

Motivational Regulations Among At-Risk Students in an After School Activity Program

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Abstract

This study examines motivational self-regulations (SR) among at-risk elementary school students participating in the physical activity component of an after school program (ASP) in a rural Southwest U.S. school district. Motivational regulations examined gender differences and were used to predict student performance on an endurance task. One hundred seventy-one participants from the 3rd to 6th grade completed the Self-Regulation Questionnaire and engaged in an endurance run. Repeated measures ANOVA, Pearson correlation and a one-way MANOVA revealed boys and girls endorsed equally the four regulatory categories and while they were not predictive of performance on the endurance run, boys significantly outperformed girls on the task. Results also revealed of a combination of both external and autonomous regulations. Despite indicators of an externally regulated environment, students provided evidence of autonomous regulation.

Key Words: Motivational regulations, after school program, activity

While schools provide ideal opportunities to promote physical activity (PA) through recess and physical education classes, increased pressure to improve standardized tests scores has led to declines in physical education instruction and programs in school districts across the country (NASPE and AHA, 2006). Due to decreased levels of activity and the ongoing documentation of obesity among children in the United States, especially among minority groups, the Centers for Disease Control and Prevention (CDC, 2004) recommends exploring venues beyond the traditional physical education setting. One alternative has been to provide children, especially those deemed "at-risk," with enrichment opportunities including physical activity after the regular school day. Parents and educators alike recognize the importance of an environment where children can engage in organized academic and enrichment activities.

Trost, Rosencrantz, and Dziewaltowski (2008) note that after school programs (ASPs) have the potential to augment PA through structured and unstructured activities as well as teach students fundamental behavioral and motor skills. One such after school program is the 21st Century Community Learning Centers (21st CCLCs) funded by Title IV of the Elementary and Secondary Education Act (ESEA). Typically held after school, CCLCs provide academic enhancement as well as enrichment opportunities in areas including art, music and physical activity (Parsad, Lewis & Tice, 2009) for students placed at-risk.

Gemici and Rojewski (2010) note 'at-risk' is linked to low academic achievement that reduces the probability for school success. In the United States, estimates of drop out rates are as high as 30% (Alan & Viadero, 2005). Besides lower student achievement, predictors of students placed at-risk include grade retention, chronic absenteeism, behavioral problems and pessimism about job opportunities (Bemak, Chi-Ying & Sirokey-Sabdo, 2005; Hamre & Pianta, 2005). Because consequences of not graduating from high school are grave (e.g., more likely to be depressed, use drugs and alcohol and be unemployed or earn lower salaries), considerable educational resources have been allocated to this population in the United States (Riordan et al, 2011). Additionally, obesity levels are reported higher among non-Hispanic black and Hispanic children and adolescents compared to non-Hispanic white youth (Ogden, Carroll, Kit, & Flegal, 2012).

Numerous studies address the impact of after school programs on academic benefits and enhancement of personal and social growth of children. In a meta-analysis by Lauer et al. (2006), the authors concluded that ASPs can generate positive outcomes on the achievement of academically at-risk students. Significant gains were noted in reading and math achievement, particularly among high school students. Durlak, Weissberg, and Pachan (2010) conducted a similar meta-analysis technique of 75 reports evaluating 69 different after school programs that included having the development of one or more personal or social skills as one of its goals. They found ASPs had an overall positive and statistically significant impact on children and youth. Desired changes occurred in student feelings and attitudes, behavior, and school performance. Increases in participants' self-perceptions, social behaviors and perceptions of school also occurred.

Assessment of other components of ASPs has recently received attention, particularly the contributions of physical activity. A number of after school investigations employ pedometers, accelerometers, or heart rate monitors to evaluate PA. Lubans, Morgan, and Tudor-Locke (2009) used pedometers to evaluate the impact of an after school sport program among adolescents. Low-active adolescents in the treatment group significantly increased step counts across the 8-week intervention program. At post-test, they increased PA levels by 2341 steps/day from baseline measures that were significantly different from the comparison group. Trost, et al. (2008) utilized accelerometers to record activity levels from children in seven after school programs. They found their population of after school programs provided, on average, 20 minutes of MVPA daily. This was a notable finding because it accounted for one third of the recommended 60-minutes of daily MVPA for children. Interestingly, MVPA levels were significantly higher during free-play time than the programs' structured activity sessions.

