

Original Article

Contributions to the psychomotor development of children with motor disabilities from the perspective of their social integration through adapted physical activities

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Abstract

The present work represents a synthesis of the ample research in my own doctoral theses, through which we are trying to bring new ideas about the organization of adapted physical education for the social integration of preschool children with disabilities, which seems to be inadequate. [4,6,10,12]

For this reason, we have structured the work in three parts, with a very precise goal for each of them, as follows:

I. The application of SWOT analysis in the special centres in Dolj, to find out if there are any teachers of adapted physical education.

II. The initial evaluation of the chosen children, to see if the adapted physical education can be done with them and if the specific adapted programs are efficient through the progress of the children.

III. The early intervention, through the application of the adapted movement games, will act on the development of psychomotor capacity of the children as well as on obtaining social integration more rapidly. The change of the cardiac frequency of these children had been previously established during a physical activity for the future prescription of every child's effort and for the efficient elaboration of the specific adapted programs. Finding the kind of communication that can be approached with these children with motor disabilities is also important.

Material and methods

The place where the activity took place was The Centre for Early Intervention for Children with Disabilities – World Vision Romania - Craiova, where a group of 7 children was selected for the second stage of the research and a group of 9 children with medium motor disabilities aged 4-6/7 for the third part. Personal contribution is to be found in the adapted movement games that were developed.

The specific adapted programs were transposed into the lesson plans of the adapted physical education activity with these children by using, at first, physical exercises adapted for the children's disabilities and then, during the second stage of the research, movement games adapted for all the stages of the lesson.

The methods used in the research were classical as the research was about case studies and as a consequence, for the statistical method, we calculated the difference and the progress registered in the tests, for each case. We also calculated the percentage - the proportion (%).

Results and conclusions

The conclusions of the SWOT analysis are that there are no teachers of adapted physical education in these centres to complete the kinesiologist's efforts and to make the children's recovery more pleasant.

The interpretation of the results in the control tests of the second stage of the research was done through case studies, the children making progress from one test to another, which proves the possibility of carrying on the activity with them, as well as the efficiency of the adapted programs developed.

In the third part, the main goal was reached, the adapted movement games proved their efficiency by acting on the psychomotor development and by contributing to a faster social integration of the children with motor disabilities. For the effort assignment, a density protocol was applied whose results triggered the extension of the activity from 40 to 60 minutes, for the extension of the breaks. As for the communication, after the identification of the reasons and the social causes that generated learning difficulties, it was observed that the communication was verbal but it had an important role together with the nonverbal one, using both types of communication.

Key words: physical exercise, movement games, adaptation, evaluation, specific adapted programs.

Introduction

By motor disabilities we understand any kind of deviation from normal in the body's functioning and form, deviations that disturb the normal growth and development of the body, modifying its exterior aspect. [8]

In children of preschool age, drivability and smooth rough as well as the coordination of sensory-motor skills, represent ways to understand their environment, but also to discover and become aware of their own body. With the help of motricity (coarser and fine) and the coordination of sensory-motor the preschoolers discovers the environment they live and awareness of their own body. [12]

The study of psychomotricity shows us those aspects that allow the child to make his own system of movements with the help of which he can act in any condition, on his own decisions, with efficiency, spontaneity and celerity. [1]

Integrated education refers to the inclusion of children with CES into public education...in order to offer a favourable environment to the harmonious and balanced development of their personality. [11]

Research has highlighted the fact that eyes, face and body movements are generally more revealing about the nature of emotions and feelings than verbal behaviour. [7]

A game is a physical or mental activity, spontaneous and for no particular purpose, generating fun, pleasure and refreshing. [5]

The attitude of society towards disabled people has changed with time and it was not favourable to them. This, and the fact that there had been little research into this area (adapted physical activities for 3 to 6/7 years old children with motor disabilities) until we began of our research (2006), was one of the reasons for choosing this subject.

