

## Original Article

### Development of psychomotor capacity in 3rd and 4th grade primary school pupils

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**Abstract:** The didactic strategy conditions the quality of the training process. It gives a basis from design to action. It can show us how to proceed in order to solve a problematic situation of a lesson type without giving a precise solution. The strategy could also mean a manner of programming a teaching-learning activity under maximum effectiveness. “One way to combine the didactic methodology and education means by which selection, organization and carry out of an instruction sequence is ensured”, by Cerghit, I., 1997 quoted by (Sacară, L., Dămian, I., Macarie, G.F., Tebeanu, A.V. (2006), Psychopedagogy in syntheses, EduSoft Publishing House, Bacău – p. 85);

**Key words:** action, elementary school, psychomotor capacity, optimization, strategy, psychomotor means.

#### Introduction

“Psychomotricity is generally defined as: Totality of motor functions considered under their relations as cerebral activity, especially with psychism”/ Ardelean, T. (2006). The problems of normal Psychomotricity is part of the child’s development psychology, targeting succession and interaction “psychomotor, intellectual, social-affective development” defining note by: - Tourrette, C., Guidetti, M. in (1998). “The psychic and the motor are not two distinct categories, one subjected to thought and the other to physical and physiological mechanisms; on the contrary, they are the bipolar expression of one process, that of effective, flexible adaptation to external conditions” Dragnea, A., Bota, A. in (1999).

Physical education, as a component of general education, contributes to the development and **improvement of the child in terms of motor skills**; stimulating the intellectual activity and certain affective processes; developing certain group relations; **activation of certain psychical processes**; developing some skills and qualities in the work process; refining the body organs, functions, apparatuses; refining certain particular notes which appear in the activity of certain organs, apparatuses, processes, as an effect of practising physical exercise; sense of the ball, sense of rhythm, of tackling, peripheral vision, tactical thinking, motor memory, kinesthetic sensations, etc.

“By didactic strategy is understood a coherent system of methods, didactic materials, means, reinforced by a number of principles, rules, teaching/learning styles and forms of organization of activity, combined fortunately so as to fully achieve well-defined operational objectives” by (Colibaba, Evuleț, D. 2007, Curricular praxiology and design in physical education and sports, Universitaria Publishing House of Craiova, p. 137). It seems paradoxical, but it is real and noticeable the fact that there are children who no longer know how to play and this is where several factors come in which, many times stop and result in the behavioral inhibition of children, a first aspect of the new system of modern technologies that are put at their disposal, many times by their parents (who are modern, but on the other side, insensible); here, we are referring to the cell phones having different technologies, computer, internet, etc. We do not wish to be misunderstood, they come with great advantages in children’s intellectual development and baggage of knowledge; however, most of the times, they are put at their disposal with no limit of use, quote by, (Cojanu Florin in 2009, in his, Study of rethinking the structure on the project used for teaching the lesson of physical education, Magazine No. 3., Vol. 24, September - Journal of Physical Education an Sport - University of Pitești. Vol. 24). Physical education, as part of general education, pursues to achieve certain objectives, derived from the educational ideal, formulated at some point by society for which the subjects taking part in this kind of activity are being trained. Among the general objectives that physical education proposes to achieve is also the one concerning the harmonious development of human personality by influencing both in terms of prophylaxis (prevention of negative outcomes), and remedial (remedying the negative traits which can appear at some point).

#### Motivating the theme’s choice

Specialty studies show an insufficient development of psychomotor capacity nationally, pupils in the elementary school in 3<sup>rd</sup> and 4<sup>th</sup> grades being in this category. After analysis of specialty studies relating to the planning documents in the physical education and sports subject for elementary school, certain aspects were revealed, which we think may be improved effectively. *We think it is essential that the bases of practical imprint*

*may be put on improving psychomotor capacity, both on the general and specific motor skills means, and on psychomotricity by specific means adapted to the didactic process.*

### **Purposes, objectives and tasks related to objectives**

*Purpose of the experimental research.* The purpose is to design the physical education's contents through psychomotor capacity's structure, which would impact positively the two components, general motor skills and psychomotricity by using a complex system of action using specific means and materials within the physical education lesson, but also the identification of new strategies of acting in an optimum manner in accordance with the current level of physical and psychical development of pupils from elementary school. Also, we wish to question and analyse the ideas of the specialists in the field relating to the systematization and use of psychomotor means in the physical education and sports hours within elementary school, to experiment in a preliminary process the thematic unit of learning that we have designed, to identify the parameters of psychomotor capacity using tests and assessment examinations, appropriate both to the general motor skills, and to psychomotricity.

