Tumbe Group of International Journals
A Multidisciplinary Journal
ISSN: 2581-8511
Volume- 1
Issue-2
May-Aug: 2018

SPORTS A POTENTIAL GAME-CHANGER FOR RURAL INDIA

Manojkumar .N
Physical Education Director,
GFGC, Tiptur, Tumkur

Introduction

Preparing our nation's children to meet the demands of the 21st century by acquiring the knowledge and skills needed to be successful and productive citizens has been the focal point of the recent educational reform movement in the Philippines. In 1995 the National Association for Sport and Physical Education (NASPE) defined a physically educated person as one who has the knowledge, skills, and confidence to enjoy a lifetime of healthful physical activity. It is therefore important to understand students' attitudes and perceptions toward physical education since they will be future members of the workforce who will need to use their knowledge to maintain a healthy lifestyle.

Attitudes develop at an early age and can be changed based on situational contexts such as a particular teacher or the class environment (Ajzen, 2001). In other words, a student's attitude toward a particular subject in school can be shaped by his/her perception of the teacher or instructional setting. Attitudes toward physical activity and perceptions about physical education classes are important to understand as they can influence an individual's decision to begin or to continue participation in an activity (Silverman and Subramaniam, 1999). Hence, the need to study the students' attitudes toward their physical education programs in LSU. This may be viewed as an attempt to combat the sedentary lifestyles plaguing many of our youth by providing knowledge and skills that will influence their decisions to pursue an active lifestyle.

The Effect of Physical Education Climates on Elementary Students' Physical Activity Behaviors

Current recommendations state that children, ages 5 to 18 years, should engage in a minimum of 60 minutes of daily, moderate-to-vigorous physical activity (MVPA) that incorporates the cardio respiratory and musculoskeletal systems. In Alabama, 70% of school-age children do not meet the daily recommendation for physical activity and only 33.3% have physical education on a daily basis. In the United States, 31.7% of children are overweight and 16.8% are obese. Furthermore, 34.5% of children living in the rural South are overweight, and 19.5% are obese. Children who are overweight are at-risk of poor health and demonstrate a high prevalence of hypo kinetic diseases that are commonly seen in adults (ie, heart disease, type II diabetes, stroke, several types of cancer, and osteoarthritis). The exact etiology of childhood obesity is not evident, but physical activity is a major contributor to good health and is associated with weight control. With the growing need for children to be physically active, it is imperative to create developmentally appropriate, cost effective and motivating physical education programs that promote physical activity.

In response to this concern, researchers have investigated the effect of motivational climates on early childhood movement and physical education programs to understand the motivational process of student engagement. Motivational climates reflect the salient features of an environment and define how an instructor

incorporates and emphasizes various instructional strategies such as the delivery of feedback, rewards, and punishment. Mastery-oriented climates are a specific type of motivational climate based on achievement motivation theory. The goal of a mastery-oriented climate is to create a motivating learning environment where effort is encouraged and the learning process is reinforced. Mastery-oriented climates emphasize key environmental characteristics and instructional cues that are indicative of and lead to the adoption of mastery-oriented achievement goals.

Conditions

In this study, the teacher implementing the mastery climate provided private recognition to students based on individual progress and evaluated students in reference to task mastery and individual improvement. Students were given the opportunity to make choices, involve themselves in leadership roles, participate in a variety of learning experiences and peer interactions (eg, cooperative and independent), and were allowed to choose the length of engagement necessary to master a skill (ie, based on his/her personal capabilities) in a variety of challenging and diverse tasks.

Procedure

Following randomization, students participated in a 5-day acclimation period to become familiar with the procedures (ie, group assignment, climate, and placement of pedometers). During the acclimation period, the children participated in their respective climates, had access to the physical education equipment, wore the pedometers, and were observed with video cameras. Lesson plans and stations used in the acclimation period were similar to those used during data collection. Previous research supports that a 5-day acclimation period is sufficient for children to become familiar with the physical education climate, teachers, wearing a pedometer, testing protocol and procedures, equipment, and setting. Upon completion of the acclimation period, data were collected for 10 consecutive physical education classes. To ensure that the motivational climate was manipulating the students' physical activity behaviors during physical education, the lesson plan and objective for each physical education session was identical for both climates; the only difference was the motivational mastery- or performance-based approach.

