

COMPATIBILITY BETWEEN MOTOR ABILITY OF SEVEN YEAR OLD CHILDREN WITH PHYSICAL EDUCATION CONTENTS NOTED IN NATIONAL PHYSICAL EDUCATION CURRICULUM FOR SECOND GRADE

(Original scientific paper)

Biljana Popeska¹ and Orce Mitevski²

¹University "Goce Delcev, Faculty of educational sciences

²University SS. Chiril and Methodius, Faculty of Sport, Health and Physical Education

Abstract:

One of the basic principles in educational work with children as well as in the realization of PE teaching process is to respect the individual possibilities of every child and respectively to adjust the educational contents of children's real possibilities and needs. In this sense, the goal of this paper was to determine the compatibility between children's abilities and PE contents, through the analysis of the current PE curriculum for the second grade in Republic of Macedonia and determined structure of motor space of 7 year old children (second grade pupils), as well as to suggest different activities that will innovate and enrich the current PE curriculum. Motor abilities of 7 year old children were determined as a part of larger longitudinal study realized at a sample of 123 seven year old children, pupils in the second grade in five primary schools in Skopje, Republic of Macedonia. The survey was conducted applying 33 motor test used for estimation of nine motor abilities (coordination, speed, frequency of movement, explosive, repetitive and static strength, balance, flexibility and preciseness). The structure of motor space was determined using factor analysis – promax procedure. According to the results obtained in the research and applied factor analysis, the motor space of seven year old children (second grade pupils) was defined with following ten latent dimensions: preciseness with throwing objects with hand, speed with change of direction or agility, static strength, factor for precise and explosive movements, coordinated fast movements with legs and trunk, repetitive strength, frequency of movement with legs, balance and two undefined factors (F9 and F10). Analyses of PE curriculum for second grade was focused on thematic union, PE contents, general goals as well as motor abilities need for realization of suggested contents. Results for determined structure of motor space of seven year old children was used as a foundation for determination of compatibility between childrens real abilities and current PE curriculum. Obtained results point out on certain compatibility of determined motor abilities and contents anticipated in PE curriculum for second grade. Possibilities for complementation and innovation of current PE curriculum exist in possibility to enrol contents used for development of preciseness, co – ordination, agility and balance.

Keywords: *PE curriculum, teaching contents, motor abilities, second grade pupils, analysis*

INTRODUCTION

One of the basic principles in educational work with children as well as in the realization of PE teaching process is respecting of individual possibilities of every child. Regarding to this, one of the basic demands and tendencies of contemporary educational work is curriculums to be based on children's real needs and possibilities, while the whole educational process should be adjusted on individual growth and development of every child, to follow their intensity and tempo of changes. Respectively, this means that educational contents and demands toward children should be based on possibilities and to follow the individual tempo of development of every child (Conception for nine years educational system in

Republic of Macedonia, (Концепција за деветгодишно образование на Република Македонија), 2007).

In this sense, knowledge for children's development characteristics and possibilities in every age period are essential for effective planning and realization of modern teaching work. This is especially important in the period of pre – school and early school age where development changes are especially intensive and continuous (Haywood & Getchell, 2004; Jürimäe & Jürimäe, 2001; Malina, Bouchard & Bar, 2004). Knowledge for children's development characteristics is especially emphasized when it refers for physical education teaching process, because the segment of motor development is closely related and influence to all other development

domains (Malina et al, 2004). According to the Theory of Integral development presented by Ismail, motor potentials and acquisition of different movement experiences and motor knowledge's are closely related to physical, functional, intellectual and socio – emotional development of children. Also integrated in a common system, from the aspect of PE teaching process, it's needs and aims, significant changes occur in the segment of motor development. Regarding this, one of the main goals of PE teaching process is to achieve positive transformational changes in children, development and improvement of abilities and enrichment of children's motor experiences. Other PE teaching goals refer to acquisition and development of fundamental motor movements and skills, development of motor abilities via participation in movement games and other forms of physical activity, development of positive attitudes toward physical activity and exercise, development of abilities for team work, positive social interaction, positive emotional expression etc (Physical education curriculum for the second grade in nine year primary education, (Наставна програма за второ одделение за деветгодишно задолжително основно образование), 2007). In order to achieve these goals of PE teaching process, beside the knowledges for PE contents and activities, teaching methods and forms of work, possibilities and manners of their application and realisation, as we already mentioned, one of the basic conditions is understanding of age and development characteristics of children involved in every level of education process, as well as knowledge of their real needs and possibilities.

