for physical activity. Current research indicates that physical activity programs have had some success in increasing children’s physical activity levels. Yet it is not known whether these programs are sustainable and can be successfully integrated into preschool programming. One consistent finding throughout the literature is that children’s physical activity levels vary significantly across programs and classrooms. At this time, there is minimal information on what factors contribute to this observed variance. One factor that has been a relatively unexplored area within the current literature is teacher attitudes.
Previous research has focused on teachers’ general attitudes towards physical activity. Although teachers have described the benefits associated with physical activity (Copeland et al., 2012; O’Connor & Temple, 2005), they often expressed differing opinions regarding how involved they should be in promoting children’s physical activity levels (Coleman & Dyment, 2013; Derscheid et al., 2010). Some teachers’ felt they did not need to lead structured physical activity programming (Cashmore & Jones, 2008; O’Connor & Temple, 2005) and that children’s physical activity should be self-guided (Cashmore & Jones, 2008). Further understanding preschool teachers’ attitudes about physical activity promotion and how these attitudes relate to physical activity program implementation is important, because teachers are often responsible for implementing this type of programming in their classrooms. Learning more about this relationship may not only provide useful insight into teachers’ perceptions of physical activity programming, but also convey what factors encourage or discourage their use of this type of program.
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Chapter II

Abstract

This study examined 120 Head Start teachers’ use of *I am Moving, I am Learning*, a nationally disseminated program designed to promote physical activity. Teachers’ general attitudes about physical activity programming and their specific beliefs about this particular program were examined in relationship to their implementation of the *I am Moving, I am Learning* curriculum. Multiple regression analyses exploring teacher factors related to program usage demonstrated that IM/IL Training ($p < .001$), URP-IR score ($p < .01$), and Understanding ($p < .001$) were associated with Head Start teachers’ use of *I am Moving, I am Learning*. Results also highlighted Head Start teachers’ overall positive attitudes about the benefits and importance of promoting physical activity with their students and the *I am Moving, I am Learning* program.
The Relationship between Head Start Teachers’ Attitudes about Physical Activity Promotion and Their Use of Physical Activity Programming in the Classroom

Obesity rates among preschool-age children are alarmingly high. Although recent data suggests the prevalence of obesity has dropped from 13.9% to 8.4% from 2003 to 2012 (Ogden, Carroll, Kit, & Flegal, 2014), rates among low-income children remain around 14.9% (Pan et al., 2012). These data indicate that children of color and low-income children are disproportionately impacted by obesity (Ogden et al., 2014; Sharma et al., 2010). Recent research has found that when children are obese at age 5 they are four times as likely to be obese in adolescence compared with children who are not obese by age 5 (Cunningham, Kramer, & Narayan, 2014). Considering obese children have a higher risk of developing type II diabetes, heart disease, and other chronic conditions (Center for Disease Control and Prevention, 2012; Reilly & Kelly, 2011), preventing childhood obesity continues to remain a critical public health priority (White House Task Force on Childhood Obesity, 2010).

Despite the consensus around the need to reduce obesity levels, efforts to develop sustainable and effective prevention programs have remained elusive (Huang, Drewnowki, Kumanyika, & Glass, 2009). One promising trend in early childhood obesity prevention is the focus on childcare settings. Over the past 40 years, families have begun relying on childcare at increasing levels. It is estimated that 41% of preschool-age children spend 35 hours or more per week in childcare, 25% spend 15 to 34 hours, and 16% spend 1 to 14 hours (Capizzano, Tout, & Adams, 2000). Considering the widespread use of childcare, early education and care settings are important venues for obesity prevention programming (Story, Kaphingst, & French, 2006).

There has been a growing emphasis on the need to increase physical activity levels and reduce sedentary behavior within childcare (Hodges, Smith Tidwell, & Berry, 2013; Larson,
Ward, Neelon, & Story, 2011; Reilly & McDowell, 2003; Tucker, 2008). The National Association for Sport and Physical Education (2009) recommends that children engage in 120 minutes of physical activity per day. Physical activity is not only a protective factor against adiposity and weight gain (Klesges, Klesges, Eck, & Shelton, 1995; Moore, Nguyen, Rothman, Cupples, & Ellison, 1995), but it is positively associated with cardiovascular health, muscle strength, and social-emotional wellbeing (Strong et al., 2005). Despite the benefits, research suggests that children are not engaging in recommended levels of physical activity while in preschool (Pate, McIver, Dowda, Brown, & Addy, 2008; Pate, Pfeiffer, Trost, Ziegler, & Dowda, 2004; Shen et al., 2012).

Preschool programs are often provided with minimal guidance on how to promote physical activity. Regulations vary across states and few states require that preschool-age children engage in a specific amount of physical activity while in licensed childcare settings (Benjamin, Cradock, Walker, Slining, & Gillman, 2008; Kaphingst & Story, 2009). This lack of oversight and guidance allows for significant variability in how childcare settings promote physical activity (e.g., Pate et al., 2004; Bower et al., 2008).

**Programs that Promote Physical Activity**

Research focusing on physical activity promotion programs for preschool-age children is relatively new (Ward, Vaughn, McWilliams, & Hales, 2010). Programs have targeted physical activity through providing children with more opportunities to be physically active (Alhassan, Sirard, & Robinson, 2007), implementing curriculum based programming (Annesi, Smith, & Tennant, 2013; Bellows, Davies, & Kennedy, 2013; Binkley & Specker, 2004; Deal, 1993; Fitzgibbon et al. 2011; Trost, Fees, & Dzewaltowski, 2008), and modifying the environment (Hannon & Brown, 2008). Although the findings from these studies were mixed, several
programs were successful in increasing children’s physical activity levels (Annesi et al., 2013; Binkley & Specker, 2004; Fitzgibbon et al. 2011; Hannon & Brown, 2008; Trost et al., 2008). Basic interventions, such as adding playground equipment (Hannon & Brown, 2008) or leading simple gross motor activities 30 minutes per day (Binkley & Specker 2004), were associated with increases in children’s physical activity levels. However, children’s physical activity levels have been found to be higher in childcare settings with structured programing (Bower et al., 2008), and utilizing structured physical activity programs may be a more viable and sustainable approach.

In several studies the implementation of structured programming was associated with higher levels of physical activity for children in a treatment group relative to a comparison group (Annesi et al., 2013; Trost et al., 2008; Fitzgibbon et al. 2011). In Trost et al. (2008), children who were exposed to the Let’s Move, Learn, and Have Fun curriculum demonstrated significantly higher levels of moderate to vigorous physical activity. Similarly, the implementation of Start for Life (Annesi et al., 2013) and Hip Hop to Health Jr. (Fitzgibbon et al., 2011) corresponded with increases in time spent in moderate to vigorous physical activity for the treatment group. Although it is not clear which specific program components were most effective in promoting physical activity, these studies highlight that structured, teacher-led activities can increase children’s physical activity levels in preschool.

**Physical Activity Programming in Head Start**

Head Start is an ideal setting for physical activity programming. Head Start students come from low-income families who are disproportionately at risk for being obese or overweight (Sharma et al., 2010) and Head Start programs are required to follow Performance Standards and Other Regulations (2006) that mandate students engage in active play for a sufficient amount of
Although this standard does not outline how programs should promote physical activity, it recognizes that physical activity is an integral component of positive child development. The physical activity levels of Head Start children are largely unknown, and recent research suggests that physical activity levels among students may be low (Shen et al., 2012).

To promote physical activity, Head Start programs across the United States have begun to implement *I am Moving, I am Learning* (IM/IL). IM/IL was developed to align with the Head Start Program Performance Standards addressing physical activity and nutrition (Finkelstein et al., 2007). The program’s goals are to (a) increase the quantity of time children spend in moderate to vigorous physical activity (MVPA) during their daily routine to meet national guidelines for physical activity, (b) improve the quality of structured movement experiences that are intentionally facilitated by teachers and adults, and (c) promote healthy food choices for children every day (Fox et al., 2010).

Despite its widespread dissemination, there is limited information on the impact that IM/IL has on children’s physical activity. To date, the existing information on IM/IL comes from an evaluation that was initiated in 2006 by Head Start’s Office of Planning, Research, and Evaluation (Fox et al., 2010). Survey responses indicated that 51 out of the 53 participating programs attempted to implement IM/IL and only half of these programs indicated they were successful in implementing IM/IL activities (Finkelstein et al., 2007). Moreover, only 2 of 26 programs endorsed developing a formal written plan for IM/IL implementation (Fox et al., 2010).

There is also minimal information on how teachers’ use IM/IL to promote physical activity. Because IM/IL was developed as a program that would fit seamlessly into what Head Start programs were already doing (Fox et al., 2010), each Head Start site has autonomy over
how it decides to implement IM/IL and what goals to target; there is no prescribed curriculum for teachers. The program’s “Choosy” CD was endorsed as the most popular component and teachers reported using a variety of IM/IL activities to encourage physical activity (e.g., moving/dancing to music, walking, jumping rope; Fox et al., 2010). Considering that Head Start teachers have control over how they implement IM/IL, it is important to understand how often teachers implement the program’s activities.

Ultimately, there remains limited information on the teacher and Head Start site-level factors that serve to facilitate or discourage teachers’ use of IM/IL. Exploring teacher attitudes toward physical activity promotion in general and IM/IL programming specifically may provide useful insights into implementation barriers and facilitators.

Preschool Teachers’ Attitudes toward Physical Activity Programming

Preschool teachers’ attitudes toward integrating physical activity programming into children’s daily routines are understudied. Despite being primarily responsible for leading physical activity programming, research has yet to explore how teachers’ attitudes relate to their willingness to implement this type of instruction (Goldfield, Harvey, Grattan, & Adamo, 2012; Lanigan, 2012). To date, the literature has focused on teachers’ attitudes toward physical activity in general, ranging from the effects physical activity has on children (Copeland, Cassandra, Saelens, Kalkwarf, & Sherman, 2012; Huberty, Dinkel, Coleman, Beighle, & Apenteng, 2012) to promoting physical activity in the childcare setting (Cashmore & Jones, 2008; Derscheid et al., 2010; O’Connor & Temple, 2005).

