138 - PSYCHOMOTOR DEVELOPMENT OF CHILDREN IN EARLY CHILDHOOD EDUCATION

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INTRODUCTION

Childhood is a primordial phase in a human being's life for its cognitive, psychological, biological and motor development, because most part of the maturation in its organism occurs during this period (COLE and COLE, 2003). According to Gallahue and Ozmun (2005, p.30) “the human development can be studied from a variety of theoretical structures which have explanations for the motor development and motor education on babies, children, adolescents and adults”. According to Cole and Cole (2003), during the first childhood (2-6 years old), there is an explosive growth in the comprehending and learning usage capacity. Children move much more confidently and independently than when they were 2 years old. Papalia and Olds (2000) affirm that the motor skills on children improve as these development stages go by. For Rosa Neto (2002), the infant development and learning are intrinsically linked to motricity and are essential for the child global development. A good motor control promotes a suitable exploration of environments, from concrete experiences which subsidize the infant intellectual development.

Researchers such as Wallon, Piaget, Vayer Le Boulch and Fonseca point out the thin link between the movement and the child's learning process. Fonseca (2004) states that the interaction between these two components defines the human behavior: motricity and psyche. Piaget (1976) also develops his theory based on learning (cognition) and development (sensorial and motor). For Wallon, movement has a leading role in affectivity and also in cognition, which together are substantially important (GALVÃO, 2003).

By considering the motor activity as essential in the child's development process, for it causes the child to develop self-awareness and awareness of the outside world, helping in the acquiring of its independence (ROSA NETO, 2002), the importance of motor evaluation applied on students is acknowledged. This way, the objective of this study was to evaluate the psychomotor development on infant education children of a private school in Lages, state of Santa Catarina (SC), Brazil.

METHODOLOGY

This is descriptive, cross-sectional research. Descriptive, because it aims to describe individuals or certain characteristics and samples in certain moments (VIEIRA and HOSSNE, 2001). Cross-sectional, because it allows the researcher to evaluate data from differently aged groups, in order to describe their characteristics (GALLAHUE and OZMUN, 2005).

The population consisted of 127 children properly registered in infant education of a private school in Lages, SC. The sample was made of children aged 3-4 years old who were authorized by their parents to take part in the research. The 30 child sample was constituted by randomly selecting 5 boys and 5 girls from each classroom. The sample participants have not received any psychological and/or neurological disorder diagnosis so far. The data were collected during gym classes, timed 45 minutes for each child, in a large, lighted and breezy room away from the other classmates.

Motor Evaluation

The Motor Development Scale (EDM), described in the Motor Evaluation Manual (ROSA NETO, 2002), that assesses the following motricity areas was applied: Fine Motricity, Global Motricity, Balance, Body Scheme, Spatial Organization, Temporal Organization (language) and symmetry - not evaluated in this research due to the children's early age, considering that the child is able to safely manifest it around 6 years old (ROSA NETO, 2002). Through this scale it is possible to obtain the motor ages and motor quotients of each child and represent its motor development as on Table 1.

Table 1 – Motor Development Classification.

QMG	Motor Development
130 or more	Very high
120 – 129	High
110 – 119	High normal
90 – 109	Normal average
80 – 89	Normal low
70 – 79	Low
69 or less	Very low

Source: ROSA NETO (2002, p.39)

For Rosa Neto (2002), the motor exam is a dispensable complement in the cognitive/neuropsychological exam and a crucial element in the observation of the different problems of lack of adaptation the child may present. It is a starting point for an educational intervention because it allows: to analyze the established problems; tell from the different types of debility; suspect and also confirm the presence of school difficulties, motor perturbations and behavior problems; assess the child's progress during its evolutional development.

The exam allows the specialized professional to show gym instructors, regular and especial teachers as well as psychologists, doctors, physical therapists, speech pathologists, among other professionals, certain difficulties such as:

·Motor coordination disorders;
·Specific neuro-psychomotor development disorders;
·Hyperactivity, behavior alterations and school learning difficulties.