Gutin, Yin, Johnson, and Barbeau (2008) evaluated the effect of a 3-year after school PA intervention program on aerobic fitness among 206 third graders. Each day a subset of participants

was randomly selected to wear a heart rate monitor to record PA intensity during the 80 minutes devoted to PA. After three years of tracking, the authors found that those who attended the after school program at least two days per week (40%) significantly improved in fitness and reduced body fat during the school months. Additionally, recorded heart rates during PA confirmed that many of the participants willingly engaged in MVPA for the 80 minutes devoted to activity.

In sum, overall positive effects of after school programs on activity and fitness levels are well documented. In a meta-analysis of after school PA promotion interventions Beets, Beighle, Erwin, and Huberty (2009) concluded that ASPs that include a PA component, "Can be effective in improving physical activity levels, physical fitness, body composition, and blood lipid profiles of children and young adolescents." (p. 535). However, outside of quantifiable measures such as step counts, activity, and fitness levels, there exists a paucity of research about other contributors to PA. We know little about undergirding cognitive or motivational processes that might influence engagement in PA among ASP participants. Knowledge about motivational self-regulation, for example, may enable program planners to make informed decisions about important indicators that impact PA participation in after school programs. Therefore, in the present study we examine motivational indicators of self-regulation among a group of children attending the physical activity component of an after school program.

Self-Regulation

Interest in the role of self-regulatory processes in learning dates back to the 1970s, particularly cognitive and metacognitive processes. Resultant cognitive strategies emerged that could be learned and transferred to similar problems but often were not remembered or used instinctively in authentic contexts (Pressley & McCormick, 1995). These findings led to considering additional elements of self-regulation (SR), particularly the social and motivational processes (Zimmerman & Schunk; 2011).

Self-regulation explores how cognitive, motivational, behavioral, and contextual factors influence learning. Self-regulated learners are generally characterized as active participants who manage learning through monitoring and strategy use. Defined in numerous ways, most agree that self-regulation is a proactive process whereby learners organize and manage their thoughts (e.g., cognitions), emotions (e.g., motivation), behaviors (e.g., engaging in learning activities), and context (e.g., seeking help). It explores how cognitive, motivational and contextual factors influence learning. In sum, SR learners are generally characterized as active participants who manage learning through monitoring and strategy use.

Zimmerman (2008) describes SR as "the self-directive processes and self-beliefs that enable learners to transform their mental abilities, such as verbal aptitude, into an academic performance" (p. 166). Pintrich (2000) views it as an active process where individuals set specific goals then monitor, regulate and control their learning. Both definitions view SR as an ongoing process that contributes to student learning. Greene and Azevedo (2009) see SR as a constructive process where learners set their own goals based on past experiences and current environments. These goals

become the criteria toward which regulation aims. In essence, self-regulation mediates the relations between learner characteristics, context, and performance (Pintrich, 2000, 2004).

SR provides perhaps the most inclusive theoretical perspective to learning and serves as the overarching framework for this study. However, from self-determination theory (SDT) we can also draw from specific motivational self-directive process and beliefs that contribute to learner self-regulation. Ryan and Deci (2000) theorize that human motivation stems from an innate desire to satisfy three basic needs fundamental to human behavior. However, motivation is not automatic because of external controls present in the environment. The three needs are competence (effectiveness in one's engaged activities), autonomy (the degree individuals perceive themselves as being in control of a behavior) and relatedness (the degree to which individuals feel linked to others). Deci and Ryan (2008) believe motivation is a mechanism whereby we self-determine immediate needs and then self-regulate our actions to meet those needs. While SR embraces cognitions, motivations, behaviors and contextual variables, SDT provides a focused approach to human motivation that highlights the importance of personality development and self-regulation (Ryan, Kuhl, & Deci, 1997). There is overlap between the two frameworks and a case could be made that SDT, with a focus on motivation, represents a subset of SR.