Attitudes toward physical activity promotion in general. In qualitative studies, many teachers remarked on the multiple benefits associated with physical activity, including psychological, developmental, and academic (Copeland et al., 2012; Huberty et al., 2012).
Within Head Start programs, teachers expressed that daily movement was important for promoting children’s overall health (Derscheid et al., 2010). Despite these positive attitudes, teachers conveyed varying beliefs about how physical activity should be promoted. Some teachers believed that children’s physical activity should be self-guided, whereas others highlighted the importance of modeling and providing verbal encouragement (Huberty et al., 2012). Moreover, some teachers believed that it was not their role to lead structured activities (Cashmore & Jones, 2008; O’Connor & Temple, 2005) or implement programming (Derscheid et al., 2010).

**Attitudes towards IM/IL programming.** In the initial IM/IL evaluation, many teachers endorsed feeling enthusiastic about IM/IL (Finkelstein et al., 2007). However, in follow-up phone interviews with teachers and site coordinators, half of the Head Start programs identified staff buy-in as a barrier to implementation (Fox et al., 2010). Several factors potentially influencing buy-in were that teachers perceived IM/IL as an additional responsibility and some did not believe they were provided with sufficient time or training to ensure quality implementation. Moreover, staff from approximately one-third of the Head Start sites reported that other areas in Head Start were a higher priority than IM/IL and there was insufficient time for training (Fox et al. 2010).

**Teacher Attitudes and Intervention Implementation**

There is significant variation in children’s physical activity levels across childcare sites (Pate et al., 2008; Pate et al., 2004; Trost, Ward, & Senso, 2010) and one factor potentially contributing to this difference may be teachers’ attitudes. Teachers often implement interventions differently within the same schools (Rohrbach, Graham, & Hansen, 1993; Taggart, Bush, Zuckerman, & Theiss, 1990) and positive teacher factors such as enthusiasm, self-efficacy,
and preparedness have contributed to higher levels of program implementation (Rohrbach et al., 1993).

Teachers often consider program feasibility, the time required for program implementation (Elliott, 1988; Reimers, Wacker, & Koepppl, 1987), and whether the program will have an impact (Von Brock & Elliott, 1987). Treatment acceptability (i.e., whether an intervention is fair or appropriate; Kazdin, 1980) has been hypothesized as a significant contributor to intervention usage as well (Briesch, Chafouleas, Neugebauer, & Riley-Tillman, 2013). Although the strength of this relationship is unclear (Eckert & Hintze, 2000), acceptability is one of multiple factors that contribute to teachers’ attitudes toward program implementation. Teachers’ understanding of a program, the steps involved in implementation (Reimers et al., 1987), and administrator support are also likely to influence program implementation (Han & Weiss, 2005; Rohrbach et al., 1993).

Overall, when trying to assess and explain program usage, it is important to look beyond single factors in isolation and recognize that multiple, interconnected factors may be involved (Briesch et al., 2013). Therefore, it important to recognize that teachers’ attitudes and willingness to use a program are likely to be impacted by their assessment of a specific intervention and the environment in which it is being implemented.

**Purpose of the Current Study**

The relationship between preschool teachers’ attitudes and their use of physical activity programming is an area that deserves further exploration. Because teachers enjoy a level of autonomy over how IM/IL can be implemented (Fox et al., 2010) there is the potential for considerable variability in how individual teachers use IM/IL. Within school settings, intervention integrity and sustainability are common problems (Pence, Justice, & Wiggins, 2008;
Whitehurst et al., 1994), so it is valuable to determine which teacher factors correspond with more frequent and broader utilization of IM/IL. Therefore, the primary objective of this study was to examine teachers’ general attitudes about physical activity programming and their specific beliefs about IM/IL in relationship to their implementation of IM/IL. Specifically, this study intended to determine: (1) How frequently Head Start teachers use each of the IM/IL physical activity components; (2) whether Head Start teachers’ attitudes toward promoting physical activity in general predict how often they implement physical activity components of IM/IL; and (3) whether Head Start teachers’ attitudes toward the IM/IL program in particular predict how often they implement physical activity components of IM/IL.

**Method**

**Participants**

Lead Teachers ($N = 167$) from Head Start programs ($N = 22$) in a large city in the Northeastern United States were invited to participate in this study; 120 teachers completed the questionnaire (72% response rate). On average, teachers reported having 12.66 years of experience with preschool age children ($SD = 8.31$) and 9.96 years ($SD = 7.4$) working at Head Start. Other demographic information is presented in Table 1. Participation was voluntary and anonymous.

**Measures**

The *I am Moving, I am Learning* Teacher Questionnaire (IM/IL-TQ; see Appendix A) was developed for this study. This questionnaire included items focusing on four areas: (a) teachers’ general background (e.g., gender, ethnicity, years of experience as a preschool teacher, role in the classroom); (b) IM/IL usage related to physical activity; (c) general attitudes toward promoting physical activity in preschool; and (d) specific attitudes toward implementing IM/IL.
Several steps were taken to ensure the IM/IL-TQ was appropriate for this study. The questionnaire was reviewed by a group of university-based experts in childhood obesity prevention, community-based research, and implementation integrity. A Head Start Nutrition Coordinator and a Head Start Education Coordinator reviewed the next version of the questionnaire to ensure the questions were clear and appropriate for the classroom teachers. Finally, the questionnaire was pilot tested with two Head Start teachers, one lead teacher and one assistant teacher, to estimate response time, to receive feedback on the clarity and relevance of the questions, and to address any teacher concerns. The Flesh Kinkaid Grade readability level of the final questionnaire was 8.7. Because Head Start lead teachers are required to possess a bachelor’s degree (i.e., lead teacher; Head Start, 2008), the reading level was appropriate.

**Measuring Teacher Implementation of IM/IL**

**Teacher IM/IL Implementation.** Program implementation was measured by focusing on program exposure, which refers to the quantity of program lessons, activities, or components delivered (Rohrbach et al., 1993). This procedure has been used previously in an evaluation of physical activity programming (Williams, Carter, Kibbe, & Dennison, 2009). Although the IM/IL program includes a component focused on healthy eating, the current study only focused on the program components related to physical activity. The five IM/IL components used to promote physical activity consisted of: (1) listening to the *Choosy* CD; (2) incorporating equipment (e.g., jump rope, hula-hoop) and props (e.g., scarves, sticks) in physical activity; (3) leading basic movement activities (e.g., stretching, running, jumping); (4) leading IM/IL structured movement activities (i.e., activities from *Get Up and Go...I’m Moving, I’m Learning: A Movement and Nutrition Activity Curriculum*); and (5) using structured movement vocabulary (e.g., what my body does, how my body moves) to improve quality of structured movement.
activities (Fox et al., 2010). The IM/IL-TQ focused on the five physical activity components of IM/IL and included questions about each activity within each of the five major components. Teachers were asked to rate the frequency with which they have implemented each of the IM/IL activities in the past year using the following response options: “Never,” “About once a month,” “About once a week,” “2-3 times a week,” “4-5 days a week,” and “Several times a day.”

**Measuring teachers’ attitudes toward physical activity in general.** The General Attitude Scale for Physical Activity (GAS-PA) was developed for this study and included eight items designed to measure teachers’ general attitudes about promoting physical activity in the classroom. Both findings from relevant research and the theory of planned behavior (Ajzen, 1991) influenced the development of this questionnaire. According the theory of planned behavior, individuals assess whether they hold a favorable or unfavorable attitude toward a behavior, which will influence their intention to engage in the behavior. Therefore, items were developed through reviewing the literature and determining salient attitude factors potentially influencing teachers’ willingness to use physical activity programming.

Items focused on preschool teachers’ attitudes in three general areas: (1) whether they perceive their students’ current levels of physical activity to be concerning; (2) how they see their role as a preschool teacher in the promotion of physical activity; and (3) the benefits associated with children engaging in physical activity. Responses were based on a 6-point Likert scale where respondents were asked to indicate whether they “Strongly Disagree,” “Disagree,” “Slightly Disagree,” “Slightly Agree,” “Agree,” and “Strongly Agree” with each statement.

**Measuring teachers’ attitudes towards IM/IL.** The Usage Rating Profile-Intervention Revised (URP-IR; Briesch, Chafouleas, Neugebauer, & Riley-Tillman, 2013) was used to examine teacher perceptions about the IM/IL program in particular. The URP-IR is a 29-item,
self-report measure that assesses six factors that explain whether an individual will adopt and utilize an intervention over time, they include Acceptability, Understanding, Family School Collaboration, Feasibility, System Climate, and System Support. Reliability estimates provided in Briesch et al. (2013) were within the acceptable range (Netemeyer et al., 2003) for each of the subscales: Acceptability ($\alpha=.95$), Understanding ($\alpha=.80$), Family School Collaboration ($\alpha=.79$), Feasibility ($\alpha=.84$), System Climate ($\alpha=.91$), and System Support ($\alpha=.72$).

The URP-IR Acceptability subscale was used to assess teachers’ attitudes toward the physical activity promotion components of IM/IL. This subscale measures two aspects of acceptability: (1) if respondents perceive an intervention is appropriate, fair, and effective; and (2) whether respondents have a personal interest in, enthusiasm for, and commitment to implementing the program components (Briesch et al., 2013). The Feasibility subscale on the URP-IR assesses teachers’ attitudes about whether the time and resources required to carry out the intervention are reasonable and not overly complicated (Briesch et al., 2013). The Understanding subscale of the URP-IR measures teachers’ perceived knowledge of how to implement the intervention procedures (Briesch et al., 2013). The System Support subscale includes items that measure practical aspects of support like the provision of professional consultation or resources to assist with implementation. The System Climate subscale measures whether the intervention aligns with the socio-political climate of the school system. Last, the Family-School Collaboration subscale assesses whether collaboration with families is important for effective implementation (Briesch et al., 2013). For each item, respondents are asked to indicate whether they “Strongly Disagree,” “Disagree,” “Slightly Disagree,” “Slightly Agree,” “Agree,” and “Strongly Agree” with each statement.
Procedures

**Recruitment.** The Principal Investigator met with Head Start Education Supervisors during one of their monthly meetings to outline the purpose and benefits of the study and logistics of survey administration. Education Supervisors had the opportunity to learn about the project, to ask questions, and to discuss concerns about administering the survey to their teachers.