*The research report's purpose gives rise to the following practical objectives*

1. Choice of the didactic environment to apply the practical preliminary experimental part, selection of samples, presentation of the thematic units proposed and designed by us, identification of the level of general motor skills parameters, but first, the most important parameters appropriate to psychomotricity's components, putting into practice the thematic units on a pre-set period of time on the experimental sample;
2. Identification and presentation under any type of example of thematic units of learning by implementing psychomotor means with a predominant percentage, comprising noticeable and measurable operational objectives;
3. Identification of tests specific to psychomotricity which would correspond first to the essential parameters of psychomotricity's components which can be optimized formatively and cumulatively in the process specific to the physical education and sports hours in elementary school;
4. Storage of data issued from applying initial and final tests within the preliminary experimental process, both within the experimental sample, but also in the control sample, introduction to the electronic database, analysis and interpretation from a statistical point of view;
5. Setting out new directions to act based upon the conclusions drawn from the preliminary experimental process, which will lead to designing new strategies to act within the current didactic process in the physical education and sports hour in elementary school, that would act with a quality impact on the optimization of the psychomotor capacity of pupils from elementary school, 3<sup>rd</sup> and 4<sup>th</sup> grades.

### **Hypotheses of the experimental research**

1. We think that if we design and make the physical education's contents for elementary school from the complex perspective of psychomotor capacity, we will then be able to determine the enhancement of the parameters to act on the appropriate readiness, both of the motor, and the psychomotor side.
2. From the perspective of the strategies to act on the optimization of the psychomotor capacity, we think we will be able to improve the quality process of development of the two sets of parameters, motor and psychomotor, only if we will create thematic systems of acting with a predominant content of psychomotor means adapted to the process and provided by operational objectives measurable and noticeable (quality of the didactic process).

### **Research methods**

Study of the specialized literature;  
 Observation method;  
 Questionnaire method;  
 Measurements method – examinations and assessment tests used to identify values of the general motor skills indicators and the level of psychomotricity's parameters;

### **Testing the psychomotricity of pupils in elementary school**

- Test no. 1. – Ability to focus ( Bourdon test);
- Test no. 2. – Visual capacity ( Lalume test);
- Test no. 3. – General coordination ( Matorin test);
- Test no. 4. – Vestibular balance (Romberg test).

Statistical- mathematical and graphical representation methods.

### **Stages of the experimental tests carry out and programming the application of thematic units having a predominant percentage content of psychomotor action systems.**

1<sup>st</sup> stage: Initial testing of the two samples – experimental and control- took place during the period October 22<sup>nd</sup> -October 26<sup>th</sup>, 2012; this stage constituted the initial testing both for the preliminary experiment, and for the experiment itself. Over the following period it was begun the systematized application of thematic units of learning which contain action systems specific to general motor skills cumulated and persistent as percentage by means specific to psychomotricity. We think that these two sides present in the specific means of

acting, both of general motor skills, and psychomotricity will contribute to the improvement of psychomotor capacity of the pupils from elementary schools, 3<sup>rd</sup> and 4<sup>th</sup> grades. We are going to put this statement into practice in order to be able to confirm it.

2<sup>nd</sup> stage: Final testing within the preliminary experiment but the intermediate stage 1 within the basic practical experimental process; this stage took place during the period December 17<sup>th</sup> -December 22<sup>nd</sup>, 2012. This period represents the first registration of data gathered from the tests on the two samples – experimental and control-tests which aimed both at general motor behavior, and psychomotor behavior of pupils in the research. The results will provide information relating to the impact from using the thematic units of learning that we proposed and applied. Thus, we think that we will be able to identify a gateway to the complexity of the psychomotor capacity parameters specific to the behavior of pupils in elementary school.

3<sup>rd</sup> stage: Intermediate testing 2 within the basic practical experiment, which took place during the period March 18- March 22, 2013, testing which gave the most consistent data by interpretation relating to the improvement of the psychomotor capacity parameters of pupils in the elementary school, 3<sup>rd</sup> and 4<sup>th</sup> grades.

4<sup>th</sup> stage: Final testing, which concludes the experimental practical process that took place during the period June 17<sup>th</sup> -June 21<sup>st</sup>, 2013; the results will point to the impact of the strategy to apply the thematic units of learning that we made, with a content of systems of action by psychomotor means, but also general motor means. By using the two sides comprised by the strategy of action following application of the thematic units of learning, namely general motor and psychomotor, the predominance being of the latter, we think that we will act specifically on the most important parameters of psychomotor capacity.

