

MASTERY MOTIVATIONAL CLIMATE APPROACH IN MOTOR SKILL PROGRAM FOR CHILDREN: IS THAT APPLICABLE

Ruri Famelia
Padang State University

Abstract : A mastery motivational climate (MMC) is an approach that frequently used by motor developmentalists in their research of motor skill programs for children. The objective of this article is to review some aspects related to implementing MMC approaches for young children in real school settings. A review of nine published articles from five databases indicates that MMC significantly promote children's motor proficiency and perceived motor competence compared to free play activities or direct instructional approach. Also, MMC excels in emerging children enjoyment in physical education class. However, MMC approach has some issues in the program design related to time allotment and instructors, which hamper the applicability of MMC at schools. Future research is expected to provide more supporting information to help teachers in implementing motor skill program to children appropriately.

1. Introduction

Physical activities, nowadays, have become interest for motor developmentalists related to overweight and obese cases. They believe that fundamental motor skills influence physical activities because those skills provide more opportunities for people to be engaged in any physical activities or sports. A fundamental motor skill is a "base camp" of later complex movement skills (Clark & Metcalfe, 2002), which should be developed before 7 years old (Gallahue, Ozmun & Goodway, 2012). Considering this concern, much research has been done in motor skill programs with various approaches for children to get enough information to support this assumption.

A common assumption about fundamental motor skills is it can emerge naturally during childhood. Nevertheless, much research reveals that fundamental motor skills should be learned, practiced and reinforced. Children who experience motor skill programs improve their motor skills better than free play activities. (Goodway & Branta 2003; Valentini & Rudisill 2004; Robinson & Goodway, 2009; Goodway, Crowe, & Ward, 2003). A locomotor skill, which is a skill for moving a part or whole body from one point to another, usually some of those skills can be mastered naturally. However, object control skills need to be taught systematically during childhood in order to be able to execute those skills maturely.

Hence, a developmentally appropriate motor skill program would ensure children promote their motor skills to the mature level in harmony with their body development.

Much research has been conducted to formulate the most appropriate motor skill programs. Those programs are along with children motor development. Motor developmentalists have designed many motor skill programs with different approaches. Direct instructional (a.k.a low autonomy) and mastery motivational climate (a.k.a high autonomy) are more favorable to be implemented in school settings, including in preschools, kindergarten and elementary schools. Direct instructional is a kind of traditional approach where teacher directs students during the lesson time, while mastery motivational climate is a kind of new approach that break through a traditional thought about teaching, in which students are able to direct themselves during lesson time.

In general, mastery motivational instructional, also known as high autonomy, is a student-centered approach. This approach focuses on effort and improvement. This approach rooted from Ames (1992a, 1992b) work who introduced six dimensional of principles and strategy in mastery motivational climate. Those six principles are Task, Authority, Recognition, Grouping, Evaluation, and Time, which are abbreviated become TARGET (Table 1) which identify. Teachers design lesson plans for each session and create some stations. Each station administers one skill with different levels. Children group themselves and choose their station based on their willingness. Teachers can not determine the duration for children spending in one station, but teachers are supposed to give some feedback to children to improve their motor skill experience. Mastery method gives a wide opportunity for children in participating to create the rules. Teacher still have an authority to determine the behavior rules and share their authority with children in time allotment for practicing the skills.

Considering this phenomena, it is interesting to find out the effectiveness of mastery motivational approach, since this approach has different orientations in motor skills learning process. The review of this model is essential to provide relevant information for teachers in deciding which approach to be implemented in their schools. Therefore, the purpose of this study is to analyze mastery motivational approaches based on the program design and the effect of the program to young children's motor skills. Hence, this study is limited to motor skills program for kindergarten and elementary school students.