Aims and issues of PE teaching process are mainly directed toward the segment of motor development, particularly the development of motor abilities, changes in motor behavior as well as the factors that indicate these changes (Haywood & Getchell, 2005). Motor abilities as a fundamental determinant of human motor space represent the essence of human motor movements and as a complex characteristic they are manifested differently depending from movement characteristics and development of individual potentials (Jovanovski, (Јовановски), 2013). They are related with acquisition of different motor skills and habits (Matič, 1978) respectively with the realization of PE contents, but also are closely related with possibilities to follow and estimate the effects of PE teaching process. In this sense, understanding of motor abilities, their manifestation and possibilities for improvement and development in relation with development characteristics in every age period are essential issues for kinesiology and PE teaching methods. Related to this, numerous researches in kinesiology analyse the issues of structure, development, following and estimation of motor abilities in pre – school children and children in the early school period (Bala, 1981, 2002; Rajtmajer & Proje, 1990, Perić, 1991, Rajtmajer, 1993, 1997; Zurc, Pišot & Strojnik, 2005; Sabo, 2002; Popeska, 2009 and other), as well as their relations with other segments of human anthropological status, mainly the relations with morphologic space (Bala, 1999, 2002; Dukovski, 1984;

Rausavljević, 1992; Bala, Sabo & Popovic, 2005; Pisot & Planinsec, 2005; Popeska, 2011 and others).

Findings from these and similar researches that analyse the problem of the structure of motor space in certain age periods, as well as the total anthropological status are essential as a foundation for creation of PE curriculum according to children's needs and potentials in certain age period, efficient realization of PE contents as well as a manner for optimal impact on children's development using different forms of appropriate stimulation through variety of contents. These findings enable a proper selection and organization of PE contents and related to this, positive transformational changes.

In this sense, the goal of this study is to determine the compatibility between children's abilities and PE contents, through the analysis of the current PE curriculum for the second grade in Republic of Macedonia and determined structure of motor space of 7 year old children (second grade pupils), as well as to suggest different activities that will innovate and enrich the current PE curriculum. This enables to maintain compatibility between children's real possibilities and PE curriculum as an imperative for contemporary PE teaching process. Suggested contents that came out from the analysis gave an opportunity to improve the practical work and to enrich the current program with contents that are suitable for children's real possibilities.

METHODS

The foundation to determine the compatibility between motor abilities and contents from PE curriculum are children's motor abilities. Motor abilities of the second grade pupils were determined as a part of larger longitudinal study (Popeska, 2011) realized at a sample of 123 seven year old children, pupils in the second grade in five primary schools in Skopje, Republic of Macedonia. Motor abilities were determined using 33 motor tests used for estimation of 9 motor abilities: coordination, speed, frequency of movement, explosive, repetitive and static strength, balance, flexibility and preciseness. Children's age and possibilities, results of previous researches as well as recommendations of researchers that previously explored this issue were the main determinants for selection of the tests. Tests used in the research were previously applied with children in pre – school and early school period and author's recommendations were implemented in the research procedure (Bala, 1981, 1999; Perić, D. 1991; Dukovski, 1984; Zurc et al, 2005; Popeska (Попеска), 2009, 2011; Popeska & Jovanova-Mitkovska, 2014). Following motor tests were used: [1] *CO – ORDINATION*: Co – ordination with stick (KOPAL), Obstacle course backwards (KOPON), Two balls slalom rolling (KOSL2), Rolling with ball on floor (KOTRT); [2] *SPEED OF RUNNING*: 10m running from flying start (BT10LS), running 4 x 10 (BT4x10), Cries – cross running 4 x 5m (BTZMT); [3] *FREQUENCY OF MOVEMENT*: Arm plate – tapping (BSTAR), One foot - tapping (BSTAN), Both feet – tapping on wall (BSTNZ); [4] *EXPLOSIVE STRENGTH*: Stand-

ing broad jump (ESSDM), Throwing medicine ball 1 kg from standing position (ESFMST), Throwing medicine ball 1 kg from sitting position (ESFMG) и 20m dash running (ES20VS); [5] *REPETITIVE STRENGTH*: Modified pushups (RSSKL), Sit-ups(RSPTR),Trunk lift (PSITR),Hands pulling over the diagonal Swedish bench (RSVKK); [6] *STATIC STRENGTH*: Bent arms hang (SSVZG), Horizontal hold lying on stomach (SSZLM), Horizontal hold lying on back (SSZLG); [7] *FLEXIBILITY*: Deep bend on bench (FLDPK), Both legs extension lying on bag (FLRLG), Legs extended forward bend on floor (FLPRP); [8] *BALANCE*: Walking on upturned Swedish bench (RAOSK), Standing on bench in width (RASKS), Standing on bench in length (RASKD) and [9] *PRECISENESS*: Throwing circles on stick (PIOBS), Throwing tennis ball in vertical goal with arm (PITET), Throwing ball in horizontal goal with arm (PITHC), Throwing ball in vertical goal with leg (PIVCN), Leading with short stick (PVGKS), Leading with short stick (PVGKD).

