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Assessment at Physical Education and Sport Discipline in Primary Education

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Abstract

The purpose of this paper is to improve the assessment system through diversified application of gymnastics means content in the discipline of physical education and sport in primary education. The assessment included 6 test events chosen from the National System of Assessment at Physical Education and Sport in Primary School. These test events are: in the 1st semester – long lasting running, memorization of a set of free general physical development exercises, the level of initiation in gymnastics regarding the execution of isolated acrobatic elements; in the 2nd semester – strength of upper limbs by tractions on the gym bench and strength of lower limbs – standing long jump, 25 m speed running and dexterity test by 3 m distance target horizontal throwing with two hands from below. The diversified use of gymnastics means content within the instructive-educational process in primary school contributed to the improvement of the assessment system and to the more effective achievement of the learning units included in the curricular area at this level.

Keywords: *Curricular area, assessment, grading, means of gymnastics, test events.*

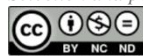
1. Introduction

At the present moment, the education system in Romania undergoes a large restructuring program, according to the requirements of the educational and professional training system of the European Community.

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For that purpose, the physical education too must highlight its role in terms of content, didactical methodology and pupils' assessment system [6].

The content of the instructive process in different sub-systems of Physical Education and Sport is shown in the Curriculum of Physical Education and Sport [2]. The framework objectives stipulated in the curriculums of physical education originate from the specific goals of primary education and from the objectives of the two curricular cycles that intersect it, namely the cycle of fundamental acquisitions – preparatory grade, the 1st and 2nd grade - and the cycle of development – the 3rd and 4th grade [21], [22].

The physical education lesson (with gymnastics themes) will take into consideration the age, gender and level of physical training of the group (grade). The following requirements will be respected in the implementation of the gymnastics means included in a lesson [20]: selection of exercises, alternation of muscle groups, repetition and variation of exercises, location and progression of effort, multilateral training and correct execution of movements [14].

2. Problem Statement

The activity of teaching-learning-evaluation in primary school is very important because it has a favorable influence upon the process of body development and strengthening and because it is a didactical tool intended to support the knowledge of children, their faster adaptation to the new requirements of the didactical approach, the assimilation of knowledge basic elements, the creation of an active working environment of good understanding and mutual assistance [11], [12].

The didactic design reflects how the primary school teacher or the Physical Education teacher conceives the achievement of the reference objectives for each grade. Depending on the educational cycle, some content categories listed in the curriculums can be set up in learning units, such as "organizational capacity", "physical development" and some basic or utilitarian-applicative skills [6], [20].

Evaluation is a component of the didactic approach that helps the teacher to objectively establish the effects of the initiated didactical process on pupils throughout each learning unit and at the end of this one [13]. In teaching practice there are three types of evaluation [6], [9], [20]: predictive evaluation (initial), formative evaluation (continuous) and summative evaluation (final).

The National School System of Evaluation in Physical Education and Sport subject is a component of the reform which aims at evaluating the main skills and competences required by the curricular area of physical education and sport [24].

Regarding the motor particularities at 6-7 and 10-11 years old, age specific to pre-pubertal pupils [1 p42], „there are availabilities for the development of some motor skills and the correct development of the system of basic and utilitarian-applicative motor skills and abilities specific to sport branches” [4], [7], [8], [10]. In this stage „motricity is unleashed, the capacity for motor learning is remarkable but the possibilities to memorize the new movements are reduced. Therefore, only the systematic repetition integrates and stabilizes the new structure in child’s motor repertory” [5 p137].

The Curriculum of Physical Education and Sport is made in conformity with a new model of curricular design, centered on competencies and intended to contribute to the development of the primary school pupil’s profile[2]. From the perspective of the study discipline, the orientation of the didactical approach starts from competencies and their learning purpose as well as from the action dimension in the creation of pupil’s personality [21].

Regarding the importance of physical education classes in primary school [25 p93], it is worth remembering that: „at this age, the increased interest of children for movement and exercise is based on physiological and mental causes; that is why any reduction or limitation of the motor activities has negative repercussions on body functions”. Other specialists [3] believe that, in terms of typology, the classes for learning and strengthening the basic motor skills and the mixed/combined classes as well are prevailing. In school, gymnastics can also be practiced under other forms[23]: setting up gymnastics, gymnastics during organized breaks, one minute of gymnastics during the classes, individual gymnastics made at home, gymnastics training sessions within sports circles.