Next, Education Supervisors were sent a pre-notification e-mail consisting of information highlighting the study, requesting voluntary teacher participation, and the date the survey would be distributed at their Head Start programs (see Appendix B). In a systematic review of the literature on web surveys, research has consistently demonstrated the positive effects pre-notification has on response rates (Fan & Yan, 2010). The content of the pre-notification e-mail consisted of information highlighting the study, requesting voluntary teacher participation, and the date the survey would be administered at their Head Start programs. Teachers who completed the questionnaire were eligible to enter a lottery where they could win a $20 gift card.

**Survey Delivery.** The paper version of survey was delivered to all participating Head Start sites on the same day. Surveys were presented in an envelope with directions for administration (see Appendix C). Education supervisors allowed staff to fill out the IM/IL questionnaire during their weekly staff meeting. Education supervisors were reminded to encourage teachers that it was important to fill out all of the items and to answer questions as honestly as possible. To promote increased participation, they were reminded their participation was voluntary and their responses were anonymous.
Power Analysis

An a priori power analysis was conducted using G-Power 3.1 (Faul, Erdfelder, Buchner, & Lang, 2009) to determine the appropriate sample size to detect at a medium effect size ($f^2 = 0.15$) with two predictors (i.e., General Attitudes toward Physical Activity and Specific Attitudes toward IM/IL) and three covariates (i.e., years working with pre-school-age children, years leading physical activity programming, and IM/IL training). Prior to running the F-test, the $\alpha$ level was set at .05 and the power (1- $\beta$) was set at .80. Results indicated a sample of $N=92$ was recommended. This finding was similar to guidelines specified by Cohen (1988).

Data Analysis

Statistical analyses were conducted in PASW Statistics 18 (SPSS, Inc., 2009, Chicago, IL). Prior to analyzing the data, Inter Class Correlation (ICC) values were computed to evaluate whether there was a cluster effect within each Head Start site. The ICC value was calculated for the primary outcome variable (i.e., IM/IL Total Usage Score).

The IM/IL Total Usage and IM/IL Component Usage scores were calculated to describe how frequently teachers reported utilizing physical activity components of IM/IL over the school year. The IM/IL Total Usage score was calculated through computing the average of frequencies for all IM/IL components. The IM/IL Component Usage scores were calculated through computing the average of frequencies for each major IM/IL component: (a) Choosy CD, (b) equipment and/or props, (c) basic movement activities, (d) structured movement activities, and (e) structured movement vocabulary. Survey responses were assigned the following values: “Never”= 0, “About once a month”= 1, “About once a week”= 2, “2-3 times a week”= 3, “4-5 days a week”= 4, and “Several times a day”= 5. Usage scores ranged from 0 (i.e., never) to 5.
(i.e., several times a day). Descriptive statistics were calculated for the IM/IL Total Usage variable and the IM/IL Component Usage variables.

To explore the relationship between teachers’ background variables and their IM/IL Total Usage score, three independent t-tests were run. Given the repeated tests, the Bonferroni correction procedure was applied to calculate an adjusted p-value. Results from this calculation indicated the new threshold for significance was $p < .017$. For the t-tests, differences between the following three groups were evaluated: (1) IM/IL training, (i.e., received training/did not receive training); (2) previous experience with preschool students; (3) and previous experience leading physical activities. More lead teachers endorsed receiving IM/IL training ($n=92$) than not receiving IM/IL training ($n=24$). The median number of years teaching preschool was 13 years and the mean was 14.25 years ($SD=8.47$). To ensure approximately equal groups, teachers were categorized into either having 13 or fewer years of experience ($n=64$) or having more than 13 years of experience ($n=56$). With regard to experience leading physical activities, teachers reported a median of 10 years and a mean of 9.80 years ($SD=8.02$). Therefore, groups were categorized into teachers having 10 or fewer years of experience leading physical activities ($n=67$) and teachers with more than 10 years of experience leading physical activities ($n=53$). Prior to this analysis, the assumptions for independent t-tests were evaluated.

Teacher responses on the GAS-PA and URP-IR were converted into scores. Responses on the GAS-PA were assigned the following values: “I Strongly Disagree”= 1, “I Disagree”= 2, “I Slightly Disagree”= 3, “I Slightly Agree”= 4, “I Agree”= 5, and “I Strongly Agree”= 6. Scores on the GAS-PA were obtained by averaging the values for teacher responses across items. Scores for the GAS-PA ranged from 1 (“I Strongly Disagree”) to 6 (“I Strongly Agree”). Responses on the URP-IR were assigned the same values and scores were also calculated.
through averaging teachers’ responses across items. Mean scores on the URP-IR ranged from 1 ("I Strongly Disagree") to 6 ("I Strongly Agree"). Subscale scores on the URP-IR were similarly calculated through averaging teachers’ responses across the items that comprised each of the six subscales. Cronbach’s alpha was calculated for the GAS-PA and the modified UPR-IR to evaluate the scales’ reliability. Descriptive statistics were calculated for teachers’ responses on the GAS-PA and the modified URP-IR.

To determine whether teachers’ general attitudes toward physical activity and their specific attitudes toward IM/IL predict their usage of IM/IL, a standard linear multiple regression was conducted using a stepwise method. The following regression model was entered:

\[ Y_{IM/IL \ Total \ Usage \ Score} = \beta_0 + \beta_1 \text{URP-IR} + \beta_2 \text{GAS-PA} + \beta_3 \text{IM/IL Training} + \beta_4 \text{Preschool Experience} + \beta_5 \text{Physical Activity Experience} + \varepsilon. \]

To explore specific perceptions about the IM/IL curriculum related to intervention usage even further, an additional linear multiple regression was conducted using a stepwise method. The following regression model was entered:

\[ Y_{IM/IL \ Total \ Usage \ Score} = \beta_0 + \beta_1 \text{Acceptability} + \beta_2 \text{Understanding} + \beta_3 \text{Family School Collaboration} + \beta_4 \text{Feasibility} + \beta_5 \text{System Support} + \beta_6 \text{System Climate} + \varepsilon. \]

Given the concerns with making a Type I error by running two regression models with the same outcome, the Bonferroni method was used to adopt an adjusted \( p \) of 0.025. Finally, the assumptions of multiple regression were evaluated for each model.

**Results**

**Analysis of Inter Class Correlations**

The Inter Class Correlation Coefficient (ICC) for the IM/IL Total Usage Score was 0.01 (Table 2). This value was below the 0.1 standard for a small effect (Hox, 2002). Moreover, the
sample only includes 22 sites, and the cluster sizes at each site (i.e., number of participants) ranged from 2 to 18. Based on these results, there does not appear to be a clustering effect with the data, and teacher site does not need to be taken into consideration for the analyses.

The Frequency of Lead Teacher’s IM/IL Usage in the Classroom

The mean IM/IL Total Usage score for teachers was 2.64 ($SD=0.73$) suggesting that components of IM/IL were implemented slightly more than once per week (Figure 1). The frequency of IM/IL component usage varied. The most frequently used IM/IL component was IM/IL Vocabulary ($M=3.50$, $SD=1.04$) with teachers incorporating movement vocabulary into classroom activities slightly more than two to three times a week. Next, teachers reported implementing unstructured activities ($M=3.16$, $SD=0.88$) two to three times per week. In contrast, teachers reported implementing structured activities ($M=2.43$, $SD=0.94$) and the Choosy CD ($M=2.29$, $SD=1.22$) only slightly more than once a week. The least frequently used IM/IL component was equipment and props ($M=1.95$, $SD=0.84$), with teachers reporting using these tools slightly less than once a week.

Group Differences in Lead Teachers’ use of IM/IL. The mean IM/IL Total Usage score for teachers with previous IM/IL training was higher ($M=2.79$, $SD=.64$) than the mean IM/IL Total Usage score for teachers without IM/IL training ($M=1.99$, $SD=.75$), $t (114) =-5.24$, $p <.001$. This finding suggests teacher training was associated with slightly higher use of IM/IL in the classroom. Lead teachers with more than 13 years of teaching experience reported higher mean IM/IL Total Usage scores ($M=2.80$, $SD=.71$) than teachers with 13 or fewer years of teaching experience ($M=2.51$, $SD=.74$), $t (118) =-2.2$, $p=.03$. Although the result of this t-test was less than .05, it did not meet the chosen adjusted alpha criteria of .017 and should be interpreted with caution. Last, there was no significant difference between the mean IM/IL Total
Usage score for teachers with more than 10 years of experience leading physical activities 
\( (M=2.79, SD=.73) \) and teachers with 10 or fewer years of experience leading physical activities 
\( (M=2.53, SD=.72) \), \( t(118) = -1.94, p = .055 \).

**Reliability Analysis of the GAS-PA**

The reliability of the eight-item GAS-PA \((n=119)\) was evaluated. Overall, the items demonstrated high reliability \((\alpha = .91)\). Results from this analysis suggested reliability would improve if Item One was deleted \((\alpha = .97; \text{Table } 3)\). Additionally, correlation coefficients between Item One and all of the other items were less than 0.30 (Table 4). Given the low correlation between Item One and the rest of the questionnaire, Item One may not be appropriate for this scale. Items Two through Eight contained positive wording and focused on teachers’ attitudes towards promoting physical activity in the classroom and the benefits associated with physical activity. In contrast, Item One contained negative wording, asking whether the respondent was concerned about his/her students’ physical activity levels. Due to these findings, Item One was removed to enhance the reliability of the GAS-PA scale and it will be discussed separately.