The structure of motor space was determined using factor analysis – promax procedure. Based on the defined structure of motor space, an analysis of PE content for second grade for compulsory education in the Republic of Macedonia was made. we used these analyses as a fundament to suggest contents that could be involved in the current PE curriculum, which contents are according childrens real needs and possibilities.

RESULTS

The structure of motor space at 7 year old children, second grade pupils was determined using factor analysis (Promax procedure) where the number of significant components is determined using the Hotteling procedure and Gutman – Kaiser criteria (Table 1). Based on a results from the factor analysis, the structure of motor space of 7 year old children is defined with 10 latent dimensions. These dimensions are named as preciseness with throwing objects with hand (F1), speed with change of direction or agility (F2), static strength (F3), factor for precise and explosive movements (F4), coordinated fast movements with legs and trunk (F5), repetitive strength (F6), frequency of movement with legs (F7) and balance (F8). Numerous projections of tests applied for estimation of different motor abilities are the methodological explanation and the reason because the last two factors (F9) and (F10) from obtained structure of motor space of seven year old children are not defined.

According the results obtained with application of factor analysis, the structure of motor space of seven year old children, students in the second grade is defined with four clearly defined factors, two factors are defined using the topological criteria and two factors that represent an integral manifestation of several motor abilities. The existence of factors such as: speed with change of direction or agility, static and repetitive strength and static balance as clearly defined factors is confirmed in

Table (1) Factor analysis of motor tests applied at 7 year old children – promax procedure

Variables	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10
KOPAL	-0,04	0,01	-0,01	0,12	0,95	0,05	-0,03	-0,04	-0,02	0,06
KOPON	-0,22	-0,15	-0,04	-0,13	0,20	-0,45	-0,17	-0,04	-0,10	-0,09
KOSL 2	-0,45	-0,06	-0,19	-0,09	0,04	0,22	-0,01	0,02	-0,16	0,19
KOVRT	0,10	0,07	-0,16	-0,10	0,03	-0,08	-0,04	-0,05	-0,98	-0,37
BT10LS	-0,01	-0,02	-0,03	0,09	0,95	0,06	-0,05	-0,07	-0,03	0,06
BT4X10	-0,50	-0,01	0,13	0,27	0,21	-0,06	-0,12	0,02	-0,19	0,09
BTZMT	-0,01	0,95	0,05	-0,12	-0,02	0,10	-0,04	-0,14	-0,05	0,02
BSTAR	-0,19	0,91	0,16	0,08	-0,01	0,05	0,02	0,03	-0,07	0,01
BSTAN	0,09	0,02	-0,15	-0,04	0,01	-0,02	0,81	0,08	0,10	0,15
BSTNZ	-0,16	-0,04	0,14	0,13	-0,11	0,15	0,72	0,02	-0,08	-0,28
ESSDM	0,63	-0,03	0,05	0,07	0,02	0,15	0,21	0,01	-0,02	0,01
ESFMST	0,04	-0,13	0,12	0,68	0,06	-0,04	0,24	-0,13	0,27	-0,29
ESFMG	0,22	-0,01	-0,03	0,76	0,19	0,01	0,12	0,03	0,18	-0,08
ES20VS	-0,77	0,03	0,24	0,01	0,04	-0,14	0,11	0,04	0,04	0,01
RSSKL	0,03	0,31	-0,16	0,01	0,05	0,87	0,28	0,05	0,01	0,21
RSPTR	0,08	-0,22	-0,07	-0,08	0,08	0,76	-0,12	0,10	0,10	-0,01
RSITR	0,29	-0,08	0,24	-0,16	0,01	0,41	-0,35	0,04	-0,20	-0,26
RSVKK	-0,52	0,23	0,06	0,01	0,20	-0,03	-0,26	-0,09	0,25	-0,02
SSVZG	0,17	-0,16	0,59	-0,07	0,06	0,10	-0,03	0,00	0,04	-0,13
SSZLM	-0,12	0,20	0,81	-0,14	0,03	0,11	-0,07	0,04	0,23	0,08
SSZLG	-0,12	0,13	0,86	-0,11	-0,10	-0,32	0,01	0,07	-0,02	0,03
FLDPK	0,09	0,10	-0,32	0,08	-0,19	-0,14	-0,23	-0,13	0,27	-0,36
FLRLG	0,22	0,26	0,09	0,22	-0,11	-0,08	-0,31	0,35	0,31	0,01
FLPRP	-0,27	-0,39	0,13	0,22	-0,34	0,22	-0,18	-0,22	0,14	0,28
RAOSK	-0,73	0,21	-0,04	0,00	-0,10	0,22	0,07	-0,19	0,02	-0,36
RASKS	-0,01	-0,06	-0,01	0,05	-0,14	0,14	-0,07	0,82	-0,02	0,11
RASKD	-0,02	-0,07	0,13	0,05	0,03	0,05	0,22	0,82	0,02	-0,15
PIOBS	0,47	-0,13	0,01	-0,06	0,09	0,02	0,04	-0,18	0,41	0,19
PITET	0,66	0,18	0,11	0,25	0,06	0,25	-0,21	-0,09	-0,19	0,00
PITHC	0,40	0,13	0,13	0,31	-0,12	-0,24	0,04	-0,22	-0,23	0,28
PIVCN	0,13	0,03	-0,04	-0,11	0,06	0,10	-0,05	-0,02	0,38	0,93
PVGKS	0,23	0,09	0,16	-0,67	-0,05	0,07	0,19	-0,16	0,05	0,03
PVGDS	0,06	-0,08	0,39	-0,70	0,05	-0,04	0,07	-0,08	0,08	-0,01
Lambda	4,85	2,56	3,38	2,49	3,09	3,16	2,71	1,97	2,22	1,92

