

**Palacky University in Olomouc
Faculty of Physical Culture**

ADAPTED PHYSICAL ACTIVITY

MASTER THESIS

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Faculty of Physical Culture

**COMPARISON DIFFERENCE OF MOTOR SKILLS LEVEL
DEVELOPMENT BETWEEN NINE AND TEN YEARS OLD
CHILDREN WITH INTELLECTUAL DISABILITIES TILL 70
IQ IN BOSNIA AND HERZEGOVINA AND CZECH REPUBLIC
(pilot study)**

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Title of the master thesis: Comparison of motor skills level between nine and ten years old children with intellectual disabilities in Bosnia and Herzegovina and Czech Republic (pilot study)

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Abstract: The purpose of this study was to compare the differences of motor skills between children from Czech Republic and Bosnia and Herzegovina through the Movement Assessment Battery for Children test (Henderson & Sugden, 1992). Participants included 26 children, 13 female and 13 male. The age range was from 9 to 10 years. All of them were attending school, only some of them were in special school and some were in inclusion in elementary schools. Descriptive statistics - t - test and mean values were used for results achievement and explanation.

Survey was done in January 2011, at first in Bosnia & Herzegovina upon 18 students from Prijedor. Afterwards the survey was continued in Czech Republic (Zlín).

The results show that differences in motor skills do not exist in t-test between children of both countries, but in mean values exists only between female and male tested children.

Key Words: Motor skills, Bosnia and Herzegovina, Czech Republic, Movement Assessment Battery for Children (M – ABC).

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Bibliografická identifikace

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Název diplomové práce magisterské: Komparace úrovně motorických dovedností dětí s mentálním postižením ve věku 9 - 10 let v Bosně a Hercegovině a v České Republice (pilotní studie)

Fakulta tělesné kultury Univerzity Palackého v Olomouci

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Abstrakt: účelem studie bylo porovnání rozdílů v motorických dovednostech mezi dětmi z České republiky a z Bosny a Hercegoviny prostřednictvím M-ABC (Testová baterie pro hodnocení pohybových dovedností dětí) (Henderson & Sugden, 1992). Šetření se zúčastnilo 26 dětí, 13 dívek a 13 chlapců ve věku 9 – 10 let. Všichni navštěvovali elementární stupeň školy, buď speciální nebo inkusivní. Pro zpracování výsledků a jejich explanaci byla užita deskriptivní statistika a komparace t-testy.

Šetření se uskutečnilo v lednu 2011, nejdříve v Bosně & Hercegovině v Prijedoru (18 dětí), po té šetření pokračovalo v České republice (Zlín).

Výsledky získané t-testy ukázaly, že ne-existují rozdíly mezi dětmi obou zemí, ovšem z průměrných hodnot lze usuzovat na maslé rozdíly mezi testovanými chlapci a děvčaty.

Key Words: motorické dovednosti, Bosna a Hercegovina, Česká republika, Testová baterie pro hodnocení pohybových dovedností dětí (M-ABC)

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Declaration

I hereby declare that I have completed this Master thesis independently under the supervision of Prof. Hana Valkova. I have provided all literal sources and met all principles of scientific ethics.

In Olomouc February 2012

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TABLE OF CONTENTS

1	INTRODUCTION.....	9
2	LITERATURE REVIEW.....	11
2.1	Intellectual Disability.....	11
2.1.1	Definition of Intellectual disability	11
2.1.2	Classification	11
2.2	Epidemiology	13
2.3	Etiology.....	14
2.4	Intellectual disability and motor skills development	16
2.5	Institutions types in Bosnia and Herzegovina.....	18
2.5.1	School Education.....	18
2.5.2	Higher Education.....	18
2.5.3	Structure of education System.....	18
2.6	School legislation in Bosnia and Herzegovina and Czech Republic.....	19
2.7	Czech Republic.....	22
2.8	Academic year in B&H.....	24
2.8.1	Purpose of education.....	25
2.9	Movement Assessment Battery for Children (M-ABC).....	25
2.9.1	Validity of M-ABC test.....	26
2.9.2	Constance and structure of the battery	27
2.9.3	Main features and functions of the M-ABC.....	27
2.9.4	Identification and screening.....	28
3	AIMS AND BJECTIVES.....	29
4	METHODS.....	30
4.1	The Schools.....	30
4.2	Participants.....	31
4.3	Instrument of assessment	32
4.3.1	General guidelines for administration of the test.....	32
4.4	General information for age band 3 (9 and 10 years old children)	35
4.5	Practical test with children between 9 and 10 years.....	36