The EDM scale is easy to handle because, in general, the tests are attractive for the child who helps during the exam, establishing trust and empathy between examiner and examinee, causing the results to be more reliable.

STATISTICAL TREATMENT

The computer software SPSS (APACHE, 2004) version 13.0, was used for the data statistical treatment. The data exploratory analysis was carried out through descriptive statistics, using averages, standard deviation, minimum value, maximum value and median.

RESULTS AND CONCLUSION

- **Gender:** regarding the gender of the assessed sample, there was an intentionally proportional distribution, with 15 boys and 15 girls (n=30).
- **Age:** the children evaluated were aged from 3 (n=15) to 4 (n=15) years old, with an age average of 3 years and 9 months.
- **Motor development:** most of the sample (n=21) reached normality, rated as "normal average" (n=15) and "normal low" (n=6), corroborating with the study of Winck and Rosa Neto (2006), who also assessed 30 infant education children in Luiz Eduardo Magalhães, state of Bahia, Brazil.

The sample average of the current research remained in the "normal low" level (QMG=87), which is expected for this age range because the "great age for motor development lies between 7 and 10 years old" (ROSA NETO, 2009).

By observing Table 1, it is possible to notice that the Chronological Age (IC) average was 47 months, corresponding to 3 years and 9 months. On the other hand, the IMG (General Motor Age) was 41 months, corresponding to 3 years and 4 months. This difference between IC and IMG is the 5 months, a value that may be considered not so meaningful in this sample, as the children are in the "great age of motor development" (ROSA NETO, 2009).

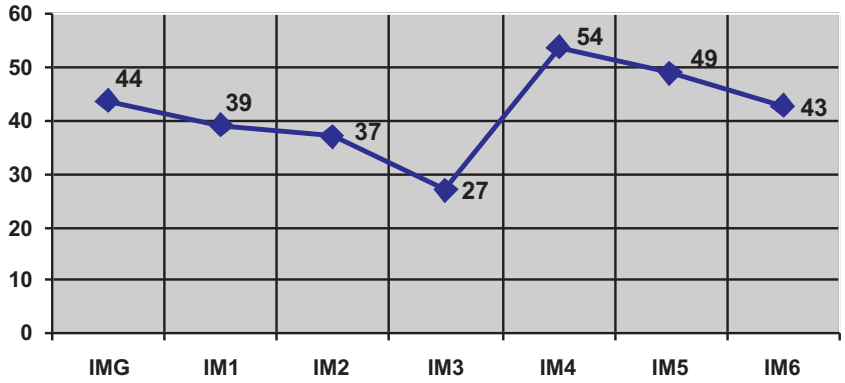
The values related to the motor development in the sample can be viewed on Table 1.

Table 1 – Sample motor development (n=30)

Variables	X	DP	Minimum	Maximum	Median
Chronological Age (**IC**)	47	4,8	39	57	47
General Motor Age (**IMG**)	41	8,2	24	56	43
Fine Motricity Age (**IM1**)	39	10,4	24	60	36
Global Motricity Age (**IM2**)	37	19,0	0	60	36
Balance Age (**IM3**)	27	12,9	0	48	24
Body Scheme Age (**IM4**)	54	8,1	36	60	60
Spatial Organization Age (**IM5**)	49	12,5	24	60	48
Temporal Organization Age (**IM6**)	43	16,9	24	70	48
Quotient General motor (**QMG**)	87	14,3	59	108	90
Quotient Fine motricity (**QM1**)	82	21,7	47	130	83
Quotient Global motricity (**QM2**)	77	37,0	0	130	84
Quotient Balance (**QM3**)	56	24,6	0	98	55
Quotient Body scheme (**QM4**)	113	13,8	80	140	116
Quotient Spatial organization (**QM5**)	105	28,3	42	154	111
Quotient Temporal organization (**QM6**)	90	33,1	44	150	104

Obs.: age in "months".

The average of the motor ages reached on each variable can be views in Graphic 1, through analysis of the participants' motor profile.



