# 34 - THE IMPORTANCE OF EVALUATION MOTOR WITH THE PARTICIPANTS IN THE PROJECT PIRACEMA: RELIABILITY ANALYSIS OF MOTOR DEVELOPMENT SCALE

SANDRA MARA MAYER;
STEPHANIE ARIELE ÁVILA CARDOSO;
LAUDEMIRO VOLMAR DA CUNHA TRINDADE,
UNIVERSITY OF SANTA CRUZ DO SUL (UNISC) - SANTA CRUZ DO SUL - RS - BRAZIL
smmayer@unisc.br

**INTRODUCTION**

The theme review has been the subject of several studies related to education in general. In the area of Physical Education the focus of discussion relates to the need to offer a professional nature, systematic, empirical and non-structured decision making about teaching. In relation to motor development there is a lack of assessment tools, specifically in the field of Adapted Physical Education. Despite its lack, the assessment adapted motor area is considered of great importance because it allows researchers, scholars and professionals, a deeper understanding of issues relating to the development and characteristics of this population (GREGOUL, 2010).

The motor evaluation aims therefore to provide educators and researchers, information relevant to the prescription of motor activities and programs, and the evaluation of these programs on children with gaps in the system and motor development problems (HENDERSON, 1992; ROSA NETO, 2002). Thus, the motor assessment establishes itself as a resource that enables get data from a specific population; it can become valid decisions about their motor development. It is established, thus, diagnostic assessment as a starting point for a planned educational intervention, whose primary objective is to improve motor skills enabling higher levels of functioning in activities of daily living (HENDERSON, 1992). In educational intervention program, the professional should keep in mind the real needs of their students and to meet those needs and expectations of the individual, it is important to consider its characteristics in the various processes of change (TANI, 1988).

The intervention in the aquatic environment is considered suitable for both normal children and for those with special needs or motor deficit, due to the possibility of being practiced without restrictions since birth, and the benefits and facilities that provides for the execution of movements. Its purpose, according to a developmental approach, is to meet the main needs of the student, fostering the dynamic interaction between the characteristics of the performer, task and environment, aiming not only rehabilitation, but the increase in their motor repertoire. The benefits that can be found in water activities are unique. With these activities we can, while also providing participants progress and development aspects of physiological, psychological, social and cognitive. It is the job of being as a whole. Another relevant factor is that, regardless of age or physical condition of the people, aquatic activities are useful in the rehabilitation sector, and also help participants to confront problems, to succeed, to achieve goals and socialize (MAUERBERG-DECASTRO, 2005).

Motor development, with the disabled, confined to experimentation with normal patterns of functional movements that are essential for normal motor development. Consequently, there is a decrease in the coordination and control of voluntary movements and posture, causing changes in motor development (PIRPIRIS, 2004; WINNICK, 2004), reflected often in late onset or even the non-appearance of some mature motor patterns. Thus, it is known that this population has a motor deficits due to brain damage, however, perceives also currently a major concern to insert them into motor activities programs (AURICCHIO, 2001; BRITZKE ET AL., 2001; GUSSONI, 2001). However, there are few studies that use assessment tools to measure the motor and motor development programs benefits of motor activity in this population.

The Project "Swimming for People with Special Needs" (PIRACEMA) in partnership with the Association of Parents and Friends of Exceptional Children (APAE) and the University of Santa Cruz do Sul (UNISC) since 1984 serves students with diverse pathologies. Comes provide through aquatic activities, interaction with other individuals, allowing them a better development as a human being