4.6	Data evolution.....	44
4.6.1	Descriptive statistics.....	44
4.6.2	T-Test processing.....	44
4.7	Research management.....	45
5	RESULTS AND DISSCUSION.....	46
5.1	Analysis of results.....	48
5.2	Comparison between countries.....	70
5.3	Comparison between male and female.....	70
5.4	Summary discussion - from differences aspects.....	70
6	CONCLUSION.....	72
7	SUMMARY.....	74
8	SOUHRN.....	75
	REFERENCE.....	76

1 INTRODUCTION

Motor development of children could be defined in terms of progressive changes in motor performance, resulting from growth, maturation, and biological and behavioral development. Most motor skills and habits that make mobility a man in its unity develops and acquires only in a period of three to ten years of life, and in particular may be development of their beneficial effect in preschool children from 4 – 7 years of life. Motor functioning of young children is of general type. (Ismail & Gruber, 1971; Bala, 1981; Nićin; Kalajdžić & Bala, 1996), which means that in this age group has not yet differentiated motor ability (children react whole body overall motor rhythm).

One of the tests for the motor skills review of the children is the Movement Assessment Battery for Children (M-ABC). The Movement Assessment battery for children has been compiled by Sheila E. Henderson & David A. Sugden. This test is reality new test that has evolved over the past 30 years for indentifying children with subtle motor impairments. (Crock, et. al. 2001). M-ABC Battery is used with children to identify which motor developments are impaired, or we can also use M-ABC to plan the programs in any School for children in inclusion, or serve as a measuring instrument in research involving motor development. The type of the test is monitoring and checklist/inventory. It is used with Children with motor impairments form 3 – 16 years, and the period of the test is from 20 – 40 minutes. The test is very valid and early identification of possible risk factors that could impair the motor development is crucial, since the poor motor performance may have long-term negative consequences for a child's overall development

The Movement Assessment Battery for Children (M-ABC) is one of the most accepted tools, both in clinical practice and in research, for the diagnosis of Developmental Coordination Disorders (DCDs) in children. DCD is an important risk factor in the development of children that can have a significant academic and social impact. (Venetsanou et. al. 2011)

Examination of motor skills of children with IQ70 intellectual disability at first was done in Bosnia and Herzegovina and shortly after in the Czech Republic as well and therefore it is common to note that the same test was made in the quite similar period of the year and that the administrated results of this test are valid and reliable. Entire administered results and

information could be valuable not only to child and teachers, but for coaches as well and all others who work with children and youth. Conclusion obtained in this study can be used as guidelines in creating the curriculum of physical education.

The entire goal is, by using these tests to discover if there is any difference (minor or major) between the children of Bosnia and Herzegovina and Czech Republic – in the ways of work with children

- Is there a difference between the genders
- Is there a difference related to region and domain
- How big and what kind of difference is discovered

2 LITERATURE REVIEW

2.1 Intellectual Disability

2.1.1 Definition of intellectual disability

According to a new approach of the American Association of Intellectual disability (ID) (Luckasson et al. AAMD 2002), ID is defined as the reduced ability of which are characteristic of significant limitations in intellectual functioning and in adaptive behavior, expressed in conceptual, social and practical adaptive skills. It is characterized by significantly subaverage intellectual functioning existing concurrently with related limitations in two or more of applicable adaptive skill areas: communication, self-care, home-living, social skills, community use, self-direction, health and safety, functional academics, leisure and work. Intellectual disability manifests before age 18.