The nature of the motivational self-directive process and beliefs can be captured in four regulatory categories: external, introjected, identified and intrinsic. The four regulatory categories are arranged along a continuum that capture different external motivators and, hopefully, culminate in an individual's movement toward intrinsic motivation. The externally regulated learner seeks to satisfy or meet an outside demand or reward contingency. Sun and Chen (2010) note that external regulation occurs when students anticipate an outcome associated with an expected behavior. Participating in activities to attain a high score or letter grade represents an external consequence for behavior. There is little evidence of internalization of learning.

Introjected regulation entails taking in a regulation but not fully accepting or internalizing it. An introjected learner adopts partial internalization whereby she agrees to the necessity of participating in learning activities, but does not accept it as her own (Deci, Eghrari, Patrick & Leone, 1994). Though engaging in activities is self-initiated, it takes place under external pressures and/or expectations. Identified regulation is a more autonomous form of regulation where the learner consciously values a learning goal. The locus of causality shifts to an internal or more self-directed mode. Identified learners demonstrate more autonomy and self-regulation because they personally accept and identify with that regulation. Individuals engaging in physical activity for health or wellness benefits are examples of identified regulators. Finally, Deci and Ryan (2008) describe intrinsic regulation as the most autonomous category where learners engage in activities for their inherent enjoyment and satisfaction. Engaging in physical activity for the sheer pleasure derived (versus external health benefits) represents intrinsic self-regulation.

Persistence is also an indicator of a willingness to engage in activity and of self-regulation (Wigfield, Klauda & Cambria, 2011). Persistence refers to a willing continuation in a challenging task or

situation (Lens & Vansteenkiste, 2008; Peterson & Seligman, 2004). Wigfield et al. (2011) report that students who set mastery goals have high self-efficacy beliefs, value the outcomes for a learning task, and are more likely to continue in difficult tasks. That is, those who are more intrinsically regulated are more likely to continue seeking solutions to challenging activities. Environmental factors can also contribute to persistence. Dweck and Master (2008) reported that performance feedback and instruction in intelligence theory affected students' effort in difficult tasks.

Finally, gender represents an historical variable in children's learning. Research on gender differences identify numerous themes; notably that teachers do not encourage math and science skills for female students (Hyde & Lindberg, 2007), boys' off task behavior is overly punished (Younger, Warrington & Williams, 1999) and boys have more negative views toward school and their teachers (Sullivan, Riccio, & Reynolds, 2008) than girls. Olszewski-Kubilius and Lee (2011) assert that, regardless of age, males outperformed females on math and science tests, while females outperformed males on verbal tests. Boys tend to engage in activities such as construction play, sport and other activities promoting math and science related skills and competencies, while girls are more likely to engage in play with dolls, domestic, and care-giving roles (Leaper & Friedman, 2007). In PA settings, boys are also more physically active than girls (e.g., Cox, Schofield, Greasley, & Kolt., 2006; Flohr, Todd, & Tudor-Locke, 2006; Trost et al., 2008).

Gender differences have also been identified in the SR literature, particularly in the formation of perceived academic success. Usher and Pajares (2006) found that mastery experiences (success increases self-efficacy), vicarious experience (external modeling of gender in job-related domains), verbal persuasion (opinions of credible others) and physiological states (stress and anxiety accompanying a particular activity) predicted both academic self-efficacy and SR efficacy among middle school students. For girls in particular, social persuasion was a particularly strong influence informing both their academic and self-regulatory beliefs. Zeldin and Pajares (2000) also reported that adult women more than men relied on others' judgments of their capabilities when forming academic self-efficacy beliefs.

