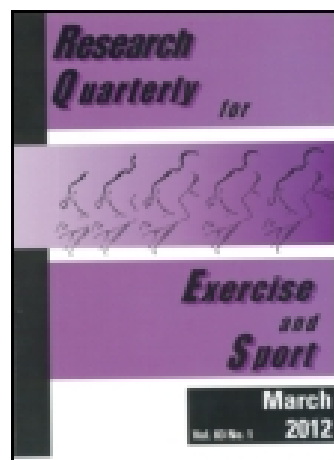




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Instructional Climates in Preschool Children Who Are At-Risk. Part II

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Instructional Climates in Preschool Children Who Are At-Risk. Part II: Perceived Physical Competence

Leah E. Robinson, Mary E. Rudisill, and Jacqueline D. Goodway

In Part II of this study, we examined the effect of two 9-week instructional climates (low-autonomy [LA] and mastery motivational climate [MMC]) on perceived physical competence (PPC) in preschoolers (N = 117). Participants were randomly assigned to an LA, MMC, or comparison group. PPC was assessed by a pretest, posttest, and retention test with the Pictorial Scale of Perceived Competence and Social Acceptance. A significant Treatment $\times$ Time interaction ($p < .001$) was present, supporting that MMC participants reported significantly higher PPC scores over time, while no positive changes were present in LA and comparison participants. The results show that an MMC leads to psychological benefits related to achievement motivation. These findings should encourage early childhood educators to consider the effect of instructional climates on children's self-perception.

Key words: low autonomy, mastery climate, motivational climates, psychological benefits

Positive environmental influences adopted within instructional climates provide an important source of competence information from which children can learn to enjoy movement experiences, as well as feel better about their competence (Weiss, 1995). For example, motivational climates can influence the learners' goals, as well as their perceptions, attitudes, behaviors, and future engagement in activities (Ames, 1992a, 1992b; Martin, Rudisill, & Hastie, 2009; Valentini & Rudisill, 2004). Learners who experience a mastery motivational climate (MMC) receive opportunities that accommodate a variety of ability levels while promoting individual accomplishments. Although there is support for the notion that MMCs promote perceptions of competence and achievement motivation, additional research is essential if educators are to understand this effect when it comes to designing optimal learning environments.

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Part I of this study addressed the effects of instructional climates (low autonomy [LA] and MMC) on object-control (OC) skill development in preschoolers who are at risk of developmental delays and poor health (Robinson & Goodway, 2009). The results from Part I suggest that regardless of instructional climates, LA or MMC, developmentally and instructionally appropriate motor instruction will lead to motor skill learning in preschoolers. This study (Part II) examined the effects of LA and MMC instructional climates on the perceived physical competence (PPC) of the same sample of preschoolers.

Work by Harter (1978, 1982, 1988) supported the idea that one's perception of competence better predicts future motivation and participation than one's actual competence. The connection between competence perception and future behaviors is critically important as it relates to current health trends in the United States. Research indicates that children are not as interested and are participating less in physical education and activity compared to years past (U.S. Department of Health and Human Services [USDHHS], 2004). This research also showed that children are adopting sedentary lifestyles early in life. This decrease in physical activity among children and in their desire to be physically active provokes great concern from a health perspective because sedentary behaviors in childhood contribute to sedentary behaviors later in life (Centers for Disease Control and Prevention [CDC], 2000; USDHHS). Investigating children at risk for devel-

opmental delays and poor health emerged in response to research findings suggesting these children could be susceptible to dropping out of movement programs and sport settings (Dweck, 1998). As Ames (1992a) observed, "there are some children who have few skills, are often physically awkward or cognitively unprepared for learning, lack self-confidence, and are fearful about making a commitment" (p. 170). Therefore, concern for children at risk goes beyond the actual delay itself and includes concerns about motivation and attitudes toward physical activities (Harter, 1982, 1988; Nicholls, 1984; Roberts, 1992).