All lessons consisted of:

(1) A 5-minute introduction to the lesson,

(2) 30-minutes of physical education instruction, practice, and engagement; and

(3) a 5-minute closure and cool-down. Five additional minutes of class time during the physical education period was used as transition time to and from the classrooms. During the introduction, the children reviewed the rules for engagement, the pedometers were attached, and video recording for SOFIT analysis began. Children were given brief demonstrations of the physical activity stations incorporated into the daily lesson. Children participated in the stations during the 30-minutes of physical education instruction. Each class period consisted of 5 activity stations designed to emphasize MVPA when performing fundamental motor skill activities. The activity stations were identical for both climates; however, the type of engagement at the stations was dictated by the climate. For example, a child exposed to the mastery climate chose the station at which to play, the length of time to play at a station, with whom they played, and the type of activity at the station. In contrast, in the performance climate the instructor grouped the students, dictated time at each station, and

directed the type of activity at each station. The closing consisted of cool-down activities, while pedometers were removed from each child. The physical education climates were implemented by 2 of the investigators who have experience in early childhood motor development and physical activity, and have had extensive experience in implementing each climate. To minimize teacher effects, the teachers were counterbalanced between the 2 climates (ie, each teacher implemented and instructed 5 mastery- and 5 performance-oriented physical education classes). There were 5 lesson plans and each teacher implemented each lesson plan once for each climate. The school's physical education teacher and teaching assistant were present, but did not provide instruction. The climates were implemented in a gymnasium that was divided by a curtain, so that participants could not see the other condition.

Data Analysis

Descriptive statistics were generated to describe the sample. Over the course of the study, 5 students checked out of physical education early; therefore, pedometer output of steps was transformed into steps/minute by dividing the number of steps taken during the physical activity engagement period by the amount of time the pedometer was worn (ie, 30 minutes). Because the manipulation check indicated that 2 separate climates were successfully implemented, the steps/minute for each day were combined for an overall mean step/minute. A 2 (condition) × 2 (sex) ANOVA was used to determine differences in steps/minute between the 2 climates. A MANOVA was used to determine differences between the climates in SOFIT outcomes [physical activity (time spent lying, sitting, standing, and MVPA), lesson context (time spent in management, knowledge, fitness, skill, game, and other) and number of physical activity prompts over the 10 days. Alpha level was set at .05 *a priori* and data were analyzed using SPSS version 17.

Discussion

Mastery climates are designed to encourage the learner to manage their engagement in a task, whereas, a performance climate is designed to dictate task participation. Based on these results, the constraints of the performance-oriented climate required the teachers to spend 20% more time in class management, resulting in 16% more time spent sitting and less time in MVPA. In contrast, the mastery climate required considerably less management by the teacher (3% of the lesson). This finding is important because school time constraints are reducing time in physical education; therefore, implementing instructional approaches that maximize children's activity time are necessary to help children meet physical activity recommendations. Although not measured in this study, it must be noted that differences in MVPA between the conditions may be attributed to increases in intrinsic motivation that are associated with TARGET structures implemented within the mastery-oriented condition. A mastery climate provides choice and autonomy by emphasizing self-determined criteria for success. Further, because of its focus on improvement, learning, and self-development at achievement tasks, a mastery climate may facilitate a sense of enjoyment. Performance climates are more controlling and provide extrinsic criteria for success which leads to less positive psychological outcomes. Nicholls and Ames consider a mastery approach to be linked intimately to intrinsic motivation and positive affect. Being intrinsically motivated drives an individual, and is a prerequisite for effort and persistence to sustain physical activity engagement. Future studies need to investigate changes in physical activity, motivation, and affect that result from mastery climates.