In 2004, Mirela Dan and Vasile Marcu from Oradea started research from the hypothesis that a kinetic program made by a kinesiologist on children with special educational needs (9 institutionalized children aged 4-6, with low mental delay), may lead to motricity development and to widening these children's area of integration. One of the conclusions drawn confirms that game therapy programs for children with the objective of developing psychomotricity may contribute, together with other components, to the integration of children into normal schools. The age and social integration of these children are the same but disabilities and the programs used are different. [6]

Gabriela Ochiana, from the University of Bacau, carried out an experiment between February 2002 and December 2004, with a frequency of 4 sessions a week. As similar aspects, the ten subjects between 4 and 7 years old with psycho-neuro-motor disabilities, were observed but the author used ludotherapy for their **recovery** not for their social integration. [10]

In her doctoral thesis (2007), *Căciulan Elena* asserts as a conclusion the fact that: „the most important means of neuromotor recovery belongs to physical education, sports and kinetotherapy and it is represented by the **physical exercise** which, associated with other specific/nonspecific means, contributes to the social integration of the child”. Even if it is about the social integration of the children with disabilities and the means is mutual, the adapted physical exercise, in the work mentioned, completes the other kinetotherapeutic methods for neuro-motor reeducation, in comparison with our research where it is used for the psychomotor development in the perspective of the social integration of children. [4]

From the research studied, previously mentioned, it can be seen that the subjects are the children that have very similar disabilities but for whom the movement games were applied for the kinetotherapeutic recovery as individuals, not a group as we did in our research. The innovation is the adapted programs, especially elaborated for the development of the psychomotor capacity and the social integration of these children.

The research consisted of three stages that we are going to present separately, later on.

STAGE I

The application of the SWOT analysis (March 2008) in the management of five Centres Of Recovery for Children with Disabilities in Dolj County (that exist at this moment) in order to discover if there are any teachers of adapted physical education and in order to later choose a centre for the research according to the SWOT analysis interpretation.

The first conclusion that comes out from the application of the SWOT analysis is that there are **no teachers of adapted physical education** to complement the kinetotherapists' work and for the transformation of the children's recovery into something pleasant, at least in the centres where this activity happens. In other centres, though, the adapted physical education activity does not even exist because most people considered this job as being not useful for their projects but during the SWOT analysis they came to the conclusion that it is needed. As a result **the implementation of an inclusive strategy for the position of a teacher of adapted physical education is necessary.**

STAGE II

This stage (the second) corresponded to the organizational stage of the research in The Centre for Early Intervention for Children with Disabilities - World Vision Romania – Craiova, while the group of 7 children was chosen according to age and the type and level of disability. Their common point was the cause of their disability (congenital), and they all also had **motor disabilities**.

HYPOTHESIS Stage II

✦ After the results of the initial evaluation of 3 to 6/7 year old children with motor disabilities, adapted physical activities can be done with them by specialized people and following a special syllabus of adapted physical exercises according to the children's disabilities and to the results of the control trials.

✦ After the application of the adapted physical exercises syllabus, they will prove their efficiency and the children will make progress from one testing to another.

The place chosen for the research that we have previously mentioned is right inside the Faculty of Physical Education and Sports in Craiova, making use of all its subsidy and of the volunteers from among the students at the kinetotherapy and physical education department.

Classical but adapted means were used, that is exercises for increasing speed, skilfulness and exercises for learning and hardening the basic motric and applied utility skills (except for the jump and escalade).

The adaptation of the physical exercises was done first of all by eliminating the kind of physical activities that were counterindicated for the type of disabilities that the children suffered from, then by graduating effort (intensity, volume, pauses) and by simplifying the procedure of doing some of the exercises.

The way of treating these means was applied by paying attention to the structure of the physical education lesson, by stages (didactic sequences), each lesson involving two subjects. The lesson lasted for 40 minutes and it represented elaborated adapted syllabuses.

The interpretation of the results at the control trials was done through **case studies**, and for that we are presenting one of the cases.

Individual evaluation paper G.A. (Stage II)

Subject: G.A. / **Age:**5-6 years old / **Disability:** Operated two-sided hip dysplasia

The interpretation of the results at the control trials (see table no. 1):

- The progress registered at the Flamingo 30" control trial, was of 50% (a difference of 5"), the time she kept ballance was relatively short (10"). In the initial testing, due to her disability, she still made individual progress. To Flamingo Test (adapted on 30 "), the subject GA has made progress to 50%, from initial testing of (where of the equilibrium stayed in 10") to final testing (where he succeeded to stand 15 "in the balance). Though the difference between the two tests was only 5 ", the subject however has made progress individually (see table no. 1).