the studies of Strel & Šturm, 1981; Rajtmajer, 1993, 1997; Perić, 1991; Bala, 2002; Pišot & Planinšec, 2005. Factors named as preciseness with throwing objects with hand and frequency of movement with legs are defined according the dominantly activated parts of the body during the realization of movement tasks. Factor with similar structure as the factor frequency of movement with legs is also isolated in studies of Strel & Šturm, 1981; Rajtmajer, 1993; Perić, 1991; Popeska (Попеска), 2009; Popeska, 2014.

Existence of factors named as precise and explosive movements and for coordinated fast movements with legs and trunk in the structure of motor space at 7 year old children is manifestation which is conditioned from the development characteristics according which motor development starts from the general motor behavior and continuous toward differenced and specific motor behavior that results with manifestation of abilities which are not yet clearly defined and are manifested as an integral abilities. Regarded to this are the results of many researches where factors like these are defined as general motor factors. Relations between explosive strength and speed are emphasis and noted by several authors (Kukolj, 2006; Peric, 2006, Јовановски (Јовановски), 2013) according which there explosive strength, coordination and speed are highly related one with another. These motor abilities replenish each other and conditionally „help each other“ in realization of the movements. Similar latent dimensions as dimesnions isolated in our research, are also obtained in studies conducted by Strel & Šturm, 1981; Bala, 1981, 2002; Rausavljević, 1992; Pišot&Planinšec, 2005).

ANALYSIS OF PE CURRICULUM FOR SECOND GRADE IN REPUBLIC OF MACEDONIA

The school subject Physical and health education in primary education in the national system of nine-year compulsory education in Republic of Macedonia is realized with three school hours during a week, or 108 school hours during the school year. PE teaching process is realized according the national curriculum as a fundamental document, suggested by the Bureau of Education. Acquisition of the contents from the school subject Physical and health education in the first cycle of primary education is a fundament for enrolment in different sports activities in the further education and everyday life. The aims and tasks suggested in PHE curriculum are according the main educational goal: holistic and harmonius development of children according their individual abilities and development characteristes. Other goals of PHE are determined as: aquisition of system of motor knowledeges and skills, efficient and creative functioning, development of social conscience, national and cultural identity, development of conscience for care and protection of health and importance of maintaining healthy environment (Conception for nine-year compulsory education (Концепција за деветгодишно задолжително образование), 2007). Activities and PE contents realized in preschool education are the funda-

ment for contents conducted in PHE curriculum in primary education. In the first cycle of primary education these contents are updated, expanded and deepened allowing continuum in acquisition of knowledge according children's development characteristics and principles of pedagogic work.

PHE curriculum in second grade is structured in five compulsory thematic unions named as, *Lining and organized movements*, *Movements for body shaping*, *Basics of athletics*, *Basics of gymnastics* and *Game*. Beyond the compulsory thematic unions in PHE curriculum in all grades in the cycle of nine - year education optional thematic unions are also prescribed. These unions are realized in cooperation with parents and local community and realization is related with possibilities of local environment, its natural and material facilities and cooperation with local community. In second grade they themes are named as: swimming, *activities at snow*, *driving a bike*, *rollers*, *outdoor activities such as hiking and picnics*, *school sport and sports project*.

