EUROPEAN PSYCHOMOTRICITY JOURNAL

http://www.psychomotor.gr/en/european-psychomotricity-journal

ISSN 1791-3837
European Psychomotricity Journal 2010; 3; 1,31-36
Published by: Athlotypo Sports Publishing
http://www.athlotypo.gr/

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ORIGINAL ARTICLE

The effect of a psychomotor training program on the motor proficiency of preschool children in a multicultural environment

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Abstract
The purpose of this study was to examine: a) the effect of an interventional psychomotor training program on pre-school children's motor proficiency (MP) in a multicultural environment, and b) the MP differences among the cultural groups. The sample consisted of 145 children 4-6 years old, attending public kindergartens in Komotini, Greece. Among them, 38 were Christian natives (n=38), 36 Christian emigrants (n=36), 38 Muslim natives (n=38) and 38 were Muslim emigrants (n=34). Children were initially assessed by the Bruininks – Oseretsky Test of Motor Proficiency-Short Form (Bruininks, 1978) and then were further separated into the experimental (EG: n=71) and the control group (CG: n=74). The children of the EG, participated in a four month psychomotor program, which took place three times a week and the duration of each training unit was 30-45 minutes. The control group carried out pre-post measurements, without having any interventional program, but only the particular exercise program followed by the kindergarten. The MANOVA with repeated measures that was applied revealed that the children of the EG, had statistically significant improvements in contrast to the children of the CG. Bonferroni post hoc comparisons revealed that the benefits in the EG were different. Christians, either locals or emigrants, were found to have statistically significant improvements, in comparison to Muslims. This might be due to cultural and ethnic differences in the backgrounds of the two groups, but further research is needed in this the specific area.

Key words: psychomotor intervention, early childhood, multicultural groups, Bruininks – Oseretsky Test

Introduction

The positive effect of the Psychomotor Training (PT) in preschoolers is totally recognized in most European Countries, also in Greece (Eggert, Johannknecht & Lütje, 1990; Rintala, et al., 1998; Zimmer, et al., 2008). Specifically, according to Kiphard (1994), PT is widely used during preschool age to handle developmental disorders that might lead to future school failure during primary school education.

PT focuses on three areas of performance: gross motor and ball skills training (Gallahue & Ozmun, 1998; Kiphard, 1994) and body awareness training (Sherborne, 1990). Moreover, children's developmental characteristics and their individual personality characteristics should be both taken into account during the planning of a PT program (Zimmer & Circus, 1993), a program that meet six important criteria: a) appropriateness of the exercise protocol, b) program suppleness, c) self-determination, d) using of previous experience, e) decision right, and f) independent action (Lorenz & Stein, 1988).

In most European Countries the preschoolers are growing up in a multicultural school environment and as a result their development, educational success, and future prospects are influenced by the discrimination and privilege that are associated with race, social class, culture, gender, sexual orientation, and abilities/disabilities (Ramsey, 2006). With this in mind and taking in to account that also in Greece kindergarten's environment is multicultural, the early educators need to actively practice of equal treatment, for all the children no matter their culture.

Especially interesting for that specific research area is the fact that the social cultural context in which a child is reared forms certain demands for his/her motor behavior, favoring specific aspects of motor development and impairing others to be understood (Venetsanou & Kambas, 2010).

An important question that might be unanswered is how the PT influences the cultural framework and what the effectiveness of this approach is. Therefore, the research of the effect

of the climate, as this of movement education programs of preschoolers being raised up in multicultural societies is highly interesting (Du Toit & Pienaar, 2002; Hayashi, 1994).

In contrast to the child development research, we have very little information about what actually occurs in classrooms where multicultural early childhood education is practiced and how that affects children. Because of this, the purpose of the present study was to examine the effect of an interventional PT program on the motor proficiency (MP) of preschool children in multicultural environment, and to measure the MP differences among the cultural groups.