According to the *Active Start* guidelines, preschool-age children should engage in a planned movement and physical activity program for at least 60 min daily (National Association for Sports and Physical Education [NASPE], 2002). More important, these programs should be designed to motivate and engage young children to participate in developmentally appropriate activities and tasks. One approach to promote motivation and learning that received considerable attention over the past decade is the implementation of MMC in educational settings (Ames, 1992a, 1992b). Researchers suggest that young children are naturally motivated to master physical tasks and movements, if exposed to mastery-oriented environments (Barrett & Morgan, 1995). According to White (1959), young children have an innate desire, curiosity, and intrinsic motivation to learn about their environment. From birth, this desire to achieve competence is driven by feelings of pleasure and efficacy that result from successfully mastering a skill. Mastery motivation originates without the need for extrinsic rewards and motivates children to attempt to master moderately challenging skills or tasks because of an intrinsic interest in the mastery process (Valentini & Rudisill, 2004). Hauser-Cram (1998) proposed three basic tenets of mastery motivation: (a) children have an innate, intrinsic drive to master tasks without adult influence; (b) mastery-motivated children persist to mastery a task even in the face of challenge or failure; and (c) children independently select moderately challenging tasks to master without adult intervention. According to Morgan and Yang (1995), early development of mastery motivation is a precursor to future achievement motivation and should be promoted during the early years. Additionally, other researchers suggested that teachers greatly influence a child's mastery motivation (Hauser-Cram, 1998). Teachers can increase young children's motivation to master objects, social interactions, and motor skills by supporting child autonomy through modeling mastery motivation, creating a stimulating environment, and providing positive and corrective feedback directed toward involvement in challenging tasks (Harter, 1982, 1988; Hauser-Cram, 1998; Robinson, 2007; Martin et al., 2009; Valentini & Rudisill, 2004). By creating mastery-oriented approaches to learning, early childhood teachers can nurture a child's intrinsic drive to learn.

The MMC stems from achievement goal theory (Ames, 1992a, 1992b; Nicholls, 1984) and supports the belief that children's experiences and how they interpret their experiences influence their adoption of a mastery or performance orientation. It assumes that context influences achievement behaviors. For example, to believe that effort and success are correlated, to persist when facing difficulties and failure, and to value the learning process are behaviors adopted by learners in mastery-oriented climates (Dunn, 2000; Maehr, 1983, 1984; Ntoumanis & Biddle, 1999; Parish & Treasure, 2003; Treasure, 1997; Yoo, 1999). Some adaptive behaviors demonstrated by these learners include engaging in physical activity, intrinsic motivation toward physical activity, adherence to activity, intentions to be physically active in the future, positive affect and high perceived competence regarding physical activity, and a belief that effort and ability lead to success. On the other hand, maladaptive patterns of motivation, such as focusing on individual ability and sense of self-worth, surpassing normative-based standards, and giving up when facing difficulties or failure, are adopted in performance-oriented climates (Dunn; Maehr, 1983, 1984; Ntoumanis & Biddle; Parish & Treasure; Treasure; Yoo). These studies found that learners often engaged in maladaptive behaviors such as low physical activity, extrinsic motivation toward physical activity, negative attitudes, boredom, low perceived competence in physical activity, and a belief that ability leads to success.

The construct of perceptions of competence is a determinant within achievement settings, and it influences the type of orientation an individual adopts. In 1959, White introduced the concept of competence and its potential effect on motivation. White suggested that feelings of competence, efficacy, pleasure, and joy are experienced when performance outcomes are positive. These feelings motivate the individual and increase his or her persistence with a specific activity. Harter (1978, 1982) expanded White's effectance motivation theory, proposing a motivational framework that emphasized perceived competence. According to Harter's (1978) model of perceived competence, intrinsic motivation is highly related to a child's sense of competence in the classroom. The motive to participate or continue participation may be mediated by an individual's perception of competence toward a task or activity (Ulrich, 1987). Generally, individuals who perceive themselves as highly competent in a given domain (e.g., cognitive, social, and/or physical) are more intrinsically motivated to continue engaging in activities and are more likely to work hard. Other motivational theorists (Deci & Ryan, 2000; Dweck, 1998; Nicholls, 1984) share Harter's emphasis on perceived competence and its importance within the motivational process.