Kovač et.al (2008) says regardless to a International classification (MKB-X, 1994) it is defined as state of residual or incomplete development of brain, and the main characteristic is the disability which contribute to entire development of intelligence such as speak, thinking, motor development and the abilities to socialize, and they are visible during the state of growth.(Priručnik za stručno obrazovanje radnika, 2008)

2.1.2 Classification

The World Health Organization's (WHO) International Classification of Diseases (ICD) (2001), and the American Psychiatric Association's Diagnostic and Statistical Manual of Mental Disorders (DSM-IV) (2000) use intelligence test scores to determine the level of severity of intellectual disabilities (Winnick, 2005). One of the most common criteria for the diagnosis intellectual disabilities is a test intelligence quotient (IQ) from 70 or below (World Health Organization, 2006).

Intellectual Disability (F70-F79)

- With the statement of no, or minimal, impairment of behavior
- Significant impairment of behavior requiring attention or treatment
- Other impairments of behavior
- Without mention of impairment of behavior

F70 Mild Intellectual Disability

Approximate IQ range from 50 to 69 (in adults, mental age from 9 and under 12 years). It is more likely to result in some learning difficulties in school. Many adults will be able to work and maintain good social relationships and contribute to society.

Persons with mild mental retardation learn to speak later in relation to the normally developed children. Most of them managed to completely take care of them self (eating, washing, dressing, sphincter control) and is independent of the practical and domestic affairs, even when the speed of development is much below normal.

F71 Moderate Intellectual Disability

Approximate IQ range from 35 to 49 (in adults, mental age from 6 to under 9 years). Likely to result in marked developmental delays in childhood, but most can learn to develop some degree of independence in self-care and acquire adequate communication and academic skills.

Person in this category shows slow development of understanding and use of language, and their possible achievements in this area are limited. But, they are usually totally mobile and physically active, and most of them show the ability to make contacts within their social development to communicate with others and to work in simple social activities. Achievements in the field, taking care of them self and motor skills are also in a similar way of slow motion, and some of them must have constant supervision throughout their lives. Progress in school work

is limited, but some of them have overcome the basic skills necessary for reading, writing and numeracy.

F72 Severe Intellectual Disability

Approximate IQ from 20 to 34 (in adults, mental age from 3 to fewer than 6 years). It is more likely to result in continuous need of support.

This category, and children that are included in this category present organic etiology and associated conditions which are similar to moderated intellectual disability. Most of persons with severe intellectual disability have expressed motor impairments which are pointing to clinically significant impairment or dysfunctional development of the central nervous system.

F73 Profound: Intellectual Disability

IQ under 20 (in adults, mental age below 3 years) results in severe limitation in self-care, continence, communication, and mobility.

2.2 Epidemiology

There are many causes of mental retardation and only one fourth of all can be attributed to specific anatomical involvement of the brain where brain cells are destroyed or do not completely develop.

Individuals with mental retardation constitute the 3rd largest population of persons with disabilities that follow special education (Luckasson, 1992).

2.3 Etiology

Causes of mental retardation we can share in the next manner:

Internal:

- Genetic
- Heredity

External - obtained during life.

- Heritability (~ 5%)
- Early defects in embryonic development (~ 30%)
- Pregnancy and perinatal problems (~ 10%)
- General health in infant period (~ 5%)
- Environmental conditions (~ 15-20%)
- Unknown (~ 30-40%) (Kocijan-Hercigonja, 2000).

According to the time of appearance:

- Prenatal (from the moment of conception to birth) - chromosomal disorders, various syndromes, metabolic disorders, disorders of brain development, effects due to adverse environmental influences in pregnancy.
- Prenatal (during birth) they are intrauterine and neonatal impairments
- Postnatal (from birth to 18 years) - head injuries, infections, degenerative disorders, toxic - metabolic disorders, malnutrition, adverse environmental impact.

Causes of Intellectual disability may be different biological or psychosocial factors, or combinations of them. However, even in 30-40% of cases it is difficult to establish a clear cause (Kozarić-Kovačić et. al., 2005).