In sum, this study examined four motivational indicators of self-regulation and their relationships to an endurance run with a population of girls and boys placed at-risk. Specifically, the purpose of the study was to examine: (a) mean levels of four motivational indicators of self-regulated learning in an after school physical activity program, (b) four SR motivational regulations as predictors of student performance on an endurance task and, (c) gender differences.

Methodology

Setting and Participants

The study, as part of a larger research project, occurred in a 21st Century Community Learning Centers (CLC) after-school program serving mostly African-American and Hispanic-American students. Socio-economic status (SES; i.e., individuals or groups often measured as a combination of education, income and occupation) was low to low middle class with a median income of \$27,423. This compared to the state's median salary of \$50,740. The school

district recorded a 'Met Standard' rating on the 2012-2013 Texas Academic Performance Report (Texas Education Agency, nd). The after-school program curriculum included reading, science, math, language arts, and enrichment activities such as physical activity and cooking. During the school year, the after-school program began at 3:00 p.m. and ended at 6:00 p.m. Mondays to Thursdays; in the summer, from 8:00 a.m. to 3:00 p.m. five days a week for four weeks. Participants rotated through the five program areas every 30 minutes during the school year and every 45 minutes during the summer. Class size typically ranged from 20 to 30 students.

Participants were 171 (80 boys and 91 girls) students in grades 3-6 in a rural school district located in the Southwest US. They came from two elementary schools within the district and ranged in age from 8-13 years ($M = 9.59$, $SD = 1.18$). Approximately 85% of the students were African-and Hispanic-Americans, 10% Caucasian and 5% 'Other.' Ninety percent of students attending the school district were eligible for free or reduced lunch.

Participation in the study was voluntary and permission was obtained from the university, parents, and children. The physical activity part of the curriculum provided opportunities to engage in enjoyable moderate-to-vigorous physical activity (MVPA), develop positive attitudes toward physical activity and learn about the benefits of healthy lifestyles. To this end, we implemented the Coordinated Approach To Child Health--Physical Education (CATCH-PE) program. CATCH-PE is a developmentally appropriate physical activity program that promotes healthy food choices, health related fitness, skill competency, and cognitive understandings about the importance of physical activity (Luepker et al. 1996). Students were encouraged to apply the CATCH-PE knowledge to their everyday lives. Two physical education specialists were trained by the principal investigator to implement the CATCH-PE program.

Variables and Measures

Demographics. Students responded to questions asking name, age, gender, race, school and grade level.

Self-Regulation Questionnaire (SRQ). The Self-Regulation Questionnaire (SRQ; Ryan & Connell, 1989) has been extensively validated and administered to a cross section of populations from children to university-aged students. We modified the stem to address and match the CLC-PE component of the program. The stem "Why I Do Things" was adjusted to "Why I Do Things in CLC-PE." The four questions read: (a) Why do I do CLC-PE, (b) Why do I participate in CLC-PE activities, (c) Why do I try to answer hard questions in CLC-PE and, (d) Why do I try to do well in CLC-PE? Each question provides eight rationales for doing the requested activities. For example, one rationale of 'Why do I participate in CLC-PE activities?' is: 'Because I want the teacher to think I'm a good student.' A four-point likert scale ranged from "very true," "sort of true," "not very true" and "not at all true" and accompanied each question.

Progressive Aerobic Cardiovascular Endurance Run (PACER). The PACER test is also a well validated and reliable assessment used to assess aerobic capacity. A large body of research supports acceptable validity and reliability among children and youth (Morrow, Martin, & Jackson, 2010) and remains a leading variable assessing fitness and endurance (e.g., Gao, Newton, &

Carson, 2008; Saint-Maurice, Welk, Laurson, & Brown, 2014; Wittberg, Northrup, & Cottrell, 2009). It is a 20-meter shuttle run that measures aerobic capacity and is part of the Fitnessgram health-related fitness and activity assessment program (Meredith & Welk, 2007).