Methods

Participants

One hundred and forty-five children (n=145) aged between 4 and 6 years (M=64.66 months, SD= 6.52) consisted of Greek native speakers (GS) (n=48), Turkish native speakers (TS) (n=49) and Russian native speakers (RS) (n=48), were randomly selected from 20 kindergartens in Xanthi and Komotini/Greece. As language is thought to be an integral part of culture and if it is used in contexts of communication, it is bound up with culture in multiple and complex ways (Kramsch, 2003), the current research described the differentiation factor of these three groups, as ‘‘culture’’.

Written informed consent was obtained from all participants and their legal guardians before they were allowed to participate in the study. After pre measurement, the stratified sampling procedure was used in order the children to be divided in two groups: a) the experimental group (EG), consisted of 71 children (M=64.97months, SD=7.37), and b) the control group (CG), consisted of 74 children (M=64.37months, SD=5.67).

Measurements

The Bruininks-Oseretsky Test of Motor Proficiency-Short Form (BOTMP-SF) (Bruininks, 1978), was used for the assessment of children’s motor proficiency. It is one of the most popular motor assessment batteries for children 4½ - 14½ years old (Burton & Miller, 1998; Miles, Nierengarten, & Nearing, 1988) and its use is recommended for the occasions in which a brief, screening picture of motor proficiency is required (Bruininks, 1978; Payne & Isaaks, 1998). Furthermore, even concerns have been raised about BOTMP’s validity for preschoolers’ assessment (Venetsanou, et al., 2009), according to several research findings, the SF is valid enough to differentiate various age groups and it provides satisfactory information about the motor proficiency of children (Beitel & Mead, 1980; 1982; Broadhead & Bruininks, 1982; Hassan, 2001; Kambas & Aggeloussis, 2006).

The BOTMP-SF consists of the following 14 items: *Running speed and agility, Standing on preferred leg on balance beam, Walking forward heel-to-toe on balance beam, Tapping feet alternately while making circles, Jumping up and clapping hands, Standing broad jump, Catching a tossed ball with both hands, Throwing a ball to a target, Response speed, Drawing a line through a straight path, Copying a circle, Copying overlapping pencils, Sorting cards* and *Making dots.* The administration of the battery takes approximately 15-20 minutes.

A child’s performance on the BOTMP – SF can be scored in several ways. Raw scores, such as the number of seconds taken to complete a task, the number of dots made, etc.

are noted. These raw scores are then converted into a numerical point score that compile the total battery composite. Normative data on children from 4½ to 14½ yeas of age is provided in the manual and composite scores can be expressed in the form of percentile rank, z-score, T- score, stanine and age-equivalent. For the purposes of this article, the total standard score (battery composite) was used.

Procedure

Measurements were undertaken at the beginning and the end of the school year. The children were individually assessed in an indoor facility of the Kindergarten, according to the test guidelines (Bruininks, 1978). The examiner was a master student experienced with BOTMP administration and familiar with motor assessment in general. Intra-rater reliability had been examined before the study and was found excellent (R=.92).

The EG participated for four months in a PT program while the CG followed only the typical program of the public school. The program was carried out three times per week for 45 minutes each time and was instructed by an expert on PT. The goals and the pedagogical approach of the PT, were well described by Zimmer et al (2008).

Experimental design and statistical analyses

To explore the effect of group (EG vs CG) and culture (GS, TS, RS) on motor proficiency, a 2x2x3 (measurement x group x culture) MANOVA design, with repeated measures on the first factor was applied to the data. The dependent variable of the current research was children's standard score in BOTMP-SF. Post hoc comparisons were made using the Sidak test, with alpha set at .001. In addition to p values, effect sizes as measured by Eta Squared (η^2) values were also used for data interpretation.

Results

Table 1 shows Means and Standard deviations of the dependent variable (BOTMP standard score), pre- & post- tests, for each culture group, both for the experimental and the control group.

