Nataša Sturza Milić

Congruence Between Methods for Identifying "Exceptional Physical Aptitude" in School Children

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ABSTRACT

The aim of this paper was to research the compatibility among various techniques (motor testing and teacher identification) for the identification of exceptional physical aptitude in students. The study was conducted on a sample of 503 children (241 girls and 262 boys) aged 10 – 10.5 and 25 teachers. It was confirmed that there was a statistically significant low correlation between the technique of motor testing and that of teacher identification (for girls r = 0.41; $p < 0.01$ and for boys r = 0.43; $p < 0.01$). Through a precise analysis of the subsamples of boys and girls identified through motor testing and teacher recognition, it was noted that the teachers successfully recognized 23 boys with high physical aptitude (54.8 %) and 17 girls with high physical aptitude (50 %). The results of this research can serve as a basis for a reliable identification of pupils with advanced physical aptitude and further work with them in the range of Physical Education and special school programs for the gifted in sport.

Key words: identification, children with exceptional physical aptitude, teachers

Ujemanje med različnimi načini identifikacije gibalnih nadarjenosti šolskih otrok

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POVZETEK

Namen tega prispevka je bil raziskati skladnost različnih tehnik (tehnik gibalnega testiranja in učiteljevega prepoznavanja) prepoznavanja gibalne nadarjenosti učencev. Raziskava je bila izvedena na vzorcu 503 otrok (241 deklic in 262 dečkov), starih od 10 do 10,5 leta, in 25 učiteljev. Potrjeno je bilo, da obstaja statistično pomembna nizka korelacija med tehniko gibalnega testiranja in tehniko učiteljevega prepoznavanja (za deklice r = 0,41; p < 0,01 in za dečke r = 0,43; p < 0,01). S podrobno analizo podvzorcev dečkov in deklic, ki sta bila opredeljena z gibalnim testiranjem in učiteljevim prepoznavanjem, smo opazili, da so učitelji uspešno prepoznali 23 gibalno nadarjenih dečkov (54,8 %) in 17 gibalno nadarjenih deklic (50 %). Rezultati te raziskave lahko služijo kot osnova za zanesljivo prepoznavanje gibalno nadarjenih učencev in nadaljnje delo z njimi v okviru športne vzgoje in posebnih šolskih programov za športno nadarjene.

Ključne besede: prepoznavanje, gibalno nadarjeni otroci, učitelji

Introduction

Contemporary research on student giftedness increasingly stresses the need for the application of the new qualitative paradigm in the research, which comprises a multidisciplinary approach to the phenomenon being studied, while taking into account the personality of each subject. Today the need for a holistic approach to research into the varied specific factors which can influence the development of giftedness is highlighted (Coleman 2013; De Corte 2013; Đorđević et al. 2007; Eysink et al. 2015; Gojkov et al. 2002; Gubbels et al. 2014; Heller 2004; Piirto and Fraas 2012; Reilly et al. 2000; Sturza Milić 2009, 2012, 2014; Van Tassel-Baska and Stambaugh 2005, 2006). Thus, we should also view advanced physical aptitude and the concomitant research in a multivariable way, while incorporating other aspects of child development. The final decision regarding the students' physical aptitude and its capacity to be identified can be given only after a detailed analysis of motor capabilities, as well as the analysis of other characteristics and traits of the children's personalities. Many authors consider that at the core of the giftedness and talent phenomena there has always been more guessing and opacity, than the substance and application (Gagne 2015; Gojkov et. al. 2002; Kornmann et al. 2015; Loewen 2006; Swaab et al. 2014; Van Tassel-Baska 2013). At different time period,s giftedness has been defined in distinct ways. In the past, some types of giftedness (mainly, intellectual and academic giftedness) were valued and encouraged more in certain socio-cultural contexts. However, today we are no longer talking only about intellectual giftedness, because the concept is broadening. Gardner's theory of multiple intelligences contributed to this tendency (1983, 2006). According to it, giftedness can be manifested in different areas. Even though a generally accepted definition of giftedness does not exist today, the majority of authors who deal with these phenomena consider that high potential lies at the core of any giftedness (Đorđević et al. 2007; Gagne 2014, 2015; Gardner 1993, 2004; Koren 1989; Renzulli 2010; Sternberg and Davidson 2005; Stojaković 2000; Sturza Milić 2007, 2014; Terman 1954).