3. Research Questions/Aims of the research

The purpose of this paper is to improve the assessment system through diversified application of gymnastics means content in the discipline of physical education and sport in primary education.

Hypothesis of the research: The diversified use of the content of gymnastics means during the instructive-educational process in primary school will contribute to the improvement of the evaluation system and a

more efficient achievement of the learning units included in the associated curricular area.

4. Research Methods

This scientific approach led to the organization of an experimental study in “Valea Măcrișului” middle school of Urziceni, Ialomița County, carried out during the school year 2016-2017, with a group of 59 pupils selected from the 1st-4th grades of the school. The following research methods were used in this study: bibliographic analysis of the specialized literature, pedagogical observation, ascertaining pedagogical experiment, method of programmed instruction, method of testing, statistical-mathematical method and graphical representation method for data processing and interpretation.

The evaluation included 6 test events chosen from the National System of Evaluation in Physical Education and Sport at primary cycle level [16], [24]. The test events are listed below:

- for the 1st and 2nd grade:

1st semester:

- Test event no. 1 – “endurance” motor skill, long lasting running (sec);
- Test event no. 2 – memorization of the execution of a set of general physical development (DFG) free exercises (4-5 exercises 4x4 times);
- Test event no. 3 – level of initiation in gymnastics: isolated elements of acrobatic gymnastics (no. of elements);

2nd semester:

- Test event no. 1 (average of the two test events):
 - a) Strength of upper limbs (tractions on the gym bench), (no of reps);
 - b) Strength of lower limbs (standing long jump), (m);
- Test event no. 2 – “speed” motor skill, speed running 25 m (sec);
- Test event no. 3 – dexterity, 3 m distance target horizontal throwing with two hands from below (1st grade) and 4 m (2nd grade) in 3 attempts (no of successful attempts);

- for 3rd and 4th grades:

1st semester:

- Test event no. 1 – “endurance” motor skill, long lasting running (sec);
- Test event no. 2 – “speed” motor skill – shuttle run 5x5 m – (sec);
- Test event no. 3 – memorization of free exercises set for general physical development (DFG) (5-6 exercises 4x8 times), (no of exercises);

2nd semester:

- Test event no. 1 –acrobatic gymnastics: connections of acrobatic elements (no of elements);
- Test event no. 2 (average of the two test events):
 - a) Strength of back, torso extensions from prone position; raises from supine position (no of reps);
 - b) Abdominal strength, torso raises from supine position, (no of reps);
- Test event no. 3 – dexterity, 5 m distance target vertical throwing - 3rd grade and 6 m – 4th grade (no of successful attempts out of 3 attempts).

5. Findings

In order to highlight the efficient use of the assessment system at Physical Education and Sport discipline of primary school pupils, it was necessary to register the number of absences from classes per each semester and the anthropometric data regarding the size and weight for girls and boys as well (table no 1).

Table 1. Frequency of absences from classes and results of anthropometric data of primary cycle pupils ($x \pm S$; $n=59$)

Tested indicators	1 st grade (n=18)		2 nd grade (n=15)		3 rd grade (n=13)		4 th grade (n=13)		
	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	
Class attend.	S I	1.33; ± 0.58	1.0; ± 0.00	3.5; ± 2.12	3.00; ± 1.00	-	2.00; ± 0.00	3.33; ± 1.52	2.00; ± 0.00
	S II	-	-	-	2.00; ± 0.00	-	-	-	-
Size, (cm)	117.5; ± 3.96	119.7; ± 5.14	121.0; ± 2.58	125.5; ± 3.25	121.5; ± 2.12	127.7; ± 4.17	129.9; ± 9.45	135.25; ± 6.5	
Weight, (kg)	18.0; ± 0.76	19.4; ± 3.34	19.71; ± 1.49	23.75; ± 4.53	28.0; ± 4.24	31.1; ± 7.41	24.4; ± 5.68	27.00; ± 3.56	