Table 1. Means (M) and Standard Deviations (SD) of the pre & post measures of motor proficiency, for each group.

Measure	Experimental				Control			
	GS M±SD	TS M±SD	RS M±SD	Total M±SD	GS M±SD	TS M±SD	RS M±SD	Total M±SD
Pre	54.37±8.05	50.86±9.45	49.85±8.29	51.39±8.43	55.66±8.75	47.00±6.21	48.40±6.55	50.93±8.21
Post	64.12±5.84	56.57±6.35	60.08±9.45	60.36±8.08	53.08±8.99	46.62±6.21	48.10±6.66	49.70±7.87

Note: GS: Greek speaking, TS: Turkish speaking, RS: Russian speaking.

The results revealed no statistically significant differences between the experimental and the control group in the pre-intervention scores (F=.39, p=.537, η^2=.01). As far as the interactions among variables are concerned, the results revealed statistically significant interaction between "measure" and "group" (F= 56.36, p< .001, η^2=.52). "Measure" had a

statistically significant main effect (F= 33.84, p< .001, η^2=.39) on the "group" factor, showing that the experimental group was significantly improved, compared to the control one (MD=10.99, p<.001). In contrast, no significant differences were found among the three "culture" groups of the experimental group regarding their motor proficiency improvement.

Discussion

The purpose of the present study was to examine the effect of an interventional PT program on the MP of preschool children in multicultural environment, and to measure the MP differences among the cultural groups. According to the results, the EG showed a statistically significant MP improvement compared to the CG confirm the notion according to which training intervention is an important factor influencing motor proficiency (Roth & Winter, 1994; Winter, 1992). Moreover, current findings are in close agreement with those of previous relevant (Aggelousis et al, 1999; Schuck & Adden, 1972; Zimmer, 1991; Zimmer et al., 2008) supporting the efficiency.

Regarding the influence of children's culture on MP, the results of the present study indicate that there is no significant variation on MP, between GS, TS and RS within the two different groups (EG vs CG). This is in contrast with several research findings according to which the influence of the cultural context on children's MP is clearly demonstrated. In Victora, Victora and Barros's (1990) study, Brazilian children's motor development was compared to that of English children. According to the results, the Brazilians – living in a society that stresses spontaneous, informal, playful and physically active kids of behaviors – outperform English children in vigorous activities like running and jumping. On the contrary, British children, whose culture appears to stimulate self-contained, quiet, independent, objective and work-oriented behavior, seem to be encouraged to develop skills which will be useful for their later school performance, such as fine motor movements.

Also, the findings from another cross-cultural study conducted in South Korea and Sweden (Sheridan, et al., 2009) revealed that the similarities and differences in preschool quality are interpreted within the socio-cultural context of each country and the respective pedagogical goals for preschool. More specifically, it was found that the preschools in those two countries differed quite notably on the motor activities scale, with the largest observed differences in the amount of space and materials available for gross motor activities.

However, the absence of statistically significant MP difference among the three culture groups (GS, TS and RS) in the present research may be due to the fact that children, despite their different culture background, live and grow within the same culture. This can be also the result of the fact that the children attend Greek school, apparently by choice of their parents, and might they are be fully integrated into the western culture. Another reason for the MP similarity of the three culture groups in the present study may be that the most of those children were not immigrants and even these who were immigrants were at least third generation. In De Feyter and Winsler's study (2009), first – and second – generation immigrants lagged behind children in non-immigrant families in cognitive and language skills but excelled by comparison in socio-emotional skills and behavior. More over, in many cases, first-generation immigrant children showed more advanced development than the second-generation immigrant children, providing some evidence in the early years for an immigrant advantage.