Different forms and variations of fundamental movements, particularly different forms of loco motor, non-loco motor and manipulative movements are integrated in compulsory thematic unions. Certain level of development of basic motor abilities is in close relation with successful performance and acquisition of PE contents and tasks. For every thematic union in PHE curriculum following parameters are prescribed: aims, contents, examples of concrete activities, method of work, didactic recommendations for successful implementation of curriculum and its efficient practical realization as well as manners for evaluation of children's achievements.

Development of motor abilities is one of the goals that should be acquired with realization of PE contents. Activities where children moves in space in different formation – row, columns, groups, in couples and individually, moving straight, fast change from left to right and opposite, fast changes from one formation to another, and with fast change of direction and manner of movement in space are realized in the first thematic union named as *Lining and organized movement in space*. Realization of these type of movements requires development of coordination, spatial orientation, speed of movement and speed of reaction on different types of signals. Manifestation of F2 and F5 or factors named as speed with change of direction or agility and factor for coordinated fast movements with legs and trunk are important for successful realization of contents that require fast change of directions and performance of different formation in space. On the other hand, realization of this thematic union using different forms of movement games (for example: birds on wire, planes and flow etc.) that require fast reaction on different signals, coordinated movements between different body parts, changes from position to another during the movement, have a great impact of improvement of previously mentioned motor abilities. Thematic union *Movements for body shaping* assume application of complex of exercises for

strengthening, stretching and loosening of all body parts, with or without usage of special equipment as well as application of exercises for prevention of bad body posture. These exercises are realized at every PHE class during the second part (phase) of the class, named as a preparatory part. It's realization requires certain level of manifestation of repetitive and static strength, flexibility, static balance, speed of movement with certain body parts or part of the motor abilities which, according to our study already exist in the structure of motor space at 7 year old children.

Different forms of walking, running and jumping as a part of locomotor movements, as well as other forms of catching, throwing and striking as a part of manipulative movements are realized in the thematic union named as Basis of *Athletics*. Walking and running with different intensity and tempo, (fast, moderate, slow), at different ways (on treads, on hill, short and long steps), walking and running at different directions (front, back, side), fast changes of intensity and direction of moving, different forms of jumping (jumping forward, side and back with one or both legs, imitation of certain animal movements, for example: walking like a bear, like the penguin or like the bird, jumping like a rabbit, like a frog or like a kangaroo). All these contents require development of running speed, speed of movement of certain body parts, agility or speed manifested with fast change of direction of movement as well as manifestation of coordinated and fast movements and explosive movements. Different forms of catching, throwing and striking different objects in certain goal requires a manifestation and development of preciseness for pitching objects with hand as well as pointed of objects in certain direction and striking in certain goal. Existence of factor for precise and explosive movement are precondition for effective realization of contents such as throwing on different objects as far as possible, striking in defined goal, overthrowing on certain distance etc.

The thematic union *Basics of gymnastics* refers to locomotor activities such as crawling, rolling and climbing. These contents require manifestation of strength of the whole body or at certain body parts, coordinated and fast movements with whole body and certain body parts; walking on walking on reduced surface, narrow line and lower beam, or movements that require manifestation and development of dynamic balance, maintaining on certain positions and postures on beam that requires manifestation of static balance as well as content such as pushing, pulling, carrying, swinging and balancing or movements which beside strength and balance are also used for development of coordination and explosive strength. The existence of all listed abilities required for realization of movement provided in thematic union basics of gymnastics, particularly balance, strength, coordination, repetitive and static strength are fortified in our research of children's motor space.

The last obligatory thematic union defined in PHE curriculum for second grade refers to realization of different forms of game - elementary games, competitive

games, movement games, folk and modern dances etc. Realization of these contents requires achievement and development of already adopted forms of fundamental movements, learned by practicing different forms of competitive and non-competitive games used for improvement of all motor abilities, but mainly coordination as the highest integrative motor ability. Different forms of elementary and relay games require manifestation of fast and coordinative movements, fast change of the direction of movement. Games with throwing and catching require manifestation of certain strength of arms and shoulders, as well as developed preciseness of arms and legs. Traditional and modern dances are movements which realization depends from the sense for rhythm and music, and ability to perform on certain rhythm, but also requires manifestation of fast movement with legs, coordinated movements with arms and legs, fast change of the way and the direction of movement, or abilities defined in the structure of motor space of seven year old children.