The choice of problem in this paper is accentuated by the lack of research in the area and the actual need for the establishment of high quality methodological concepts behind the identification of students' giftedness. The justification for the perfection of reliable, high-quality techniques and instruments for the identification of students with advanced physical aptitude should be sought in the establishment of conditions which underline that physical education (PE) classes should be more efficient and carried out in accordance with the needs, capabilities and interests of gifted students, with the aim of their general development, as well as with the aim of timely and professional introduction to sports and programs for the encouragement of giftedness. A gifted student, regardless of the type of ability, should not be ignored, because in that case his/her giftedness will not develop acceptably or can even be lost completely. Quite often students who have special tendencies and capabilities in specific areas are not recognized in time, nor engaged and

actualized. Many studies have proven that the age of 12 is the critical limit before which a potentially gifted child should be identified (Chua 2015; Đorđević 1998; Fleig Dal Forno and Bahia 2015; Maksić 1995; Malušić 2000; Reilly et al. 2000, Shaw 2009; Sturza-Milić 2009). Regarding the motor development and the optimal time for the identification of students gifted with advanced physical aptitude, fundamental movements should have been developed and stabilized sufficiently by that age limit, and the mental and physical capabilities of children developed so much, that based on the motor testing results, one can draw conclusions about the level and structure of motor capabilities, differences between genders, etc. Furthermore, taking into consideration that the aforementioned age represents a "sensitive period" for the development of certain motor capabilities (especially coordination), the lost time in the sense of inadequate and untimely identification of potential students, cannot be easily made up. In the light of optimal inclusion of children in the athletic path, one should bear in mind that children who are 7 or 8 years old should already be guided towards sports that are predominantly coordinative in character (Kukolj 2006; Lopes et al. 2011; Sturza Milić 2014), while remembering that with younger children one should not adhere strictly to specialized activities because the only acceptable approach is one that will take into account the development of a wide array of motor foundations which will enable timely specialization in later periods.

According to the basic meaning of the verb, to "identify" in this context means to recognize a set of characteristics which make the student gifted, as well as the type and degree of these characteristics. The reason that identification of giftedness is so difficult lies in the fact that there does not exist a universally accepted definition of giftedness (Johnsen 2004; Maksić 1995; Sturza Milić 2009). The identification of giftedness is not simply a technical question and a procedure, as is often misunderstood, but rather an implemented theoretical understanding of the nature of human potential (Đorđević 1979). Perfect methods and techniques do not exist for the identification of gifted children, and critical judgement should be a key element of all identification procedures. The choice of giftedness criteria is left to the individuals who are making the selecftion and their agreement. Which procedure will be applied depends primarily on the goals of the identification. This leads to a great diversity and distinct possibilities for a comprehensive and thorough study of gifted children in different areas. One of the key conditions for special physical aptitude to appear is the development and quality of motor ability, which more specifically than other characteristics, contributes to the demonstration ofadvanced physical aptitude. In most studies whose goal was the identification of giftedness in this area, the technique of motor testing was used (Chua 2015; Reilly et al. 2000; Sturza Milić 2009; Suchomel 2005; Williams and Reilly 2000).