- At the pitch-type throw to a fixed target, she was one of the children who built up the best score (10 points); starting from the initial test she advanced 20% (with a difference of 2 points);

- At the launch-type throw to bowls she made progress of 66.67% (2 bowls), this test being the one in which she made the best progress;

- In the speed trial, the ply, she did not make very good progress 2.75% (with a difference of 0.22), but, as a result of the initial testing, (8.23"), G.A. was one of the first three;

- At the out of step corking and uncorking testing, the results were relatively good (5.4") in relation to the other children, the result being of 27.66% (with a difference of 1.17");

- The dynamic equilibrium diminished her inborn excessive curiosity, specific to her age, getting initially the GOOD grade, first of all because of her disability of operated two-sided hip dysplasia but also because of her hyperactivity and her anxiety to find balance. After she understood the task of the equilibrium test and after the application of the means of equilibrium consolidation, she managed to get the VERY GOOD grade.

Table 1. - The results for all initial and final control trials, of G.A. child

TRIAL	Ti	Tf	D	D ₂₁ %
Flamingo 30"	10	15	5	50
Pitch-type throw to a fixed target	10	12	2	20.00
Launch-type throw to bowls	3	5	2	66.67
Ply (2,5m x 4)	8.23	8.01	0.22	2.75
Out of step uncorking	5.4	4.23	1.17	27.66
Dynamic equilibrium	B.	F.B.		

Conclusions Stage II

After the pedagogical observation of the physical activity that was done by the children with the help of the kinetotherapist of the centre and after the initial control trials were relatively easily accomplished, the first hypothesis was confirmed and the adapted physical activity could begin with the help of a specialized teacher. The adapted physical education syllabuses showed their efficiency (hypothesis 2), the subjects progressed in all tests even if it was not very significant but this is due to their disabilities and it is not a main objective in the activity with disabled children.

STAGE III

It corresponds to the application of the final research (the experiment itself - 5 August 2008 - 28 April 2009) and it consisted in the application of new elaborated means (**adapted movement games**) and in the checking of the efficiency of the adapted physical education, through comparing the results of the initial and final tests for every child who was a research subject.

The goal refers to the importance of early intervention through adapted physical education (adapted movement games), for 3 to 6/7 year old children with motor disabilities for their psychometric development and for their social integration.

Material, Methods, Results, Discussions and Conclusions

In order to accomplish the **goal** of social integration of the 3 to 6/7 years old children with motor disabilities by early intervention we have made special adapted intervention which is meant to determine the psychometric development of the children, as well as control samples and the tests for the evaluation of some indices of the psychometric ability and the Sociometrical Test - *The Portage Guided for Early Education*.

The research unfolded at The Centre of Early Intervention for Children with Disabilities - World Vision Romania – Craiova, where a group of nine children aged between 4 and 6/ 7 with medium motor disabilities was chosen.

To be a game, the activity should include educational characteristic elements of play: surprise, waiting for competition...During the game, the child comes into contact with other children or with the adult, so that *the game has a social character*. [2]

The specific adapted syllabuses are the lesson plans that were made for the group of 9 children which involved movement games for all the stages of the lesson from the first to the last, applied in two lessons per week, duration of lessons being an hour. These movement games are a means of activity transformed from the preliminary research (the ones that proved to be efficient and enjoyed by children in the way that they can easily do them and with great efficiency, too) and during which the teaching of the same lesson units was done analytically. The transformation involved the introduction into the existing exercises of extra tasks. Through individual and team competition, there were benefits to the social integration of the children firstly in the team and then in every-day life and later in easier integration into school life.

At the end of the research, after the application of the specifically adapted syllabuses, the tests were continued (the sociometric test and the evaluation trials of some indices of the psychometric ability) in order to compare with the indices from initial tests. The results were similar to the ones in the first testing.

The *methods used in the research* were classical as the research was about case studies and as a consequence, for the statistical method, we calculated the difference and the progress registered in the tests, for each case. We also calculated the percentage - the proportion (%).

Under the experiment, in addition to control samples and the tests for the evaluation of some indices of the psychometric ability and the Sociometrical Test - *The Portage Guided for Early Education*, I used as a new factor the platform of plantar pressure distribution Footscan Scientific Version, RSSCAN International, Olen, Belgia that is able to make measurements with a frequency of 500 Hz. and register the entire action of both plantars.



Figure 1. – Platforma RSSCAN

I used this platform to consider the plantar pressure distribution in orthostatism, for children with motor disabilities in order to establish the floor laterality, sustaining the obtained results with **adapted tests**, previously applied in our research and also for the kinetotherapist of the centre who will take over and make plans for personalized interventions during the recovery sessions.