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**METHODOLOGY**

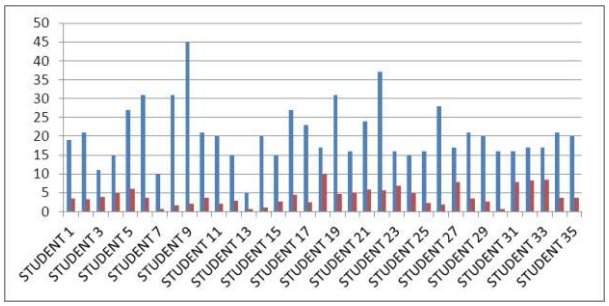
Were subjects of this study were 35 students enrolled in the Association of Parents of Exceptional Children and Students (APAE) Santa Cruz do Sul and participants of Project Piracema - "Swimming for People with Special Needs", aged between 5 and 45 years, 24 of males and 11 females. Are carriers of various diseases, and fifteen (15) students with Intellectual Disabilities, 4 (four) with Down syndrome, three (3) students with cerebral palsy, 2 (two) with paralysis of the lower limbs latent Miolomeningocele, 3 (three) with microcephaly, 1 (one) with hydrocephalus, two (2) students with Autism and five (5) with developmental delay Neuropsicomotor. Classes are held 3 times per week, lasting 50 minutes each, and attended three classes per day. This study characterized as a descriptive and exploratory, being used for data collection, testing Motor Development Scale - EDM (ROSA NETO, 2002), comprising a diverse set of evidence and graduated difficulty, leading a thorough exploration of different development sectors. The EDM is indicated for children with developmental delay, learning difficulties in school, problems with speech, writing and calculation, conduct problems, neurological, mental, sensory, motor evaluating the following areas: Fine Motor, Motricity Global Balance, Body Schema, Organization Temporal and Spatial Organization.

For the statistical treatment of the data, we used the program Microsoft Excel 2010, through analysis of mean, median, mode, standard deviation, variance, minimum and maximum value.

**RESULTS**

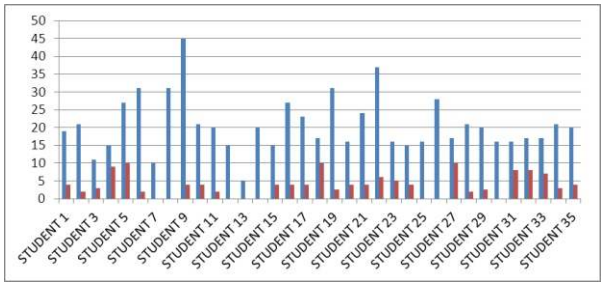
As Chart 1 below, it was found that General Motor Age (IMG) of the students participating in the project Spawning vary between 0.6 and 10 years, which shows a delayed motor development in general. 37.1% of students have aged 0 to 2 years, 34.2% between 3 and 4 years; aged 5 and 6 years, 14.2% of students; between 7 and 8 years, 11.4% and between 9 and 10 years in his General Motor Age, 2.8% of students. The results of this study confirm what Souza (1997) states: that despite the tests suggest deficits in their results, these indices are encouraged deficit are likely to be smaller as the needs of each student, contributing to their development in all aspects, from the engines, the affective, cognitive and psychological passing by.

Figure 1 - Comparison between Chronological Age (CA) and General Motor Age (GMA) of the students, expressed in years.



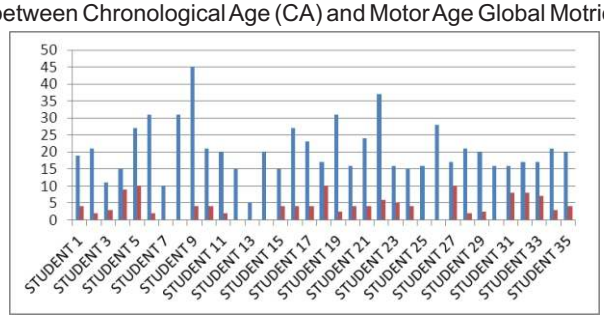

In the results of the tests of Fine Motor (Figure 2), we observed that 31.4% of students have Age of Motor Fine Motor (IM1) from 0 to 2 years, 40% have IM1 3 to 5 years, 17, 1% have this point of Motor Age 6 to 8 years, and between 9 and 11 years, 11.4% of students, with their ages Timelines vary between 5 and 45 years of age. Interestingly, despite the limitations imposed by disabilities, children with disabilities have skills that should be enhanced, wrap it being essential both in activities related to the capabilities that motor quotient reached "very low", as those who presented within motor quotient normality, looking not only rehabilitation but also enrich their motor repertoire.

Figure 2 - Comparison of Chronological Age (CA) and Fine Motor Age Motor (FMAM) students, expressed in years.