On the other hand, quite different were the findings of Papaioannou and Voudalikakis (1999) studied the perceptions of Orthodox Christians and Muslim students in Greece on the

value of success in school, sport and life. According to their results, the Muslims' responses showed a stronger religious approach to the definition of success than the Christians'. For the Christians, the value of success has a stronger link to the needs of the person than for the Muslims. In this case it cannot be supported that those children came from families who do attempt assimilation of Western culture, but rather the opposite, but this might be due to the fact that the measurement was conducted in minority schools. Furthermore, both the assessment with a motor test and the participation in the PT program requires an understanding of the Greek language by children, as they are both based on specific verbal instructions in Greek and this makes it very difficult for any evaluation and implementation of such programs in the schools of this type.

Finally, the results of the present study are in line with recent conclusions, and are interpreted on the basis of modern theories on motor development. In the past, the cultural background was considered as a dimension of personal differences. However, nowadays it can be said that the role of the influence of cultural framework is not highly recognised in all aspects of children development (Bredekamp & Copple, 1997). Therefore, preschool educators have to create a multicultural learning environment that encourages, respects and supports diversity, giving all children equal opportunities for learning and developing personal and social responsibility, regardless their origin or their culture.

References

Aggelousis, N., Kampas, A., Kioumourtzoglou, E., Papadimitriou, & K., Taxildaris, K. (1999). Phychomotor games and the development of grapho-motor abilities in preschool age. *Health and Sport Performance,* 1(2), 173-182, (in Greek).

Beitel, P., & Mead, B. (1982). Bruininks- Oseretsky Test of Motor Proficiency: Further Verification with 3- to 5-yr.- old children. *Perceptual and Motor Skills,* 54, 268-270.

Beitel, P., & Mead, B. (1980). Bruininks – Oseretsky Test of Motor Proficiency: A viable measure for 3- to 5-Yr- old children. *Perceptual and Motor Skills,* 51, 919-923.

Bredekamp, S., & Copple, C. (1997). (Eds.). *Developmentally appropriate practice in early childhood programs* (rev. ed.). Washington, DC: National Association for the Education of Young Children.

Broadhead, G., & Bruininks, R. (1982). Childhood motor performance traits on the Short Form Bruininks – Oseretsky Test. *Physical Educator,* 39(3), 149-155.

Bruininks, R.H. (1978). *The Bruininks-Oseretsky Test of Motor Proficiency: examiner's manual*. Circle Pines, MN: American Guidance Service.

Burton, A. W., & Miller, D. E. (1998). *Movement skill assessment.* Champaign, IL: Human Kinetics.

De Feyter L.J., & Winsler, A. (2009). The early developmental competencies and school readiness of low-income, immigrant children: Influences of generation, race/ethnicity, and national origins. *Early Childhood Research Quarterly,* 24, 411-431.

Du Toit, D., & Pienaar, A.E. (2002). Gender differences in gross motor skills of 3-6 year old children in Potchefstroom, South Africa. *AJPHERD,* 8(2), 346-358.

Eggert, D., Johannknecht, A. & Lütje, B. (1990). Die Bedeutung der Psychomotorik für die Sprachbehindertenpädagogik. Teil I: Untersuchungen zur Effektivität psychomotorischer Förderung bei sprachbehinderten Kindern. *Die Sprachheilarbeit* 35(3), 106-121.

Gallahue, D. L., & Ozmun, J. C. (1998). Understanding motor development: Infants, children, adolescents, adults (4th edn). Boston, MA: WCB/McGraw-Hill.

Hassan, M. (2001). Validity and reliability of the Bruininks - Oseretsky Test of Motor Proficiency –Short Form as applied in the United Arab Emirates culture. *Perceptual and Motor Skills,* 92, 157-166.

Hayashi, C.T. (1994). Achievement Motivation Among Anglo-American and Hawaiian Male Physical Activity Participants: Individual Differences and Social Contextual Factors. *Journal of Sport and Exercise Psychology,* 21, 194-213.

Kambas, A., & Aggeloussis, N. (2006). Construct validity of the Bruininks-Oseretsky test of Motor Proficiency-short form for a sample of Greek preschool and primary school children. *Perceptual and Motor Skills,* 102, 65-72.