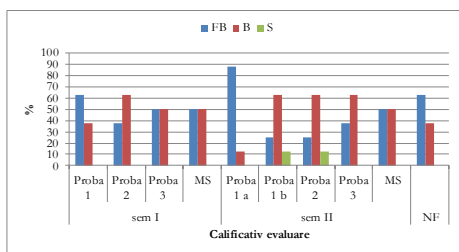
Tables 2 and 3 and figures 1 a, b and 2 a, b show the performances and their marks obtained by the 1st and 2nd grade pupils at the test events of the 1st semester – long lasting running, memorization of free exercises for general physical development (DFG) and level of initiation into gymnastics; in the 2nd semester – strength of upper limbs, strength of lower limbs, 25 m

speed running and dexterity – 3 m distance target horizontal throwing with two hands from below out of three attempts, average of marks per semesters and final mark (general mark).

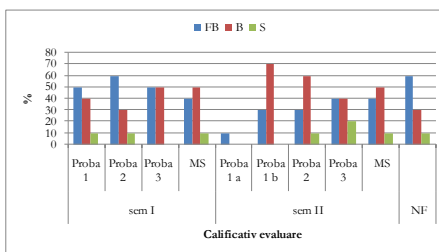
Table 2. Evaluation of performances of 1st grade pupils in the test events ($\bar{x} \pm S$; n=18)

Sem	Test events	Girls (n=8)			Boys (n=10)		
		TI	TF	t; P	TI	TF	t; P
I	Test event no. 1 (sec)	110.21 ± 21.29	112.91 ± 21.02	1.092; >0.05	108.21; ± 25.19	108.38; ± 25.18	7.964; <0.001
	Test event no. 2 (elem no)	4.37 ± 0.52	5.25 ± 0.71	7.000; <0.001	4.4; ± 0.84	5.4; ± 0.84	*3.134; <0.01
	Test event no. 3 (elem no)	2.5 ± 0.53	3.5 ± 0.53	*2.828; <0.01	2.5; ± 0.53	3.5; ± 0.53	*3.134; <0.01
II	a (reps no)	4.5 ± 1.31	5.5 ± 1.31	1.527; >0.05	3.8; ± 1.14	4.8; ± 1.14	*3,134; <0,01
	Test event no. 1 b (m)	1.06 ± 0.04	1.09 ± 0.04	7.637; <0.001	1.11; ± 0.05	1.14; ± 0.05	4,333; <0,01
	Test event no. 2 (sec)	6.45; ± 0.22	6.24; ± 0.16	3.871; <0.01	6.47; ± 0.27	6.27; ± 0.24	7.746; <0.001
	Test event no. 3 (reps no)	1.38 ± 0.52	2.38 ± 0.52	*2.789; <0.01	1.1; ± 0.74	2.2; ± 0.78	*3.023; <0.01

Note: Sem – semester; TI – initial testing; TF –final testing; elem no – number of elements; reps no – number of reps; t- Parametric test - Paired Comparison for Means; * Nonparametric test - Wilcoxon Singed Rank Test for Paired Data.



a) Girls



b) Boys

Fig1. Results of the marks obtained in the test events evaluation by the 1st grade pupils

Table 3. Evaluation of performances in the test events of the 2nd grade pupils ($\bar{x} \pm S$; n=15)

Sem	Test events	Girls (n=7)			Boys (n=8)		
		TI	TF	t; P	TI	TF	t; P
I	Test event no. 1 (sec)	120.11; ± 0.04	120.16; ± 0.03	6.683; <0.001	120.4; ± 0.08	120.5; ± 0.08	7.514; <0.001
	Test event no. 2 (elem no)	6.14; ± 0.69	7.14; ± 0.69	*2.598; <0.01	5.00; ± 0.76	6.00; ± 0.76	*2.789; <0.01
	Test event no. 3 (elem no)	3.28; ± 0.48	4.28; ± 0.48	*2.598; <0.01	2.50; ± 0.53	3.25; ± 0.71	4.583; <0.01
II	Test event 1 a (reps no)	3.00; ± 0.58	4.00; ± 0.58	*2.598; <0.01	2.75; ± 1.39	3.63; ± 1.41	3,432; <0.05
	Test event 1 b (m)	1.10; ± 0.03	1.13; ± 0.03	4.804; <0.01	1.12; ± 0.06	1.15; ± 0.06	5,128; <0.01
	Test event 2 (sec)	6.17; ± 0.19	5.98; ± 0.16	5.461; <0.01	6.35; ± 0.33	6.14; ± 0.36	7.202; <0.001
	Test event 3 (reps no)	1.28; ± 0.76	2.57; ± 0.76	6.971; <0.001	1.13; ± 0.99	2.13; ± 0.83	5.291; <0.01