Graphic 1: Sample motor profile (n=30).

Regarding the motor areas, it has been noticed that the bigger deficit area was balance (IM3=27), as in the study of Winck and Rosa Neto (2006), indicating the need to stimulate this area in gym classes and/or psycho-motricity sessions, aiming to re-teach children to regain this ability.

One possibility, about the sample in this article, is related to psycho-emotional aspects, linked to motivation. Also considering the possibility of the before mentioned children to interest more in activities that promote more motor stimulation.

It is worth highlighting that some children reached levels below normality, levels "low"(n=6) and "very low" (n=3), which can be considered an alert signal, with the need of other types of evaluation (psycho-pedagogical, cognitive, neuro-psychological) to possibly suggest specific interventions, aiming the global development improvement on these children.

It is necessary to delve into the neuro-psychological/cognitive aspects of the children who presented "low" or "very low" performances, because this motor deficit may be related to some kind of neuro-psychological damage. In this sense, the study of Almeida and Schlindwein-Zanini (2008) with mentally-handicapped children is cited, which evaluated the motor and cognitive aspects through EDM and WISC – III (Wechsler Intelligence Scale for Children – III) instruments respectively, concluding that there usually is a positive correlation between these two areas, represented by the QMG and Intellectual Quotient (IQ).

CONCLUSION

The data found in this research, performed with children aged from 3 to 4 years old, along with reviewed literature, allowed to conclude that most of the sample children had a psychomotor development classification within normality, confirming the results of other studies. However, the results also point out a share of the population with below-normality development, indicating an alert signal to the global development of these children.

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PSYCHOMOTOR DEVELOPMENT OF CHILDREN IN EARLY CHILDHOOD EDUCATION

ABSTRACT

The objective of this study was the evaluation of the psychomotor development of 30 children aged from 3 to 4 years old in a private school in Lages / SC, 15 girls and 15 boys. For the evaluation of the psychomotor development the Motor Development Scale was used - EDM (Rosa Neto, 2002), which assesses the following areas: fine motricity, global motricity, body scheme, spatial organization, temporal organization and symmetry. Through this scale, it is possible to obtain the General Motor Quotient (QMG) of each child, which is rated at 7 levels: "very superior", "superior", "high normal", "normal average", "low normal", " low "and" very low ". The results show that most children (n=21) reached normality in relation to psychomotor development, with levels in "normal average" (n=15) and "low normal" (n = 6), corroborating with other studies. It should be noted, however, that some children have reached levels below normal, with levels "low" (n=6) and "very low" (n=3), which may represent a warning sign for the above and the probable need for specific activities targeted under motor and neuropsychological. It was evident in this study the importance of psychomotor evaluation in students in the kindergarten, as a preventive method to detect changes and suggest early interventions.

KEY-WORDS: psychomotor development, children, childhood education.

PSYCHOMOTEUR DÉVELOPPEMENT DE ENFANTS DES L'ÉDUCATION PRÉSCOLAIRE

RÉSUMÉ

Le but de cette étude était d'évaluer le développement psychomoteur de 30 enfants âgés de 3 à 4 ans dans une école privée de Lages/SC, 15 filles et 15 garçons. Pour l'évaluation du développement psychomoteur a été utilisé à l'échelle Motor Development - EDM (Rosa Neto, 2002), qui évalue les domaines suivants: motricité fine, moteur solde global, schéma corporel, l'organisation spatiale, organisation temporelle et de symétrie. Par cette échelle, vous pouvez obtenir la General Motor Quotient (QMG) de chaque enfant, ce qui est évalué à 7 niveaux: «très supérieur», «supérieur», «haut normal", "moyenne normale", "low normal", "bas" et "très faible". Les résultats montrent que la plupart des enfants (n=21) a atteint la normalité en matière de développement psychomoteur, avec les niveaux en "moyenne normale" (n=15) et "faible normal" (n=6), corroborant d'autres études. Il convient de noter, toutefois, que certains enfants ont atteint des niveaux inférieurs à la normale, avec des niveaux "faible" (n=6) et "très faible" (n=3), mai qui représentent un signe d'alerte pour ce qui précède et la nécessité probable spécifiques des activités ciblées, tant dans le moteur, et neuropsychologiques. Il était évident dans cette étude l'importance de l'évaluation des élèves psychomotrice au cours de la maternelle, comme méthode préventive pour détecter les changements et proposer des interventions précoces.