RESEARCH HYPOTHESIS NO. 1 – Stage III

A really useful activity can be done if we find the changes of the cardiac frequency of the children with disabilities during the adapted physical activities in order to prescribe the effort later, for each child, taking into account the disability.

For the acknowledgment of hypothesis no. 1 we carried out research to confirm the effort dynamic in the adapted physical activities lesson for children with motor disabilities. As a follow-up we used a density protocol in an adapted physical activities lesson for 3 to 6/7 years old children with motor disabilities to observe the changes induced by effort, the children's body and to prescribe after that the effort for every single child and to adapt the physical activity.

The interpretation of the lesson density and of the effort dynamic:

- The planned duration of the lesson was of 40', but it lasted for 38' which represented a density of **95,95%**, with a teaching density of 63,68% and a motric density of 32,27%.

- *The teaching density* was higher even though no lessons with teaching objectives were anticipated but during the activity with disabled children the teacher has the supplementary task of permanent **help**, besides demonstration, explanation and correction.

- *The motric density* was smaller because the main goal of the adapted physical activity lesson is for these children to succeed in doing the exercises but not with a high volume and intensity due to their physical disabilities.

CONCLUSION 1 - Stage III

The pulse rate showed normal variation in the structure of the lesson on stages, even if for some children it was higher (they get tired quickly both because of the age and the disabilities that induce extra effort), which made us increase only in volume, the length of the activity from 40 to 60 minutes, in order to be able to make longer breaks between the exercises, so that the children’s pulse could get back to normal in order to continue the following exercises.

RESEARCH HYPOTHESIS NO. 2 – Stage III

In the framework of identifying the reasons and social causes that create **communication** difficulties, on the basis of the student-teacher relationship, during the adapted physical activities, we will observe the type of communication appropriate to the age of the children involved in the research. During the beginning of adapted physical activities we set as a goal (by different types of communication, with no great emphasis on a certain type) **to find** the kind of communication appropriate for the age of the children involved in the research.

CONCLUSION NO. 2 - Stage III

After the analysis of the information gathered from the specialists of the centre about the family situation of each child we can ascertain that for a child with a physical disability, it is not the abilities of assimilating motric knowledge, habits and competences which are altered but the means of access to exercising conditions. Not all the children with disabilities who are registered in specialized centres for different reasons (disorganized families, the living conditions, the distance to the centre) can benefit from the facilities they would get from coming on a regular basis to the activities of the centre (and we are not talking about the legal ones). Having identified the social causes of low student-teacher communication during the research, we concluded that for these children verbal communication is very important along with the non-verbal communication; in this way *both types of communication are being used (hypothesis 2)*.

RESEARCH HYPOTHESIS NO. 3 – Stage III

We believe that the usage of movement games has a decisive part in the development of the psychomotoric ability for 3 to 6/7 yearold children with motor disabilities. In order to **acknowledge** hypothesis no. 3 (stage III), we have chosen the case study of G.R., interpretations of the control samples and the tests for the evaluation of some indices of the psychometric ability and those from the measuring and scanning of the plantar pressure by using The Pressure Platform RSSCAN.

1. CONTROL SAMPLES for the evaluation of the psychomotoric abilities

Table 2. The results of the tests (initial and final) to control samples - G. R.

CONTROL SAMPLES	Ti	Tf	Difference D ₂₁	Progress D ₂₁ %
Launch-type throw to bowls	6	11	5	83.33%
Pitch-type throw to a fixed target	16 p	20 p	4	25%
Ply (2,5m x 4)– adapted	9".31	8".48	0.85	9.14%
Out of step corking and uncorking of a small plastic recipient	8".38	7".43	1".35	16.11%
Dynamic equilibrium	4 p	8 p	4	80%

- ❖ **Launch-type throw to bowls** - the progress was of **83.33%**, representing a difference of 5 extra bowls, knocked down from the initial to the final test and a final percentage of 61.11% (11 bowls) from the total number of bowls, with the possibility of knocking them down in two tries (9 bowls x 2 tries = 18 bowls).

- ❖ **Pitch-type throw to a fixed target** – G.R. really enjoyed this test and did it with maximum efficiency (20 points from two tries) in the final test and progress from the initial test with 25% (4 points).

- ❖ **Ply (2,5m x 4) – adapted** – even with spastic tetraplegia she had good results in this test with progress from the initial (9".31) to the final test(8".45), with **9.14 %** and a difference of 0.85" (table no. 2).

