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FITNESS

Primal Fitness Curriculum: A Self-Determination Perspective

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Abstract

According to Ryan and Deci (2009), the environment in a given setting has a great deal to do with an individual's perceptions of autonomy, competence, and relatedness. For example, when a teacher provides a classroom environment in which students have choices in how learning happens, feel connected to others, and are appropriately challenged, they are more likely to feel a sense of autonomy, relatedness, and competency. When these three constructs are present, the learner may be motivated for more intrinsic reasons. Additionally, intrinsic motivators lead to future engagement and development (Ryan, Deci, & Grolnick, 1995)

This study examined the motivated behaviors of sixth graders who participated in a fitness curriculum in a public school physical education (PE) class. Specifically, the students were taught from a fitness curriculum known as Primal Movement Fitness (Chek, 2004). Griffin, Hart, and Wesley (2013) noted fitness changes due to the implementation of the curriculum in an earlier study, but did not investigate motivational changes that may have occurred. The assessment of motivation was based in self-determination theory as posited by Ryan and Deci (2009). Results of the investigation indicated significant changes in sixth graders' motivation as measured by the Motivation for Physical Activity Measure–Revised (MPAM–R) questionnaire.

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According to Ryan, Connell, and Deci (1985), the context of the environment is related to how people perceive their surroundings. How the environment is structured may affect people's motivations, attitudes, perceptions, and feelings ultimately shaping their behaviors. Investigations into environmental influences have centered on two prominent views, whereby participants are described as either passive or active in their interactions with the surroundings (Tooby & Cosmides, 1992). Theories such as social learning (Bandura, 1986) argue that individuals' motivations are a product of their surroundings and influenced exclusively by socializing agents such as family, friends, peers, coaches, and teachers (i.e., passive view). As these theories were scrutinized, other explanations began to emerge.

More recent theories examining the interaction of individuals and their surroundings argue from the perspective that a person is more active in the process when making interpretations (Kwan, Caldwell-Hooper, Magnan, & Bryan, 2011). These interpretations are an important aspect to behavior development and help shape a person's beliefs and actions. Self-determination theory (SDT) is one such theory used to explain these interpretations. "SDT posits that there are three basic human needs" (Ryan & Deci, 2009) that ultimately affect a person's internal motivation: the need to feel agentic in their pursuits (i.e., autonomous), the need to feel connected to those around them (i.e., relatedness), and the need to feel like they have the necessary skills to meet the demands of a given task (i.e., competency). In SDT, other factors may also affect motivation but are external to the individual. For example, when pressured by parents, friends, or others to participate in an activity, the person may certainly be motivated but from external sources. In this situation, the individual no longer feels self-determined in his or her interpretation of the environment. Those who feel less self-determined are less likely to return to the activity and/or try new, similar tasks. Further, an individual may be motivated by a reward, which is another example of an external contingency. Typically, rewards lead to a motivated behavior that is external. Kwan et al. (2011) pointed out that high levels of autonomy, competency, and relatedness are positively correlated with self-regulated beliefs and with internal motivation. Armed with this information, it is important for teachers to examine the environment when teaching students in PE and physical activity

settings. How a teacher constructs the setting may influence how the learner perceives, interprets, and behaves. In addition, the structure of the environment could have long-lasting effects on an individual. Research certainly supports the idea that when motivated from an internal structure, people are more likely to adhere to activity and return to exercise later (Ntoumanis, Standage, & Spray, 2010)

Currently, much of the research has focused on individuals who participate on their own in various fitness activities (e.g., aerobic dance, treadmills; Frederick-Recascino, 2002). Little is known about the motivation of students who participate in a curriculum designed to address fitness in PE class. Anecdotally, many PE specialists report that when the focus of the class is on the fitness levels and outcome (e.g., a better physique), intrinsic motivation seems to suffer, creating an environment for external motivation. To address the lack of motivation of students engaging in fitness lessons in PE, teachers often employ a games-based approach to teaching, and as a result, the focus on fitness is de-emphasized or left out altogether. Because of the relationship between the structure of the environment to the three constructs of autonomy, relatedness, and competence, SDT offers the best framework for this investigation.

Recently, curriculum models in PE have received considerable attention with regard to teaching students about the benefits of being physically active and introducing them to activities that promote lifelong activity pursuits. In addition, many of these curriculums have been investigated as to their benefits in the domains of learning (Metzler, 2011). Much of the research indicates that curriculum models such as Teaching Games for Understanding (TGfU), Sport Education, and outdoor/adventure education have been shown to be effective in PE settings. Additionally, most models have enjoyed support, particularly in terms of motivation (Metzler, 2011).