Based on achievement motivation, recent research in educational and sport settings has been driven by the theory that achievement behavior is enhanced when the

motivational climate incorporates a mastery orientation and high-autonomy environment for learners. Several studies representing a range of age groups in educational climates suggested that (a) elementary (Theeboom, De Knop, & Weiss, 1995) and middle school (Parish & Treasure, 2003) students who perceived classroom learning as mastery-oriented enjoyed the class significantly more than those who perceived it as performance-oriented; (b) sixth- (Treasure & Roberts, 2001), seventh- (Solmon, 1996; Treasure & Roberts, 2001), and eighth-grade (Solmon, 1996) students who perceived a climate of high mastery orientation reported a positive attitude toward the class, high perceived ability, the belief that effort and ability cause success, and feelings of satisfaction; and (c) high school students in mastery environments believed success was achieved through intrinsic interest, effort, and cooperation (Seifriz, Duda, & Chi, 1992; Walling & Duda, 1995). This supports the idea that interventions designed to increase the frequency and quality of a mastery-oriented learning environment through high autonomy will result in high achievement motivation for all learners.

Most studies promoting mastery climates are theoretically grounded in the work of Epstein (1988, 1989) and Ames (1992a, 1992b). Epstein proposed that a comprehensive plan for influencing children's motivation over the long term could be achieved by identifying principles and strategies based on six dimensions of the learning environment, known as the TARGET structure. The acronym TARGET (see Table 1) represents the components of task, authority, recognition, grouping, evaluation, and time. A more detailed description of these components is presented in Part I (Robinson & Goodway, 2009).

Although mastery climate studies have shown promising results, researchers need to address several emergent issues, which include the behavioral and psychological responses of young children exposed to mastery climate interventions and the long-term influences of this climate. To date, limited research has focused on investigating the short- and long-term influence of mastery interventions on motor skill development and PPC in preschool and school-age children. These studies revealed that an MMC intervention led to improvements in motor skill

Table 1. Summary of mastery motivational and low autonomy climates in relation to the task, authority, recognition, grouping, evaluation, and time components

TARGET structure	Mastery motivational climate	Low autonomy
Task (type of task and task choices)	1. Equipment laid out and developmentally appropriate activities set up in stations by the teacher. 2. Freedom to explore & perform task at each station in various ways, thus, multiple tasks per station. 3. Each station incorporates multiple challenge levels.	1. Equipment laid out & developmentally appropriate activities set up in stations by teacher. 2. Little freedom to explore and perform tasks in various ways, therefore, only one task per station. 3. Each station incorporates one challenge level.
Authority (autonomy, distribution of authority)	1. Opportunities for students to participate in creating the rules for appropriate behavior. 2. Opportunities for leadership roles 3. Freedom for students to choose stations and challenge level. 4. Teacher facilitates student learning. Students dictate the learning process.	1. Teacher presents rules of appropriate behavior to students. 2. No opportunities for leadership roles. 3. No freedom for students to choose stations and challenge level. 4. Teacher directs learning. 5. Students not involved in learning process.
Recognition (reward structure)	1. Daily personal recognition of students' effort, learning, accomplishments, and/or improvement.	1. Daily personal recognition of students' effort, learning, accomplishments, and/or improvement.
Grouping (grouping structures that emerge)	1. Students group themselves. 2. Grouping may vary throughout the play session.	1. Teacher groups students. 2. Grouping remains same throughout play session.
Evaluation (implementation of evaluation)	1. Knowledge of performance and results embedded within the station and task. 2. Teacher evaluates effort and process.	1. Knowledge of performance and results embedded within the station and task. 2. Teacher evaluates performance outcome.
Time (time constraints on learning and skill mastery)	1. Students determine length of practice time per station. 2. Length of practice time varies for each station.	1. Teacher determines length of practice time per station. 2. Length of practice time is equal for each station.

Note. TARGET = task, authority, recognition, grouping, evaluation, and time components; permission granted to adapt table from Valentini, N. C., Rudisill, M. E., & Goodway, J. D. (1999). *Teaching Elementary Physical Education*, 10, 6–10.

development in preschoolers (Robinson, 2007; Robinson & Goodway, 2009), kindergartners (Martin et al., 2009; Valentini & Rudisill, 2004), and children ages 7–12 years (Theeboom et al., 1995; Valentini & Rudisill) and to significant increases in feelings of competence among kindergartners (Valentini & Rudisill) and children ages 8–12 years (Parish & Treasure, 2003; Theeboom et al.).