**Teacher Responses on the GAS-PA.** To understand teachers’ attitudes toward physical activity promotion, mean scores on the modified GAS-PA \((i.e., \text{Items } 2 \text{ through } 8)\) and Item 1 are discussed separately. Teachers’ responses on the modified GAS-PA suggested high levels of agreement with items describing the importance and benefits of promoting physical activity. The overall mean was 5.40 \((SD=1.02)\) and the median value was 5.71 indicating teachers endorsed “I Agree” or “I Strongly Agree” for nearly all statements. There was minimal variability around teachers’ responses on this scale and only five teachers \((4.1\%)\) endorsed scores that were below the value of four \((i.e., \text{indicating disagreement with the statements})\). Teacher mean responses
across items (Table 5) further demonstrated minimal variability with the mean score for Items Two through Eight ranging from 5.24 ($SD=1.24$) to 5.48 ($SD=1.05$).

Teachers’ responses on Item 1 reflected disagreement with a statement expressing concern about their students’ physical activity level ($M=2.89, SD=1.70$). More lead teachers endorsed disagreeing with Item 1 ($n=72; 60\%$) than agreeing with Item 1 ($n=48; 40\%$). Despite this contrast in teacher attitudes, results from the independent t-test suggested that teachers’ mean IM/IL Total Usage score did not differ between teachers who agreed ($M=2.65, SD=.67$) and teachers who disagreed ($M=2.63, SD=.82$), $t(118) =.193, p=.85$ with the statement that they were concerned that children at their school do not get enough physical activity.

**Reliability Analysis of the URP-IR**

Chronbach’s alpha for 29 items on the modified URP-IR was 0.90 suggesting high reliability (Kline, 1999; Table 6). The Acceptability (9 items; $\alpha=.83$), Understanding (3 items; $\alpha=.86$), and System Climate (3 items; $\alpha=.85$) subscales were also found to be highly reliable and similar to previous reliability tests (Briesch et al., 2013). Although slightly lower, the Family School Collaboration subscale (3 items; $\alpha=.71$) also met the .70 criterion for research based scales (Netemeyer et al, 2003). Scores for the Feasibility subscale (6 items; $\alpha=.68$) and System Support subscale (3 items; $\alpha=.67$) were slightly below the .70 criterion suggesting mild concerns around the internal consistency of these subscales. The Chronbach’s alpha for the System Support subscale is similar to previous reliability tests (Briesch et al., 2013). On the Feasibility subscale, one of the items was negatively worded and needed to be reverse scored. This may have presented problems for the respondents as the subscales’ reliability improved when the reverse scored item was removed (5 items, $\alpha=.814$).
Teacher Responses on the URP-IR. Overall the mean score on the URP-IR was 4.86 ($SD=0.56$) suggesting that teachers more than slightly agreed with most items (Table 7). Mean scores on the Acceptability subscale were the highest ($M=5.16$, $SD=.62$) indicating teachers agreed that IM/IL was an acceptable intervention and they were enthusiastic about implementing it. On the System Climate subscale, mean scores were similarly high ($M=5.12$, $SD=.68$) highlighting teachers agreed with statements suggesting the intervention was compatible with the school environment. Mean scores on the Understanding subscale also indicated that teachers understood how to implement IM/IL ($M=5.02$, $SD=.86$). Mean ratings were slightly lower on the Feasibility ($M=4.88$, $SD=.67$) and Family School Collaboration ($M=4.48$, $SD=1.1$) subscales. Last, teachers’ mean scores on the System Support subscale ($M=3.70$, $SD=1.23$) suggested they slightly disagreed that they needed external help to implement IM/IL.

The Relationship Between Teacher Attitudes and IM/IL Usage

As there were no violations of assumptions, the results from the multiple regression can be interpreted with confidence. A stepwise forward method was used to evaluate whether the predictor variables contributed to teachers’ use of IM/IL in the classroom. The following predictor variables were entered into the model: URP-IR, modified GAS-PA, IM/IL Training, Experience with Preschool Students, and Experience Leading Physical Activities. See Table 8 for correlation coefficients between predictor variables. The final model consisted of three predictor variables (i.e., Mean URP-IR, IM/IL Training, Experience Leading Physical Activity). See Table 9 for a model summary.

Results of the analysis suggested the model using the three predictors combined explained 27.5% of the variance in teachers’ use of IM/IL, $R^2=.275$, $F (3,110) =13.54$, $p<.001$. Overall, teachers use of IM/IL was best explained by whether they attended IM/IL Training, $p$
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<.001, their mean score on the URP-IR, \( p < .01 \) and their experience leading PA, \( p < .05 \). Due to the Bonferroni correction, the experience leading physical activities variable failed to meet the adjusted p-value for significance (i.e., \( p < .025 \)).

Overall, these results suggested that the IM/IL Total Usage score for teachers who attended IM/IL training was estimated to be 0.73 higher than lead teachers who did not attend training. The effect size for this relationship was medium indicating that IM/IL training was associated with more frequent usage of IM/IL (i.e., 0.73; Cohen, 1988). For every one-point increase in score on the URP-IR, teachers’ IM/IL Total Usage score was estimated to increase by 0.34 (Table 10). The effect size for this relationship was smaller suggesting scores on the URP-IR has less of an impact of IM/IL usage when compared to IM/IL training (i.e., 0.34; Cohen, 1988).

Factors Related to Intervention Usage and IM/IL Implementation

The predictor variables entered into the initial model included the six subscales on the URP-IR: Acceptability, Understanding, Family School Collaboration, Feasibility, System Climate, and System Support. Due to using a stepwise method, only two predictors were included in the final model (i.e., Understanding, System Support). See Table 11 for Correlation Coefficients and Table 12 for model summary.

Results from the regression analysis indicated that the final regression model with two predictors explained 19.9% of the variance (\( R^2 = .199, F (2,112) = 13.91, p < .001 \)). The results (Table 13) suggested that the Understanding, \( p < .001 \), and System Support, \( p < .05 \) subscales were significant in explaining part of the variance in teachers’ usage of IM/IL. The p-value for the System Support variable was slightly above the adjusted value of \( p < .025 \) and should be interpreted with caution. Overall, for every one-point increase in teachers’ score on the
Understanding subscale, their Total IM/IL Usage score increased by 0.33. Additionally, for every one point increase on the System Support subscale, lead teachers’ Total IM/IL Usage score decreased by 0.11.

**Discussion**

This study explored Head Start teachers’ use of the IM/IL program to promote physical activity. Results described how IM/IL has been utilized within Head Start programs and specific factors that may have influenced its use. Overall, teachers reported using all components of IM/IL to encourage physical activity slightly more than once week. Further analysis demonstrated that teachers’ scores on the URP-IR and exposure to IM/IL training were associated with higher levels of IM/IL usage. Specifically, teachers who felt positive about factors commonly related to intervention implementation (e.g., acceptability, understanding, feasibility) tended to use IM/IL more often. Additionally, prior training on IM/IL was associated with increased use.

These findings provided insight into how frequently physical activity components of IM/IL have been implemented among a large group of Head Start teachers in a major city in the United States. The most frequently reported component used was movement vocabulary. Although using movement vocabulary does not specifically promote physical activity, its integration into classroom activities may promote children’s knowledge of movement and relatedly improve the quality of physical activities. For activities that specifically promote physical activity, teachers reported leading unstructured activities more frequently than structured activities or playing the *Choosy* CD. While teacher responses suggested that unstructured activities are implemented two to three times per week, both structured activities and the *Choosy* CD were used slightly more than once week. This finding contrasts with the
previous IM/IL program evaluation where the *Choosy* CD was identified as the most popular IM/IL component (Fox et al., 2010). However, this finding is not entirely surprising based on anecdotal Head Start administrators’ comments that the songs become repetitive and they are no longer are novel for staff and students.

When promoting physical activity, teachers reported using unstructured activities most frequently. Promoting basic movement activities (e.g., jogging, jumping, skipping) require less planning, structure, and fewer instructions need to be provided to the students. One of the strengths of IM/IL is that Head Start programs are provided with autonomy over implementation (Fox et al., 2010). The downside is that teachers are then responsible for determining how they will use the program, including choosing or not choosing structured activities to lead and developing plans of implementation. Given the challenges in planning, implementing, and guiding physical activity, it is not surprising that teachers were more apt to rely on unstructured activities. However, research is beginning to encourage more concrete and systematic programming (Sterdt et al., 2013). Moreover, one of IM/IL’s core components is promoting the quality of movement. To promote motor development and physical activity, it is recommended that children engage in 60 minutes of structured activity per day (Dowda et al., 2004; National Association for Sport and Physical Education, 2009). Therefore, to improve current IM/IL programming, it is important to consider existing barriers to implementing structured activities on a more frequent basis.

Another goal of this study was to explore pre-school teachers’ attitudes toward physical activity programming. Although teachers’ general attitudes toward physical activity were not associated with IM/IL usage, results revealed overwhelmingly positive attitudes toward promoting physical activity in the classroom and the benefits associated with physical activity.
Though in previous research, teachers have acknowledged that physical activity has positive effects on children (Copeland et al., 2012; Huberty et al., 2012; O’Connor & Temple, 2005), teachers’ overwhelming agreement with the importance of taking an active role in the current study conflicts with previous studies where some teachers expressed reservations about actively promoting physical activity in the classroom (Coleman & Dyment, 2013; Copeland, 2012). One interesting finding was that 60% of the teachers endorsed not being concerned with their student’s physical activity levels. This attitude conflicts with the current low estimates of children’s physical activity levels in preschools (Pate et al., 2008; Pate et al., 2004; Shen et al., 2012). Because preschool teachers have been found to overestimate children’s physical activity levels (Derscheid et al., 2010; Dyment & Coleman, 2012), it is important to address this potential discrepancy in future IM/IL trainings.