The objective is to run as long as possible back and forth at a steadily increasing pace. Runners should complete the 20-meter distance and touch the designated line by the time a 'beep' sounds. If students arrive early, they must wait until the next beep before running back. Students follow this procedure until they fail to reach the end line before the beep tone for a second time. Each completed 20-meter distance counts as a lap.

While the PACER is a measure of endurance and a frequently used outcome in PA research, it also contains important motivational attributes. To be successful (i.e., maximize the number of completed laps), individuals must regulate their motivation and persist despite physical discomfort and fatigue. Therefore, rather than assessing endurance as the outcome, we examined the PACER results relative to their motivational self-regulations.

Procedures

Data were collected across four academic semesters and a summer session. The researchers administered the questionnaires during regularly scheduled after-school physical activity classes three to four weeks into session to permit prolonged exposure to the program. Each item was read aloud to the students. They were encouraged to answer as truthfully as possible and ask questions if unsure about any items. The students raised no questions while completing the 30-minute questionnaires. Shortly afterward, students performed the PACER Test in the gymnasium where a 20-meter space was marked. Members of the research team implemented the protocol of the PACER Test as presented in the Fitnessgram.

Data Analysis

A confirmatory factor analysis first tested the validity of the four-factor model for the SRQ. Multiple indexes to evaluate the goodness of fit included: (a) the chi-square to degree of freedom ratio (X^2/df), for which values less than 2.0 suggest a good fit (McIver & Carmines, 1981), (b) the comparative fit index (CFI), for which values larger than .90 indicate a good fit, and (c) the root mean square error of approximation (RMSEA), for which .06-.08 is considered an acceptable fit, while .08-.10 is considered a marginal fit (Browne & Gudeck, 1993; Hu & Bentler, 1995).

Second, we conducted a one-way repeated measures ANOVA to test significant differences among the four motivational regulations. Bonferroni post hoc tests determined which means differed significantly. Third, Pearson product-moment correlations were computed to determine relationships between students' motivational regulations and PACER test scores. Finally, a one-way MANOVA examined gender differences on the four motivational regulations and the PACER test results.

Results

Confirmatory Factor Analysis

Results revealed an acceptable fit between the four-factor model and the observed data, $X^2/df = 1.88$, CFI = .96, RMSEA

= .072. Additionally, factor loadings ranged from .48 to .65 for external regulation, from .40 to .65 for introjected regulation, from .40 to .77 for identified regulation, and from .39 to .78 for intrinsic regulation, respectively, indicating all loadings were acceptable. Cronbach's alphas for the four motivational regulation scores were .76, .79, .78, and .80, respectively, producing acceptable internal consistency on the scores.

Descriptive Data and Correlations

As presented in Table 1, the mean scores of external, introjected, identified, and intrinsic regulations were above the midpoint of the scale (i.e., 2), suggesting the population in this study endorsed the four motivational regulations.

Table 1 Means, Standard Deviations and Gender Differences On the Study's Variables

	Total		Boys		Girls	
	M	SD	M	SD	M	SD
External	3.07	.72	3.02	.74	3.10	.71
Introjected	3.04	.67	2.97	.72	3.10	.63
Identified	3.33	.66	3.26	.66	3.39	.63
Intrinsic	3.06	.75	3.02	.79	3.09	.72
PACER	16.42	11.78	19.70	13.59	14.06	9.72

As shown in Table 2, Pearson Product Moment correlations revealed that external, introjected, identified, and intrinsic regulations were all significantly related to one another. However, because the four regulations were not significantly related to the PACER test scores, no further relationships were explored.