In addition to higher levels of physical activity, mastery climates have been shown to be effective in promoting higher perceptions of physical competence and motor competence. These factors are critically important with

respect to children's achievement motivation. Specifically, as young learners become more proficient in performing a task they also experience higher perceptions of physical competence that increases their motivation to learn how to move. In contrast, young learners who are unsuccessful in learning their skills have low perceptions of motor skill competence. In a mastery climate, effort and ability are less clearly differentiated as causes of achievement, thereby allowing success to be dictated by the learner. On the other hand, a performance climate enhances the differentiation between ability and effort, because normative ability is rewarded, and success with low effort could be seen as indicative of even greater ability.

Significant differences in physical activity between girls and boys were not present. This finding is similar to other studies examining physical activity of elementary and middle school students during structured physical activity contexts. Specifically, boys and girls demonstrated similar physical activity levels regardless of the climate condition. In unstructured activity contexts, such as recess, children as young as preschool- and kindergarten-age demonstrate sex differences in activity level with boys demonstrating higher levels. These sex disparities in unstructured activities underscore the need for structured physical activity opportunities for young children, particularly for girls.

Limitations

This study had several limitations. First, trained researchers, not physical education teachers, delivered the conditions. More research is necessary to determine if physical education teachers can apply a mastery motivational climate to enhance physical activity participation. Second, this is a small sample of elementary school children from one geographic location, primarily of African American descent. Results cannot be generalized to K-2 children from other locations and racial/ethnic groups. However, we suspect that the findings will be similar regardless of location and racial/ethnic groups. In addition, the small sample size limited our ability to examine grade and race differences. Third, although the manipulation check identified that 2 separate climates were implemented, this study did not measure how the children perceived the physical education climate nor changes in their intrinsic motivation or affect. Existing climate perception measures exclude young children because they require a child to read. Additional pictorial scales which measure children's perception of the climate need to be developed and validated. Fourth, this study did not examine the impact of the physical education climates on school day or out-of-school physical activity, nor did it investigate intrinsic motivation. According to the literature, physical education class only accounts for 8.7%-23.7% in boys and 11.4%-17.2% in girls, of total recommended daily steps.[26] Although, physical education alone cannot meet daily physical activity recommendations, participation during physical education does contribute to meeting 60 minutes of daily MVPA. However, the ability for physical education to influence out-of-school physical activity is not evident.

IMPLICATIONS FOR SCHOOL HEALTH

Mastery-climate is an instructional approach that does not require additional resources to implement such as other curriculum-based physical education programs. Physical education policies might benefit from defining and implementing high autonomy instructional approaches in elementary physical education. Specifically, teachers should aim to provide a variety of challenging and diverse tasks, allow children to select their own tasks, perform the task at their comfort level, and allow the student to determine the length of time at a task, while providing task-specific feedback to the students. As with any instructional approaches there are challenges and obstacles to effective implementation. With respect to mastery climates, teachers may

experience difficulty in developing fun and challenging activities that meet the range of skill levels among the learners, and deviating from a more structured approach (ie, students participate in specific stations for a set amount of time before rotating to a second station). Another adjustment is the shift in the teacher's role within the classroom. In a mastery climate, students are driving their own learning, while the teacher is now the facilitator. At first this is a difficult shift in control to accept and the students must learn to "self-manage," but with time, both the teacher and students will see that the autonomy supportive environment created within a mastery climate is an effective approach for physical education instruction.

Conclusion

Conclusion School-based physical education programs have the potential to play an important role in promotion of healthy lifestyles among the youth. However, physical education in school faces many challenges, e.g., budget limitation, program cutbacks, lack of qualified teachers, teaching-coaching role conflict. Changes are needed to ensure quality of physical education program through decision-making, future teacher preparation program, curricula model selection, physical education assessment. For physical activity promotion to be truly effective, i.e., leading to sustainable knowledge and behavior change, it requires the cooperation of professionals from various health and wellness fields along with researchers and decision makers who are committed to making changes. Involvement of policy-makers, teachers and researchers ensures development of exemplary physical education programs focused on reducing obesity among children and adolescents.

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