After choosing the technique of motor testing as the most commonly used technique for the identification of advanced physical aptitude, a question arises: Which hypothetical model of the students' physical giftedness should be viewed

in order to facilitate reliable identification of the advanced physical aptitude among younger elementary school pupils? Furthermore, a practical problem is the construction of a valid test instrument battery, since in research so far, although there exists a number of good batteries for the evaluation of students' motor development, these still have not been directly used for the identification of the students' physical aptitude. Posed in such a way, the complexity of the problem is increased because a model of the motor abilities of younger elementary school children still has not been clearly defined. Methodological problems during testing are also present, because of a strong cause-effect connection between the child's motor, morphological, connotative, cognitive and other environments. Certain researchers (Feberžer 2002; Gallagher 2015; Gubbels et al. 2014; Heller 2004; Johnsen 2004; Koren 1989; Kornmann et. al. 2015; Maksić 1995; Renzulli 2010) do not underestimate the importance of using quantitative measures, but consider that these should only be implemented after a qualitative analysis, because tests cannot foresee all of the individual's potential. These assumptions are founded on a belief that it is more appropriate to monitor and analyze gifted individuals in a range of activities (which is especially applicable in education). Therefore, apart from the identification of high physical aptitude by the technique of motor testing, we can also consider recognizing giftedness through identification by a teacher, parent, trainer, peer or someone else. The teacher identification technique (method) is more widely used and acknowledged in school conditions in comparison to other identification techniques, although it is accepted that it has certain drawbacks (the efficiency of identification has not been satisfactorily confirmed, a stereotypical outlook in the process of gifted student identification etc.). Despite the fact that they are frequently used in schools and in the everyday lives of the children, in the relevant literature we noted that few authors posed the problem of teacher competence at recognizing the behavior of gifted children. Koren (1989) stated that, in the identification of gifted students, the similarities between the teacher's opinion and the research results correlated in a range from 30.3 % to 53.2 %. Sturza Milić (2009), while researching various ways of identifying a student's giftedness at physical aptitude found a significant correlation between the technique of motor testing and the recognition conducted by a teacher. Teachers are successful in recognizing potential physical aptitude in children, since they have successfully recognized 46 % of such children who had been previously identified through the technique of motor testing. Gagne (1994) found that the correlation between the teachers' evaluation and the test evaluation was from 30 % to 70 %. Lee (1999) states that teachers, parents and experiments have different criteria for identifying giftedness and that the percentage of overlap between procedures is from 20 % to 50 %. The studies carried out by Siegle & Powell (2004) revealed that the use of Teacher Observation Forms to identify gifted children did not have a high level of effectiveness, since teachers had certain prejudices, but that these forms could still be used since they would be of help in obtaining detailed information about the

children. Russian teachers' ratings of the intellectual abilities of first graders (gifted and non-gifted) in Scheblanova's study (1996) agreed only 54 % with the children's results on a test of cognitive abilities.

Because of the previously mentioned questions which still haven't been completely researched and to raise the quality of the identification of advanced aptitude in physical education, the goal of this paper was to research the compatibility of techniques of motor testing and the method of teacher identification.

Method

Participants

The sample in this research was deliberate and incorporated 503 pupils from the age of 10 to 10.5 (261 boys and 242 girls) and 25 teachers. All the children attended the fourth grade of primary schools in Vrsac, Serbia. The children included in the sample were healthy, with no physical disabilities or other deficits, and came from varied social environments. Written informed consent was obtained from all the parents of these children prior to their participation in the study. The study was in accordance with the Code of Professional Ethics at the University of Belgrade (ethical standards for scientific investigations involving human participants) and the Code of Professional Ethics for the Medical Chamber of Serbia (Article 22).

Procedure

This was an empirical and applied research. The research methods of testing and scaling were implemented. For the assessment of the students' motor abilities, the technique of motor testing was used. This technique was based on the analytical approach, more precisely, on the parameters which enabled understanding of the level of the students' general motor ability (coordination, speed, strength, power, flexibility and endurance), which is assumed to be able to explain success in body activities. After motor testing of the complete sample of pupils had been completed (n = 503), a standardization process was conducted for each motor task (Z–value). The results from all 14 motor tasks, with the application of Z–scores for each pupil, were transformed into a single value (ZMOT).