Table 2 Correlations Among Students' Regulations and PACER Test Scores

Variable	1	2	3	4	5
1. External		.72**	.56**	.22**	.05
2. Introjected			.63**	.41**	.07
3. Identified				.54**	.03
4. Intrinsic					.03
5. PACER					-

One-Way Repeated Measures ANOVA

There were significant differences among the mean levels of the four motivational regulations, $F(2.18, 344.32) = 12.42$, $p < .001$, partial $\eta^2 = 0.08$, after the correction of the assumption of sphericity in Mauchly's test [$X^2(5) = 76.67$, $p < .01$] was confirmed by reforming the degrees of freedom through Greenhouse-Geisser estimates of sphericity ($\epsilon = .73$). Bonferroni post hoc tests indicated students scored significantly higher on identified regulation than on introjected, intrinsic, and external regulation. No other significant differences occurred.

One-Way MANOVA and Independent Samples T-Test

Based on the correlations (see Table 2), a one-way MANOVA and an independent samples t-test examined gender differences on the four motivational regulations and the PACER test scores, respectively. Results of the MANOVA revealed no significant gender difference on the four regulations (Wilks's lambda = .98, $F(4, 145) = 0.61, p = .66$). The independent samples t-test, however, revealed that boys performed significantly better than girls on the PACER test [$t(76.75) = 2.40, p = .019$, Cohen's $d = 0.48$].

Discussion

This study occurred in the physical activity component of an after school program for students placed at-risk. We explored four motivational regulators of SR, their relationship to performance on an endurance task, and gender differences.

Research on self-regulation in classroom settings indicates a learner's regulatory approach is directly affected by cues in the environment. Overall, we noted the regulatory climate appeared to rely heavily on external cues. Results point to indicators of an externally regulated environment in this after school context. Students recorded the second highest mean score on the External Regulation scale. Such an orientation enlists a system of reinforcers where tangible rewards often include praise, stickers, and smiley faces. Consequences might include time outs, removal from activity, or detention. Questionnaire data revealed the two extrinsic scales, External and Introjected, were endorsed equally by males and females. Learners were influenced by environmental cues (external) for performance and abided by those cues, even though they may not have fully accepted or internalized them (introjected).

Ryan and Deci (2000) revealed that not only do tangible rewards diminish intrinsic regulation, so also do threats, deadlines and imposed goals. Further, external regulators can deplete what Deci and Ryan call 'vitality'--energy that is "exhilarating and empowering, that allows people to act more autonomously and persist more at important activities" (Deci & Ryan, 2008, p. 184). Conversely, researchers have also found that environmental cues promoting student choice, opportunities for self direction and acknowledgement of feelings can enhance vitality due to an increased sense of autonomy (Deci & Ryan, 2008; Ryan & Deci, 2000; Shen, McCaughy, Martin & Falman, 2009; Xiang, Gao & McBride, 2011).

While the data provided support for the former (external locus of causality), there were none to support for the latter (choice, perceived autonomy). Given our findings, in order to promote greater autonomous self-regulation among this population of at-risk students, the program must provide a more autonomy-supportive environment. Future research in this setting might also explore the opportunities for and role of choice in self-regulation in the program. For example, teachers could utilize opportunities for choice in activity selection, listen to student requests and concerns, and provide enhanced opportunities for thoughtful decision-making.

An interesting though not unexpected finding occurred with the significant relationship between autonomous self-regulations (identified; intrinsic) and controlling self-regulations (external; introjected). On the one hand, students engaged in CLC-PE

activities "so the teacher won't yell at me" (external) and "because I want the teacher to think I'm a good student" (introjected) while simultaneously endorsing "because I want to learn new things" (Identified) and "because it's fun" (intrinsic). The correlations among the four regulations revealed in the present study were generally consistent with a simplex pattern delineated in SR that adjacent regulations (e.g., identified and intrinsic regulation) would be more positively related to one another than distal regulations (e.g., identified and external regulations) and are in line with the research literature (e.g., Amabile, 1993; Deci & Ryan, 2002; Ratelle, Guay, Vallerand, Larose, & Senecal, 2007). They also support the argument that autonomous self-regulations and controlling self-regulations can be positively related to each other in any given context (Ratelle et al., 2007). Lepper, Corpus, and Iyengar (2005) suggest that both intrinsic and extrinsic motivational regulations can be adaptive for learners and note how students will both seek out enjoyable activities while concurrently being cognizant of potential extrinsic outcomes associated with those activities.