DISCUSSION AND CONCLUSION

The structure of motor space at 7 year old children is defined with 8 named and 2 undefined latent motor dimensions. These latent dimension compared with information obtained from the analysis made at the PHE curriculum for second grade, point out on compatibility between children's existing motor abilities and contents in current PHE curriculum. Particularly, these means that motor abilities, for which in our study, we determined that defines the structure of motor space at seven year old children (preciseness with throwing objects with hand, speed with change of direction or agility, static strength, factor for precise and explosive movements, coordinated fast movements with legs and trunk, repetitive strength, frequency of movement with legs and balance) are manifested and could be developed through different thematic unions and contents suggested in current PHE curriculum. Exception are the activities that requires manifestation of preciseness with pitching, precise and explosive movements and static strength that are not prescribed in current curriculum. With aim to improve and enrich the PHE curriculum and to make it more compatible and close to children's real possibilities and needs we suggest:

Implementation of activities for development and improvement of preciseness with pitching and leading. This could be achieved practicing movement tasks and games which aim will be to strike at certain goals – horizontal or vertical, static or movement targets with different size, placed on a different distances using different objects to strike (tennis balls, standard balls, medical and pilates balls with different size etc.) For example: leading sticks with different length used to strike static and moving targets; picado on the wall (vertical goal) or at the floor (horizontal goal) with ball with different sizes leaded with arm or with leg; leading the ball using other object for example sticks, with or without hitting in certain goal or target, or activities like golf, cricket,

baseball etc. Realizing activities like these or similar to them, beyond development of preciseness, in the same time we also improve the ability for performance of precise and explosive movements, as well as coordinated movements with arms and legs. Application of movement tasks and games with leading objects with different size and length sticks with different length used to strike certain static or moving targets, picado played with different sticks with different length, leading ball or other object using sticks, with or without striking a certain goal, activities similar like cricket, golf, grass hockey, baseball and others, are contents that could be implemented in the current PE program as new innovative contents and which will have a positive influence on improvement of preciseness with leading. Suggested contents, based on exercises for preciseness are especially applicable in schools with lack of material conditions, equipment or sports facilities, because these types of activities could be applied and realized at small space, with objects used in children's everyday life and which is very important, are safe for use with children.

For improvement of speed with fast change of directions of movement as well as for improvement of ability to perform coordinated and fast movements, we recommend running at different manners (zigzag, snake running, front and back, and their change on different sign), running on different distances with proper time for rest and recovery, running from different starting positions and start on different type of signals - visual, auditory and kinesthetic over or around different marks, competitive games that include different variations of walking, running and crawling, or movements that require fast and coordinated movements. All these movements can be performed using different sport equipment and objects such as Swedish bench, mourner scales, ropes etc.

Different forms of jumps, jumps realized on music, different forms of jumps realized as a form of imitation of movements of different animals (jumping like a rabbit, kangaroo, frog, cat and deer), different forms of jumps used in movement games – jumping with jacks, jumping over elastic tape, jumping over rope and different forms of movement games as a contents of PHE teaching process, have a positive influence on manifestation and development of explosive strength of legs and coordinated simultaneous movements with legs and arms. Using rope and elastic tape in PE teaching process able to overcome the monotony in realization of contents and inputs numerous modalities in realization of jumps.

Static and repetitive strength are mostly manifested in contents realized in the second thematic union named as *Movements for body shaping that are realised at every PE class in the preparatory part of the class. Considering the fact that we speak about 7 year old children, or a period when the processes of growth and development are still not yet finished and when the process of ossification is still in process* (Haywood & Getchel, 2005; Malina et al, 2004) we recommend exercises for improvement of strength realized only with personal strength, without larger and additional exertions.

Manifestation of balance as ability which existence is confirmed and identified in the latent space of 7 year old children is determined in realization of contents from the thematic unions Athletics and Gymnastics. The balance can be developed performing locomotor movements in difficult conditions – walking, running and crawling at low surface (beam, bench, and rope), maintaining balance positions with open or closed eyes at moving surfaces, application of movement games that requires positioning in balanced positions and maintaining of these positions. Using nonstandard platforms as well as involvement of contents such as rolling, driving bicycles, skate boards, sliding and similar activities as a contents realized as a part of additional optional themes are very good form to improve balance, but also development of coordination, speed and strength.

Certain contents which realization requires coordination, running speed or segmental speed, strength of certain body parts, precise and explosive movements, are already part of PE curriculum. These contents could be improved and enriched with activities similar to movements required in the applied tests. They could be applied individually, in pairs or in groups. Different combinations of fundamental forms of movements -walking, running, jumping, crawling, roiling etc. – realized as form of elementary games, polygons or competitive games different according their complexity, as well as activities that requires spatial orientation, manipulations with objects and resolving spatial problems represent good foundation for manifestation and development of previously listed motor abilities. Beyond the influence of motor development, activities such as elementary and competitive games have a great impact of children's socio – emotional and moral development or have a broad educational meaning in creation of completely development person.