Few studies have investigated motor skill interventions or instructional climates on young children's perceived competence (Goodway & Rudisill, 1996; Valentini & Rudisill, 2004). Goodway and Rudisill found that a 12-week motor skill intervention program using direct instruction resulted in significantly higher PPC compared to a control group of African American preschoolers at risk for developmental delays and educational failure. A more recent two-experiment study by Valentini and Rudisill examined the effects of motivational climate on PPC in kindergarten children with developmental delays. In Experiment 1, two intervention groups were exposed to environments with either high (mastery climate) or low autonomy for 12 weeks. Results showed the mastery-climate group demonstrated significantly higher PPC postintervention than the low-autonomy group. Experiment 2 extended those findings by examining the intervention effects over time (i.e., 6 months). The mastery-climate group continued to demonstrate positive changes in PPC. Although the findings indicated a mastery climate intervention resulted in increased PPC, a flaw in the design limited the conclusions that could be made about this variable. Comparisons were not made between the two intervention groups. The mastery climate group's perceptions of competence were tracked over the 6-month period, but the low-autonomy group was not. The authors proposed that future research should examine the effects of instructional climates on PPC and how perceptions change over time.

The purpose of this study was to investigate the effects of two 9-week (eighteen 30-min sessions) instructional climates, LA and MMC, on PPC in preschoolers who are at risk of developmental delays and poor health. To determine the short-term and long-term effects of the instructional climates, PPC was measured before and immediately after the intervention, as well as 9 weeks after the intervention. It was hypothesized that MMC participants would report higher PPC directly following the completion of the intervention, when compared to the LA and comparison participants, and that this difference would still be present 9 weeks following the intervention.

Method

Participants and Settings

The same settings and participants ($N = 124$) from Part I (Robinson & Goodway, 2009) of the study were

used in Part II (see methods in Part I for specific descriptions of the settings and participants).

Instrumentation

The dependent variable for the study was PPC, which was assessed through Harter and Pike's (1984) Pictorial Scale of Perceived Competence and Social Acceptance (PSPCSA) for preschool- and kindergarten-age children. The PSPCSA is a 4-point scale that contains four subscales (perceived cognitive competence, perceived physical competence, perceived maternal acceptance, and perceived social acceptance) which make up the constructs of one's perceived competence and social acceptance. Each subscale consists of six items presented on pictorial plates that represent one's specific sex (girl or boy) and race/ethnicity (Black, White, or Hispanic). The PPC assessed the child's perceived competence in running, hopping, swinging, climbing, tying shoelaces, and skipping. On each pictorial plate, two pictures were displayed side by side; one picture depicts a child who is competent in a particular task, and the other depicts a child who is not competent. First the child selects the picture that is more like him- or herself. Then the child focuses on the selected picture and indicates whether she or he is just a little bit like the child in the picture or a lot like the child in the picture. The range of scores for each item on the subscale is 1 (low competence) to 4 (high competence). Internal consistency for the individual subscale ranges from .65 to .89, with a reliability of .86 for the combined subscale measure. The reliability of the total scale is .89 (Harter & Pike). Each participant followed the standardized procedures for the PSPCSA. The primary investigator administered all the PPC assessments for each testing period (pretest, posttest, and retention test).

Design and Implementation

This study was an extension of Part I (Robinson & Goodway, 2009); an overview of the instructional climates and alignment to the TARGET structures are provided in Table 1. A more detailed description of the implementation of the comparison (i.e., unstructured free-play) session, motor skill intervention, instructional climates, treatment integrity, and research design are found in the methods section of Part I (Robinson & Goodway).

Procedures

Informed parental and participant assent was obtained for the children ($N = 124$). During the study, 7 preschoolers withdrew from the preschool program, resulting in 117 participants completing the entire study from pretest to retention, LA ($n = 38$), MMC ($n = 39$), and comparison ($n = 40$). Participants were assessed using the PPC subscale of the PSPCSA before the start of the instruc-

tional intervention. This was followed by the 9-week motor skill intervention, consisting of eighteen 30-min sessions of OC skill instruction through an LA or MMC approach. Posttest data were collected the week following the 9-week intervention. Nine weeks after the intervention, retention tests were completed on the participants' PPC. During the course of this study, all instructional and testing sessions were videotaped. The standardized testing protocol of the PSPCSA was followed (Harter & Pike, 1984).