#### **Evaluation design drawn-up with a view to determine the level of psychomotor capacity parameters in the pupils under research.**

We decided to carry out the process of applying tests and examinations specific to general motor skills on four stages: initial, intermediate 1, intermediate 2 and final, and the tests and examinations specifically appropriate to the psychomotricity components be applied for each component separately, but in four stages as well: initial, intermediate 1, intermediate 2 and final; in the preliminary experiment we decided to conduct only 4 tests to identify psychomotor components which correspond to the most important of them.

The drawing-up of adequate and balances thematic units of learning is necessary, in order that all pupils may participate in the activities within the physical education and sports hours in elementary school. We think that thematic units of learning should pursue both physiological and mental development of the pupils and the acquiring of sports skills, through an effective process to be effectively usable and necessary and social life.

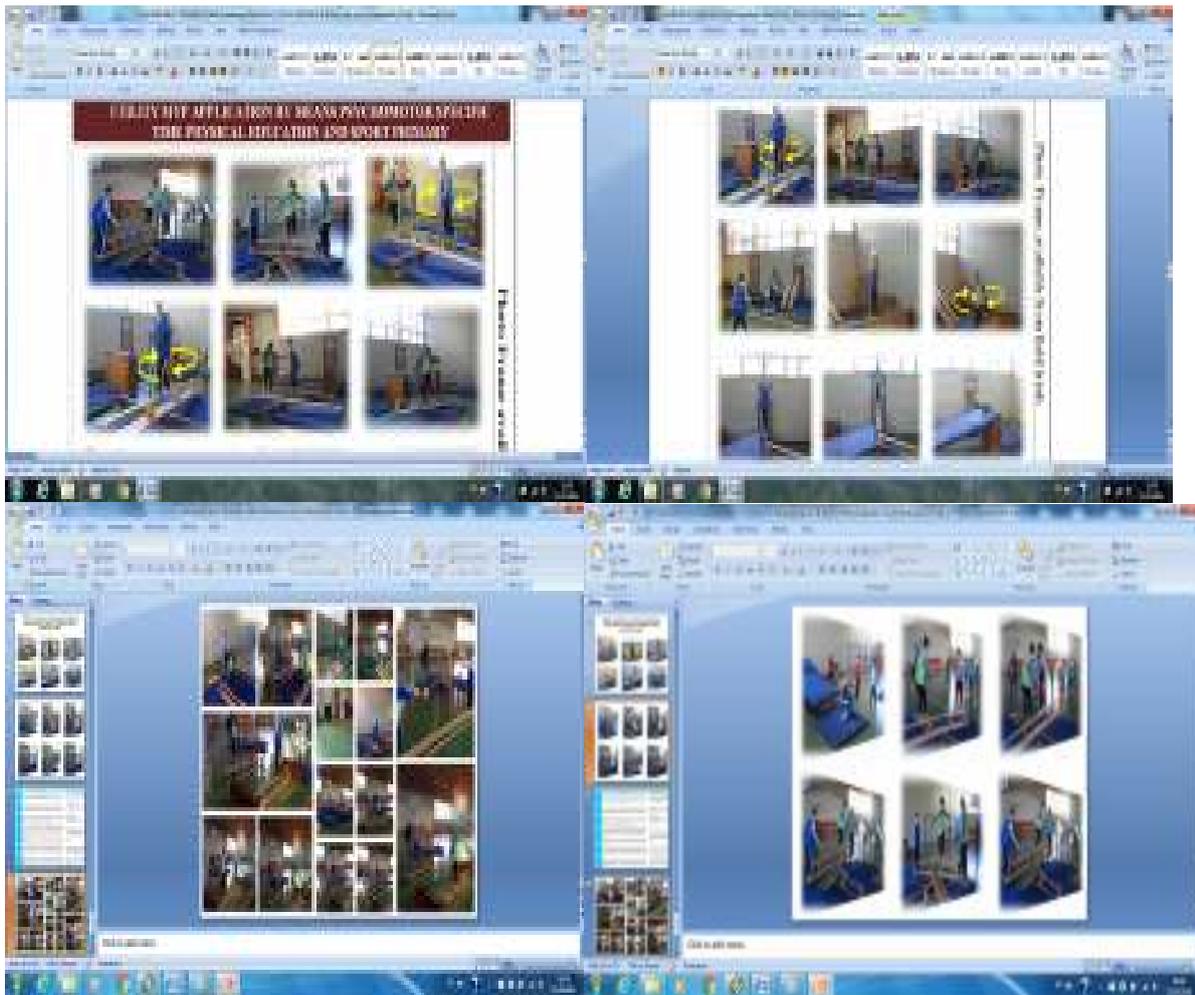
The diverse range of thematic units of learning that we designed considered the essential modalities of learning which should express the needs of all pupils, allowing them to develop their entire potential from psychomotor point of view, implicitly to correspond to a strategy to optimize the development of the psychomotor capacity of pupils in elementary school. Starting from these conclusions drawn from the specialized literature's analysis and following the carry out of a questionnaire on the specialty teaching staff, we have selected in our scientific research matters which can point out to the structure and content of the training level of pupils in the 3<sup>rd</sup> and 4<sup>th</sup> grades, as well as the input these activities make on the psychomotor capacity's development exhibited at this age. The process of the strategy to act so as to accomplish and apply the thematic units consisted of creating systems to act with a predominant content of psychomotor mean specifically adapted to the activity in the physical education hour, systematized to application tracks, dynamic games and relays cumulated with traditional thematic content found in the school curriculum for physical education and sports curriculum set out for the elementary school, 3<sup>rd</sup> and 4<sup>th</sup> grades.

