

## Measuring the quality of Movement-Play Scale in Greek Early Childhood Education settings\*

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### Abstract

Movement activities are crucial for the health and the overall development of young children. The purpose of this study was to evaluate the quality of the environment for movement activities in the Greek early childhood education (ECE) using the "Movement-Play Scale" (MPS) (Archer & Siraj, 2012; 2015a). This scale consists of three items, with 30 indicators: (i) Space & Resources, (ii) Adults engaging in movement with children, and (iii) Planning for movement-play from observations of children. Twenty trained assessors evaluated 338 kindergarten classrooms from 12 regional areas of Greece. Each classroom had approximately 20-30 children from 4 to 6 years old and 1 or 2 teachers. The results showed relatively low to medium scores on environment quality, indicating the need for improving the environment quality of movement and physical activity in Greek ECE. Further examination of the quality of the movement, play and physical activity environment in the Greek ECE system could provide an increased understanding of the factors that contribute to this quality or lack of it.

**Keywords:** environment quality, early childhood education, movement-play scale, kindergarten

### 1. 1. Introduction

Early years have been recognized as a critical time during which building blocks for all future development are shaped (Gabbard, 2000). The National Association of the Education of Young Children (NAEYC) (2009) reported that it is necessary to support children's development in all domains. However the physical development of young children is frequently a neglected domain in early childhood education curricula (Ignico, 1994; Stork & Sanders, 2008), although it is well-known that a child's body is considered as the primary learning center when it comes to building the foundations for future overall development and learning.

Research evidence has indicated that children's engagement in physical education and movement activities can help them in several different ways. The main aim of movement and physical education programs is the development of fundamental motor skills and abilities (Zachopoulou et al., 2006; Dowda et al., 2009),

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as motor skills do not mature on their own (Pica 2008). The ideal time to work on the development of fundamental movement skills is the early years (Gallahue & Ozmun, 1998). Many studies reinforce the view that an organized physical education program promotes motor development in preschool children (Derri et al., 2001; Kambas et al., 2005; Livonen et al., 2011) and is associated with important health benefits (Janz et al., 2001; 2004).

Health education and health-related fitness have always been considered as fundamental concepts in physical education and movement programs (Wetton, 2005). Healthy lifestyle awareness in early childhood is important taking into account that most healthy habits (i.e. dietary and exercise habits) are more easily adopted during preschool and first primary school years, and become increasingly difficult to be adopted as children progress into high school (Wetton, 2005). During early childhood, it is easier to introduce new attitudes and behaviors and to prevent obesity and sedentary life, than to change existing ones (Birch, et al., 2011).

Prevention of obesity and sedentary life in young children can contribute significantly toward both reversing the epidemic of childhood obesity and prompting children into a healthier way of life. Childhood obesity is considered as one of the most serious public health challenges of the 21<sup>st</sup> century with harmful and long-lasting consequences for children themselves, their families and the communities. The intensity of this phenomenon has dramatically increased over the last twenty years (WHO, 2011), while the prevalence and degree of overweight and obesity in preschool children (3- to 5-year olds) is increasing worldwide (Roelants, 2009; Wang, 2006). For example, Greece has one of the highest rates of children's' obesity among the European countries (Elmadfa, 2009). This kind of problem stresses even more the value and the merit of educational programs and interventions that focus on prevention. Moreover, most educational programs and initiatives to prevent childhood obesity and to teach children into more healthy ways of life should focus their attention on children under 6.

Apart from its contribution to the adoption of a healthier lifestyle, physical education programs and movement activities offer an ideal context for all sort of positive interactions, thus being a suitable environment for teaching social skills as well (Grammatikopoulos, Gregoriadis, & Zachopoulou, 2012; Grineski, 1996; Tjeerdsma, 1999). Physical education, through movement and play, can contribute a great extent to children's socialization, providing opportunities for the development of social interactions and self-esteem (Zachopoulou et al., 2007; Ward, 2010; Janz et al., 2010; Lobo & Winsler, 2006; Williams, 2008, Bailey et al., 2009; Eldar & Ayvazo,

2009; Hellison & Martinek, 2006). Movement activities provide numerous opportunities to develop children's positive social skills (e.g. Barbour, 1999; Dyson, 2001) through various interactions with others (e.g. sharing equipment, taking turns) (Quay & Jacqui, 2008). They also can function as a context for dialogue, cooperation and positive resolution of moral conflicts (Telama, 1999).