Respecting the individual possibilities of every child, respectively the adjustment of educational contents of children's real possibilities and needs is one of the basic principles in educational work with children as well as in the realization of PE teaching process. Knowing the development characteristics, mainly the characteristics of motor development, the structure of motor space in every age period, manifestation and development of motor abilities in children as well as the characteristics of morphological, socio – emotional, cognitive and moral development are one of the fundamental issues in kinesiology, PE teaching process and PE teaching methods. The results from applied factor analyses suggested on existence 10 latent dimensions named as preciseness with throwing objects with hand, speed with change of direction or agility, static strength, factor for precise and explosive movements, coordinated fast movements with legs and trunk, repetitive strength, frequency of movement with legs and balance and two undefined factors. The analysis of PHE curriculum for second grade in relation with determined motor abilities suggest on compatibility between determined motor ability and contents prescribed with PHE curriculum for

second grade. There are possibilities for additional interventions and innovations in the current curriculum such as implementation of contents used for development of preciseness with pitching objects with hand, precise and explosive movements, agility, coordination and balance.

REFERENCES

- Bala, G. (1981). *Struktura i razvoj morfoloških i motoričkih dimenzija dece SAP Vojvodine*. [Structure and development of morphologic and motor dimensions in children. In Serbian.] Novi Sad: Fakultet fizičke kulture.
- Bala, G. (1999). Some problems and suggestions in measuring motor behaviour of pre – school children, *Kinesiologija Slovenica*, 5(1-2), 5 -10.
- Bala, G. (1999). Motor behaviour evaluation of pre – school children on the basis of different result registration procedures of motor test performance. In V. Strojnik & A. Ušaj (Ed) *Proceedings of the VI Sport Kinetics Conference '99. Theories of Human Motor Performance and their reflections in practice* (pp. 62 - 65) Ljubljana: University of Ljubljana. Faculty of Sport.
- Bala, G. (2002). *Strukturalne razlike motoričkih sposobnosti dečaka i devojčica u predškolskom uzrastu*. [Structural differences of motor abilities in boys and girls at pre-school age. In Serbian.] *Pedagoška stvarnost*, XLVIII (9 – 10), 744 – 751.
- Bala, G. (2003). Quantitative differences in motor abilities of pre – school boys and girls. *Kinesiologija Slovenica*, 9 (2), 5 – 16.
- Bala, G., Sabo, E. & Popović, B. (2005). Relationship between motor abilities and school readiness in preschool children. *Kinesiologija Slovenica*, 11(1), 5 – 12.
- Биро за развој на образованието. (2007). *Концепција за деветгодишно основно воспитание и образование*. [Bureau for the development of education. Conception for nine-year primary education. In Macedonian.] Скопје: Министерство за образование и наука.
- Dukovski, S. (1984). *Struktura i razvoj morfoloških i biomotoričkih dimenzija dece predškolskog uzrasta u Skoplju*, [Structure and development of morphologic and motor dimensions in pre – school children in Skopje. In Serbian.] Doktorska disertacija, Beograd: Fakultet za fizičko vaspitanje.
- Haywood, K., & Getchell, N. (2004). *Life span motor development*. Champaign: IL. Human Kinetics.
- Јовановски, Ј. (2013). *Антропомоторика* [Anthropomotrics. In Macedonian.] Скопје: Факултет за физичка култура, Маринг.
- Jürimäe, T., & Jürimäe, J. (2001). *Growth, physical activity and motor development in prepubertal children*. New York: CRC Press.
- Kukolj, M. (2006). *Антропомоторика*. [Anthropomotrics. In Serbian.] Beograd: Fakultet sporta i fizickog vospitanja.
- Kurelić, N., Momirovic, K., Stojanovic, M., Sturm J., Radoevic, H. & Viskic – Stalec, N. (1975). *Struktura i razvoj morfoloških i motoričkih dimenzija omladine*. [Structure and development of morphologic and motor dimensions of youth. In Serbian.] Beograd: Institut za naučna istraživanja Fakulteta za fizicko vaspitanje.
- Malina, R., Bouchard, C. & Bar – Or, O. (2004). *Growth, Maturation and Physical Activity* (Second Edition). Champaign: Human Kinetic, Illinois.
- Matic, M. (1978). *Čas telesnog vezbanja*. [Physical education class. In Serbian.] Zrenjanin: Budućnost.