Teacher attitudes related to intervention implementation were associated with IM/IL usage. Overall, teachers’ responses indicated high intervention acceptability, good program understanding, that the program was feasible to implement, that the program fit with their Head Start context, and that increased family school collaboration may strengthen the program. Results from a regression analysis demonstrated slightly more frequent usage of IM/IL for teachers with higher scores on the URP-IR. This finding supports the argument that program implementation is complicated and there are often multiple factors associated with program usage (Briesch at al., 2013). Relatedly, when exploring program usage, these results suggested that evaluating specific attitudes toward the program may be more important than general attitudes about teachers’ roles in physical activity promotion. When analyzing all six factors on the URP-IR separately, understanding was found to have the strongest relationship with IM/IL usage. This finding is aligned with previous research where understanding a program’s purpose and how to use it are
key to implementation (Reimers, Wacker, & Koepppl, 1987). Moreover, this result highlights the significance of teacher understanding when implementing physical activity programs in preschools.

In addition to teachers’ attitudes toward IM/IL, the strongest predictor of IM/IL usage was previous participation in IM/IL training. These results support previous research suggesting that training is a significant component of program implementation (Durlak & DuPre, 2008; Dusenbury, Brannigan, Falco, & Hansen, 2001). It is noteworthy that the majority of teachers reported having received training (i.e., 79%), which indicates the training efforts in this city have reached most teachers. Further studies might evaluate the IM/IL training program to better understand the level of support and guidance provided to teachers, particularly around teaching structured movement activities.

In sum, this study helps to fill the gaps in the research around teachers’ attitudes toward implementing physical activity programs in the classroom (Hodges, Smith, Tidwell, & Berry, 2013; Goldfield et al., 2012). Teachers’ overwhelmingly reported that promoting physical activity in the classroom is important and beneficial for their students. Furthermore, results indicated that teachers implemented various components of IM/IL to promote physical activity. There is limited research on IM/IL implementation (Fox et al, 2011), and this study begins to illustrate how over twenty Head Start programs in a major urban area are using it. One strength of this study is the high participation rate among teachers, indicating these results are reflective of the teachers’ experience implementing IM/IL in this city. Moreover, results highlighted that factors associated with intervention implementation are related to teachers’ usage of IM/IL. When developing IM/IL trainings, it may be important to consider factors that would promote
teachers’ feelings of program acceptability, feasibility, understanding, family school collaboration, system climate, and system support.

**Limitations**

This study focuses on a group of teachers within a particular geographic region. Therefore, one of the primary limitations of this study is that data describing IM/IL usage is not generalizable to Head Start programs outside of this region. Factors related to this particular region (e.g., training, program areas of emphasis) may have contributed to how IM/IL was implemented. Relatedly, teachers’ specific attitudes toward IM/IL, as measured by the URP-IR, may also not be generalizable to other Head Start programs. Results from the URP-IR described how teachers felt about IM/IL and their responses may be influenced by institutional factors related to their program.

Another limitation of this study is the results are based on teacher self-report. Research has highlighted validity concerns with using self-report measures to assess treatment integrity involving school-based interventions (Fiske, 2008; Pence et al., 2008). Given this issue, efforts were made to promote accurate reporting. First, teachers were reminded through written material (i.e., IM/IL Questionnaire directions, pre-notification e-mail) and verbal prompts (i.e., directions provided by Education Supervisors before survey administration) that their responses were anonymous and could not be traced back to them. Also, the questionnaire did not measure intervention integrity per se, as there is no structured program to follow. Teachers are provided with autonomy over how they implement IM/IL and its use does not have to reach a particular standard. Some teachers may have overestimated how frequently they used IM/IL; however, the variability in Total IM/IL Usage scores indicated teachers’ responses captured a range of program use.
An additional limitation of the IM/IL Total Usage score is that it may fail to capture some of the variability that exists between classrooms. For the measurement of both structured and unstructured activities, teachers endorsed a range of usage (e.g., several times a day, 2 to 3 times a week) rather than providing a specific frequency (e.g., 5 times a week). Although this IM/IL Total Usage score provides preliminary and general information on teacher use of IM/IL, the response categories do not allow for calculating the true difference between teachers’ IM/IL usage. As a result, there may be more variability in teachers’ implementation of structured and unstructured activities in the classroom.

Last, one objective of this study was to determine how often teachers implemented physical activity components of IM/IL, as opposed to implementation quality. Assessing the quantity of program usage is a common and an important first step when evaluating program implementation within early childcare settings (Downer & Yazejian, 2013). However, implementation quality may ultimately have more of an influence on program outcomes. Additionally, information on teachers’ use of IM/IL is not reflective of children’s physical activity levels throughout the day. Given that research on IM/IL is scarce (Fox et al., 2010), learning about the frequency of teacher usage is beneficial. However, further studies should be conducted to learn about the impact of IM/IL.

Conclusions and Future Directions

Implementing physical activity promotion programs has been associated with increases in children’s physical activity levels (Annesi et al., 2013; Binkley & Specker, 2004; Fitzgibbon et al. 2011; Hannon & Brown, 2008; Trost et al., 2008). Results from this study and previous research suggest that preschool programs are implementing physical activity programming. IM/IL is an appealing program in that it is designed for Head Start programs that serve a high-
risk population (Ogden, Caroll, Kit, & Flegal 2014; Sharma et al., 2010) and allows for flexibility and autonomy over implementation (Fox et al., 2010). This study’s findings indicated that not only do Head Start teachers believe promoting physical activity is important, but also that IM/IL is a feasible, understandable, and acceptable program.

Teachers reported promoting physical activity throughout the day by engaging students in various unstructured movement activities. Promoting physical activity through basic movement activities has been successful in the past (Binkley & Specker, 2004; Deal, 1993); however, these programs have been structured and children’s physical activity levels have been found to be higher in schools with policies and programs targeting physical activity (Bower et al., 2008; Dowda, et al., 2004; Pate et al., 2004). One concern with relying on unstructured activities to promote physical activity is that it may be dependent on teacher interest or comfort level.

Moving forward, it is important to understand reasons for this reliance on unstructured activities, and relatedly, barriers and facilitators of implementing structured activities in the classroom. One consistent predictor of intervention usage is complexity (Allen & Warzak, 2000; Perepletchikova & Kazdin, 2005), and it may be beneficial to review the structured activities provided in the Get Up and Go...I’m Moving, I’m Learning: A Movement and Nutrition Activity Curriculum to ensure they are appropriate and feasible. Another important step may be to further explore teachers’ use of structured activities, and administer the URP-IR to assess teachers’ attitudes towards these structured activities and determine whether they are feasible, acceptable, or understandable within this context. Furthermore, sites may want to set goals for how often structured activities are implemented on a weekly basis. Through providing encouragement and potential rewards (e.g., gift card, public acknowledgment), teachers may feel motivated to utilize structured activities more frequently. Importantly, this would maintain
teachers’ autonomy over IM/IL implementation, but provide incentive for increased use of
structured activities. Overall, structured and curriculum based physical activity programs have
resulted in increased physical activity among preschool students (Annesi et al., 2013; Binkley &
Specker, 2004; Fitzgibbon et al. 2011; Trost et al., 2008), and strengthening this component of
IM/IL may enable programs to provide teachers with resources containing feasible structured
activities.

It may also be beneficial for future research to look at IM/IL components separately and
explore factors that predict individual component usage. IM/IL can be separated into three
distinct categories: (1) movement activities; (2) equipment/props/CD; and (3) movement
vocabulary. All three components differ and teachers likely consider various factors when
determining how frequently each will be used. Similar to the current study, the URP-IR would
serve as a useful assessment tool to understand teachers’ attitudes towards each IM/IL
component. As noted, teacher understanding (Reimers, Wacker, & Koepppl, 1987; Solish &
Perry, 2008) and intervention complexity (Allen & Warzak, 2000; Perepletchikova & Kazdin,
2005) are critical factors associated with program usage, and the distinct nature of each
component suggests teacher understanding and attitude may vary by component. Therefore,
results from this type of analysis could indicate what factors encouraged or discouraged
individual component usage, potentially leading to modifications that would strengthen IM/IL
implementation.

Program sustainability is a common problem within school settings (Pence et al., 2008;
Whitehurst et al., 1994), and it is a critical factor to consider when developing and evaluating
physical activity promotion programs. To ensure optimal implementation, it may be important to
consider providing teachers with more support and training. Specifically, trainings should
highlight the need for increasing children’s physical activity (e.g., current physical activity levels are concerning), provide suggestions for how all five components could be implemented throughout a typical day, recommend target goals for component usage (e.g., three times per day), and provide opportunities for teachers to consult with training staff and discuss barriers to implementation. Given the importance of structured activities, trainings should include demonstrations and clear instruction on how to implement structured activities and opportunities for teachers to lead physical activities and receive feedback from peers. Interestingly, teachers’ scores on the system support subscale of the URP-IR suggested they did not feel organizational support was important. However, a recent three-year evaluation of SHAPES, a preschool based physical activity intervention, highlighted the need for intensive support and training when implementing physical activity programming (Howie et al., 2014). Similar to methods utilized within the SHAPES evaluation, it would be beneficial to understand and address barriers to IM/IL implementation.