Biomedical: factors that are related to biological processes are genetic disorders or nutrition (chromosomal disorders, single-gene disorders, cerebral digenesis, parental age, birth injury). Genetic disorders are transmitted to the child through genes at the time of conception. The most frequent disorders are fragile X syndrome, phenylketonuria, tuberous sclerosis or Bourneville's disease, and Lesch - Nyhan syndrome.

A chromosomal disorder occurs during the arrangement of chromosomes. The most common of these disorders are Down syndrome, Prader-Willi syndrome, and Angelman syndrome.

Social: factors that relate to social and family interaction, such as stimulation and adult responsiveness (poverty, maternal malnutrition, domestic violence, lack of access to prenatal care, lack of access to birth care).

Environmental: causes are those factors that can be controlled, such as dietary deficiencies in the mother during pregnancy, consumption of drugs or alcohol, lack of physical and sensory stimulation and absence of health care.

Duvdevany et. al. (2002) have examined the impact of environmental features of residences on adaptive behavior, community integration, and health of adults with mental retardation over an 8-year period. Environmental features included residence type, size, choice-making opportunities, physical attractiveness, and family involvement. They assessed 186 residents who initially lived in nursing homes. At the 8-year follow-up, 133 had moved to community-based residential settings. Findings indicated that residents who moved to community settings had higher levels of adaptive behavior and community integration than residents who remained in nursing homes. A more attractive physical environment and greater opportunity for choice-making were associated with higher levels of adaptive behavior at follow-up. Greater opportunity to make choices and family involvement were associated with higher levels of community integration.

Educational: factors that relate to the availability of educational supports those promote mental development and the development of adaptive skills (parental cognitive disability without supports, impaired parenting, delayed diagnosis, inadequate family support). (AAMR, 2002).

Beail write about what works for people with mental retardation. And they conclude that there has been little progress in research with this population over the last decade. (Beail 2003)

2.4 Intellectual Disability and Motor Skills Development

Researchers are in agreement that person with Intellectual disability (ID) display low motor performance scores (Holland, 1987; Eichstaedt & Lavay, 1992; Block, 1993). Traditionally, professionals have believed that children with mild ID are 2 to 4 years behind non-intellectually disabled measures of motor performance. This belief is based on the pioneer research of Rarick (1911-1995), who published extensively in the area of MR and motor behavior (Sherrill, 2003). More recently, Auxter, Pyfer and Huettig (2005) stated that motor delays are very common among persons who are severely mentally retarded. Generally, the greater the intellectual disability is, the greater the lag in attaining major developmental milestones (Winnick, 2005).

Auxter et al., (2005) reported that: 'Delays in developing postural reflexes impact the ability to perform such basic tasks as grasping objects, holding the head up, sitting, standing, and walking. In addition, these delays, to varying degrees, negatively impact their motor and physical capabilities. They may be less capable in strength, flexibility, agility, coordination, and balance'. DiRocco, Clark, and Phillips, (1987) examined the developmental sequence of coordination for the propulsive phase of the standing long jump. The 39 mildly mentally retarded children (4 to 7 years old), who composed the experimental group, were compared to 90 same aged without disability children, who composed the control group. Each subject was filmed performing several standing long jumps. In spite the fact that the age group means for the distance jumped by the mentally retarded subjects were 2 to 3 years behind their without disability peers, the coordination patterns were found to be similar.

For example, a study conducted by Rarick and Dobbins (1977) determined that boys with moderate ID displayed lower performance accuracy scores on two throwing tasks when compared to non-disabled boys of a similar chronological age.

With regards to this developmental delay, several possible explanations have been reported. Ersing, Loovis, and Ryan, (1982) stated that 'in any discussion of factors affecting normal motor development, several are obvious by their frequent reference in the literature. In general these factors include size, physique, rate of maturation, child rearing practices, socioeconomic level and maturation'. When one adds to this list poor health, abnormal reflex response, slowness in reaction time, a lack of movement opportunities and experiences, and a

lack of quality instruction (Rarick, 1973) it is obvious that a combination of factors must be taken into consideration when trying to explain this populations movement deficiencies (Eichstaedt & Lavay, 1992).