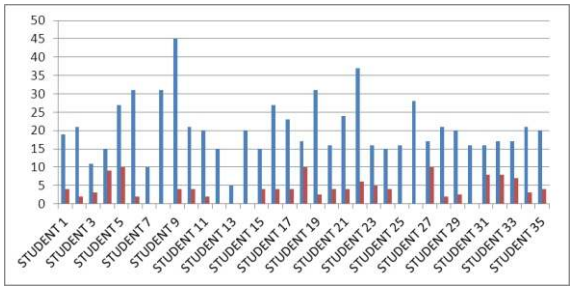

In tests of Motricity Global, demonstrated by Figure 3, we see that more than half of the students, 54.2% had Motricity Global Motor Age (IM2) between 0 and 2 years. The rest of the students had aged 3 and 5 years, 25.7%; between 6 and 8 years, representing 14.2%, and between 9 and 11 years, represented by only 5.7% of students surveyed. In most cases, children who have some motor impairment, also have problems in cognitive, social and emotional, and can take them for life (PINK NETO, 2002). Therefore, despite the delay motor verified, this can be minimized if we use activities consistent with its motor age. For this, it is necessary to evaluate motor home, prior to any intervention program, to diagnose the stage engine that meets the child and plan, the final motor assessment, to measure the child's progress and benefits of intervention programs in this population in particular.

Chart 3 - Comparison between Chronological Age (CA) and Motor Age Global Motricity (MAGM), expressed in years.



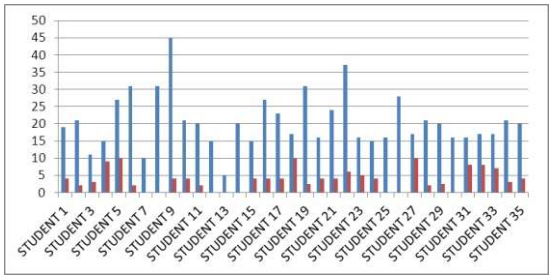

In terms of balance, the results showed that 42.8% of students had Motor Age Balance (IM3) between 0 and 2 years of age, 28.5% of students have IM3 between 3 and 5 years, 11.4% between 6 and 8 years, and 17.1% of students presented their Motor Age slightly higher, between 9 and 11 years. These results are shown in the graph below. According to Silva, Almeida, et al Cassilhas. (2008), the balance is complex involving several features of the human body, such as vision, sensitivity to soil, muscle strength, etc.. Starting addition, the finding that it is facing the carriers is that they have impaired balance, mainly by lack this ability sensory and / or muscle strength.

Chart 4 - Comparison between CA and Motor Age Balance (MAB), expressed in years.



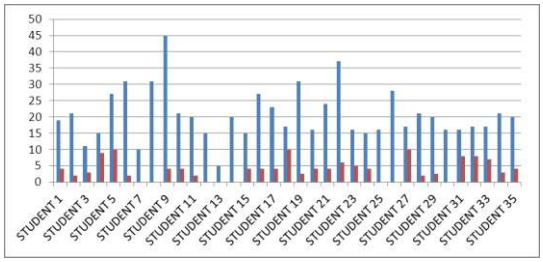
The results obtained from the testing of body scheme showed that 57.1% of the pupils obtained Scheme motor age body (IM4) between 3 and 5 years. The rest of the students split into: 0 to 2 years, with 28.5% of respondents, 6 to 8 years, represented by 11.4%; there is also a tendency to rely on tiptoe in locomotion in aquatic environment, which could be assisting postural control, due to muscle strengthening (RODRIGUES, 1999; MORRIS, 2000; VELASCO, 1997). The data from this study corroborate with other studies conducted with children with special needs, using motor activities on the aquatic environment, the results indicated significant improvement in muscle tone, postural control and balance of children participating in the project.

Figure 5 - Comparison of Chronological Age (CA) and Motor Age Body Scheme (MABS), expressed in years.