Last, the Education Supervisors play a critical role in supporting teachers’ implementation of IM/IL. Autonomy is a fundamental component of IM/IL and each site is allowed to determine how physical activity will be promoted within the classroom (Fox et al., 2011). Therefore, future research should consider collaborating with Education Supervisors to gain a more complete understanding of teachers’ efforts to promote physical activity through IM/IL. One area of focus could be on teachers’ lesson plans and how teachers incorporate IM/IL into daily plans. This would provide baseline data on teachers’ IM/IL usage and highlight the variability that may exist across classrooms. Data from lesson plans would provide valuable additional insight into teachers’ IM/IL usage.
Overall, the observed low levels of physical activity among preschool age students is concerning (Pate et al., 2008; Pate et al., 2004; Shen et al., 2012), and there is a significant need for acceptable, feasible, and sustainable physical activity programming within the preschool setting. Flexibility has been considered an important factor when implementing obesity prevention programming (Adams, Zask, & Dietrich, 2009; Howie et al., 2014), which is a fundamental feature of IM/IL. To capitalize on this strength and ensure more frequent implementation, it is important to promote teachers’ comfort in using all IM/IL components independently. Therefore, teachers should receive substantial training on using IM/IL within the classroom to encourage familiarity and understanding. Results from this study suggested the Head Start teachers have attended training/s on IM/IL. For further improvement, Head Start sites focus on strengthening their training program to increase teachers’ use of structured activities.
References


Table 1

*Head Start Teacher Demographics (N = 120)*

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>116</td>
<td>96.7</td>
</tr>
<tr>
<td>Male</td>
<td>4</td>
<td>3.3</td>
</tr>
<tr>
<td><strong>Race</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Black/African American</td>
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<td>33</td>
</tr>
<tr>
<td>Other</td>
<td>37</td>
<td>31.6</td>
</tr>
<tr>
<td>White</td>
<td>31</td>
<td>26.5</td>
</tr>
<tr>
<td>Asian/Pacific Islander</td>
<td>9</td>
<td>7.7</td>
</tr>
<tr>
<td>American Indian or Alaskan Native</td>
<td>1</td>
<td>.9</td>
</tr>
<tr>
<td><strong>Ethnicity</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-Hispanic/Latino</td>
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<td>71.7</td>
</tr>
<tr>
<td>Hispanic/Latino</td>
<td>28</td>
<td>28.3</td>
</tr>
<tr>
<td><strong>Leading Physical Activities</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Experience</td>
<td>97</td>
<td>79.3</td>
</tr>
<tr>
<td>No Experience</td>
<td>22</td>
<td>20.7</td>
</tr>
<tr>
<td><strong>Training</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Received IM/IL Training</td>
<td>92</td>
<td>79.3</td>
</tr>
<tr>
<td>Did not receive IM/IL Training</td>
<td>24</td>
<td>20.7</td>
</tr>
</tbody>
</table>
### Table 2

**ICC Calculations for Lead Teachers’ Scores on Potential Outcome Variables**

<table>
<thead>
<tr>
<th>Outcome Variable</th>
<th>Variance of Intercept</th>
<th>Variance of Residual</th>
<th>Variance of Intercept + Residual</th>
<th>ICC</th>
</tr>
</thead>
<tbody>
<tr>
<td>IM/IL Total Usage Score</td>
<td>0.01</td>
<td>0.53</td>
<td>0.54</td>
<td>0.01</td>
</tr>
</tbody>
</table>
### Table 3

*Chronbach’s alpha scores if items are deleted on the General Attitude Scale for Physical Activity (GAS-PA)*

<table>
<thead>
<tr>
<th>Item Number</th>
<th>Scale Mean if Item Deleted</th>
<th>Scale Variance if Item Deleted</th>
<th>Corrected Item-Total Correlation</th>
<th>Squared Multiple Correlation</th>
<th>Chronbach’s Alpha if Item Deleted</th>
</tr>
</thead>
<tbody>
<tr>
<td>Item 1</td>
<td>37.78</td>
<td>50.84</td>
<td>0.12</td>
<td>0.05</td>
<td>0.97</td>
</tr>
<tr>
<td>Item 2</td>
<td>35.22</td>
<td>44.21</td>
<td>0.72</td>
<td>0.58</td>
<td>0.90</td>
</tr>
<tr>
<td>Item 3</td>
<td>35.17</td>
<td>42.95</td>
<td>0.90</td>
<td>0.96</td>
<td>0.88</td>
</tr>
<tr>
<td>Item 4</td>
<td>35.18</td>
<td>42.99</td>
<td>0.90</td>
<td>0.96</td>
<td>0.88</td>
</tr>
<tr>
<td>Item 5</td>
<td>35.20</td>
<td>42.92</td>
<td>0.90</td>
<td>0.93</td>
<td>0.88</td>
</tr>
<tr>
<td>Item 6</td>
<td>35.29</td>
<td>42.36</td>
<td>0.90</td>
<td>0.90</td>
<td>0.88</td>
</tr>
<tr>
<td>Item 7</td>
<td>35.42</td>
<td>42.16</td>
<td>0.80</td>
<td>0.85</td>
<td>0.90</td>
</tr>
<tr>
<td>Item 8</td>
<td>35.36</td>
<td>42.27</td>
<td>0.88</td>
<td>0.92</td>
<td>0.88</td>
</tr>
</tbody>
</table>
Table 4

**Correlation Matrix for GAS-PA**

<table>
<thead>
<tr>
<th></th>
<th>Item 1</th>
<th>Item 2</th>
<th>Item 3</th>
<th>Item 4</th>
<th>Item 5</th>
<th>Item 6</th>
<th>Item 7</th>
<th>Item 8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Item 1</td>
<td>1.00</td>
<td>0.14</td>
<td>0.09</td>
<td>0.14</td>
<td>0.11</td>
<td>0.14</td>
<td>0.06</td>
<td>0.11</td>
</tr>
<tr>
<td>Item 2</td>
<td>0.14</td>
<td>1.00</td>
<td>0.75</td>
<td>0.75</td>
<td>0.74</td>
<td>0.67</td>
<td>0.60</td>
<td>0.65</td>
</tr>
<tr>
<td>Item 3</td>
<td>0.09</td>
<td>0.75</td>
<td>1.00</td>
<td>0.97*</td>
<td>0.96*</td>
<td>0.87*</td>
<td>0.76</td>
<td>0.83</td>
</tr>
<tr>
<td>Item 4</td>
<td>0.10</td>
<td>0.75</td>
<td>0.97</td>
<td>1.00</td>
<td>0.958</td>
<td>0.87*</td>
<td>0.75</td>
<td>0.83</td>
</tr>
<tr>
<td>Item 5</td>
<td>0.11</td>
<td>0.74</td>
<td>0.96*</td>
<td>0.96*</td>
<td>1.00</td>
<td>0.87*</td>
<td>0.76</td>
<td>0.83</td>
</tr>
<tr>
<td>Item 6</td>
<td>0.14</td>
<td>0.67</td>
<td>0.87*</td>
<td>0.87</td>
<td>0.87</td>
<td>1.00</td>
<td>0.86*</td>
<td>0.93*</td>
</tr>
<tr>
<td>Item 7</td>
<td>0.06</td>
<td>0.60</td>
<td>0.76</td>
<td>0.75</td>
<td>0.76</td>
<td>0.86</td>
<td>1.00</td>
<td>0.92*</td>
</tr>
<tr>
<td>Item 8</td>
<td>0.11</td>
<td>0.65</td>
<td>0.82</td>
<td>0.83</td>
<td>0.83</td>
<td>0.93*</td>
<td>0.92*</td>
<td>1.00</td>
</tr>
</tbody>
</table>

* High levels of inter-item collinearity
Table 5

*Means and Standard Deviations of Teacher Responses on GAS-PA Scale*

<table>
<thead>
<tr>
<th>GAS Questions</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>I am concerned that children at my school do not get enough physical activity</td>
<td>2.89</td>
<td>1.7</td>
</tr>
<tr>
<td>I think children should have the opportunity to be physically active during school</td>
<td>5.44</td>
<td>1.14</td>
</tr>
<tr>
<td>As a Teacher, I should play a role in helping my students be physically active</td>
<td>5.46</td>
<td>1.1</td>
</tr>
<tr>
<td>As a Teacher, I should find opportunities for my students to be physically active during the school day</td>
<td>5.48</td>
<td>1.05</td>
</tr>
<tr>
<td>As a teacher, I should lead activities that help my students be physically active during school</td>
<td>5.45</td>
<td>1.06</td>
</tr>
<tr>
<td>I think that keeping students physically active helps them do better in their schoolwork</td>
<td>5.38</td>
<td>1.1</td>
</tr>
<tr>
<td>I think keeping students physically active helps them behave better in class.</td>
<td>5.24</td>
<td>1.24</td>
</tr>
<tr>
<td>I think that physical activity can help students’ attention/concentration/focus</td>
<td>5.30</td>
<td>1.13</td>
</tr>
</tbody>
</table>
Table 6

**Reliability Statistics for URP-IR**

<table>
<thead>
<tr>
<th>Scale/Subscale</th>
<th>Chronbach’s Alpha</th>
<th>Number of Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>URP-R Total</td>
<td>0.90</td>
<td>29</td>
</tr>
<tr>
<td>Acceptability</td>
<td>0.83</td>
<td>9</td>
</tr>
<tr>
<td>Understanding</td>
<td>0.86</td>
<td>3</td>
</tr>
<tr>
<td>Family School Collaboration</td>
<td>0.71</td>
<td>3</td>
</tr>
<tr>
<td>Feasibility</td>
<td>0.68</td>
<td>6</td>
</tr>
<tr>
<td>System Climate</td>
<td>0.85</td>
<td>5</td>
</tr>
<tr>
<td>System Support</td>
<td>0.67</td>
<td>3</td>
</tr>
</tbody>
</table>
Table 7

*Teacher Responses on the URP-IR*

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>Median</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total URP-IR Score</td>
<td>4.86</td>
<td>4.83</td>
<td>0.56</td>
</tr>
<tr>
<td>Acceptability</td>
<td>5.16</td>
<td>5.22</td>
<td>0.62</td>
</tr>
<tr>
<td>Understanding</td>
<td>5.02</td>
<td>5.00</td>
<td>0.86</td>
</tr>
<tr>
<td>Family School Collaboration</td>
<td>4.48</td>
<td>4.83</td>
<td>1.1</td>
</tr>
<tr>
<td>Feasibility</td>
<td>4.88</td>
<td>5.00</td>
<td>0.67</td>
</tr>
<tr>
<td>System Climate</td>
<td>5.12</td>
<td>5.20</td>
<td>0.68</td>
</tr>
<tr>
<td>System Support</td>
<td>3.70</td>
<td>3.67</td>
<td>1.23</td>
</tr>
</tbody>
</table>
Table 8