Data Analysis

A 3 Treatment (LA, MMC, Comparison) $\times$ 3 Time (Pre, Post, Retention) analysis of variance (ANOVA) with repeated measures on time was used to examine the main effect of instructional climate on PPC. Where a significant interaction effect was reported, a follow-up Tukey analysis was performed. If significant, then simple main effects follow-up tests were completed to examine whether there were significant differences between and within groups over time. Statistical Package for the Social Sciences (SPSS) 15.0.1 for Windows was used, and alpha was set at $p = .05$ for all analyses.

Results

Influence of Instructional Climates on PPC

Figure 1 illustrates the changes in PPC scores over time for the three treatments. The ANOVA revealed sig-

nificant main effects of time, $F(2, 228) = 41.71, p = .001, \eta^2 = .27$; and treatment, $F(2, 114) = 44.75, p = .001, \eta^2 = .44$; and a significant Treatment $\times$ Time interaction, $F(4, 228) = 45.76, p = .001, \eta^2 = .45$. In regard to the Treatment $\times$ Time interaction, 45% of the pretest to retention changes in PPC could be attributed the instructional climate.

Between-Group Differences. The simple main-effects tests revealed no statistically significant difference, $F(2, 114) = 1.88, p = .17$, in PPC scores before the start of the intervention between LA ($M = 2.52, SD = .57$), MMC ($M = 2.63, SD = .67$), and comparison ($M = 2.36, SD = .63$) participants. At the posttest, statistically significant differences were found in PPC scores, $F(2, 114) = 62.75, p = .001$. Post hoc Tukey analysis confirm that MMC ($M = 3.63, SD = .33$) participants demonstrated significantly higher PPC scores compared to the LA ($M = 2.62, SD = .59, p = .001$) and comparison ($M = 2.40, SD = .62, p = .001$) groups. The post hoc analysis also indicated that LA and comparison participants demonstrated no significant differences in PPC at posttest ($p = .16$). Main effects tests were also conducted on the retention test scores. These findings revealed statistically significant differences in retention scores, $F(2, 114) = 107.169, p = .001$, between groups. The post hoc Tukey analysis showed that MMC ($M = 3.62, SD = .34$) participants reported significantly higher PPC scores compared to LA ($M = 2.23, SD = .45, p = .001$) and comparison ($M = 2.38, SD = .57, p = .001$) participants. Post hoc analysis also indicated that LA and comparison participants demonstrated no significant differences in PPC at the retention test ($p = .31$).

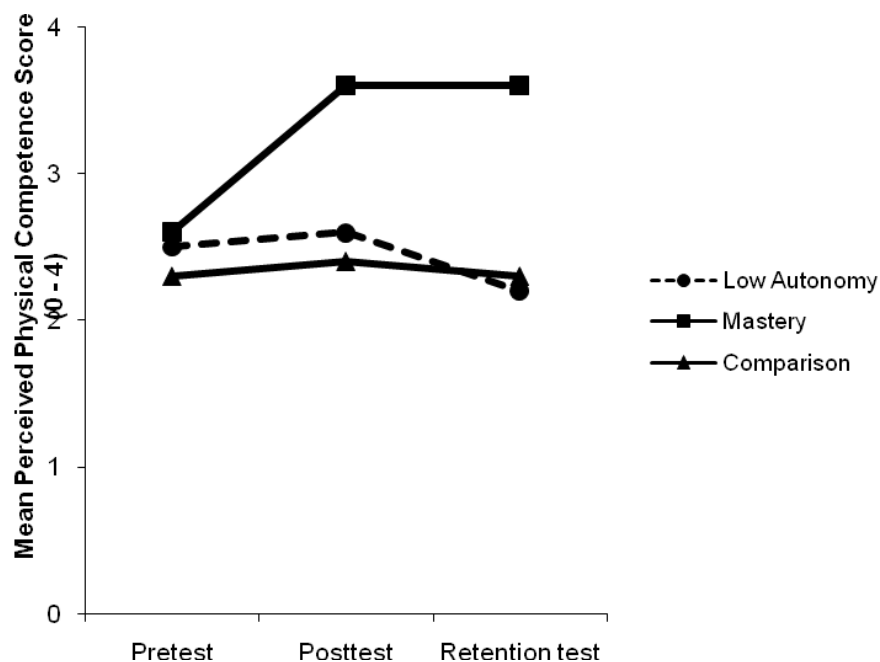


Figure 1. Changes in mean perceived physical competence over time by treatment.