Davis (1987) believes that to better determine reasons for movement deficiencies in this population, the physiological descriptive level of persons with ID should also be examined. According to Sherrill (2003) some differences in motor performance between person with and without ID can be explained by height and body composition.

Eckert (1987) referring to the age of 5, mentioned that large-muscle basic motor skills are acquired, increased balance development allows for increased range of movement executing a skill, while manipulative skills need refinement. In this stage of development, fine and gross muscle control, as well as overall body coordination, is improving rapidly. Additionally, striking and kicking should be encouraged (Eichstaedt & Lavay, 1992).

Auxter et al., (2005) stated that between 48 and 60 months a child ‘walks downstairs alternating feet; walks to an even beat in music; jumps forward ten times consecutively; hops on non-preferred foot; catches using hands only; gallops with one foot leading; slides in one direction; throws contra laterally; swings on a swing and self propels’.

In the age of 6, major locomotors skills, such as walking, running, jumping, and stair climbing are now easily performed. Children are able to participate in a variety of sports such as cycling, swimming, and skiing. The more complex locomotors skills of galloping and skipping should be included in individual drills and low-organized games (Eichstaedt & Lavay, 1992). Regarding these skills, Auxter et al., (2005) reported that a child in the age of 6 is able to gallop with either foot leading, may skip, and also bounce and catch a tennis ball. Striking should be encouraged, and included in activities (Eichstaedt & Lavay, 1992).

Preschool children build and expand upon earlier development and establish the foundation for later refinement of locomotors and manipulative skills. This period, with its relatively uniform process of growth, allows for a great deal of movement exploration. (Dunn & Leitschuh, 2006).

2.5 Institutions types in Bosnia and Herzegovina

2.5.1 School Education

Primary education in B&H is nine years. The pupils enroll in primary education when they are between 5 and 6 years old. Secondary education is provided by general, vocational and technical secondary schools. Pupils graduating from general secondary schools, art schools and theology schools obtain the Diploma to graduates of secondary school and can enroll in any faculty or academy by passing the qualification examination prescribed by the institution. Vocational secondary schools offer courses lasting for three years and including a period of practical instruction. Technical secondary schools offer courses lasting for four years. Pupils graduating from technical secondary schools obtain the Diploma and can enroll in any Faculty or Academy by passing the qualification examination prescribed by the Institution.

2.5.2 Higher Education

The Republic of Bosnia and Herzegovina has eight universities: the University of Sarajevo, the University of Banja Luka, the University of Tuzla, the University of Džemal Bijedić (East Mostar), the University of Mostar (West Mostar), the University of Bihać, the University of Zenica and the University of East Sarajevo. All higher education activities are subject to national (Republic Srpska) or cantonal (in the Federation of B&H) laws on higher education.

2.5.3 Structure of education System

Education program in Bosnia and Herzegovina is between 6 and 15 year old children, and that including primary schools, and from 1 to 9 class

After primary school children choose secondary school. They can choose program which they won't General Secondary School, Art School and Theology School (Gymnasium Art School and Religious School). Length of program is in four years. That means form 15 to 19 years old children.

Certificate/diploma awarded: Diploma (Secondary School Diploma)

If children won't to have certificate diploma after secondary school can choose specialized secondary school. This type of school provides vocational and technical education. Age level is the same form 15 to 19 years old children.