**Correlation between Multiple Regression Predictor Variables**

<table>
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<tr>
<th>Variable</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Total IM/IL</td>
<td>1.00</td>
<td>.30**</td>
<td>.22*</td>
<td>.42***</td>
<td>.24**</td>
<td>.21*</td>
</tr>
<tr>
<td>2. Mean URP-IR</td>
<td>0.30**</td>
<td>1.0</td>
<td>0.52***</td>
<td>0.10</td>
<td>0.08</td>
<td>0.02</td>
</tr>
<tr>
<td>3. Mean Modified GAS-PA</td>
<td>0.22*</td>
<td>0.52***</td>
<td>1.0</td>
<td>-0.03</td>
<td>0.03</td>
<td>-0.06</td>
</tr>
<tr>
<td>4. IM/IL Training</td>
<td>0.42***</td>
<td>0.10</td>
<td>-0.03</td>
<td>1.0</td>
<td>0.24**</td>
<td>0.07</td>
</tr>
<tr>
<td>5. Experience with Preschool Students</td>
<td>0.24**</td>
<td>0.08</td>
<td>0.03</td>
<td>0.24**</td>
<td>1.00</td>
<td>0.50***</td>
</tr>
<tr>
<td>6. Experience Leading Physical Activity</td>
<td>0.21*</td>
<td>0.02</td>
<td>-0.06</td>
<td>0.07</td>
<td>0.50***</td>
<td>1.0</td>
</tr>
</tbody>
</table>

*Note:* *p*<.05, **p**< .01, ***p***<.001
Table 9

*Model Summary of Multiple Regression Analysis Exploring Teacher Attitudes and IM/IL Usage*

<table>
<thead>
<tr>
<th>Step</th>
<th>R</th>
<th>R²</th>
<th>R² change</th>
<th>F Change</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. IM/IL Training</td>
<td>.422</td>
<td>.178</td>
<td>.170</td>
<td>23.578</td>
<td>&lt;.001***</td>
</tr>
<tr>
<td>2. IM/IL Training, Mean URP-IR</td>
<td>.495</td>
<td>.245</td>
<td>.231</td>
<td>9.595</td>
<td>.002**</td>
</tr>
<tr>
<td>3. IM/IL Training, Mean URP-IR, Experience Leading PA</td>
<td>.525</td>
<td>.275</td>
<td>.255</td>
<td>4.462</td>
<td>.037*</td>
</tr>
</tbody>
</table>

*Note: *p<.05, **p<.01, ***p<.001*
Table 10

*Summary of Multiple Regression Analysis for Teacher Usage of IM/IL*

<table>
<thead>
<tr>
<th>Variable</th>
<th>$B$</th>
<th>$SE(B)$</th>
<th>$t$</th>
<th>Sig.(p)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>.297</td>
<td>.533</td>
<td>.558</td>
<td>.578</td>
</tr>
<tr>
<td>IM/IL Training</td>
<td>.725</td>
<td>.156</td>
<td>4.65</td>
<td>&lt;.001***</td>
</tr>
<tr>
<td>Mean URP-IR</td>
<td>.338</td>
<td>.108</td>
<td>3.12</td>
<td>.002**</td>
</tr>
<tr>
<td>Experience Leading PA</td>
<td>.258</td>
<td>.122</td>
<td>2.11</td>
<td>.037*</td>
</tr>
</tbody>
</table>

*Note: * $p<.05$, ** $p< .01$, *** $p<.001$*
Table 11

*Correlation between Multiple Regression Predictor Variables*

<table>
<thead>
<tr>
<th>Variable</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Total IM/IL</td>
<td>1.00</td>
<td>.30*</td>
<td>.40***</td>
<td>.13</td>
<td>.35***</td>
<td>.30***</td>
<td>-.23*</td>
</tr>
<tr>
<td>2. Acceptability</td>
<td>.30*</td>
<td>1.0</td>
<td>.68***</td>
<td>.42***</td>
<td>.69***</td>
<td>.80***</td>
<td>.21*</td>
</tr>
<tr>
<td>3. Understanding</td>
<td>.40***</td>
<td>.68***</td>
<td>1.0</td>
<td>.34***</td>
<td>.69***</td>
<td>.71***</td>
<td>-.10</td>
</tr>
<tr>
<td>4. Family School Collaboration</td>
<td>.13</td>
<td>.42***</td>
<td>.34***</td>
<td>1.0</td>
<td>.41***</td>
<td>.49***</td>
<td>.39***</td>
</tr>
<tr>
<td>5. Feasibility</td>
<td>.35***</td>
<td>.69***</td>
<td>.69***</td>
<td>.41***</td>
<td>1.0</td>
<td>.74**</td>
<td>-.24*</td>
</tr>
<tr>
<td>6. System Climate</td>
<td>.30***</td>
<td>.80***</td>
<td>.71***</td>
<td>.49***</td>
<td>.74***</td>
<td>1.0</td>
<td>.07</td>
</tr>
<tr>
<td>7. System Support</td>
<td>-.23*</td>
<td>.21</td>
<td>-.10</td>
<td>.39***</td>
<td>-.24</td>
<td>.07</td>
<td>1.0</td>
</tr>
</tbody>
</table>

*Note:* *p*<.05, **p**< .01, ***p***<.001
Table 12

*Model Summary of Multiple Regression Analysis including URP-IR Subscales*

<table>
<thead>
<tr>
<th>Step</th>
<th>R</th>
<th>R²</th>
<th>R² change</th>
<th>F Change</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Understanding</td>
<td>.404</td>
<td>.163</td>
<td>.163</td>
<td>22.036</td>
<td>&lt;.001***</td>
</tr>
<tr>
<td>2. Understanding, System Support</td>
<td>.446</td>
<td>.199</td>
<td>.036</td>
<td>5.01</td>
<td>.027*</td>
</tr>
</tbody>
</table>

*Note: * p<.05, ** p<.01, *** p<.001
Table 13

*Summary of Multiple Regression Analysis for URP-IR Subscales*

<table>
<thead>
<tr>
<th>Variable</th>
<th>B</th>
<th>SE(B)</th>
<th>t</th>
<th>Sig.(p)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>1.43</td>
<td>.431</td>
<td>3.32</td>
<td>.001**</td>
</tr>
<tr>
<td>Understanding</td>
<td>.328</td>
<td>.073</td>
<td>4.45</td>
<td>&lt;.001***</td>
</tr>
<tr>
<td>System Support</td>
<td>-.114</td>
<td>.051</td>
<td>-2.24</td>
<td>.027*</td>
</tr>
</tbody>
</table>

*Notes: * p<.05, ** p<.01, ***p<.001*
Figure 1. IM/IL Total Usage and Mean IM/IL Component Usage.

Footnote: Average scores are based on lead teacher responses using the following scale: 5 = several times a day, 4=4-5 times a week, 3=2-3 times a week, 2=about once a week, 1=about once a month, 0=never.
Appendix A

I am Moving, I am Learning Teacher Questionnaire

Dear Teacher:

Thank you for agreeing to complete this brief questionnaire about how you are using the I am Moving, I am Learning program in your classroom. There are no right or wrong answers to these questions. Your responses will provide useful information about what it really looks like to use I am Moving, I am Learning in the classroom. This survey will take around 20 minutes to complete. Please know that your participation is completely voluntary and anonymous. There is no way I will be able to connect your answers back to you.

Sincerely,

Colin Cox, Ed. M

Northeastern University Doctoral Student in School Psychology
TEACHER BACKGROUND:

A. What is your gender?
   1. Female
   2. Male

B. What is your race? (check all that apply)
   1. White
   2. Black, African American
   3. American Indian or Alaska Native
   4. Asian/Pacific Islander
   5. Other: _______________________

C. What is your ethnicity?
   1. Latino/Hispanic
   2. Non-Latino/Hispanic

D. What is the highest level of education that you have completed?
   1. High school degree
   2. Associates degree
   3. Some college
   4. Bachelor’s degree
   5. Some graduate school
   6. Master’s degree or higher

E. What position do you hold in the classroom?
   1. Lead Teacher
   2. Teacher I
   3. Teacher II
   4. Teacher III
   5. Assistant Teacher

F. How many years of experience do you have working with Head Start or with programs serving preschool aged children?
   ________ years

G. How many years have you been working as a Head Start teacher?
   ________ years
H. Have you had experience leading activities to help preschool children engage in physically activity/movement (e.g., teaching aerobics, gym class, sports)?
   1. Yes
   2. No
I. *If YES*, how many years of experience have you had?
   1. __________ years
USE OF I AM MOVING, I AM LEARNING:

A. Have you attended training on the I am Moving, I am Learning program?
   1. Yes
   2. No

B. How many trainings have you attended?
   1. ____________ trainings

C. Have you attended trainings or presentations that have at least discussed using I am Moving, I am Learning to encourage children’s movement and physical activity?
   1. Yes
   2. No

D. How many have you attended?
   1. ________________ trainings

E. Please indicate how often you have been using each of the following parts of I am Moving, I am Learning during this school year.

<table>
<thead>
<tr>
<th>1.) How often did you play each of the following songs on the I am Moving, I am Learning CD?</th>
<th>Never</th>
<th>About once a month</th>
<th>About once a week</th>
<th>2-3 times a week</th>
<th>4-5 days a week</th>
<th>Several times a day</th>
</tr>
</thead>
<tbody>
<tr>
<td>I’m Moving, I’m Learning</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>My Heart Says Thanks</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Choosy Hears</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Make Me Feel Great #1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mix It All Up</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mix It All Up Your Way</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Swing and Sway</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I Can Fly</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Make Me Feel Great #2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I’m Learning to Choose</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Choosy Size Me</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
2.) How often did you use the following pieces of play equipment or toys during physical activity games?

<table>
<thead>
<tr>
<th>Equipment</th>
<th>Never</th>
<th>About once a month</th>
<th>About once a week</th>
<th>2-3 times a week</th>
<th>4-5 days a week</th>
<th>Several times a day</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scarves</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sticks</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hula Hoops</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jump Rope</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other types of toys or play equipment (what did you use: ____________________ )</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3.) How often did you lead the following movement activities?