There seems to be a number of useful curricula that engage youth in PE, but there appears to be little in terms of a specific curriculum model that pertains directly to developing a person's physical fitness. Currently, only one curriculum model focuses solely on improving adolescents' fitness in PE: Health-Related Physical Fitness (HRPF; Hastie, 2003).

HRPF promotes the teaching of five components of fitness (i.e., muscular endurance, cardiovascular endurance, muscular strength,

flexibility, and body composition) and addresses how each of these influence functional health. To implement the model in PE class, the teacher either uses a games-based approach or employs the use of fitness stations. In a games-based approach, youth play games that are focused on one or two of the HRPF components. For example, a teacher could use the game of Ultimate Frisbee with the intention of affecting students' cardiovascular fitness (Hastie, 2003). In a stations-based approach, the teacher designs areas of the gym where students will participate in exercise stations that focus on a single HRPF element (e.g., muscular strength station using push-ups). Either of these approaches may work to improve fitness, but neither has been empirically tested in the PE setting (Carrel, Clark, Peterson, Eickhoff, & Allen, 2007). More important, little is known about the motivational effect of using these models. Understanding motivation may benefit students, who are more likely to engage in fitness-enhancing activities and persist at activities on their own if fitness lessons consider autonomy, relatedness, and competency of the student (Ryan & Deci, 2000). A recent model that has received little recognition is the Primal Fitness Curriculum.

O'Keefe, Vogel, Lavie, and Cordain (2010) argue that one of the keys to survival over the evolution of humankind is the adaptation to specific movements used for hunting and gathering. Chek (2004) further argues that there are seven such survival movements; he titles these primal movements. They are pushing, pulling, bending, twisting, lunging, squatting, and gait. Certainly, the goals of these movements have changed over time, but nevertheless provide the basis for movements that are key to daily life function and sport participation (Chek, 2004; Sisson, 2009).

The main goal of the mainstream HRPF curriculum model and the Primal Fitness Curriculum model is to promote lifetime physical fitness. The difference between these models is the methods used in achieving the goals. To achieve primal fitness, students are first taught about their primal patterns and then taught how to use these to elicit the greatest benefits (Chek, 2004). Although there are 10 laws associated with primal fitness, four apply directly to movement and these are the most essential for physical educators. The four laws taught via the Primal Fitness Curriculum are move frequently at a

slow pace, lifting, sprinting, and lunging (Sisson, 2009, pp. 26–28). Specifically, the Primal Fitness Curriculum is an exercise program that consists of "low-intensity energizing movements . . . regular short, intense strength-training sessions, and occasional all-out sprints" (Sisson, 2009, p. 21).

The curriculum model also differs from traditional HRPF interventions because it is not a simple 4-week continuous unit. Rather, it is a yearlong learning process that only needs to happen once or twice a week to show changes in fitness.

To implement the model, a physical educator first selects one or two movements and then provides verbal instruction and visual demonstrations. Second, the students perform approximately five to seven trials of the movement that incorporate some level of variability, which helps guide the learner to the correct pattern. Students perform these trials at a slower pace that does not fatigue the body and mind. Once students finish learning the movements, the educator teaches the specific primal laws that state how to employ the movements. The movement laws include frequent moderate cardio movements at a slow pace, heavy lifting, and sprinting occasionally. The instructor presents one of the primal laws and discusses with the students how to recognize it and different ways to implement it. Although there is no set order of model protocol, it may be best for the educator to begin with movements and later move to the laws, because the movements provide a practical use of the laws (Chek, 2004; Caldwell, 2012; Griffin et al., 2013).

Because the curriculum is in its infant stages, only one study has examined the effect of the Primal Fitness Curriculum (Griffin et al., 2013). However, this study focused on the effect of the curriculum on fitness levels and not on motivation. Results from the study imply that with regard to fitness, positive gains can be made via the Primal Fitness Curriculum. Although the model is still in the early stages, no studies have examined the effects of a primal fitness model on motivation. The purpose of this investigation was to examine motivation via the self-determined beliefs of sixth graders learning a fitness curriculum in PE class.

Method

Participants

Participants for this investigation were sixth grade students ($N = 57$; 31 males, 26 females) from two PE classes in a school in the southwestern United States. The mean age was 12.18 years ($SD = 0.94$). The participants attended the same public middle school. After contacting school officials and the PE teacher, the investigators obtained written permission to conduct the study. The teacher and the investigators agreed which classes would be solicited for participation. The classes were purposely chosen primarily because of the scheduling of classes. For each class, one of the investigators attended the class and read a script describing the study. After the script was read, the students were given an informed consent agreement for their parents to sign. Once the signed parental consent agreement was returned, the students provided verbal assent. Students volunteered to participate and were told that they could withdraw their assent at any point during the study with no negative consequences. Informed assent from each participant and informed consent from his or her parent or guardian were obtained per the guidelines set forth by the university institutional review board.