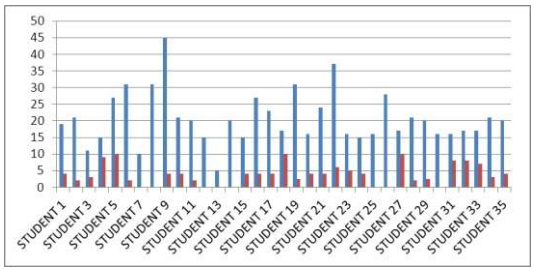

In respect of Space Organization (Chart 6), we find that almost half of the students, 42.8% had their Space Age Motor Organization (IM5) between 3 and 5 years old, 22.8% were between 0 and 2 years, 25.7% between 6 and 8 years, and only 8.5% of students with IM5 between 9 and 11 years. Santos (2005), citing Sisto et al focus on the movement as a medium, a medium that helps the child to acquire knowledge of the world that surrounds them. Through its body, its sensations and perceptions, the manipulation of materials, the child gets the opportunity to discover themselves.

Figure 6 - Comparison of Chronological Age (CA) and Motor Age Space Organization (MASO), expressed in years.




In the latter analysis, the Temporal Organization, shown in Figure 7, the students presented, mostly Motor Age Temporal Organization (IM6) between 0 and 2 years, representing 40% of students. 37.1% had IM6 between 3 and 5 years, 11.4% between 6 and 8 years and the same value, 11.4%, for ages between 9 and 11 years. Rosa Neto (2002), citing Piaget, falls in that time did not see or be seen, unlike the speed or the environment, it does not enter the realm of the senses, only the perception of events, movements, etc.. Thus to the bearer of special need, this is an aspect that is difficult to work with, because in many cases there is no sensitivity to perceive these actions, movement time. In the analysis of the child's motor development, in each task, one can observe a motor deficit worrying, especially in the areas of Temporal Organization, which had a ratio of 30 engine, rated by EDM result as "very low." This demonstrates that, with increasing chronological age, the child showed no progress in the development of their motor proficiency as expected.

Figure 7 – Comparison of Chronological Age (CA) and Motor Age Temporal Organization (MATO), expressed in years.




**CONCLUSION**

We conclude that the subjects of this study showed much lower standard engine in relation to their chronological age, demonstrates that children with any special needs, whether physical or mental, have a later development of motor and cognitive functions, which does not mean may achieve a degree of normality or even superior in different aspects and stages of development. But it can be verified through testing, that there is greater difficulty in testing Body Scheme and the best results are related to Fine Motor and Balance. Note that some children have difficulty following directions, or to understand speech a little more extensive. Using fancy with these children makes the experience of the exercises, as well as increases the perception of the world, stimulating the development of thinking, integrating the affective aspects motors. One should emphasize the goals of activities, focusing also on the lines of experience as vitality, integration, creativity and affectivity. From the results of these evaluations, adjustments were made in the planning and organization of activities provided to these subjects in class aquatic project, which benefit the physically and cognitively handicapped. The tests were applied only in May 2012, so there is no comparative data.

Each student responds differently according to your special need. The big difference in data can be due to its pathologies, which are quite diverse. It can be seen that most students have difficulties in tests, although these aspects are worked in swimming and / or water activities with the students. By submitting mental disabilities, students have some difficulty in understanding what is offered to them, which may explain the negative response of the tests. Another of the reasons for the poor results is the strong influence of hipotonia, which interferes with perceptual abilities, impairing muscle control, and the attributes required to achieve precision in motor, attention, and sensory and perceptual skills, who are committed to children disabilities.

However, psychomotor interventions performed during this period were able to positively alter the line of child development study, showing significant gains in their overall development, and especially in the areas of gross motor control, balance and spatial organization

Motor development is a continuous change in motor behavior over the life cycle, provided by the interaction between needs, which is an ongoing process, and specific to each individual being. Interestingly, despite the limitations imposed by disabilities, those with special needs have skills that should be encouraged and it is essential to involve them in activities related both to the capabilities that obtained negative results, like those that had positive results, always seeking the enrichment of the motor repertoire.