The structure of the thematic units in terms of selection and systematization of means specific to psychomotricity, according to the specialty studies in the international literature (the German author Schneider, H., in (2004) in his work: *Koordinativen psychomotorischen - Schulung der koordinativen und psychomotorischen, Fähigkeiten – Wie kann man die „Kopplungsfähigkeit“*), recommends a complexity of ways to act specific to psychomotricity used within the didactic process specific to school physical education hours. The statements of the German author are continually interacting with the reflection of psychomotricity's components, applied systematically and as means specific to the development of the psychomotor side in the physical education and sports hours in elementary school.

Actually, psychomotor means are used in all the thematic units of learning, systematized diversely for accessibility, to allow the accomplishment of operational objectives, proposed by the design of the thematic units' specific both to motor skills: basic, application utilities, specific to certain tests or sports branches, and to psychomotor qualities.

The intervention action on the thematic units of learning was carried out by us with a view to identify a new strategy of action within physical education and sports lessons in elementary school, 3<sup>rd</sup> and 4<sup>th</sup> grades, which will act on the structure of psychomotor capacity, having formative impact over the two component sides, general motor skills and psychomotricity, by a complex system of action by specific materials and means.

**Table 1. DESIGN OF THEMATIC UNITS – 4<sup>TH</sup> GRADE  
THE SKILLS OF CRAWLING, PUSHING, PULLING AND DEVELOPING PSYCHOMOTRICITY**



**Results obtained after applying the assessment instruments suggested**

The preliminary experimental study has proposed to research the actual level of motor and psychomotor training in pupils within the 3<sup>rd</sup> and 4<sup>th</sup> grades reference. Thus, within the preliminary experiment, we pursued to demonstrate hypothesis number 2, which states that: *from the perspective of the strategy to act on the optimization of the psychomotor capacity, we think we will be able to improve the quality process of development of the two sets of parameters, motor and psychomotor, only if we will create thematic systems of acting with a predominant content of psychomotor means adapted to the process and provided by operational objectives measurable and noticeable (quality of the didactic process), fact proven correct by the results obtained following the carry out of eight general motor skills tests and four tests which capture the main components of psychomotricity. We think that this process to improve the component parameters of the general motor skills side as a support pillar and within the own practical experiment, thus laying the support base for the psychomotor capacity developed by pupils from elementary school, 3<sup>rd</sup> and 4<sup>th</sup> grades. On the evolution of results in the 4<sup>th</sup> grade in initial testing*, we notice that to the comparative analysis of significance t- test of the two samples under research (control-experimental), none of the **eight trials** making up the general **motor skills profile** was statistically different.

	25 m	Standing long jump	4-cycle exercises	Agility	Hanging exercise	Abdomen	Push-ups	Target throw
t critical	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.01
t calculated	1,54	1.14	1,52	1,57	1.69	1.94	1.87	1.88
p	0.128	0.259	0.134	0.122	0.09	0.06	0.07	0.07

However, we can see that *on the evolution of results in the 4<sup>th</sup> grade in the final testing*, the comparative analysis by the t-test of the two samples under research (control-experimental) shows that one (**Hanging exercise**) in the **eight trials** making up the general **motor skills profile** was not statistically different.