Instrumentation

To measure the motivation of individuals based on the surroundings created by the curriculum, researchers used the Motivation Toward Physical Activity Measure–Revised (MPAM–R). The MPAM–R has demonstrated validity and reliability in previous studies (Ryan, Frederick, Lepes, Rubio, & Sheldon, 1997). The MPAM-R is designed to investigate behaviors that are reflective of SDT. Specifically, the MPAM–R assesses, via five subscales, an individual's interpretation of his or her environment with regard to the constructs of relatedness (social interaction subscale), competence (competence subscale), and autonomy (fitness subscale). In addition, the MPAM–R also measures a more global view of motivation in the subscale of Interest and Enjoyment. Last, the test assesses the construct of external motivation via the subscale of Appearance.

Procedures

For both classes, testing began during the third week of the school year. One of the researchers administered the questionnaire to the participants individually during normal PE class on two separate days, 2 weeks before fitness lessons began. Research assistants read the questions to each participant to ensure understanding of the items. Following the administration of the questionnaires and fitness testing, participants in both classes were exposed to the Primal Fitness Curriculum. The first two lessons focused on the learning of each movement (e.g., pushing, pulling). To help ensure learning would occur, the researchers taught these movements in combination with a primal exercise pattern that focuses on moderate cardio that does not overly fatigue students. Following the initial lessons, students then continued to receive two primal fitness lessons per week for 9 weeks as a part of their regular PE. The students completed 18 primal fitness lessons throughout the intervention period (i.e., semester) and the primary investigators taught these lessons. Following the 18 lessons, one of the researchers administered the MPAM–R to the participants individually. The questionnaire was given during normal PE class on two separate days, 1 week after the conclusion of the lessons. The same procedure that was used before the lessons was followed.

Results

To analyze the data, the researchers employed five 2 (gender) × 2 (time) ANOVAs with repeated measures on the last factor. The five dependent measures were interest and enjoyment, competence, fitness, appearance, and social, with the Primal Fitness Curriculum serving as the independent variable. Table 1 lists the *F* ratios and *p* values of each ANOVA. The ANOVA for enjoyment indicated significant main effects for Gender and Test and a significant Gender × Test interaction. The interaction was due to a greater increase in Interest and Enjoyment from pre- to posttest for females than for males.

The results of the ANOVA for Competence indicated significant main effects for Gender and Test and a significant interaction. The interaction was due to a greater increase in competence from pre- to posttest for females than for males.

The ANOVA for Fitness indicated significant main effects for Gender and Test and a significant Gender × Test interaction. The interaction was due to a greater increase in Fitness from pre- to posttest for females than for males.

The ANOVA for Social indicated significant main effects for Gender and Test and a significant Gender × Test interaction. The interaction was due to a greater increase in Social aspects from pre- to posttest for females than for males.

The ANOVA for Appearance indicated a significant interaction of Gender and Test. The interaction resulted from an increase in pre- to posttest scores for females and a slight decrease in pre- to posttest scores for males.

Discusssion

In an effort to provide quality PE classes for secondary level school students, it is important for teachers to consider the effect of the curriculum on students' fitness. Perhaps more important is the effect of the curriculum on students' motivation. For PE specialists who persist in their efforts to educate students to be physically active over the life span, an understanding of the motivation components is important (Hastie, 2003). The purpose of this investigation was to assess motivational changes in sixth grade students after participating in the Primal Fitness Curriculum as proposed by Chek (2004). Specifically, this study focused on SDT, which was used as a motivation backdrop.

The primary methods employed by teachers and practitioners when teaching fitness in PE have historically been a games-based approach or calisthenics (Hastie, 2003). Certainly, these approaches may be useful in improving the overall fitness of students; however, other curricular approaches may be just as beneficial. In addition to examining the physical fitness benefits, researchers and teachers alike must consider the motivational benefits of specific curricula.

Chek developed the Primal Fitness concept in 2004. Later, Caldwell (2012) developed the concept into a curriculum and implemented it into his PE classes. To date, one study has examined the use of the Primal Fitness Curriculum in PE settings (Griffin et al., 2013).

This initial investigation provided information about the usefulness of the curriculum on fitness, but the investigators did not measure the effect on motivation. This follow-up study explores the differences on students' motivation toward fitness that may have resulted from the Primal Fitness Curriculum.