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Rua Ernesto C. Iserhardt, 470 – CEP: 96.825-040
Santa cruz do Sul - RS – Brasil
smmayer@unisc.br

**THE IMPORTANCE OF EVALUATION MOTOR WITH THE PARTICIPANTS IN THE PROJECT SPAWNING: RELIABILITY ANALYSIS OF MOTOR DEVELOPMENT SCALE**

**ABSTRACT**

The present study was a descriptive, exploratory, aims at presenting the motor profile of students participating in Project Spawning - "Swimming for People with Special Needs" - extension project at the University of Santa Cruz do Sul - UNISC - the acting 28 years, serving students from various pathologies. The project goal is to promote activities on the net so that students increase their repertoire of attitudes in the water and, when possible, also outside it. Participants were 35 students enrolled in APAE of Santa Cruz do Sul Project Spawning and participants, including 24 males and 11 females. Classes are held 3 times per week, 50 minutes per class, being attended three classes per day. To collect the data we used the kit Scale Development Motor (EDM), comprising the following: Fine Motor, Motricity Global, Balance, Body Scheme, Space Organization and Temporal Organization. Through the results, we found that the relationship between chronological age (IC) and General Motor Age (IMG) of the students is 21 ± 4.1 years. In Fine Motor results obtained 21 ± 4.6 years; in Global Kinetics, 21 ± 3.6 years; at equilibrium 21 ± 4.7 years; in Scheme Body 21 ± 3.45 years; spatial organization 21 ± 4.3 years, and the Temporal Organization, 21 ± 3.7 years. We conclude that the subjects of this study showed much lower standard engine in relation to their chronological age. These results may be related to the pathologies of the students because they were not taken into consideration. From the results of these evaluations, adjustments were made in the planning and organization of activities provided to these subjects in class aquatic project.

**KEYWORDS:** Motor Development; Evaluation; impaired persons.

**L'IMPORTANCE DE MOTEUR D'ÉVALUATION DES PARTICIPANTS AU PROJET FRAI: ANALYSE DE LA FIABILITE DE MOTEUR DE DÉVELOPPEMENT ÉCHELLE**

**RÉSUMÉ**

La présente étude a été descriptive, exploratoire, vise à présenter le profil du moteur d'élèves participant au projet Piracema - "Nager pour les personnes ayant des besoins spéciaux» - projet d'extension de l'Université de Santa Cruz do Sul - UNISC - l'action 28 ans, au service des étudiants de diverses pathologies. Le but du projet est de promouvoir les activités sur le net afin que les élèves d'accroître leur répertoire d'attitudes dans l'eau et, lorsque cela est possible, aussi à l'extérieur. Les participants étaient 35 étudiants inscrits dans les APAE de Santa Cruz do Sul ponte de projet et les participants, dont 24 hommes

et 11 femmes. Les cours ont lieu 3 fois par semaine, 50 minutes par classe, étant assisté à trois cours par jour. Pour recueillir les données, nous avons utilisé le kit échelle de développement moteur (EDM), comprenant les éléments suivants: motricité fine, motricité globale, l'équilibre, schéma corporel, organisation spatiale et temporelle Organisation. Grâce à ces résultats, nous avons constaté que la relation entre l'âge chronologique et de General Motors Âge des étudiants est de 21 ± 4,1 ans. En motricité fine des résultats obtenu 21 ± 4,6 ans; dans motricité globale, 21 ± 3,6 ans; à l'équilibre 21 ± 4,7 ans; dans corps Scheme 21± 3,45 années; organisation spatiale 21 ± 4,3 ans, et l'Organisation temporelle, 21 ± 3,7 ans. Nous concluons que les sujets de cette étude ont montré beaucoup plus bas moteur standard par rapport à leur âge chronologique. Ces résultats peuvent être liés à des pathologies des étudiants parce qu'ils n'ont pas été prises en considération. A partir des résultats de ces évaluations, des ajustements ont été accomplis dans la planification et l'organisation des activités prévues à ces sujets dans le projet aquatique classe.