Kiphard, E,J. (1994). *Mototherapie.* Teil 2. Dortmund: Moderns Lernen.
Lorenz, K.-H., Stein, G. (1988). *Eltern-Kind-Turnen, Bewegung und Spiel miteinander erleben*. Celle: Pohl.
Miles, B., Nierengarten, M. & Nearing, R. (1988). A review of the eleven most often-cited assessment instruments used in adapted Physical Education. *Clinical Kinesiology*, 42(2), 33-41.
Papaioannou, A., & Voudalikakis, I. (1999). Perceptions of Orthodox Christian and Muslim students about the value of success in school, sport and life. *Health and Sport Performance,* 1(1), 58-76 (in Greek language).
Payne, G., & Isaacs, L. (1998). *Human Motor Development: A lifespan approach*. California: Mayfield Publishing Company.
Ramsey, G.P. (2006). Early childhood multicultural education. In: B. Spodek & O. Saracho (Eds.) *Handbook of Research on the Education of Young Children,* (pp. 279-301). Manwah, NJ: Lawrence Erlbaum associates Publishers.
Rintala, P., Pienimaki, K., Ahonen, T., Cantell, M., & Kooistra, L. (1998). The effects of a psychomotor training program on a motor skill development in children with developmental language disorders. *Human Movement Science*, 17, 721-737.
Roth, K., & Winter, K. (1994). Entwicklung Koordinativer Fahigkeiten. In: J. Baur, K. Bos & R. Singer (Eds.) *Motorische Entwicklung*. Schorndorof: Hofmann.
Schuck, K.D., & Adden D. (1972). Eine Untersuchung über den Einfluss eines Motorischen Trainings auf die Intelligenzleistung Lernbehinderter Sonderschüler. Eggert, D & Kiphard, E.J. (Eds.): *Die Bedeutung der Motorik für die Entwicklung Normaler und Behinderter Kinder.* Hofmann Verlag: Schorndorf.
Sherborne, V. (1990). *Developmental Movement for children: Mainstream, Special Needs, and Pre-school.* Cambridge University Press: Cambridge.
Sheridan, S., Giota, J., Han, Y-M., & Kwon, J-Y. (2009). A cross-cultural study of preschool quality in South Korea and Sweden: ECERS evaluations. *Early childhood Research Quarterly,* 24, 142-156.
Venetsanou, F., & Kambas, A. (2010). Environmental Factors Affecting Preschoolers' Motor Development. *Early Childhood Education Journal*, 37, 319-327.
Venetsanou, F., Kambas, A., Aggeloussis, N., Fatouros, I., & Taxildaris, K. (2009). Motor assessment of preschool aged children: a preliminary investigation of the validity of the Bruininks – Oseretsky Test of Motor Proficiency- Short Form. *Human Movement Science,* 28(4), 543-550.
Victora, M., Victora, C., & Barros, F. (1990). Cross-cultural differences in developmental rates: A comparison between British and Brazilian children. *Child: Care, Health and Development,* 16, 151-164.
Winter, R. (1992). Die Trainingstatigkeit ist letzlich Entscheidend! Ausgewahlte Ergebnisse einer Langsschnittstudie an Trainierenden Kindern. *Sportunterricht,* 41, 317-326.
Zimmer, R. (1991). *Motorik und Personlichkeitsentwicklung bei Kindern im Vorschulalter.* Schorndorf: Hofmann Verlag.
Zimmer, R. & Circus, H. (1993). *Psychomotorik.* Schorndorf: Hofmann Verlag.
Zimmer, R., Christoforidis, Ch., Xanthi, P., Aggelousis, N., & Kambas, A. (2008). The effects of a psychomotor training program on motor proficiency of Greek preschoolers. *European Psychomotricity Journal,* 1(2), 3-9.

ISSN 1791-3837