- ❖ **Out of step corking and uncorking of a small plastic recipient** – had progress from the initial (8".38) to the final test (7".43) with **16.11 %** and a 1".35 difference.

❖ **Dynamic equilibrium** – scores turned into points for each and, in this case, the difference from one test to the other is 4 points, with progress from grade S (4 points) in the initial test to grade B (8 points) in the final test. Including in the percentage for the final test in 80% (8 points - B) from the total number of points (10 for FB), the maximum score that can be obtained (see the table no. 3).

Table 3 - Table of points corresponding to the ratings

Qualifier	Insufficient (IS)	Sufficiently (S)	Well (B)	Very well (FB)
The scores obtained	2	4	8	10

The conclusion (about the *control trials*) - The control trials, for the testing of the psychometric level, offer us a clear image of the level of psychometric development, and the accomplished progress, from the initial to the final testing, confirms *hypothesis no. 3*.

2. THE TESTS for the evaluation of some indices of the psychometric ability (in order to establish the laterality of the hands and floor) - an overview of tests with customization to the case
 Laterality represents „the functional predominance of one or the other of the two symmetric apparati: of a hand, of an eye that determine the left or right-handed or eyed people” (Pieron, H., quoted by Horghidan, V., 2000). [8]

We used tests for determining laterality because in the following adapted physical activities we want to insist on doing these exercises with the less dominant side (even if we have worked for *ambidexterity and ambilaterality*) and for the specialists of the centre for specific activities (psychologist, educator, kinetotherapist).

Test no 1. – R. Rigal test for hand laterality – adapted for 3 to 6/7 years old children with motor disabilities involved in the research - For the *interpretation* of the results the points that the child has obtained for each activity will be counted following the next explanations: - **14 and – 8** - left-handed; - **7 and + 7** - ambidextrous; + **8 and + 14** – right-handed (see table no. 4).

Table 4 – The scores obtained by children for each activity and the total points

His hand used for	G.R.	M.A.	C.R.	T.A.M.	P.A.	B.R.	G.A.	B.M.	C.N.
1 Disposal of a ball	2	2	2	2	2	2	2	-1	2
2 Brushing teeth	2	2	-1	-1	2	2	2	-1	1
3 Combed his hair	1	2	2	2	1	2	1	-1	2
4 Writing	2	2	2	2	2	2	2	-2	-2
5 Eat	2	2	2	1	2	-1	2	-2	2
6 Draw	2	2	2	2	2	2	2	-2	-2
7 Touching textures	2	2	-1	1	2	0	0	0	1
TOTAL SCORE	13	14	8	9	13	9	11	- 9	4

G.R. scored 13 points which means, after the test interpretation, that he is **right-handed** but he mainly uses the right hand because of his spastic tetraplegia, too.

Test no. 2 - Test of interlacing fingers for hand laterality

The interpretation –the children with right-handed lateral predominance were evaluated to see if after a few clapping sounds they leave up the thumb of the right hand or the children with left-handed lateral predominance if they leave up the thumb of the left hand. The adjustment consisted in the fact that the speed of the clapping was not taken into account and neither was the fact that some children had difficulties in the fast interlacing of their fingers, these ones being left to act in their own pace until they succeeded in order to register the result.

G.R. has right manual lateral predominance, stressing the results of the R. Rigal Test (13 points).

Test no. 3. – The test of out of step corking and uncorking of a small plastic recipient in order to find out the hand laterality

Instructions – The test was applied in order to determine the hand laterality The teacher set in front of the children, on the table, a 0.5 litre bottle telling them that, for the beginning, they had to take it from the table. The next instruction was to uncork and then to cork it again. These steps were used because some of the children, even if they took the bottle with one hand, for the corking or uncorking it, they used the same hand. That is why, later, they moved the bottle to the hand they preferred for the activity. For the children who did not understand the task (1 or 2), it was explained again but only after they took the bottle from the table. **The adaptation** of the test was done by letting the children who did not succeed keep the bottle between the elbow and the body using their hand only to hold the neck of the bottle in order not to drop it and cork or uncork it. In the case of **G.R. right** manual laterality was found and he kept the predominance of using the right hand, in all the laterality tests applied.