**MOTS-CLÉS:** le développement moteur; évaluation, les personnes malvoyantes.

**LA IMPORTANCIA DE MOTOR DE EVALUACIÓN DE LOS PARTICIPANTES EN EL PROYECTO PIRACEMA: ANÁLISIS DE CONFIABILIDAD DE MOTOR DESARROLLO A ESCALA**

**RESUMEN**

El presente estudio fue exploratorio descriptivo, tiene como objetivo presentar el perfil de motor de estudiantes que participan en Piracema proyecto - "Natación para Personas con Necesidades Especiales" - proyecto de extensión de la Universidad de Santa Cruz do Sul - UNISC - la actuación 28 años, sirviendo a estudiantes de diversas patologías. El objetivo del proyecto es promover actividades en la red para que los estudiantes aumenten su repertorio de actitudes en el agua y, cuando sea posible, también fuera de ella. Los participantes fueron 35 estudiantes matriculados en la APAE de Santa Cruz do Sul y participantes del proyecto Piracema, entre ellos 24 hombres y 11 mujeres. Las clases se imparten 3 veces por semana, 50 minutos por clase, se asistió a tres clases por día. Para recolectar los datos se utilizó el kit Escala de Desarrollo Motor, que comprende las siguientes: motricidad fina, motricidad global, equilibrio, esquema corporal, la espacial y la organización temporal. A través de los resultados, se encontró que la relación entre la Edad Cronológica y General Motor Edad de los estudiantes es de 21 ± 4,1 años. En Motricidad Fina resultados obtenidos 21 ± 4,6 años, y en la Motricidad Global, 21 ± 3,6 años; en el Equilibrio de 21 ± 4,7 años; Cuerpo en el Esquema 21 ± 3,45 años; Organización Espacial 21 ± 4,3 años, y la Organización Temporal, 21 ± 3,7 años. Llegamos a la conclusión de que los sujetos de este estudio mostraron motor mucho más bajo nivel en relación a su edad cronológica. Estos resultados pueden estar relacionados con las patologías de los estudiantes, porque ellos no fueron tomados en consideración. De los resultados de estas evaluaciones, se realizaron ajustes en la planificación y organización de las actividades previstas para estos temas en el proyecto acuático clase.

**PALABRAS CLAVE:** desarrollo motor; Evaluación; personas con discapacidad.

**A IMPORTÂNCIA DA AVALIAÇÃO MOTORA COM OS PARTICIPANTES DO PROJETO PIRACEMA: ANÁLISE DA CONFIABILIDADE DA ESCALA DE DESENVOLVIMENTO MOTOR**

**RESUMO**

O presente trabalho, de caráter descritivo-exploratório, tem por objetivo a apresentação do perfil motor dos alunos participantes do Projeto Piracema – "Natação para Portadores de Necessidades Especiais" – projeto extensionista da Universidade de Santa Cruz do Sul – UNISC – atuando a 28 anos, atendendo alunos das mais diversas patologias. O objetivo do projeto é promover atividades no meio líquido de forma que os alunos aumentem seu repertório de atitudes na água e, quando possível, fora dela também. Participaram da pesquisa 35 alunos matriculados na APAE de Santa Cruz do Sul e participantes do Projeto Piracema, sendo 24 do sexo masculino e 11 do sexo feminino. As aulas acontecem 3 vezes por semana, com duração de 50 minutos por turma, sendo atendidas 3 turmas por dia. Para a coleta de dados foi utilizado o kit de Escala de Desenvolvimento Motor (EDM), compreendendo os seguintes aspectos: Motricidade Fina, Motricidade Global, Equilíbrio, Esquema Corporal, Organização Espacial e Organização Temporal. Através dos resultados obtidos, verificamos que a relação entre a Idade Cronológica (IC) e a Idade Motora Geral (IMG) dos alunos é de 21±4,1 anos. Na Motricidade Fina obteve-se resultados de 21±4,6 anos; na Motricidade Global, 21±3,6 anos; no Equilíbrio, 21±4,7 anos; no Esquema Corporal, 21±3,45 anos; na Organização Espacial 21±4,3 anos, e na Organização Temporal, 21±3,7 anos. Concluímos que os sujeitos dessa pesquisa apresentaram padrão motor bastante inferior em relação à sua Idade Cronológica. Estes resultados podem ter relação com as patologias dos alunos, pois estas não foram levadas em consideração. A partir do resultado dessas avaliações, foram realizadas adequações no planejamento e organização das atividades proporcionadas a esses sujeitos, nas aulas aquáticas do projeto.

**PALAVRAS-CHAVE:** Desenvolvimento Motor; Avaliação; Portadores de deficiência.