For the purpose of recognizing students who have special physical aptitude by the teachers (homeroom teachers) the scaling technique was used. The teacher recognition technique was implemented on the whole sample of students (n = 503). Observational scales were constructed on the basis of the literature (Đorđević 1998; Karwowski 2007; Renzulli 2010) and taking into consideration relevant studies which showed that they can significantly increase the success of adults in recognizing gifted students (Koren 1989, Sturza Milić 2009). As an instrument, a specially constructed assessment scale was used, structurally developed on the

model of the opinion scale of the LIKERT type. The resulting teachers' grades for the items were converted into a single value (TTOT).

In order to determine whether a correlation exists between the applied techniques of identification of the physically gifted students (techniques of motor testing and the teacher identification method), on the whole sample of students (n = 503), Pearson's linear correlation was used.

The specific goal of this research was to test whether those students who were identified as potentially gifted through the technique of motor testing, were also identified by the teachers through the teacher identification technique, i.e. (whether the teacher gave them the highest grades–TTOT). In order to accomplish this goal, the following steps were taken:

In order to separate 15 % of the best results on the motor test from the complete sample of students (n = 503), a border ZMOT value was selected, which was at the 85th percentile. An analysis was conducted of frequency distribution and cumulative percentages for the ZMOT value from the top of the list where the best results are distributed. The border ZMOT value for the subsample of girls was 3.68. The border ZMOT value for the subsample of boys was 3.90. In this way a subsample of potentially gifted boys (n = 42) and a subsample of potentially gifted girls (n = 34) were formed through implementation of the motor testing technique.

In order to separate 15 % of the best results on the motor test from the complete sample of students (n = 503), a border TTOT value was selected, which was at the 85th percentile. An analysis was conducted of frequency distribution and cumulative percentages for the TTOT value from the top of the list where the best results are distributed. The border TTOT value for the subsample of girls was 50.1. The border TTOT value for the subsample of boys was 49.5. In this way a subsample of potentially gifted boys (n = 45) and a subsample of potentially gifted girls (n = 31) were formed through the implementation of the motor testing technique. The research was undertaken in 2014.

Instruments

Motor effectiveness was estimated according to application of a battery of 14 mobility tasks:

Agility run 10x5 m (CUTR),

1. Flamingo balance test with eyes closed (FLAM),
2. Endurance in pull-up position (ZGIB),
3. Sit-ups in 20 seconds (PSED),
4. Training ground with jumping and pulling through (POLI),
5. Sit and reach (PRSE),
6. Deep sit and reach on the bench (DPKL),
7. Crossbar standing on one leg (RAVL),
8. Rhythmic jumping (RITS),
9. Shuttle run on 20 m track (SATL),
10. Standing long jump (SDALJ),

11. Hand-tapping (TAPR),
12. Targeting (TGAD)
13. 15 m sprint from running start (TR15).
14. Motor tasks were adjusted to the sample of children and had shown optimal measuring characteristics in previous research (Bala, 2007; Kukolj 2006; Sturza Milić 2009, 2013).

For the purpose of recognizing these physically gifted pupils by the teachers (homeroom teachers) the scaling technique was used. As an instrument,t a specially constructed assessment scale was used, structurally developed on the model of the opinion scale of the LIKERT type (the levels of the value scale continuum were from 1 to 5, in a logical order from the least agreement with the statement to the maximum agreement). Care was taken that the items were adequate regarding their purpose and form. The evaluation scale for teachers included a direct introduction and 11 items. The resulting teachers' grades for the items were converted into a single value (TTOT). The sum grade, which was received from the teachers for all of their students, was calculated by adding the grades from all 11 items of the observation list (the range of the sum grade was from a minimum of 11 to a maximum of 55). The reliability was measured with the Cronbach coefficient alpha, which was 0.938.

Data processing and statistics

Data processing refers to the calculation of the main descriptive indicators and the indicators of deviation from the normal distribution of motor variables, relative measures of dispersion–standardized deviations (Z–value). In order to confirm the link between the results of motor testing and the results of teacher identification, Pearson's linear correlation was used.

Results

Table 1 (for the sample of girls, n = 241) and Table 2 (for the sample of boys, n = 262) show the basic descriptive indicators and the indicator of deviation from normal distribution for motor variables.