After the implementation of the Primal Fitness Curriculum in a sixth grade PE class, students' scores on interest and enjoyment, competence, social interest, fitness, and appearance increased. Specifically, more increase was noted for females than males. The appearance scores for males decreased after the curricular intervention. According to Deci and Ryan (1985), all of the components as measured by the MPAM–R are indicative of intrinsic motivational components with the exception of appearance. According to these same researchers, if a person has an increased sense of interest and enjoyment, competence, social competence, and fitness (i.e., autonomy), they are likely to experience motivation (i.e., internal) that is necessary for sustained participation in fitness endeavors. The subscale of appearance is thought to be external to the individual and one of external reward rather than intrinsic value.

Males placed less emphasis on appearance from pre- to postintervention, although the results were not significant. It could be argued, based on the trend, that the Primal Fitness Curriculum taught the males that appearance is not as important as how and why to stay fit. This trend stands in contrast to other research that indicates, in some instances, that males perceive more pressure about appearance than girls do (Jones & Crawford, 2006).

For appearance, females' scores increased from pre- to posttest (see Table 2), indicating that even in light of the curriculum females judged appearance as important. Thus, two motivating factors may have affected their desire to engage in fitness lessons. Females in this study were more intrinsically motivated by autonomy, competence, and relatedness, but were also motivated by external sources of looking good to others (i.e., appearance). Similar to research on boys, research on girls shows that during the preteen and teenage years appearance and attractiveness are important external motivators (Jones & Crawford, 2006).

Table 1
Results of the ANOVAs for MPAM–R

Interest and enjoyment	Degrees of freedom	*F* ratio	*p* value
Gender	1, 47	1181.573	< .001
Test	1, 47	70.353	< .001
Gender × Test	1, 47	12.681	.001
Competence			
Gender	1, 47	39.753	< .001
Test	1, 47	66.126	< .001
Gender × Test	1, 47	5.660	= .021
Fitness			
Gender	1, 47	16.539	< .001
Test	1, 47	42.267	< .001
Gender × Test	1, 47	2.127	= .042
Social			
Gender	1, 47	10.359	= .002
Test	1, 47	47.420	< .001
Gender × Test	1, 47	< 3.732	.072
Appearance			
Gender	1, 47	2.008	= .163
Test	1, 47	.240	= .626
Gender × Test	1, 47	7.006	= .011

Table 2
Means and Standard Deviations for Subtest Scores

Subtest	Preintervention *M* ± *SD*	Postintervention *M* ± *SD*
Interest and Enjoyment Total	3.53 ± 1.53	5.07 ± 1.22
Females (25)	2.27 ± 0.39	4.56 ± 1.21
Male (31)	4.56 ± 1.32	5.49 ± 1.09
Competency Total	3.77 ± 1.55	5.36 ± 1.09
Females (26)	2.71 ± 0.76	4.81 ± 1.00
Male (31)	4.68 ± 1.47	5.83 ± 0.95
Fitness Total	4.87 ± 1.30	5.99 ± 0.80
Females (26)	4.26 ± 0.97	5.65 ± 0.79
Male (31)	5.40 ± 1.33	6.28 ± 0.69

Table 2 (cont.)

Subtest	Preintervention *M* ± *SD*	Postintervention *M* ± *SD*
Social Total	3.02 ± 1.02	4.34 ± 1.07
Females (26)	2.47 ± 0.47	4.21 ± 1.01
Male (31)	3.50 ± 1.13	4.47 ± 1.12
Appearance Total	4.41 ± 1.18	4.47 ± 1.15
Females (26)	4.31 ± 0.97	4.95 ± 0.86
Male (31)	4.50 ± 1.35	4.06 ± 1.22

Conclusions

The Primal Fitness Curriculum was successful in promoting factors that enhance internal motivation. Even in light of the results for appearance, internal motivational constructs were enhanced. For the practitioner who chooses to implement fitness into their lesson planning, it is important to note that the environment is key to the overall perception of adolescents when learning about fitness. Based on this investigation, teachers, coaches, and parents must consider the motivation for students' participation and focus on activities that support opportunities to increase autonomy, competence, and relatedness. In addition, teachers, coaches, and physical activity directors must be aware of the cultural influence of appearance and its undermining effect on internal motivation. Whether teachers choose to use the Primal Fitness Curriculum or another curriculum, self-determined motivation is an important aspect when teaching physical fitness in PE settings. If we are to persist in our notion that internal motivation is important for lifelong movers, then we must address these issues in physical activity and specifically physical fitness environments.

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