Note: table 2

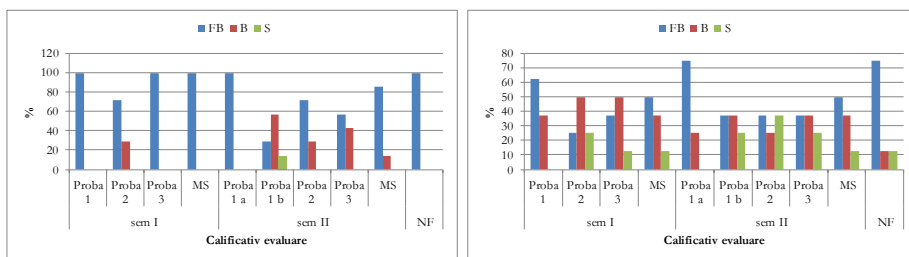


Fig2. Results of the marks obtained in the test events evaluation by the 2nd grade pupils

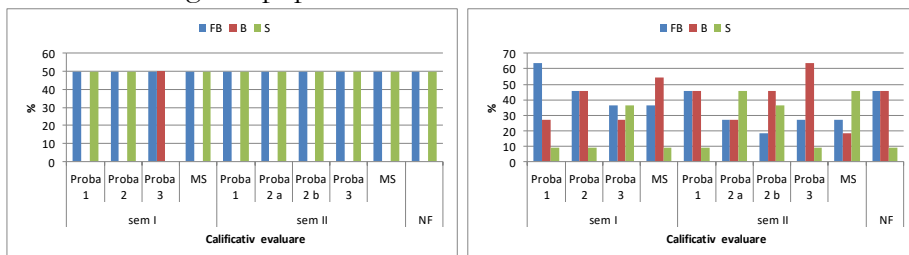


Fig3. Results of the marks obtained in the test events evaluation by the 3rd grade pupils

Tables 4 and 5 and figures 3 a, b and 4 a, b present the performances and marks obtained by the 3rd and 4th grade pupils in the test events carried out in the 1st semester – long lasting running, “speed” motor skill – shuttle run 5x5 m, memorization of free DFG exercises set; in the 2nd semester – acrobatic gymnastics: connections of acrobatic elements (no of elem), strength of the back, abdomen – torso extensions from prone position; raises from supine position, dexterity – 5 m distance target vertical throwing, average of marks per semester and final mark (general mark).

Table 4. Evaluation of performances in the test events of the 3rd grade pupils ($\bar{x}\pm S$; n=13)

Sem	Test events	Girls (n=2)			Boys (n=11)		
		TI	TF	t; P	TI	TF	t; P
I	Test event no. 1 (sec)	120.1; ± 0.14	120.2; ± 0.17	-	120.46; ± 0.12	120.53; ± 0.12	6.197; <0.001
	Test event no. 2 (sec)	20.6; ± 0.28	20.4; ± 0.28	-	19.48; ± 0.27	19.27; ± 0.22	6.639; <0.001
	Test event no. 3 (elem no)	5.5; ± 0.71	6.50; ± 0.71	-	5.18; ± 0.98	6.18; ± 0.98	*3.291; <0.001
II	Test event 1 (elem no)	3.00; ± 1.41	4.00; ± 1.41	-	3.09; 0.83	4.09; 0.83	*3.291; <0.001
	Test event 2 (secs no)	6.00; ± 2.83	7.50; ± 3.54	-	8.18; 2.44	9.64; 2.80	9,237; <0,001
	Test event 2 (secs no)	4.5; ± 3.53	6.00; ± 4.24	-	8.45; 2.62	9.55; 2.81	3,554; <0,01
	Test event 3 (secs no)	0.50; ± 0.71	2.00; ± 0.00	-	1.36; 0.50	2.27; 0.64	10.00; <0.001