Within-Group Differences. In addition to examining group difference in PPC over time, it was valuable to assess changes across time from pretest to posttest and from posttest to retention test using paired sample *t*-tests. A Bonferroni adjustment of the alpha was calculated at .0025 ($p/2$) to control for a Type I error. Paired sample *t* test revealed that PPC scores significantly improved from pretest to posttest for MMC participants, $t(38) = -10.20$, $p = .001$, while the LA, $t(37) = -2.78$, $p = .01$, and comparison, $t(39) = -2.61$, $p = .01$, participants demonstrated no changes over time in PPC scores. The results support the conclusion that PPC scores improved because of MMC instruction. As expected, the MMC, $t(38) = 1.00$, $p = .32$, and comparison, $t(39) = .55$, $p = .59$, participants did not change in their PPC scores from posttest to retention test. However, examination of posttest to retention test PPC scores for the LA, $t(37) = 3.56$, $p = .001$, participants revealed some interesting findings. The LA group PPC scores significantly decreased from posttest to retention test.

Within-group differences support that MMC participants demonstrated positive changes in their PPC scores from pretest ($M = 2.64$, $SD = .68$) to posttest ($M = 3.63$, $SD = .33$), and those changes were maintained at retention ($M = 3.62$, $SD = .33$). For the comparison participants, no changes in their PPC scores were present from pretest ($M = 2.36$, $SD = .63$) to posttest ($M = 2.40$, $SD = .62$), and their scores remained the same at retention ($M = 2.38$, $SD = .57$). Participants in the LA instructional climate demonstrated no change in PPC scores from pretest ($M = 2.50$, $SD = .57$) to posttest ($M = 2.63$, $SD = .60$). However, a significant decrease in LA participants' PPC occurred from posttest to retention test ($M = 2.23$, $SD = .45$). The findings demonstrate that the mastery climate benefited the PPC of the young children, while the low-autonomy climate and unstructured free-play recess appeared to have neither a positive nor a negative effect on a child's perceived competence.

Discussion

The purpose of this study was to examine the short- and long-term influence of two 9-week (18 sessions) instructional climates, LA and MMC, on PPC in preschoolers who are at risk of developmental delays and poor health. This study hypothesized that (a) MMC participants would report higher PPC immediately following an intervention compared to the LA and comparison participants, and (b) differences would be present 9 weeks after the intervention.

The Influence of Instructional Climates on PPC

Valentini and Rudisill (2004) were the only researchers to examine the effect of two instructional climates on

PPC in young children. They found that mastery climates resulted in positive changes to one's PPC, but did not assess the long-term effects of an LA climate. They encouraged researchers to examine the effect of instructional climates on perceived competence over time. The findings from our study align with and expand those of Valentini and Rudisill. The data indicate that the mastery climate enhanced the perception of competence in preschool-age children at risk of developmental delays and poor health. The findings demonstrate that participants exposed to a mastery climate exhibited significantly higher PPC compared to other participants (LA and comparison), and they maintained their gains over time. For the LA and comparison participants, no positive changes were reported in PPC, implying that these learning environments did not affect preschoolers' self-perceptions. Early in a child's life, judgment is made regarding one's abilities and capabilities (Harter, 1978, 1988; Stipek & Mac Iver, 1989). This judgment is often determined by the value an individual places on success along with interactions with others (Harter, 1978, 1988; Stipek & Mac Iver). In educational settings, interactions often occur with teachers and peers. In the MMC, participants received a developmentally appropriate learning environment, with a variety of tasks and activities for a range of ability/skill levels. This environment enabled participants to navigate independently, decide how they would participate, and practice at their own pace, and it provided them the opportunity to experience success. These factors, along with the encouraging feedback from instructors, may have led to learners developing a positive view about themselves and their PPC. According to achievement goal theory, the learners' perception of competence is a good indicator of how they will engage in future motor learning opportunities. The present findings suggest participants exposed to the MMC demonstrated heightened PPC and were more likely to engage in future motor activities (Ames, 1992a; Harter, 1982; Nicholls, 1984; Roberts, 1992).