- Metikoš, D., Prot, F., Hofman, E., Pintar, Z. & Oreb, G. (1989). *Mjernje bazicnih motoricnih dimenzija sportasa* [Measurement of basics motor dimensions in athletes, In Croatian.] Zagreb: Komisija za udbenike i skripta, Fakultet za fizicku kulturu Sveucilista u Zagrebu.
- Министерство за образование и наука (2007). *Концепција за деветгодишно основно образование и воспитание*. [Conception for nine years compulsory primary education. In Macedonian.] Скопје: Министерство за образование и наука.
- Pišot, R., & Planinšec, J. (2005). *Struktura motorike v zgodnjem otroštvu*. [Motor structure in children. In Slovenian.] Univerzitetu in Primorskem, Koper: Institut za kineziološke raziskave.
- Perić, D. (1991). *Komparativna analiza metodoloških sistema eksplikacije biomotoričkog statusa dece predškolskog uzrasta*. [Comparative analysis of methodologic systems for explication of bio – motor status in pre – school children. In Serbian.] Doktorska disertacija, Beograd: Fakultet fizičke kulture Univerziteta u Beogradu.
- Попеска, Б. (2009). *Утврдување и компарирање на латентната структура на моторичкиот простор кај маику деца на 6 и 7 годишна возраст*. [Determination and comparison on the latent structure of motor space in male six and seven year old children. In Macedonian.] (Unpublished master thesis, University Ss. Chiril and Methodius) Скопје: Факултет за физичка култура.
- Попеска, Б. (2011). *Развој на морфолошките и моторичките димензии кај деца во возрасниот период на 6 и 7 годишна возраст*. [Development of morphologic and motor dimensions in children in the age period of six and seven years. In Macedonian.] (Unpublished doctoral thesis, University Ss. Chiril and Methodius) Скопје: Факултет за физичка култура.
- Popeska, B., & Jovanova – Mitkovska, S. (2014). Draft battery of tests for evaluation of motor abilities in 6 year old children. *Research in Kinesiology*, 42(1), 15-21.
- Popeska, B. (2014). Development changes in motor space in 6 and 7 year old children. *Research in Kinesiology*, 42(2), 215-220.
- Rajtmjer, D. & Proje, S. (1990). *Analiza zanesljivosti in faktoriska struktura kompozitnih testov za spremljanje in vrednotenje motoričnega razvoja predškolskih otrok*. [Analysis of factor structure of composite motor tests for determination and evaluation of motor development of pre-school children. In Slovenian.] *Šport*, 38(1-2), 48 – 51.
- Rajtmajer, D. (1993). *Komparativna analiza psihomotorične strukture dečkov i deklic, starih 5 – 5,5 let*. [Comparative analysis of psychomotor structure of 5 – 5,5 year old boys and girls. In Slovenian.] *Šport*, 41(1-2), 36 – 40.
- Rajtmajer, D. (1997). *Comparative analysis of the structure of motor abilities of younger children*, In M. Pavlovič (Ed). *Proceedings of the III International symposium Sport of the young*. Bled, Slovenia (216 - 221). Ljubljana: University of Ljubljana, Faculty of Sport.
- Rausavljević, N. (1992). *Relacije između morfoloških karakteristika i motoričkih sposobnosti učenika i učenica prvih razreda osnovnih škola u Splitu*. [Relations between morphologic characteristics and motor abilities of male and female children from first grade in primary school. In Serbian.] (Unpublished master thesis, University Ss. Chiril and Methodius) Скопје: Fakultet za fizička kultura.
- Сабо, Е. (2002). *Структура моторичког простора и разлике у моторичким способностима дечака предшколског узраста при упису у основну школу*. [Structure of mo-

tor space and differences in motor abilities at male pre – school children at the beginning of first grade in primary school. In Serbian.] *Физичка култура*, 56(1-4), 10 – 17.

Strel, J., & Šturm, J. (1981). *Zanesljivost in struktura nekat-erih motoričnih sposobnosti in morfoloških značilnosti šest in pol letnih učencev in učenk* [The reliability and structure of some motor abilities and morphologic char-

acteristics of six-year-old male and female pupils. In Slovenian.] Ljubljana: Institute of Kinesiology, Faculty of Physical Culture.

Zurc, J., Pišot, R., & Strojnik, V. (2005). Gender differences in motor performance in 6.5 – year – old children. *Kinesiologija Slovenica*, 11(1), 90 – 104

Correspondence:

Biljana Popeska

University “Goce Delcev”

Faculty of Educational Sciences

Str. “Krstе Misirkov”, 10 A, 2000 Stip, Macedonia

E-mail: biljana.popeska@ugd.edu.mk