Note: table 2

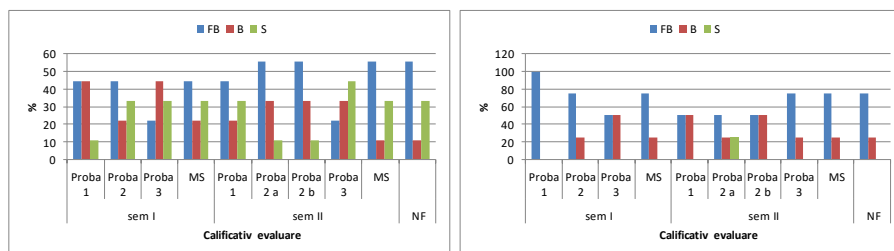


Fig 4. Results of the marks obtained in the test events evaluation by the 4th grade pupils

Table 5. Evaluation of performances in the test events of the 4th grade pupils ($\bar{x}\pm S$; n=13)

Sem	Test events	Girls (n=9)			Boys (n=4)		
		TI	TF	t; P	TI	TF	t; P
I	Test event no. 1 (sec)	120.3; 0.07	120.4; 0.07	4.926; <0.01	165.1; 29.75	180.2; 0.21	1.021; >0.05
	Test event no. 2 (sec)	20.08; 0.84	20.09; 0.35	0.045; >0.05	18.8; 0.98	18.75; 0.5	0.122; >0.05
	Test event no. 3 (elem no)	6.11; 1.17	6.89; 0.78	5.291; <0.001	6.5; 1.0	7.5; 0.58	2.449; >0.05
II	Test event no. 1 (elem no)	3.11; 1.27	4.00; 1.12	8.000; <0.001	3.25; 0.96	4.25; 0.96	*1.900; >0.05
	Test event 2 (nr. rep)	a 8.44; 3.57	9.89; 3.89	8.222; <0.001	10.75; 1.5	12.25; 0.96	5,196; <0,05
	(sec)	b 7.67; 3.57	9.44; 4.13	6.400; <0.001	11.25; 0.96	12.5; 1.29	5,000; <0,05
	Test event 3 (reps no)	0.78; 0.67	1.78; 0.83	6.000; <0.001	1.75; 0.5	2.75; 0.5	1.900; >0.05

Note: table 2

6. Discussions

The didactic strategies concerning the development of the teaching activity and the evaluation elements for the preparatory, 1st and 2nd grades are listed in the O.M.E.N. no. 3418/ 19.03.2013 on the knowledge progressive construction, the flexibility of approaches and the differentiated course, coherence and inter- and trans-disciplinary approaches.

The use of the didactic technology for learning the acrobatic exercises in primary school entails the reduction of the component elements structure according to the learning stages. The creation of the algorithmic diagram of the linear programming of the instructional material allows its effective use for learning also other acrobatic exercises included in the curriculum [15], [17-19].

In order to show how to implement the assessment system for the primary school pupils, it was registered the number of absences from classes per each semester and the anthropometric measurements results for both girls and boys (table no 1).

The implementation of the evaluation system was made in a diversified way for the 1st and 2nd grade (tables 2 and 3) and the 3rd and 4th grade (tables 4 and 5), highlighting the performances achieved and how these ones are related to the associated marks (figures 1-4).

The results of the evaluation of the test events in the 1st grade boys (figures 1 a, b) highlight: *the average of marks in the 1st semester* in girls 50% - Very good (VG) and 50% - Good (G) while in boys 40% - VG, 50% - G and 10% satisfactory (S); *in the 2nd semester* 2 at girls 62.5% -VG and 37.5% - G while the boys - 60% VG, 30% - G and 10% - S; *general average* in girls 50% VG and 50% - G while in boys - 60% VG, 30% - G and 10% - S.