The MMC participants demonstrated positive changes in PPC over time while the LA and unstructured free-play climates did not provide psychological benefits. Specifically, the comparison participants demonstrated no changes in PPC, while the LA participants demonstrated a significant decrease in their PPC over time. It is interesting to note that in Part I (Robinson & Goodway, 2009), LA participants and MMC participants demonstrated similar and significant gains in terms of OC skill learning from pretest to retention test. However, the same is not true of their perceived competence. It appears that the LA instructional climate may be more damaging to participants' self-perceptions. The achievement motivation literature implies that these individuals might be at risk of losing interest and motivation to persist in future motor behavior and physical activity settings (Ames, 1992a; Dweck, 1998; Harter, 1982; Nicholls, 1984; Roberts, 1992).

This is a major concern because most educational settings are taught using an LA climate.

Instruction for the MMC was based on the Ames's (1992a) TARGET structures. In this learning environment, students were offered a variety of tasks that ranged in levels of difficulty. This enabled preschoolers to explore different ways to learn movement. The preschoolers freely participated and learned within the setting that was designed to enhance their motivation and interest in skill learning while emphasizing hard work and effort. All participants were encouraged to put forth effort and to progress toward the learning goals. The participants worked at their own pace, either alone, in pairs, or in groups, resulting in an instructional climate that accommodated both fast and slow learners. These components were unique to the MMC instructional approach and distinguished it from LA and comparison environments. These components contributed to the positive psychological benefits reported by the preschoolers. A more detailed description of the TARGET structures from this intervention appears in Robinson and Goodway (2009).

Another major issue pertains to the comparison participants who received an unstructured free-play period. These individuals did not exhibit any developmental changes in their OC skills (see Part I results; Robinson & Goodway, 2009), nor positive changes in their PPC. Earlier work from Ames (1992a) suggests that "children who have few skills, are often physically awkward or cognitively unprepared for learning, lack self-confidence, and are fearful about making a commitment" (p. 170). The comparison participants received a high-autonomy, free-play environment with no teacher-facilitated instruction. The preschoolers received motor skill equipment and time to play and interact at their own will. Results from this study support the idea that high-autonomy environments are not the same as planned, high-autonomy MMC environments with teacher-facilitated instruction from a motivational perspective. Some form of instruction and teaching are needed for young children to advance their motor skill development (Martin et al., 2009; Robinson, 2007; Robinson & Goodway, 2009; Theeboom et al., 1995; Valentini & Rudisill, 2004) and achievement motivation (Theeboom et al.; Valentini & Rudisill).

Future Research

Mastery climates provide learners with value through meaningful and self-directed learning opportunities (Ames, 1992b, p. 266). Our findings support that MMC positively shaped the preschoolers' patterns of motivation and competence, which led them to develop a positive view of themselves regarding their physical competence. The present study supports the idea that mastery climates lead to higher PPC in preschoolers who are at risk of developmental delays and poor health. It is imperative

that early childhood teachers and administrators become more aware of the effect that instructional climates have on young learners.

Future work should explore what specific aspects within learning environments influence children's self-perception. It would also be beneficial to understand the relationship of self-perception to physical activity participation. It is unclear whether changes in instructional climates would subsequently lead to an increase in physical activity. This could be of major interest, because one-third of preschool-age children are overweight (Mason et al., 2006) and therefore subject to numerous associated health risks. By expanding this line of inquiry, we may come to understand more about the interrelationship of motor skill development, PPC, and physical activity.

General Conclusions

Part I and Part II support the hypothesis that mastery motivational climates are advantageous to a child's motoric (Robinson, 2007; Robinson & Goodway, 2009) and psychological development, leading to higher motivation, achievement, and skill learning in preschool-age children. These two dimensions, the motoric and the psychological, aid children to become competent movers while developing an appreciation for movement activities. The findings from Part II align with the literature and demonstrate that mastery climate instructional approaches lead to psychological benefits and achievement motivation in young children. With a major concern being children's loss of interest in physical activity, movement, and physical education settings, the implementation of high-autonomy, MMC in movement programs seems appropriate for this population.

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