Table 1: Descriptive statistics of motor variables for the sample of girls (n = 241)

Motor variables of girls	Min	Max	Mean	SD	Sk	Ku
CUTR	16.1	28.4	21.0	2.13	.41	-.32
FLAM	1.5	60.0	13.3	13.24	1.92	3.41
ZGIB	.0	83.0	11.1	10.93	2.61	9.68
PSED	1.0	20.0	12.6	3.04	-.55	.71
POLI	4.1	9.0	5.2	.64	1.34	5.08
PRSE	8.0	43.0	26.6	5.83	-.23	.64
DPKL	3.0	34.0	19.9	5.16	-.41	.04
RAVL	0.1	12.9	3.1	2.05	2.05	4.87
RITS	3.0	21.0	13.5	4.18	-.31	-1.12

Motor variables of girls	Min	Max	Mean	SD	Sk	Ku
SATL	80.0	281.6	130.7	61.59	1.04	1.50
SDALJ	63.0	170.0	119.6	18.86	-.09	-.15
TAPR	22.0	45.0	30.7	4.06	.75	1.02
TGAD	00	32.0	13.9	4.11	.16	-.56
TR15	2.3	4.5	2.9	.33	1.40	3.43

Min – minimum value, Max – maximum value, Mean – arithmetic mean, SD – standard deviation, Sk – skewness, Ku– kurtosis

Agility run 10x5 m (CUTR); Flamingo balance test with eyes closed (FLAM); Endurance in pull-up position (ZGIB); Sit-ups in 20 seconds (PSED); Training ground with jumping and pulling through (POLI); Sit and reach (PRSE); Deep sit and reach on the bench (DPKL); Crossbar standing on one leg (RAVL); Rhythmic jumping (RITS); Shuttle run on 20 m track (SATL); Standing long jump (SDALJ); Hand-tapping (TAPR); Targeting (TGAD); 15 m sprint from running start (TR15).

Table 2: Descriptive statistics of motor variables for the sample of boys (n = 261)

Motor variables of boys	Min	Max	Mean	SD	Sk	Ku
CUTR	15.7	26.9	20.0	1.91	.54	.31
FLAM	1.5	60.0	14.6	13.32	1.82	3.19
ZGIB	.0	68.0	18.4	15.32	1.30	.98
PSED	3.0	21.0	13.6	3.21	-.35	.20
POLI	3.4	6.5	4.8	.52	-.04	-.27
PRSE	3.0	39.0	22.2	6.52	-.20	.06
DPKL	2.0	32.0	17.9	4.91	-.21	-.32
RAVL	.7	32.6	4.0	4.05	3.37	15.51
RITS	3.0	21.0	12.7	4.07	-.13	-1.29
SATL	80.0	341.8	155.0	48.49	.92	1.96
SDALJ	75.0	185.0	133.4	21.11	-.08	-.36
TAPR	6.0	42.0	30.2	4.89	-.46	1.19
TGAD	6.0	36.0	18.6	5.16	.13	-.17
TR15	2.1	3.8	2.8	.28	.19	0.18

Min – minimum value, Max – maximum value, Mean – arithmetic mean, SD – standard deviation, Sk – skewness, Ku– kurtosis

Agility run 10x5 m (CUTR); Flamingo balance test with eyes closed (FLAM); Endurance in pull-up position (ZGIB); Sit-ups in 20 seconds (PSED); Training ground with jumping and pulling through (POLI); Sit and reach (PRSE); Deep sit and reach on the bench (DPKL); Crossbar standing on one leg (RAVL); Rhythmic jumping (RITS); Shuttle run on 20 m track (SATL); Standing long jump (SDALJ); Hand-tapping (TAPR); Targeting (TGAD); 15 m sprint from running start (TR15).