Main laws governing higher education:

- Decree: Law on Higher Education and Law on Public Institutions of Zeničko-dobojskikanton Year: 2005
- Decree: Law on Higher Education of Hercegbosanska županija Year: 2000
- Decree: Law on Higher Education of Kanton Sarajevo + Amendment 22/05 Year: 2000
- Decree: Law on Higher Education of Posavka županija Year: 2000
- Decree: Law on Higher Education of Tuzlanski kanton + Amendements 15/0; 5/05 Year: 1999
- Decree: Law on Higher Education of Zapadno-hercegovačka županija Year: 2004
- Decree: Law on University (Republic Srpska) + Amendments 12/93; 14/94; 99/04 Year: 1992
- Decree: Law on University of Bihać – Sanski Kanton Year: 1998

2.6 School legislation in Bosnia and Herzegovina and Czech Republic

Main provisions in Bosnia and Herzegovina

ARTICLE 1. Law on Primary care and education defines the principles of primary care and education of students / pupils of normal psychological development of students / pupils with special needs (hearing-impaired, blind, visually impaired, intellectual disability development, etc.), basic music education, elementary ballet education, further education of gifted students / learners and adult basic education, which is accomplish in the institutions of primary education.

ARTICLE 2. Education of children and youth with special needs was a public priority interest and it is integral part of a unified education system. Special education is organized and conducted in accordance with the law.

ARTICLE 3. Attending a regular elementary school is an obligation for a period of nine (9) years, and for the children of six to fifteen (15) years of age.

ARTICLE 5. A child which is younger than fifteen (15) years, but is three or more years intellectually behind from his generation may be exempted from the obligation of regular attendance of primary school, and the compulsory attendance to the instruction classes free of charge par time education to complete the appropriate forms.

ARTICLE 8. The school is obliged to provide conditions for students to attend religious classes, but only with presence of a parent or guardian.

ARTICLE 19. The children and youth with special educational needs are developing the education in regular schools and with the programs specially created for their individual needs. Individual program, adjusted to abilities and skills of children and youth will be created for each and every one of them and also by choosing the status related to special educator and speech therapist. The children and youth with serious development disabilities and difficulties are able to attend a part time or full timer education in special developmental -educational schools, in those cases when it's not possible to provide proper education in the ordinary schools.

The categories, identification process, planning and way of work, profile, training and special development of professional staff for work with the children and youth with special needs and other cases, are closer defined by entity, region and Brčko district in Bosnia and Herzegovina, in order with principles and standards determined by this law.

ARTICLE 26. In the regular elementary school is implemented a curriculum for students with normal mental development, and additional programs for gifted students, individual adjusted programs for children with special needs and curriculum for adults. It is possible to include a child with special needs to the class in the regular primary schools, where the individually adjusted program will be provided. Educational program for the children with special needs can be provided normally in the ordinary primary schools as well, by the principles of integrated education. This means that all of pupils/students including the pupils and students with special needs, have right to be in the regular classes, with the only differences that work an education of children with special needs is an integral part of the educational activities inside of the entire department. Work with children with special needs can be done by working in small groups in the school or as an individual work with teacher - special educator. Education for children with special needs takes place in special schools or institutions. Possibility for a

child with special needs to move from special to regular schools depends on the pedagogical, psychological, special educator, pathologist, and social status of pupils / students. Assessment is made by a special primary school or institution.

In the special elementary school an education curriculum is created for special needs and also a curriculum for light and heavily intellectually disabled children and youth. Special primary schools can be organized together with educational center which has legal status. Activities and programs of this particular school are not only focused on primary education but also other levels of education, diagnostic cases separation and early rehabilitation of children with disabilities. For those pupils / students is possible to organize to remain the whole day in the school.

Educational work and special supervision over that educational work in the center form previous case is done with suitable curriculum for each school- level of education which is the part of educational center.

ARTICLE 27. Children with special needs are entitled to attend the school the same way as all other children. Children with special needs have right on individual and education program witch completes the goals of class, and it is adjusted to the abilities of the student. Institutions witch educate the students with special needs are entitled to a special financial founds to cover the expanses of special program or to adjust the school environment suitable for the students with special needs.

ARTICLE 28. The school is responsible for recording and description of special needs for students and for general plan that will meet those needs with the help of specialize department or the suitable specialist. Individually adjusted plan and program is created by the teacher in cooperation with special team (teacher, special educator, speech therapist). The special team monitors the operation of individually adjusted plan and program. Parent should be familiar with the development of the individual adjusted program.