2. Method

A literature search for mastery motivational climate approach of motor skill intervention for elementary school students was conducted from five data

bases (Pubmed, PsycInfo, SportDiscus, ERIC and Academic Search Complete). No date range was specified to include all possible years of publication specific to each database. Searches were conducted using single and combined terms. Ten articles, one of them is theoretical article, were selected by the following inclusion criteria: (1) mastery motivational, (2) motor skills, (3) young children (preschool, kindergarten and elementary schools students), (4) quantitative, qualitative and single subject, (5) Typically developing and developmental delay, and (6) original data. The articles were excluded based on these criteria: (1) children over 12 years, and (2) children with disability (autism, ADHD, Learning disabilities, intellectual disabilities). The analysis investigated articles based on the quality of studies statistically, the effect of mastery motivational climate to children motor competence and perceive motor competence, and the design of mastery motivational approach.

3. Results and Discussion

The review of methodological approach in studies

In term of methodological section, it can be concluded that most of articles have a quasi pre-posttest experiment and four of them with the retention test. The sample size varied from 20 children to 119 children. Also there is a study that use physical education teacher as the sample Ping, McBride, & Solmon, (2003) to investigate how teacher implemented mastery motivational climate approach to second and fourth grade elementary students. Almost all studies had researcher delivered the intervention to students, except a study of Ping, McBride, & Solmon, (2003). Furthermore, majority of participants were children with developmental delay or at risk condition (Table.1). At risk condition means children who are more likely to be failed academically because of their circumstance, such as low socioeconomic status, living in a single parent home, below average grade at schools, and living in a poor neighborhood.

From research 9 articles that had been analyzed, all studies had used valid and reliable instruments for motor skill assessment (Test of Gross Motor Development-TGMD-1 and TGMD-2) and perceived motor competence (Harter pictorial scale). However, instruments for assessing cortisol level, physical activity heart rate, and survey with questionnaire were reported reliable only, no validity evidences were reported. Samples of research were children from preschools, kindergartens and elementary schools who mostly were from low social economy status or developmental delayed. For analyzing data, all studies analyzed the data by using appropriate statistics, but only half of them followed by effect size scores.

The effect of mastery motivational climate approaches in children's motor skill competence and perceived motor competence

Motor competence is defined by Stodden et al. (2008) as “the proficiency in fundamental motor skills, including locomotor and object control skills.” Based on those articles, MMC approach seems significantly improve children’s motor competence (locomotor and object control skills) (Martin, Rudisill & Hastie, 2009; Robinson, 2011; Robinson & Goodway, 2009; Valentini & Rudisill, 2004) and perceived motor competence (Robinson & Goodway, 2009; Robinson, Rudisill, & Goodway, 2009; Valentini & Rudisill, 2004), even better than free play activities and direct instructional (traditional) approaches. A locomotor skill is a skill for moving a part or whole body from one point to another, such as running, skipping, leaping, galloping, jumping and hopping. An object control skill is a skill to manipulate an object, such as throwing, catching, striking, and rolling a ball. High autonomy in MMC ignites a self confidence that they are able to perform motor skills well, so it increases children’s perceived motor competence. Moreover, MMC is proved increase children physical activity heart rate, which indicates that children are more active in MMC compared to free play activities (Parish, Rudisill, & Onge, 2007). However, one article which evaluated the implementation of MMC by physical education teacher at elementary schools claims that teacher blended MMC with direct instructional (traditional) approach in class (Ping, McBride, & Solmon, 2003).

Table 1. Description of analyzed-articles

Study	Research design	Group of intervention	Sample type	Sample size (children)	Intervention Instructors	Intervention dose
Martin, Rudisill, & Hastie.(2009)	quasi experimental design,pre-post.	MMC group DI group	Developmental delay	64 (30 boys, 34 girls), age 5 yrs	Researchers	6 weeks, 5x/week, 30 min/session.
Parish, Rudisill, &St. Onge, (2007).	pretest-posttest randomized selection.	1.MMC 2.Free Play	Not explained	21 (11 boys, 10 girls), age 2-3 yrs	Researcher	3 week, 6 session of MMC and 6 free play, 30 min/session.
Ping, McBride, & Solmon, (2003).	Mix method, pretest-posttest	1.MMC No comparison	Teacher of elementary school	10 elementary PE teacher (5 males and 5 females) of 2nd and 4th grade	Teacher	4 lessons per teacher
Robinson. (2011).	quasi experimental design, pre-post, retention test	1.MMC 2.DI 3.Control	At risk	40 (24 boys, 16 girls), age 4-5 yrs	researcher	9 weeks, 18 sessions, 30 mins/session
Robinson, & Goodway. (2009).	quasi experimental design, pre, post, retention.	1.MMC 2.DI 3.Control	At risk	117 (63 boys, 54 girls), age 4 yrs	researcher	9 weeks, 18 sessions, 30 min/session.
Robinson, Rudisill, & Goodway. (2009).	pretest-posttest randomized comparison group design, retention test.	1.MMC 2.DI 3.Control	At risk	117 (63 boys, 54 girls), age 4-5 yrs	researcher	9 weeks, 18 sessions, 30 min/session.
Theeboom, & De.(1995).	pretest-posttest randomized assignment	1.MMC 2.DI	Not explained	119 (73 boys, 46 girls) age 8-12 yrs	Researcher	6 week, every day, 40 min/session.