Endorsing an autonomous profile could be a result of student inherent desires to learn, while the ASP's extrinsic controls and constraints could explain the endorsement of controlled motivational regulations on the SRQ. While results revealed the endorsement of both autonomous and controlled motivational regulations, we do not know if students may be accommodating external regulators in order to attain some level of autonomy in their program. Though speculative on our part, future research is necessary to explore more definite explanations.

An externally regulated climate could also account for the high mean score attained on the Extrinsic scale and, ultimately, for the lack of predictability of regulations on student performance on the endurance activity. Each of the four scales assessed the degree to which regulation for that domain is autonomous versus controlled. Weinert, Schrader and Helmke (1989) believe external regulation lessens student's self regulation of learning and may result in an over reliance on the teacher's metacognitive skills for assistance. A case for the controlling atmospheres of schools in general could be made regarding the high Extrinsic mean scores, (e.g., rule enforcement, detention and suspension); however at-risk students specifically cite poor teacher relationships, feeling unsafe or uncomfortable, and overly rigid authority as major detriments to attaining success in traditional school settings (Riordan et al. 2011). The authors interviewed 47 students who had attended traditional schools but were now attending a School-Focused Alternative School (SFAS). Respondents felt their traditional teachers were overworked and attributed a lack of individualized instruction to large classes, overcrowded schools and an emphasis on standardized testing. Hostile environments ascribed to bullying, violence and alienation by student cliques were also mentioned. However, a rigid adherence to strict school rules and regulations that might make at-risk students feel "pushed out of school which can lead to poorer graduation rates..." emerged as a key finding (Riordan et al. 2011; p. 109).

If students are to become thoughtful decision makers (i.e., self-regulatory) and enjoy autonomy, they must be allowed to assume some responsibility for learning (Kurtz & Weinert, 1989). Students who are able to regulate their own learning in the face of classroom distractions and difficulties perform and learn better than peers who

lack such self regulatory capabilities (Pintrich & Zusho, 2002). Additionally, children benefit from environments that are flexible, offer varied and challenging activities and include opportunities to actively engage in decision-making (Fusco, 2003; 2008).

Results of the ANOVA revealed students scored significantly higher on the Identified scale than on the other three scales. Identified regulation is a more autonomous regulator where learners shift toward a more self-directed mode of learning. Given the results supporting an externally regulated environment, the finding is noteworthy and merits further study. Of interest is not only how identified regulation might impact the saliency of student autonomy, but also how it might also mediate student engagement in an externally controlled environment. That is, enjoyment of and participation in physical activity may offset potential negative effects of a controlling context, allowing both to co-exist.

Additionally, Table 2 revealed the participants were more self-than externally regulated based on questionnaire responses. Recent descriptions suggest that effective learners possess high levels of self-regulatory skills. They are metacognitively, motivationally, and behaviorally active participants in the learning process (Zimmerman, 2008, 2011). Students who are able to self-regulate in the face of classroom distractions and difficulties perform and learn better than their peers who do not possess these capabilities (Pintrich & Zusho, 2002). Though the students recorded the highest mean scores on the identified scale, there was no relationship between the scale (or any of the other three SR regulators) and performance on the endurance run. While the four motivational self-regulation scales did not correlate with performance on the endurance run, there were indicators of a predisposition toward self-regulation.

While Fusco (2008) reported a negative correlation between recreational activities and girl's perceptions, our data reported boys and girls endorsed equally the motivational regulations in their classes. This finding may have direct impact for regulatory practices employed in the after school program. Though data documented a disposition toward identified self-regulation, students need opportunities to develop these traits. Teachers in this program might generate activities that allow students to set goals, develop strategies and monitor progress to the attainment of those goals. The activities and strategies then need to be delivered without external regulators such as threats, detentions, or punishments.