The evaluation of the test events in the 2nd grade pupils (figures 2 a and b) shows: *the average of marks in the 1st semester* in girls 100% - VG and in boys 50% - VG, 37.5% - G and 12.5% - S; *in the 2nd semester* in girls 100% - VG while in boys - 75% VG, 12.5% - G and 12.5% - S; *general average* in girls 50% VG and 50% - G; in the case of boys - 60% VG, 30% - G and 10% - S.

The evaluation of the test events in the 3rd grade pupils (figures 3 a, b) shows: *the average of marks in the 1st semester* at girls 50% - VG and 50% - S while in the case of boys 36.36% - VG, 54.54% - G and 9.09% - S; *in the 2nd semester* in girls 50% - VG and 50% - S while in boys - 27.27% VG, 18.18% - G and 45.45% - S; *general average* in girls 50% VG and 50% - G while in boys— 45.45% VG, 45.45% - G and 9.09% - S.

The evaluation of the test events in the 4th grade pupils (figures 4 a, b) highlights: *the average of marks in the 1st semester* at girls 44.45% - VG, 22.22% - G and 33.33% - S, while in boys 75% - VG and 25% - G; *in the 2nd semester* in girls 55.56% - VG, 11.11% - G and 33.33% - S while in the case of boys - 27.27% VG, 18.18% - G and 45.45% - S; *general average* in girls 55.56% - VG, 11.11% - G and 33.33% - S while in boys – 75% VG and 25% - G.

7. Conclusions

The research results highlight the level of general motor skills development in the primary school pupils following up the diversified use of gymnastics means within the class of physical education.

The comparative analysis of the tests in the fundamental acquisitions cycle - pupils in preparatory, 1st and 2nd grade and in the development cycle – 3rd and 4th grade highlight the development of general motricity in the test events evaluated for girls and boys as well in terms of the performances achieved consistent with the marks granted, the average per semester and the general mark obtained in Physical Education subject.

The diversified use of the gymnastics means content in the instructive-educational process in primary school contributed to the improvement of the assessment system and to the more efficient achievement of the learning units included in the curricular area at this level.

8. Acknowledgment

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References

- [1] Cârstea Gh. Particularități ale școlărilor și implicațiile acestora în educația fizică și sportivă [Particularities of Pupils and Their Involvement in Sports and Physical Education], Bucharest: A.N.E.F.S. 1993, pp. 42
- [2] Cârstea Gh. Teoria și metodică educației fizice și sportului [Theory and Methods of Physical Education and Sport]. For permanent teacher certification and second didactic degree exams. Bucharest: AN-DA Publishing House. 2000
- [3] Cârstea Gh., Tudor V., Bota A., & Sasu M. Metodica educației fizice. Îndrumar pentru lucrările practice [Methods of Physical Education. Handbook for Practical Work]. Bucharest: A.N.E.F.S. 1995. pp. 122
- [4] Dima M. Fotbal – să ne antrenăm copiii corect și sănătos [Football – Let’s Train our Children in a Correct and Healthy Way], Bucharest: Didactical and Pedagogical Publishing House. 2012
- [5] Dragnea A, & Bota A. Teoria activităților motrice [Theory of Motor Activities], Bucharest: Didactical and Pedagogical Publishing House R.A. 1999. pp. 137
- [6] Dragomir P., & Scarlat E. Educația fizică școlară – mutații necesare [School Physical Education. New landmarks – necessary mutations]. Bucharest: Didactic and Pedagogical Publishing House, R.A. 2004