Valentini, & Rudisill. (2004).	quasi- experimental design pre-post- retention	1.MMC 2.DI	Developmental delay	106 (45 boys, 61 girls), age 5-6 yrs	Researchers	12-weeks, 24, 35 min session, 6 month retention.
Wall, Rudisill, & Gladden. (2009).	pretest-posttest randomized selection	1.MMC 2.Free play	At risk	22 (10 boys, 12 girls) age 2.2-4 yrs	Researchers	One day, 30 min.

Moreover, some studies compared direct instructional approach to mastery motivational approach. To demonstrate, Valentini & Rudisill (2004) implemented both direct instructional and mastery motivational approach to compare their hypotheses. They found that mastery motivational climate significantly improve children's locomotor skills compared to direct instructional approach, while both approaches improve children's object control with no significant different. The strength of this study is conducting a retention test six months after intervention and argued that children who received mastery motivational approach could retain their fundamental motor skills significantly higher than children in direct instructional approach.

Mastery motivational climate approaches in relation with children's perceived motor competence

Experts have come up with the hypotheses that the feeling of being free in choosing any stations in mastery motivational approach contributes to children's motor skill performance. High autonomy ignites a self confidence that they are able to perform motor skills well. This feeling is known as perceive motor competence, which is defined as self perception of competence for a given task (Gallahue, Ozmun, & Goodway, 2012).

Valentini, & Rudisill (2004) also evaluated children perceived motor competence for both approaches and concluded that mastery motivational climate improved children's perceived motor competence significantly higher than direct instructional approach. Also this perceived motor competence in mastery motivational approach retains up to six month. They believed that by giving high autonomy to children to choose what they want to do and providing feedback to them would built a confidence of their ability in practicing motor skills and feel pleased to keep exercising longer as well.

The program design of mastery motivational approaches in motor skill program

Based on results from both approaches in promoting children's motor proficiency through motor skill programs provides us a sense that mastery motivational climate approach is a better approach to improve children's motor competence and perceived motor competence. However, it is very essential to analyze the replicability of both approaches onto motor skills program before deciding which approach is more appropriate. Generally, a replicable design should have clear information about all aspects related to the design. In motor skill program, researcher should describe clear information in term of time allocation, and the instructors.

Nevertheless, MMC approach has weaknesses in determining time allotment for each motor skill. High autonomy lets children to decide what station they choose and the length of time they spend their time to practice in that station. What researchers could design is what kind of skills that they want to implement, how they plan their activities in each session and how long each session is. The activity of children during practice time can not be tracked. This approach raises the difficulties in repetition of program by other researchers or teachers. It would be very likely that the results that Martin, Rudisill and Hastie (2009) and Valentini and Rudisill (2004) found were specific only for their participants or the condition and atmosphere in the place where the program was implemented. Moreover, every individual has different characteristics and self-motivation. Both aspects would contribute to variation in result for different children population.

Future research would consider the learning process during mastery motivational approach. Recording every session would help to find out what factors get involved among children in their practice, which is predicted as a significant factor that distinguish mastery motivational approach with direct instructional. Moreover, it would be a good method to track of time allotment in mastery motivational approach. Besides that, future research should involve teachers as instructors of the program after receiving training about motor development and motor learning. It is expected would be able to address issue about the replicability and generalization of research findings to real school settings.