Test no. 4. – The pretest for hand and floor laterality from *Bruininks-Oseretsky Battery*– adapted
Interpretation – it was registered for **hand laterality**, the hand that the children used to throw the ball (not the one used to take the ball from the table). For the **floor laterality** the left or the right leg was registered according to the leg they used to kick the rounders ball set at 15 cm in front of the tip of their toes.

G.R. presented right manual laterality and right podal laterality.

Test no. 5. - Flamingo test (adapted for 30'') – for floor laterality

The adaptation of the test for children with disabilities was by letting them raise one bent leg in front of them and get their balance with both arms. All children were initially helped by volunteers until they got their balance, then they will be left alone but permanently monitored (as shown in table no. 5).

Table 5 – Results obtained from the Flamingo Test (30'')

Time (in seconds)	G.R.	M.A.	C.R.	Ț.A.M.	P.A.	B.R.	G.A.	B.M.	C.N.
Right leg	10	11	18	17	3	30	12	23	2
Left leg	18	13	14	25	1	22	10	29	5

G.R. managed to stand on his left foot 18'' (60%) from the total standing time (30''), with 8'' more than on the right, that is 10'' (33.33%), having, thus, left podal laterality, also using the right foot to kick the balls and getting his balance on the left foot.

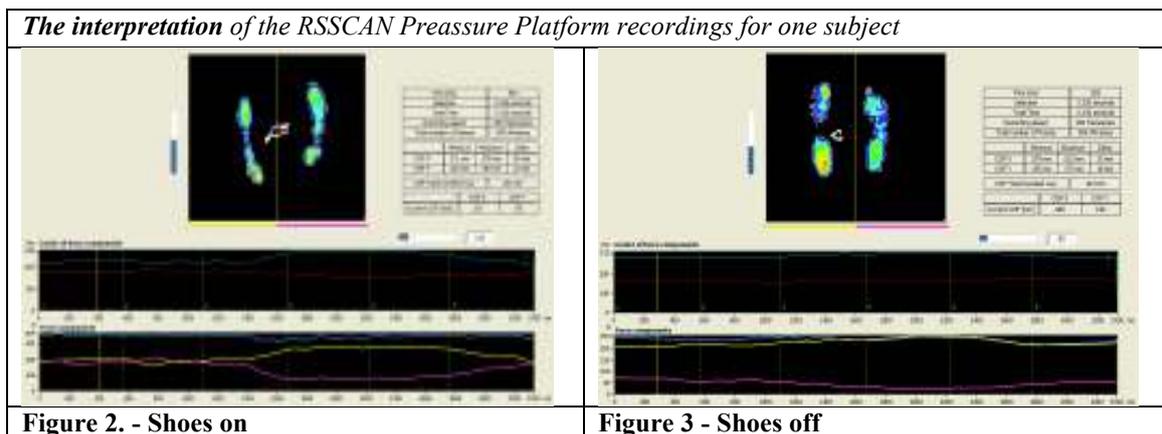
After interpreting all the tests for determining manual and podal laterality, **G.R.** was found to have **right manual laterality and left podal laterality** mainly due to his disabilities having, thus, **crossed laterality**.

In order to draw the conclusion on the results of the applied laterality tests we will take into account P. Bizouard's assertion according to which „laterality, during infancy suffers numerous modifications being easily influenced until the child will learn to write when it becomes stable.”[3]

The conclusion (about the tests for determining laterality) was acknowledged after the determination of the lateral predominance, for 3 to 6/7 year olds with motor disabilities, did not suppose the radical modification of the adapted syllabuses, already made, because their operational structures (*adapted movement games*), were concerning the development of ambidexterity and ambilaterality, from the beginning of the research. Still, the results of the test helped us realize that in the future, we should insist on making exercises with the side that is not dominant.

3. The measuring and scanning of the plantar pressure by using The Pressure Platform RSSCAN

The measurements were made at The Centre of Research of The Faculty of Physical Education and Sports, University of Craiova in the 25th March 2009. The resulting data were directly processed, with a specific RSSCAN soft and the evolution of the contact pressure, by time, was found as well as its repartition on the characteristic plantar anatomic parts during the bilateral support moments.



For G.R., from the interpretation, it was found that the subject has the tendency to rest on his **left** foot which confirmed in his case, standing on the **left** foot for 18'' (60%) from the total standing time (30''), with 8'' more than on the right foot in the adapted Flamingo test as well as resting the whole body weight on the **left** foot in order to kick the ball with the right foot in the Bruininks-Oseretsky Battery pretest.