- [7] Grigore M. F., Grigore V., Potop V., & Cheran C. Contributions to dance sport training methods at beginners' level, 6 to 9 years old. *Ovidius University Annals, Series Physical Education and Sport / Science, Movement and Health*, 2010. Issue 2 Suppl. pp. 498-503
- [8] Grigore M. F. Influence of dance sport on the development of the capacity for ambidexterity and laterality of juniors I (12-13 years old). *Journal of Physical Education and Sport (JPES)*. 2017 17(5) Suppl. pp. 2250-2254
- [9] Grimalschi T., & Boian I. Educația fizică. Ghid de implementarea curriculumului modernizat pentru treapta primară și gimnazială [Physical Education. Guidelines for implementing the modernized curriculum for primary and secondary cycle]. Chisinau: Lyceum Publishing House. 2011, pp. 7-11
- [10] Grimalschi T., & Boian I. Educația fizică. Ghid de implementarea curriculumului modernizat pentru treapta primară și gimnazială [Physical Education. Guidelines for implementing the modernized curriculum for primary and secondary cycle]. Chisinau: Lyceum Publishing House. 2011. pp. 7-11
- [11] Ivashchenko O. V., Iermakov S. S. , Khudolii O. M., Cretu M., & Potop V. Level of physical exercises' mastering in structure of 11-13 yrs age boys' motor fitness. *Pedagogy, psychology, medical-biological problems of physical training and sports*. 2017. 21(5). pp. 236–243.
doi:10.15561/18189172.2017.0506
- [12] Kamaev O., Proskurov E., Potop V., Nosko M., & Yermakova T. Factors that influence somatic health of 10-11-year-old school children at the beginning and end of a school year. *Journal of Physical Education and Sport*, 2017. 17(1). pp. 407-413
- [13] Urichianu, B., Urichianu Toma S, & Urichianu AI. Features of motion development in primary students, International Scientific Session “Physical education and sport, healthy lifestyle boost factors”. Ecological University Bucharest: Printech. 2016
- [14] Urichianu Toma S, Timnea O, & Cheran C. Evaluarea motrică și somato-funcțională. [Motor and somatic-functional evaluation]. Bucharest: Bren Publishing House. 2010
- [15] Pehkonen M. Quality of the teaching process as an explanatory variable in learning gymnastics skills in school physical education, *SCGYM*. 2010. 2(2). pp. 29-40
- [16] Potop L., & Urichianu B. Use of Didactical Technologies for Achievement of the Learning Units of Acrobatic Gymnastics in Primary School. *Discobolul – Physical Education, Sport and Kinetotherapy Journal*, 2017, Vol. XIII, 2(48). pp. 64-68
- [17] Potop L., & Jurat V. Evaluation of “physical education and sport”curricular area in primary school. *The European Proceedings of Social & Behavioural Sciences (EPSBS)*. MEPDEV 2nd: 2016 Central & Eastern European

- LUMEN International Conference - Multidimensional Education & Professional Development. Ethical Values. 2017(27). pp. 663-668
- [18] Potop L, Urichianu, B. Use of Didactical Technologies for Achievement of the Learning Units of Acrobatic Gymnastics in Primary School. 6th International Congress of Physical Education, Sports and Kinetotherapy. Bucharest: "Discobolul" Publishing House. 2017
- [19] Potop L., Urichianu B., & Jurat V. Study on the influence of gymnastics means on improving the capacities and skills of students in primary school. 7th International Congress of Physical Education, Sports and Kinetotherapy. Bucharest: "Discobolul" Publishing House. 2017
- [20] Potop V., & Marinescu S. Gimnastica în școală – metodică disciplinelor gimnice [Gymnastics in School – Methods of Gymnastics disciplines]. Bucharest: Discobolul Publishing House. 2014
- [21] Programa Școlară pentru educație fizică [School Curriculum for Physical Education]. Preparatory grade, first and second grade, approved by O.M.E.N. no. 3418/ 19.03.2013]
- [22] ***. Programa școlară pentru Educație fizică, Clasele a III-a – IV-a [School Curriculum for Physical Education, Third and Fourth grade], approved by O.M.E.N. no. 5003/ 02.12.2014
- [23] Rusu I. C, Pașcan I, Cucu B, & Grosu E. Gimnastica [Gymnastics]. Cluj-Napoca: G.M.I. Publishing House. 1999.
- [24] ***. Sistemul Național Școlar de Evaluare la disciplina Educație fizică și Sport [School National System for Evaluation at Physical Education and Sport subject]. National Department for Evaluation and Examination. Media Pro Brașov, 1999.
- [25] Șerbănoiu S. Lecția de educație fizică [Lesson of Physical Education]. Bucharest: „Afir” Publishing House. 2002. pp. 93