The single gender difference occurred on the PACER test with boys outperforming girls on the endurance run by nearly a six-lap advantage. Upon first investigation, this result might be predicted-boys are generally seen to be more aggressive, competitive and physically active than girls (Connor, 2002; Earwood, Fedorko, Holzman, Montanari, & Silver, 2004). However, our result runs counter to related studies where running performance was an important outcome. Xiang and her colleagues (e.g., Xiang, McBride & Bruene, 2004a; Xiang, McBride & Bruene, 2004b) found no significant gender differences in their studies examining the running performance of fourth graders on a one-mile timed run.

We administered the PACER test once whereas running was the central activity in Xiang et al. studies. Fusco (2008) suggested the lack of significant gender differences on children's perceptions of developmental opportunities in 20 afterschool programs may have

been due to the contextual conditions being more responsive to boys' developmental needs thus inspiring them to perform better than in traditional classroom settings. The contextual cues offered by the PACER test may have been more responsive to the boys' developmental needs than the girls, resulting in a stronger desire to perform well and persist when fatigued. Additionally, the distance run was shorter. The longer distance Xiang employed (one-mile) may have washed out gender effects across the year-long running program, whereas the shorter distance of the PACER test and one testing period may have permitted significant differences to emerge.

Conclusions and Recommendations

Despite the lack of predictability of SR on the endurance run, encouraging findings appeared. However, before more definitive motivational indicators of SR can be expected, changes in the delivery system of the program are suggested. Specifically, the controlling environment must shift to a more autonomous environment where students have greater opportunities to direct their own learning. Even though the physical activity component of the program provided an interesting and innovative curriculum to the students it was, nevertheless, teacher-centered. A more autonomy supportive environment for the delivery of the program is recommended (e.g., having students defend task solutions, allow input into daily procedures and selection of equipment), minimize controlling language and provide rationales for selected activities (Sun, Li, & Shen, 2017; Van den Berghe, Vansteenkiste, Cardon, Kirk, & Haerens, 2014).

A curricular model that provides such support and fosters autonomy is the Personal and Social Responsibility model (PSR; Hellison, 2011). The model was originally designed for students placed at-risk but has gained wide acceptance for use among all student populations. The PSR promotes personal and social responsibility through physical activity. Students are given opportunities for choice and decision making while external control is minimized. Students are held accountable for their own personal actions and for supporting the well-being of others through five progressive levels: (I) self-control and respecting others; (II) participation and effort; (III) self-direction; (IV) helping others and demonstrating leadership; and, (V) transferring levels I-IV to outside the gym. A debriefing of the lesson at the end of class allows participants to reflect on levels of responsibility attained. Implementation fidelity of the PSR model is largely supported in recent studies contingent upon the teacher's knowledge of the model and a willingness to cede strict control of lessons to allow greater student involvement.

Despite positive measures attained, the present study has some limitations. First, a cross-sectional design with the measure occurring at one time-point during the semester provides a snapshot result only. A longitudinal design with repeated measures tracking selected students over time could better assess potential changes in motivational regulations. Second, while self-report questionnaires can be valid and reliable when assessing student traits, other measures such as interviews and observations can provide additional data sources that could then be triangulated for greater understanding of student regulation processes.

Finally, while we addressed a specific population referred to

as "at-risk" in the United States, a case could be made that all students are potentially "at risk" of graduating high school. While no attempts to generalize are made, future studies can expand the number participants and after school settings and employ a cross-cultural design that compares and similar populations across a number of countries. Doing so may provide broader generalization of the results to provide practitioners and program directors alike with cogent strategies that, in turn, may contribute to higher graduation rates among at-risk populations in similar settings.

This study represents an initial attempt to explore motivational regulations and their impact on activity in an ASP. Because assessing the motivational indicators of SR provided a useful theoretical perspective for studying at-risk students, follow-up research must address what (and how) ASP instructors and program directors can do to facilitate autonomy supportive environments.

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