MOTS-CLÉS: le développement psychomoteur, les enfants, l'éducation de la petite enfance.

DESARROLLO PSICOMOTOR DE NIÑOS DE LA EDUCACIÓN PREESCOLAR

RESUMEN

El propósito de este estudio fue evaluar el desarrollo psicomotor de 30 niños de 3 a 4 años en una escuela privada en Lages/SC, 15 niños y 15 niñas. Para la evaluación del desarrollo psicomotor se utilizó la escala del desarrollo motor - EDM (Rosa Neto, 2002), que evalúa las siguientes áreas: motricidad fina, motricidad global, equilibrio, esquema corporal, organización espacial, organización temporal y la simetría. En esa escala, se puede obtener el cociente motor general (QMG) de cada niño, que está valorada en 7 niveles: "muy superior", "superior", "normal alta", "promedio normal", "bajo normal", " inferior" y "muy inferior". Los resultados muestran que la mayoría de los niños (n=21) alcanzaron la normalidad en el desarrollo psicomotor, con niveles "promedio normal" (n=15) y "bajo normal" (n=6), corroborando con otros estudios. Cabe señalar, sin embargo, que algunos niños han llegado a niveles inferiores a lo normal, con niveles de "inferior" (n=6) y "muy inferior" (n=3), que puede representar una señal de alteración y la probable necesidad de actividades específicas dirigidas, tanto en el aspecto motor como en neuropsicología. Es evidente en este estudio la importancia de evaluar el desarrollo psicomotor en niños de la educación infantil, como un método preventivo para detectar cambios y sugerir intervenciones tempranas.

PALABRAS CLAVE: desarrollo psicomotor, niños, educación infantil.

DESENVOLVIMENTO PSICOMOTOR DE CRIANÇAS DA EDUCAÇÃO INFANTIL

RESUMO

O objetivo desta pesquisa foi avaliar o desenvolvimento psicomotor de 30 crianças de 3 a 4 anos de idade de uma escola particular de Lages/SC, sendo 15 meninas e 15 meninos. Para a avaliação do desenvolvimento psicomotor foi utilizada a Escala de Desenvolvimento Motor – EDM (Rosa Neto, 2002), que avalia as seguintes áreas: motricidade fina, motricidade global, equilíbrio, esquema corporal, organização espacial, organização temporal e lateralidade. Através dessa escala, é possível obter o Quociente Motor Geral (QMG) de cada criança, que é classificado em 7 níveis: "muito superior", "superior", "normal alto", "normal médio", "normal baixo", "inferior" e "muito inferior". Os resultados encontrados mostram que a maioria das crianças (n=21) atingiu a normalidade com relação ao desenvolvimento psicomotor, estando nos níveis "normal médio" (n=15) e "normal baixo" (n=6), corroborando com outros estudos. Cabe destacar, porém, que algumas crianças atingiram níveis abaixo da normalidade, estando nos níveis "inferior" (n=6) e "muito inferior" (n=3), o que pode representar um sinal de alerta ao desenvolvimento destas e a provável necessidade de atividades específicas direcionadas, tanto no aspecto motor, quanto neuropsicológico. Ficou evidente nesse estudo a importância da avaliação psicomotora em escolares da educação infantil, como método preventivo de detectar alterações e sugerir intervenções precocemente.

PALAVRAS-CHAVE: desenvolvimento psicomotor, crianças, educação infantil.

PUBLICAÇÃO NO FIEP BULLETIN ON-LINE: http://www.fiepbulletin.net/80/a1/138