Moreover, movement activities could be a powerful tool to promote and activate preschoolers' creativity and imagination (Cheung, 2010), and strengthen their cognitive skills (Lupu, 2011), by empowering movement exploration, discovery, self-expression and problem solving skills (Zachopoulou et al., 2006). Young children's experimentation through movement exploration, guided discovery and creative problem solving, are widely accepted by scholars, researchers and preschool teachers (Davies, 2003; Pica, 2000; Sanders, 2002) as child-centered and developmentally appropriate teaching methods in ECE. Within the context of movement programs, children feel more comfortable to express themselves with less pressure and fear of giving a wrong answer or failing to complete a task. They have the opportunity to express their own ideas through various movements, to take more risks and to attempt to be original, innovative and creative.

However, creativity has a different significance across the curriculum, as it is argued that some subjects allow more "fertile" and offer more opportunities for the development of creativity than other. Excelling in science or math, where usually only one answer is right, means that a child is good at convergent thinking. On the other hand, excelling in arts or in physical education, where several solutions are available, means that a child is exhibiting divergent thinking (Craft, 2005). Moreover, Runco (2007) claimed that nonverbal figural tasks would be ideal for exercising creativity. Since movement programs are a domain where most tasks are nonverbal, it should be considered ideal for practicing creative thinking.

Despite the importance of movement activities and physical education programs for young children, it is a domain that is frequently neglected in early childhood education curricula (Stork & Sanders, 2008). Children's participation in such programs is crucial for their overall development, and it is further supported when this participation occurs in a high quality environment. Such an environment includes variables like indoor space, outdoor space, furniture, and room arrangement, and also one of the basic needs of all children which is the protection of their health and their safety.

Early childhood education and care has not escaped the increasing emphasis paid to quality the recent years, whereas research and policy have become

increasingly devoted to this subject. 'Quality' in early childhood education is generally understood as an attribute of services for young children that ensures the efficient production of predefined, normative outcomes, typically developmental or simple learning goals (Moss & Dahlberg, 2008). The aim of the current study was to evaluate the quality environment for movement activities in the Greek early childhood education (ECE), and especially in public kindergarten centers. It was hypothesized that the quality environment for movement activities in the Greek ECE was above the 'good' condition, which means that a) the space, the equipment and the resources are easily accessible for children to use when they want to, indoors and outdoors, b) adults are engaged in movement with children, and encourage them to freely express themselves, and c) staff plan specific movement activities identified from observations indoors and outdoors of individual children's interests and needs.

The participated public kindergarten centers provide services to children four and five years old, based on a national curriculum, the cross-thematic curriculum framework (Grammatikopoulos, Gregoriadis, Tsigilis, & Zachopoulou, 2014). This curriculum includes various subject matters which should be taught, while physical education and movement is part of the subject 'free expression and creativity'. According to the guidelines of this subject, children should develop their motor skills and their level of physical activity, should comply with certain safety rules, and should develop positive attitudes towards collaboration with their peers and their teachers. Children can achieve these goals through their participation in team, individual and traditional games or through free play and through the exploration of their bodies.

## **2. Methodology**

### **2.1 Participants**

The sample of this study comprises of public kindergarten classrooms. Greek kindergartens are under the authority of the Greek Ministry of Education and its attendance has been compulsory, since 2006, for all children aged five. Kindergarten teachers are considered highly educated, as the vast majority since 1988, have studied for four years in a university.

A multistage sampling technique was applied in three stages in order to collect a representative sample from all over Greece. The Greek educational system is divided in educational districts. The first stage of the sampling procedure was the selection of the educational districts from all over country. 12 educational districts were selected for this study from urban and suburban areas, and 338 kindergarten

centers were selected from these educational districts. The third stage was to select one classroom from each center. A total number of 338 kindergarten classrooms participated in the current study, with children 4 till 6 years old. Each classroom had 20 – 30 children, and 1 or 2 teachers. The total number of children who were enrolled in these classrooms during the period of this study was 8.381.

Subsequently, twenty trained assessors evaluated the 338 classrooms from these 12 areas of Greece using the 'Movement-Play' Scale (MPS).