The conclusion (about the RSSCAN Pressure Platform) - After the interpretation, the precise determination of more or less repartition on one foot or relatively even repartition on both feet according to the children's disabilities is justified since the data can be taken from the kinetotherapist of the centre for the easy elaboration of the personalized intervention plans.

In most cases the results obtained in classical tests of determining the floor laterality were **confirmed**.

CONCLUSION NO. 3 - Stage III

The tests and the evaluation trials of the psychomotoric indices gives us a clear image of the level of psychomotoric development and the progress made from the initial to the final test confirms **hypothesis number 3**. On the other hand, for the therapists of the centre, these tests can represent operational objectives in the elaboration of personalized intervention plans and at the same time can suggest doing the activity as a game. Also, the acknowledgment of the hand laterality is, first of all, important for the psychologist of the centre in his/her future activity with each child.

HYPOTHESIS OF RESEARCH no. 4 – Stage III

Making early intervention by applying some adapted physical education syllabuses for 3 to 6/7 year old children with motor disabilities we will be able to obtain much faster social integration.

The acknowledgment of hypothesis no. 4 was done by using The Sociometrical Test - The Portage Guide for Early Education – useful for children with belated *motric development*, speech, cognitive processes and *socialization*.

The age of the children the Portage Guide was applied to does not strictly fall within the age ranges of the guide (0-6 years), some of them being 1 year older than the age range they had been tested for. This is because of the fact that the guide was elaborated for children with no disabilities but with delays in developing motricity, speech, cognitive processes and socialization. In the case of our children who have motor disabilities that limit the acquisition of some items earlier, applying the Guide to older ages has been useful.

The reason for which the Portage Guide was used was for the evaluation of the motric acquisitions (the motor area) of the children at a certain moment (from one test to another), as well as for the interpretation of the socialization level (the socialization area) of the children.

The items from the applied areas, at the age of 4 or 5, were considered to be the initial testing (6th March 2008), and for the final testing (9th March 2009), we interpreted the items at the age of 5 or 6.

The interpretation of the Portage Guide

For every single child an PORTAGE evaluation file was made, on which basis the results were interpreted by subject (G. R.).

Table 6 - Graphic representation of the Portage Guide Areas – for G. R.

Areas	Speech	Cognitive	Motor	Self-servire	Socialization	Total age
Tests	1	2	3	4	5	(1+2+3+4+5)/5
T i (4-5 years old)	80%	72.72%	23.53%	39.13%	44.44%	60.55%
Tf (5-6 years old)	92.85%	81.81%	44.44%	64.28%	81.81%	71.22%
Difference	12.85	9.09	20.92	25.15	37.37	10.65
Progress %	16.06%	12.50%	88.94%	65.27%	84.10%	17.58%

G. R. (spastic tetraparesis, ECI) of 6-10 years old, had a relative progress from one test to another for each area of the Portage Guide, such as: speech (16.06%), cognitive (12.50%), self-help (65.27%), substantial progress was registered in motricity (88.94%) and socialization (84.10%). Totalling the progress of the areas for 4 to 5 years old period, G.R. had a percentage of 60.55% (>50%) which represents the fact that he belongs to the upper limit of the age period, that is 5 years old even if he was 5-10 years old in the initial testing. The same is valid for 5-6 years old period, the percentage being superior to the previous period (71.22%), with a 17.58% progress that also situates the child to the upper limit of the period, that is 6 years old, even if he is 6-10 years old (as shown in table no. 6).

Even if, in terms of age, the children do not all fit the guide periods, they go towards the upper limit of the period without reaching it, some reaching the lower limit, but making progress from one test to the other, as well as remarkable progress in motricity and socialization.

CONCLUSION NO. 4 - Stage III

It was observed that by applying specifically adapted syllabuses (movement games) and by accomplishing the motric activities inside them, the children became more confident in their own abilities, accepted more easily the group activity, learned how to work together to do and finish their tasks. In this way the conditions for a **favourable social integration** are created, as proved by the significant progress of all children at the socialization area of the Portage Guide (hypothesis no. 4).

PROPOSAL

The personal contribution of the author to the present research, is found in the elaborated *adapted programs*, that can be easily used due to their detailed description. The programs are addressed to all domain

specialists (teachers, kinetherapists, students from the profile faculties, educators and volunteers that work with disabled children) and are worth applying as they are attractive and contribute to the integration of these children.

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