	25 m	Standing long jump	4-cycle exercises	Agility	Hanging exercise	Abdomen	Push-ups	Target throw
t critical	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.01
t calculated	2.24	4.01	2.91	3.32	1.97	2.47	3,5	2,87
P	0.02	0.0002	0.005	0.001	0.06	0.01	0.001	0.006

In the examinations regarding the *evolution of results in the 4<sup>th</sup> grade in the initial testing*, the comparative analysis by the t-test of the two samples under research (control-experimental) shows that none of the **four trials** making up the *psychomotricity profile* was statistically different.

	Bourdon T.	Lalume T.	Matorin T.	Romberg T.
t critical	2.01	2.01	2.01	2.01
t calculated	1.08	0,428	0,839	0,682
P value	0.283	0.670	0.405	0.498

However, we can see that *on the evolution of results in the 4<sup>th</sup> grade in the final testing*, the comparative analysis by the t-test of the two samples under research (control-experimental) shows that three of the **four trials** making up the *psychomotricity profile* were statistically different, except for the Matorin Test.

	Bourdon T.	Lalume T.	Matorin T.	Romberg T.
t critical	2.01	2.01	2.01	2.01
t calculated	2,08	2,43	1,53	2,14
P value	0.04	0.01	0.131	0.03

**The specific strategic directions to act in relation to the optimization of the psychomotor capacity in the pupils from elementary school, 3<sup>rd</sup> and 4<sup>th</sup> grades are:**

Thus, the essence of strategic ways to act so as to optimize the psychomotor capacity of the pupils in elementary school, grades 3 and 4 are: Systems to act, made up of psychomotor means, designed and adapted specifically to the physical education and sports hours in elementary school lie at the basis of the action strategy within the didactic process of the thematic units of learning; Application of the thematic units programmes made by us within the preliminary experiment in carrying out the didactic activity specific to the physical education and sports hours in elementary school, 3<sup>rd</sup> and 4<sup>th</sup> grades on the experimental sample selected out of 50 pupils, a classroom of 25 pupils in 3<sup>rd</sup> grade and one of 25 pupils in 4<sup>th</sup> grade; Carry out of didactic activity by using thematic units made by us within the preliminary experiment consisted of a different activity of fulfilling homework, different from the classical activity, provided by the Physical Education and Sports Syllabus in that psychomotor means were accessed directly, designed in **accordance/coefficient manner** with the means specific to general motor skills; The application content of psychomotor means, specifically adapted to the didactic process appropriate to the carry out of physical education and sports hours in the elementary school bring a favorable input through applying during the lesson a number of variables of materials and accessories, but more than that, accent is laid on storing the motor skills specific to the different sport branches under varied conditions.

**Conclusions**

We nominated the commencement structure within the design of conclusions drawn from the carry out of the preliminary experimentation stages as hypothesis no. 1: *We think that if we design and make the physical education's contents for elementary school from the complex perspective of psychomotor capacity, we will then be able to determine the enhancement of the parameters to act on the appropriate readiness, both of the motor, and the psychomotor side.*

**Starting from this hypothesis, we have drawn the following conclusions:**

Following data interpretation from a statistical point of view, resulted from the carry out of the preliminary experiment, we think that by applying the thematic units of learning, made under a specific content of psychomotor action systems, systematized and implemented into dynamic games, relay races and application tracks, applied within the physical education and sports hours in elementary school, 3<sup>rd</sup> and 4<sup>th</sup> grades, new perspectives of operational objectives' achievement will be brought forth;

To conclude, from a statistical point of view relating to the interpretations specific to our field of activity, we can confirm that by applying the thematic units of learning, **carried out with a specific content of systems under psychomotor action, designed on the basic substratum of classical units**, applied within the physical education and sports hours in elementary school, 3<sup>rd</sup> and 4<sup>th</sup> grades, lead the specialty didactic process to a quality and effective impact of optimization of psychomotor capacity.

Implicitly, this strategy to apply the thematic units of action carried out by us with a predominant percentage content of psychomotor means cumulated with those recommended and found nationally in the school curriculum of physical education and sports, will lead to the optimization of the achievement of school physical education's objectives in elementary school effectively, qualitatively and persistently, which is reflected over the school population positively, to changing the study level, elementary, middle school.

Finally, we think it is a modern modality to apply the thematic units of action, made by us using psychomotor means, implemented systematically in these, modality having a positive and attractive modality, synchronized with the requirements and expectations displayed by the pupils in elementary school, 3<sup>rd</sup> and 4<sup>th</sup> grades.

We can state that a teaching manner specifically designed to act on the psychomotor capacity of the content in the physical education and sport subject in elementary school will cover the requirements of the curricular reform, and the design of content starting from objectives achieved by examinations and assessment tests from which to result the quality and effectiveness of the instructional-educational act will resize the importance of this subject.

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