Special team in the regular elementary school is educator - psychologist, or pedagogy, special educator, speech therapist. The goals of the special team are: documentation analysis of students joint to first class, determination of special levels (special educator, speech therapist, pedagogic), development of individually adjusted plan and program, monitoring methodology-didactic realization, providing of treatments (special educator

and pathologist) cooperation between the teachers and parents and evaluation of the individually adjusted plan and program. (<http://www.downsy.ba/pdf/regulativa/>)

In special schools in Bosnia and Herzegovina works a special educator of various directions dependent on type of the school, meaning dependent of needs of children. The amount of classes is the same as in the regular schools but the timing of the class is shorter, thirty (30) minutes. Very often in these schools we can find the accommodation that belongs to assistants of the children. Also, the amount of the students is smaller comparing to regular schools. Under these conditions the children with special needs are achieving better success, learning faster and reaching their goals easier. Some of the students in Prijedor are continuing with the education and so they are going to higher level of special education in order to learn about certain jobs to be able to find employment in future. (Grujić psychologist http://www.psihologija.autentik.net/mentalna_skole.php)

2.7 Czech Republic

The legislative framework for education is based on Constitution of the Czech Republic and the Charter of Basic Rights and Freedoms, which became part of constitutional order on 16. December 1992. The basic legislative framework of the present school system consists of five (5) basic laws.

The adoption of the Law No.564/1990 on State administration and Self- Government in the educational System, has meant a significant change in the school management system

Important changes were introduced to the Law No. 564 in 2000 by the Law No. 132/2000 and 2002 by Law 284 in 2002 in relation to stage 1 and 2 of public administration reform. As part of stage 1, school authorities as district bodies of state administration were abolished and their powers were in part transferred to regional authorities and in part to district authorities. As part of stage 2, the powers of district authorities, which were being abolished, were transferred to “municipalities with extended powers” and to regional authorities.

Act No. 390/1991, on Pre-school and school facilities is an amendment to act No.76/1991, the full effective text of which has been published as act No. 395/1991. It clarifies the system of education and special education facilities, special purpose facilities, counseling centers and school canteens. It codifies the option of permitting children with sensory or physical handicaps or speech impediments to attend the mainstream kindergartens which had formerly been

restricted to children without disabilities. This act was also amended in June 1995. (WDE 2006\07).

Special schools exist from pre-primary to upper secondary level. Their curriculum and qualifications are as close as possible to those of mainstream schools, the methods are appropriate to the specific educational problems (mainly mental, physical, visual or hearing disability).

At compulsory level, the special primary school (základní škola speciální) can be established for pupils with medium and severe mental disabilities and multiple mental disabilities and elementary practical school (základní škola praktická) for pupils with mild mental disabilities. These pupils can continue their education in courses at practical school (praktická škola) (ISCED 2C) or vocational school (odborné učiliště) (ISCED 3C) – two secondary schools set up for pupils with lesser study prerequisites – or in other special vocational courses at upper secondary level (ISCED 3C) for pupils with mild mental disabilities and for those who have not successfully completed lower secondary education.

Attendance at a special school requires a recommendation from an appropriate authority and parental consent; 2.4 % of the population falls outside mainstream education. The new Education

Act puts stress on integration. (Czech Republic 2011. National system overview on education systems in Europe, <http://eacea.ec.europa.eu/education/eurydice/documents/eurybase/>)

Schools are divided into the following types according to the level of education and the nature of education provided: the mateřské školy, základní školy, střední školy (gymnázia, střední odborné školy, střední odborná učiliště), conservatoires, vyšší odborné školy, základní umělecké školy, language schools authorized to organize state language examination (all these institutions are subject to the Education Act) and the vysoké školy (subject to the Higher Education Act.) (Eurybase The Information Database on Education Systems in Europe 2007\08)

Richard et. al (1997) write in the past few years, special education services in the Czech Republic have undergone significant reform. These reform activities largely reflect a change in attitudes and beliefs about people with disabilities. A variety of strategies have been initiated in an attempt to improve the quality of life for all Czechs with special needs. Representative efforts include a policy of normalization, the integration of students with special needs into regular classrooms and new models for training special educators. Although progress is slow, and

subject to some resistance, an era of change has begun. The benefactors of this process are the 1.2 million Czech citizens with disabilities.