<table>
<thead>
<tr>
<th>Activity</th>
<th>Never</th>
<th>About once a month</th>
<th>About once a week</th>
<th>2-3 times a week</th>
<th>4-5 days a week</th>
<th>Several times a day</th>
</tr>
</thead>
<tbody>
<tr>
<td>Running</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aerobics</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Walking</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Skipping</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jumping</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Moving/Dancing to Music</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Marching</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stretching</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yoga</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other movement activities</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Please list: ________________________________</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.) How often did you lead the following movement activities from “Get Up and Go…I’m Moving, I’m Learning: A Movement and Nutrition Activity Curriculum”?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>---------------------------------</td>
<td>----------------</td>
<td>----------------</td>
<td>----------------</td>
<td>----------------</td>
<td>----------------</td>
<td></td>
</tr>
<tr>
<td><strong>Small Space Activities: Low Intensity</strong></td>
<td>Never</td>
<td>About once a month</td>
<td>About once a week</td>
<td>2-3 times a week</td>
<td>4-5 days a week</td>
<td></td>
</tr>
<tr>
<td>These include games such as: Ghostbusters, Silent Hands, Animal Stretches, Kid Card Imitations, Catch and Count, Pass the Beanbag to the Music, Chickadees, Remember This?, Sleeping-Waking</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Small Space Activities: Moderate Intensity</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>These include games such as: Musical Stop and Go, Jumping Jacks Counter, Snowball Throw</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Large Space Activities: Low to Moderate Intensity</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>These include games such as: Rolling a Ball to a Target, Imagine This!, Kings and Queenies</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Large Space Activities: Moderate Intensity</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>These include games such as: Jump the River, Follow the Leader-Dynamic Warm Ups, Messy Room-Messy Park, Bubble Chasers, Bowling, Let’s Travel, Kick Far!, Shape Shifters, Throw Hard, Over, Under, Around, and Through</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Large Space Activities: Moderate to High Intensity</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>These include games such as: How Did You Do That?, Obstacle Course, Dog Tag</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Large Space Activities: High Intensity</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>These include games such as: Builders and Bulldozers, Runaway Trains, Black Hawk Tag</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
5.) How often did you teach or talk about the following vocabulary words describing structured movement?

<table>
<thead>
<tr>
<th></th>
<th>Never</th>
<th>About once a month</th>
<th>About once a week</th>
<th>2-3 times a week</th>
<th>4-5 days a week</th>
<th>Multiple times a day</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>WHAT my body does</strong> (Action awareness words)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>This includes using words like walking, jumping, skipping, twisting, standing, sitting, throwing, rolling, tossing etc.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>HOW my body moves</strong> (Effort awareness words)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>This includes using words like slow, fast, strong, explosive, speeding up, stepping, single movements, etc.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>WHERE my body moves</strong> (Space awareness words)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>This includes using words like self-space, shared space, up, down, right, left, high, low, straight, curved, etc.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>WITH myself, other movers, and objects</strong> (Relational awareness words)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>This includes using words like head arms, legs, leading, following, mirroring, taking turns, near to-far from, on-off, in front-behind, etc.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The questions below ask you to give your opinion on implementing physical activity programming. There are no right or wrong answers.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th>I Strongly Disagree</th>
<th>I Disagree</th>
<th>I Slightly Disagree</th>
<th>I Slightly Agree</th>
<th>I Agree</th>
<th>I Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>I am concerned that children at my school do not get enough physical activity.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>I think children should have the opportunity to be physically active during school.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>As a teacher, I should play a role in helping my students be physically active.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>As a teacher, I should find opportunities for my students to be physically active during school day.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>As a teacher, I should lead activities that help my students be physically active during school.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>I think that keeping students physically active helps them do better in their schoolwork.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>I think that keeping students physically active helps them behave better in class.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>I think that physical activity can help students’ attention/concentration/focus.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The following questions ask about your thoughts about using *I am Moving, I am Learning* to encourage physical activity. Although *I am Moving, I am Learning* is a program that focuses on both nutrition and physical activity, these questions are only asking you about using *I am Moving, I am Learning* to encourage physical activity.

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<thead>
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<th></th>
<th></th>
<th>I Strongly Disagree</th>
<th>I Disagree</th>
<th>I Slightly Disagree</th>
<th>I Slightly Agree</th>
<th>I Agree</th>
<th>I Strongly Agree</th>
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<tbody>
<tr>
<td>1</td>
<td><em>I am Moving, I am Learning</em> is a good choice for getting preschool children to be more physically active.</td>
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<td>2</td>
<td>I need additional resources to carry out <em>I am Moving, I am Learning</em>.</td>
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<td>3</td>
<td>I have enough time to use <em>I am Moving, I am Learning</em>.</td>
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<td>4</td>
<td>I understand how to use <em>I am Moving, I am Learning</em>.</td>
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<td>5</td>
<td>A positive home-school relationship would be helpful when using <em>I am Moving, I am Learning</em>.</td>
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<td>6</td>
<td>I know how to use <em>I am Moving, I am Learning</em> to promote physical activity.</td>
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<td>7</td>
<td><em>I am Moving, I am Learning</em> is an appropriate way to encourage physical activity.</td>
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<td>8</td>
<td>The total time required to use <em>I am Moving, I am Learning</em> is manageable.</td>
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<td>9</td>
<td>I am not interested in using <em>I am Moving, I am Learning</em>.</td>
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<td>10</td>
<td>My Head Start program director is supportive of my use of <em>I am Moving, I am Learning</em>.</td>
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<td>11</td>
<td>I have a positive attitude about using <em>I am Moving, I am Learning</em>.</td>
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<td>12</td>
<td><em>I am Moving, I am Learning</em> is a good way to increase children’s physical activity levels.</td>
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<td>13</td>
<td>Little preparation of materials is needed for <em>I am Moving, I am Learning</em>.</td>
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<td>14</td>
<td><em>I am Moving, I am Learning</em> addresses Head Start goals.</td>
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<td>15</td>
<td>Parental collaboration should be required to use <em>I am Moving, I am Learning</em>.</td>
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<td>1 I Strongly Disagree</td>
<td>2 I Disagree</td>
<td>3 I Slightly Disagree</td>
<td>4 I Slightly Agree</td>
<td>5 I Agree</td>
<td>6 I Strongly Agree</td>
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<td>16</td>
<td>Using <em>I am Moving, I am Learning</em> fits well with what is expected of me in my job.</td>
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<td>17</td>
<td>Materials needed to use <em>I am Moving, I am Learning</em> are reasonable.</td>
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<td>18</td>
<td>I use <em>I am Moving, I am Learning</em> with a good deal of enthusiasm.</td>
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<td>19</td>
<td><em>I am Moving, I am Learning</em> is too complex to use correctly.</td>
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<td>20</td>
<td><em>I am Moving, I am Learning</em> fits well with the way things are done in Head Start.</td>
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<td>21</td>
<td><em>I am Moving, I am Learning</em> is not disruptive to other things going on in my classroom.</td>
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<td>22</td>
<td>I am committed to using <em>I am Moving, I am Learning</em>.</td>
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<td>23</td>
<td><em>I am Moving, I am Learning</em> activities that encourage physical activity easily fit in with my teaching practices.</td>
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<td>24</td>
<td>I need support from other Head Start staff to use <em>I am Moving, I am Learning</em>.</td>
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<td>25</td>
<td>I understand how to increase children’s physical activity levels using <em>I am Moving, I am Learning</em>.</td>
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<td>26</td>
<td>My work environment supports the use of <em>I am Moving, I am Learning</em> in my classroom.</td>
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<td>27</td>
<td>The amount of time required for developing activities for <em>I am Moving, I am Learning</em> is reasonable.</td>
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<td>28</td>
<td>Regular home-school communication is needed to use <em>I am Moving, I am Learning</em>.</td>
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<td>29</td>
<td>I need more training to use <em>I am Moving, I am Learning</em>.</td>
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Thank you for taking the time to fill out this survey. If you have any questions or concerns about the survey, please contact me at [cox.c@husky.neu.edu](mailto:cox.c@husky.neu.edu).

With Appreciation,

Colin Cox
Appendix B

IM/IL-TQ Pre-notification E-mail

Dear Head Start Supervisors,

I would like to invite your staff to participate in an important study about how teacher use *I am Moving, I am Learning* in their classroom. If you choose to participate, you will be able to complete a brief survey about *I am Moving, I am Learning*. Results from this study will help inform future teacher trainings on *I am Moving, I am Learning*.

The survey can be administered during your staff training on 3/10/2014. Participation is voluntary and the responses will be anonymous. There will no way to trace the answers back to individual teachers. I hope you take the time to help administer this survey. Your teachers’ participation will provide helpful information on preschool teachers thoughts about using physical activity programming in their classrooms.

To thank you for your participation, both you and the participating teachers will be eligible to enter a raffle to win a $20 gift certificate to Target.

If you have any questions about this survey, please feel free to contact me at cox.c@husky.neu.edu or 617-733-3942.

Sincerely,

Colin Cox
School Psychology Student
Northeastern University
Appendix C

Dear Education Supervisors,

Thank you for taking time out of your staff meeting to administer the *I am Moving, I am Learning* Teacher Questionnaire on March 10, 2014. Your participation will provide helpful information in learning how teachers use the I am Moving, I am Learning program to promote physical activity. The results will be used to inform future trainings on *I am Moving, I am Learning*.

1. Hand out the surveys to all teachers at the meeting (both Lead Teachers and Assistant Teachers).
2. Remind them that their responses will be anonymous and there will be no way to track who provided the answers and what site they came from.
3. Once teachers have completed the survey and answered all of the questions to the best of their ability, please have them write down their names and e-mails on the raffle sheet.
4. Place all of the surveys and raffle sheet in the envelope you received them in.
5. Write down the number of teachers at your Head Start site on back of the envelope.
6. Mail the envelope back to Sonia Carter through interoffice mail by Friday March 14, 2014.

Thank you for your help with this effort. Please let me know if you have any questions or concerns. You can contact me at cox.c@husky.neu.edu or (617)-733-3942.

Sincerely,

Colin Cox
School Psychology Student
Northeastern University