In order to study the set goal of this research, Pearson's linear correlation was implemented on the whole sample (n=503) between the results gathered with the technique of motor testing (ZMOT) and the teacher identification technique (TTOT). It was confirmed that there is a statistically significant low correlation (presented

in Table 3) between the technique of motor testing and the method of teacher identification (for girls r = 0.41; $p < 0.01$ and for boys r = 0.43; $p < 0.01$). The results are in in agreement with those from other studies, which also determined a compatibility between distinct identification techniques for students' gifted behavior (boys and girls), more specifically, identification of giftedness by using standardized testing and teacher identification (Đorđević 1998; Gagne 2014; Gojkov et al. 2002; Koren 1989; Siegle & Powell 2004; Sturza Milić 2009; Vidmar-Kuret 2004).

Table 3: Correlation coefficients (r) and the achieved level of significance (p) between Z–values of motor tests ZMOT for girls (n = 242) and ZMOT for boys (n = 261) and total scores of teachers (TTOT)

Variables	N	r	p
ZMOT–girls **TTOT**	242 242	r = .41*	p < 0.01
ZMOT–boys **TTOT**	261 261	r = .43*	p < 0.01

The specific goal of this research was to test whether the students, who were identified as potentially physically gifted girls (PMGG) and boys (PMGB) by the technique of motor testing, were also identified by the teachers through the teacher identification technique, i.e. (whether the teacher gave them the highest grades–TTOT). Analysis of the subsamples of physically gifted boys and girls identified through motor testing and by teacher recognition are presented in Table 4.

Table 4: Analysis of the subsamples of physically gifted boys and girls identified through motor testing and by teacher recognition

Potentially physically gifted students	Identified by technique of motor testing N	Identified by the teachers N	Identified of technique of motor testing and by the teachers N	Not identified by the teachers N
Potentially physically gifted girls–PMGG	34	31	17 (50 %)	17 (50 %)
Potentially physically gifted boys–PMGB	42	45	23 (54.8 %)	19 (45.2 %)
TOTAL	76	76	40 (52.6 %)	36 (47.3 %)

Discussion

Gifted student research still does not equally cover all of the students' areas of giftedness equally and is not interdisciplinary to a satisfactory extent (Coleman 2013; De Corte 2014; Johnsen 2004; Renzulli 2010; Samardzija and Sunde Peterson 2015). As in other areas, all students, including the physically gifted, have a right to be recognized as gifted in schools and to be guided and supported accordingly (Gagne 2014; Reilly et al. 2000; Shaw 2009).

The results of this research show that, on the overall sample of students (n = 503), the techniques of motor testing and recognition by a teacher partly correlate,

owing to the conclusion based on the acquired correlation coefficients (for girls $r = 0.41$; $p < 0.01$ and for boys $r = 0.43$; $p < 0.01$) that in both cases there is a statistically significant low correlation between the tested variables. According to the calculations of the coefficient of determination, it can be concluded that in the sample of girls (n = 241), the tested techniques have only 16 % of shared values ($r^2 = 0.16$), whereas in the sample of boys (n = 262) they have only 18 % of shared values ($r^2 = 0.18$).

In his study Dordevic (1998) produced the result that teachers failed to recognize—i.e. did not adequately assess—almost half the students who, according to the ability tests, belonged in the group of the most capable. Although different identification techniques (as in the case of this study) showed a certain overlap, this issue could represent a serious shortcoming in the educational process. The teachers' failure can be explained by the fact that teachers are mainly focused on the assessment of the students' success at school learning and mastery of class content. Failure is also explained by their lack of knowledge about the phenomenon of advanced physical aptitude, long teaching experience, work overload, lack of initiative, lack of interest in giftedness, but also by the teachers' intolerance of gifted students (Čotar Konrad & Kukanja Gabrijelčić 2015; Geake & Gross 2008; Gralewski & Karwowski 2016; Sturza Milić 2009).