Overall, even though MMC promises significant improvement in some aspects of movement in children, some data is still needed to support its applicability in the real settings at school. Today, if teachers implement MMC approach at school now, it will be more likely that the results would vary with what some researchers have found. Future research is expected to address some issues related to clarity of design program due to tie allotment and instructors of program.

References

- Ames, C. (1992a). Achievement goals, motivational climate, and motivational processes. In G. C. Roberts (Ed.). *Motivation in sport and exercise* (pp. 161-176). Champaign, IL: Human Kinetics.
- Ames, C. (1992b). Classroom: Goals, structures, and students motivation. *Journal of Educational Psychology, 84*, 261-271.
- Clark, J.E. & Metcalfe, J.M. (2002). The mountain of motor development: A metaphor. In J.E. Clark & J.H. Humphrey (Eds.), *Motor development: Research and reviews* (pp. 163-190). Reston, VA: NASPE Publications.

- Gallahue, D., Ozmun, J.C., and Goodway, J.D. (2012). *Understanding Motor Development: Infants, Children, Adolescents, Adults (7th ed.)*. New York: McGraw-Hill Companies, Inc.
- Goodway, J. D., & Branta, C. F. (2003). Influence of a Motor Skill Intervention on Fundamental Motor Skill Development of Disadvantaged Children. *Research Quarterly for Exercise and Sport*, 74, 1st ser., 36-46.
- Goodway, J. D., Crowe, H., & Ward, P. (2003). Effects of motor skill instruction of fundamental motor skill development. *Adapted Physical Activity Quarterly*, 20(3), 298.
- Martin, E. H., Rudisill, M. E., & Hastie, P. A. (2009). Motivational climate and fundamental motor skill performance in a naturalistic physical education setting. *Physical Education & Sport Pedagogy*, 14(3), 227-240.
- Parish, L. E., Rudisill, M. E., & St. Onge, P. M. (2007). Mastery motivational climate: Influence on physical play and heart rate in African American toddlers. *Research Quarterly for Exercise and Sport*, 78(3), 171-178.
- Ping, X., McBride, R. E., & Solmon, M. A. (2003). Motivational Climates in Ten Teachers' Elementary Physical Education Classes: An Achievement Goal Theory Approach. *Elementary School Journal*, 104(1), 71-91.
- Robinson, L. E. (2011). Effect of a Mastery Climate Motor Program on Object Control Skills and Perceived Physical Competence in Preschoolers. *Research Quarterly for Exercise and Sport*, 82 (2), 355-359.
- Robinson, L. E., & Goodway, J. D. (2009). Instructional climates in preschool children who are at-risk. part I: Object-control skill development. *Research Quarterly for Exercise & Sport*, 80(3), 533-542.
- Robinson, L. E., Rudisill, M. E., & Goodway, J. D. (2009). Instructional climates in preschool children who are at-risk. Part II: perceived physical competence. *Research Quarterly for Exercise and Sport*, 80(3), 543-551.
- Stodden, D. F., Goodway, J. D., Langendorfer, S. J., Robertson, M. A., Rudisill, M. E., Garcia, C., & Garcia, L. E. (May 01, 2008). A Developmental Perspective on the Role of Motor Skill Competence in Physical Activity: An Emergent Relationship. *Quest*, 60, 2, 290-306.
- Theeboom, M., & De, K. P. (1995). Motivational Climate, Psychological Responses, and Motor Skill Development in Children's Sport: A

Field-Based Intervention Study. *Journal of Sport & Exercise Psychology*, 17, 294-311.

Valentini, N., & Rudisill, M. (2004). Motivational climate, motor-skill development, and perceived competence: Two studies of developmentally delayed kindergarten children. *Journal of Teaching in Physical Education*, 23(3), 216-234.

Wall, S. J., Rudisill, M. E., & Gladden, L. B. (2009). Cortisol Response to Physical Activity in African American Toddlers Attending Full-Time Day Care. *Research Quarterly for Exercise and Sport*, 80(4), 739-746.