## **2.2 Instrument**

The instrument used in the current study was the MPS (Archer & Siraj, 2012; 2015a). The MPS has three items, a) Item 1 - Space and resources, with 11 indicators, b) Item 2 - Adults engaging in movement with children, with 10 indicators, c) Item 3 - Planning for Movement-Play from observations of children, with 9 indicators, and each item is accompanied by extensive notes for clarification.

Item 1 evaluates if the the range of activities provided, the resources and the environment, enables children to spontaneously participate in movement activities alone or with their peers and adults, and if there is a wide range of equipment and resources easily accessible for children to use when they want to, or need them, indoors and outdoors. The content of Item 2 examines if children are encouraged to freely express themselves through movement, if opportunities are offered to parents to develop understanding of children moving, and if staff extend their knowledge & understanding through additional reading and attending further courses. Item 3 studies if trained staff plan specific movement activities identified from observations indoors and outdoors of individual children's interests and needs, if parent's observations are included in planning and observational assessment, and of other professionals work with individual children and contribute to planning.

The MPS provides an informed objective assessment of quality and is modelled on the Early Childhood Environmental Rating Scale Extension (ECERS-E) (Sylva, Siraj-Blatchford, & Taggart, 2010). The first results from the implementation of the instrument presented by Archer and Siraj, (2015b). The scale includes 30 indicators, and each quality indicator is assessed by a seven point Likert scale. The odd numbers of this scale are accompanied by descriptive comments. For example, '1' represents an 'inadequate condition', '3' is 'minimal', '5' is 'good', and '7' stands for 'excellent condition'.

The original MPS was translated into the Greek language by the authors. Then,

a bilingual academic conducted a back translation into English. Afterwards, a comparison of the original and back-translated versions was made and discrepancies were corrected. Then, two trained assessors in ECERS-E and ECERS-R used the scale, by evaluating two early childhood education classrooms each and highlighting any problems they faced during the completion of the scale. Based on the assessors' feedback, minor changes were introduced to make the meaning of some indicators more understandable.

### **2.3 Experimental procedure**

Twenty assessors were trained in order to use the Greek version of the MPS. These assessors were school counsellors from the participating educational districts. All of them were female and highly experienced early childhood teachers. Their mean age was 38.8 years (SD = 5.2) and their work experience was 15.3 years (SD = 3.5).

All assessors participated in a two-day training seminar in order to familiarize themselves with MPS and to implement it. During the first day of the seminar, the assessors attended theoretical lectures to enhance their comprehension of the indicators of the scale and to resolve any false interpretation of them. The second day included observational practice using the scale in classrooms under direct supervision of the trainers.

### **2.4 Data collection**

All data were collected during a five-month period, in the early spring - summer of 2014 by the 20 trained assessors. As suggested by the authors of the scale, each rater remained with the group of children to observe classroom activities throughout the daily program. All classrooms were observed during the morning.

It should also be pointed out that a written consent form was signed from the directors of all participating kindergartens and from the parents whose children were involved in the observed classrooms. The directors and the teachers of kindergartens were informed for the planned visit of the assessors. The assessors visited and observed each classroom for approximately 3 to 4 hours.

## **3. Results**

Descriptive statistics of the MPS items are presented in table 1. These include means, standard deviations, 99% confidence interval and Pearson correlations.

Internal consistency of the three items using Cronbach's  $\alpha$  was satisfactory ( $\alpha = .733$ ). Moreover a new variable was created representing the mean score of the three MPS items (MPS\_total).

**Table 1.** Descriptive statistics & correlations, of the three items of the Movement-play scale.

	<b>M (SD)</b>	<b>99%CI</b>	<b>1</b>	<b>2</b>	<b>3</b>
<b>Item1</b>					
Space and resources	3.61 (1.98)	3.33 – 3.89			
<b>Item2</b>					
Adults engaging in movement with children	3.65 (1.47)	3.44 – 3.86	.493		
<b>Item3</b>					
Planning for Movement-Play from observations of children	1.90 (1.40)	1.71 – 2.10	.443	.574	
<b>MPS total</b>	3.05 (1.32)	2.87 – 3.24	.838	.820	.787

Mean scores were above the minimum level of quality (3) except for the Item3. It is interesting to note that the upper limit of a 99% confidence interval of the Item1 and Item2 means do not approach the adequate level of quality (5), as suggested by the scale developers. Moreover, Item3 was well below the minimum level of movement-play quality (3). Positive moderate associations were observed among the examined variables.