The specific goal of this research was to test whether those students who were identified as potentially physically gifted through the technique of motor testing, were also identified by the teachers through the teacher identification method, i.e. (whether the teacher gave them the highest grades–TTOT). If we give precedence to expert assessment, i.e. the technique of motor testing, and if the top 15 % of the students is taken as a criterion for comparison, we can conclude that the teachers were successful in the identification of 52.6 % of the physically gifted students. Through a precise analysis of the subsamples of boys and girls identified through motor testing and teacher recognition, it can be noted that the teachers successfully recognized 23 boys with advanced physical aptitude (54.8 %) and 17 girls with advanced physical aptitude (50 %).

On the basis of these results, it can be noted that a certain number of potentially gifted boys and girls were identified through motor testing, but not by the teachers (n = 36 or 47.3 %). The results show that we cannot be completely satisfied, although many authors believe that we should bear in mind that identification cannot be altogether successful and perfect. Regardless of how well organized and exceptional the procedures and instruments are, it always happens that a percentage of the gifted does not get discovered, and vice versa: a percentage of those who are not actually gifted does. In this regard, the results of this study are in agreement with the findings of similar studies (Gagne 1994; Karwowski 2007; Malušić 2000; Siegle & Powell 2004; Stojaković 2000).

Although most studies ascribe greater value to ability tests, a certain number of researchers indicate that one should be cautious when coming to the final

conclusion, by noting that teachers can recognize certain characteristics of gifted students which can be of key value on the way to achievement and greatness, but which ability tests cannot identify (Powell & Siegle 2000). With the development of more objective rating scales and checklists in recent years, teachers can better provide valuable information concerning gifted behaviors among their students that may not be perceptible by standardized tests (Chan 2000).

The results of this study provide certain guidelines in the identification process of students with special physical aptitude. The motor testing conducted here gives guidelines as to which motor tests should comprise the battery of tests for the identification of students with high physical aptitude, in order for the information value to be optimal for the varied motor structure of this age period. Since this research concludes that the testing techniques and teacher identification techniques are partially compatible, the employment of both techniques is recommended for the identification of physically gifted students, or they can be used to complement each other. In synergy with the proven technique of motor testing, teacher identification of students who are gifted with physical aptitude would confirm the results with more certainty. In this way the principle of continuous student monitoring would be implemented, since the teacher is in contact with the students for an extended period of time (Coleman 2014; Ferbežer 2002; Fleig Dal Forno and Bahia 2015; Gallagher 2015; Heller 2004; Karwowski 2007).

The teachers in this study did not successfully identify all of the potentially physically gifted students, which is in agreement with research dealing with similar problems (Đorđević 1998; Fleig Dal Forno and Bahia 2015; Gagne 1994, 2015; Koren 1989; Maksić 1995; Siegle & Powell 2004; Sturza Milić 2009). This information indicates that there is still much room for improvement in the identification techniques, and a concomitant increase in teachers' success at identifying pupils who are gifted at physical aptitude. Many authors believe teachers need to be better educated about the phenomenon of physical giftedness and about the characteristics of pupils with such aptitudes (Balchin 2005; Coleman 2014; De Corte 2014; Đorđevic et al. 2007; Gallagher 2015; Karwowski 2007; Sturza Milic 2009).

Conclusion

The results of this study show that one can have more faith in the teacher's identification of students with physical giftedness, but that that teacher nomination strategies cannot be the sole criteria for identification and nomination for gifted programs. The teacher identification technique, together with its instructions, could be used as a first step in working with pupils who have advanced physical aptitude in PA classes.

The validation for perfecting quality and reliable techniques and instruments for the identification of pupils with physical giftedness can be found in creating adequate

conditions for the more effective physical education of younger elementary school pupils, and for such education to meet the needs of gifted pupils, for their general development as well as in the interest of timely and professional guidance in gifted programs and sports. As a consequence, this problem deserves additional research in the field of physical education and child sports. Discussion of the limitations of the study, directions for future research, and educational implications of the study are provided.

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Dr. Nataša Sturza Milić, Visoka škola strukovnih studija za vaspitače „Mihailo Palov" Vršac (Preschool Teacher Training College „Mihailo Palov" Vrsac, Serbia)
natasasturza@gmail.com