A 99% confidence interval was used instead of the usual 95%. This decision enables us to achieve a wider interval and to examine whether the upper limit of the 99% confidence interval would include the adequate level of quality (5).

Table 2 presents the percentages of kindergartens ratings across three score ranges form 0-3, 3-5, and 5-7. These ranges represent a minimum (0-3), above minimum to adequate (3-5) and high quality (5-7) of movement-play environment respectively.

**Table 2.** Distribution of Movement – Play Scale scores across three score ranges

	<b>0-3</b>	<b>3-5</b>	<b>5-7</b>
<b>Item1</b>			
Space and resources	58.3% (197)	19.5% (66)	22.2% (75)
<b>Item2</b>			
Adults engaging in movement with children	48.8% (165)	39.1% (132)	12.1% (41)
<b>Item3</b>			
Planning for Movement-Play from observations of children	90.2% (305)	5.6% (19)	4.1% (14)
<b>MPS total</b>	67.8% (229)	25.1% (85)	7.1% (24)

*Note: Number of kindergarten in parentheses*

#### 4. Discussion

Young people who engage in regular physical activity are more likely to make healthy lifestyle choices and children who are regularly active have increased levels of concentration and academic achievement. A more active childhood also helps to develop coordination and physical skills and control psychological feelings, such as anxiety and depression (Zachopoulou, Liukkonen, Pickup & Tsagaridou, 2010). Apart from being solid research findings, the aforementioned conclusions are something that most early childhood educators would agree with and provide anecdotal evidence about them.

Findings from the current study showed that the item "Space & Resources" (item1) has 'minimal condition' means in descriptive statistics results, which means that while the children have access to some floor space for movement indoors, not sufficient space is available for children to move in variety of ways such as tummy time, crawling, rolling, spinning and rough and tumble. Some resources (like small soft balls, large body balls, tunnels, mats, sticks, cones, tubes, pillows, scarves, balancing equipment) are provided to children encouraging them to move in a variety of ways, but space and resources are not accessible for children in the group (for example they are not on the same level and in the room). Moreover, children have access each day to movement outdoors; although not many challenging activities must be accessible outdoors for children to engage in physically demanding play.

The item "Adults engaging in movement with children" (item2), has also 'minimal condition' means in descriptive statistics results, which means that the children are sometimes (at least once a week) joined by staff in their indoor movement-play. Also, staff encourages children to move in a variety of ways indoors and outdoors, and at least one member of staff has attended movement-play training. On the other hand, staff does not join children's movement following their lead, staff does not share information about movement-play with parent, and the majority of staff has not attended training and workshops/forums.

The item "Planning for movement-play from observations of children" (item3), scores below 'minimal condition' (close to 'inadequate condition'), which means that staff makes some observations of children's engagement in movement activities (once a month for at least one child). But these observations are not integrated in children's portfolios and therefore are not used in planning or as information for children's progress in movement. In their turn, parents and practitioners also don't share their experiences and observations of their children's engagement in movement activities at home and at the setting. This low level of quality regarding the



Item3 is also reflected by the fact that the scores of the majority of the observed classrooms (90.2%) ranged between 0 and 3.

Based on the distribution of the MPS scores across the three score ranges (Table 2), it should be noted that the scores of the majority of the observed classrooms for all three items ranged between 1 and 3. According to the scoring system of the MPS, these rates represent a 'minimum' level of quality. There were some of the observed classrooms which have received scores ranged between 3 and 5, showing a 'minimum' to 'adequate' quality. The percentages of these classrooms were 19.5% for "Space & Resources" (item1) and 39.1% for "Adults engaging in movement with children" (item2). It should be stressed, also, that there were few classrooms with scores ranged between 5 and 7 only for item 1 and item 2.

In sum, results of this study showed a relatively low to medium quality environment for movement activities in kindergartens in Greece. Taking into account the crucial role of movement activities on children's overall development, it is imperative to search for the factors responsible for this low level of quality environment. The findings of this study support the concerns about the quality environment for movement activities in the Greek early childhood education.

Perhaps the current study could function as a stimulus for the educational policy makers to start the discussion about the reorganization of the physical education programs and movement activities for preschool aged children. Possible modifications in the national curriculum for kindergartens and a more in depth approach of this topic could lead to the improvement of the quality level.

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