Today, legislative form Czech Republic and Bosnia and Herzegovina are the same for the School education system.

2.8 Academic year in B&H

Academic year in Bosnia and Herzegovina is the same like in rest of the countries from October to June. It is twelve-month period, usually starting in late summer and continuing for three terms until the following summer, during which pupils remain in the same class. Vacation for all is from 1 Jul to September. Instructions in B&H are on Serbian, Croatian, and Bosnian language.

Stages of studies:

University level studies:

University level first stage: First degree: Diploma Higher education:

Courses leading to the Diploma Higher education last from three to six years.

University level second stage: Second degree: *Magister*

Courses leading to the Magister require two years' further study and the defense of a thesis.

University level third stage: Third degree: Doctoral Studies

The Doctorate (PhD) is the highest scientific degree. It is the result of independent research. The public defense of a doctoral thesis is required.

Teacher education:

- Primary teachers (from first to ninth grade) are finished education in Pedagogical Academies) or the Faculty of Philosophy of the University of Banja Luka – Teacher Department.
- Secondary teachers are university graduates or graduates from Pedagogical Academies

2.8.1 Purpose of education

To form optimal based intellectual, physical, moral and social development of the individual in accordance with possibilities and abilities to contribute to a society based on rule of law and respect for human rights, and contribute to its economic development that will ensure the best standard of living for all citizens.

Today in B&H, a developed structure of educational institutions exists, from preschool education to college institutions. However, education is not unified on the whole territory of B&H, but there are different national programs of the main nationalities that insist on national interpretation of history and the learning of the particular language as a national language. (Balaban, 2011).

2.9 *Movement Assessment Battery for Children (M-ABC)*

The Movement Assessment battery for children has been compiled by Sheila E. Henderson and David A. Sugden.

Several tests are available currently to assess the motor ability of children. Two such tests are the Bruininks – Oseretsky Test of Motor Proficiency (Bruininks, 1978) and the Movement Assessment Battery for Children (Movement ABC) (Henderson & Sugden, 1992). The Movement ABC is reality new test that has evolved over the past 30 years for indentifying children with subtle motor impairments. (Crock, et. al. 2001).

The Movement Assessment Battery for Children (M-ABC) is one of the most accepted tools, both in clinical practice and in research, for the diagnosis of Developmental Coordination Disorders (DCDs) in children. DCD is an important risk factor in the development of children that can have a significant academic and social impact. (Venetsanou et. al. 2011).

- Purpose - M-ABC Battery is used to identify children which motor development are impairment, or we used M-ABC for planning programs in any School for children in inclusion, or serve as a measuring instrument in research involving motor development.
- Type of test - observation, checklist/inventory
- Target population – Children with motor impairments form 3 – 16 years
- Time requirements: Administration of Performance Test: individual, 20-40 minutes

Movement ABC test used in preparation for its standardization in Hong Kong. Interrater and test–retest reliability are reported for Age Band One, designed for use with children ages four to six. (Chow & Henderson 2003).

2.9.1 Validity of M - ABC test

Early identification of possible risk factors that could impair the motor development is crucial, since poor motor performance may have long-term negative consequences for a child's overall development. The aim of their study was the examination of disorders in motor coordination in Greek pre-school aged children and the detection of differences in motor performance with regards to age, gender, participation in sports and order of birth in the family. (Giagazoglou, et. al. 2011).

The results suggested that the current norms for the Movement ABC are satisfactory for Dutch children (Henderson et. al. 1998.)

Chow (2006) et al. in China, Both within-culture and cross-cultural differences were statistically significant when all items of the M-ABC were examined simultaneously, but effect sizes were too low to be considered meaningful. However, descriptive analysis of the cut-off scores used for impairment detection on the test suggested that adjustments to some items would be desirable for these particular Chinese populations

2.9.2 Constance and structure of the battery

The Performance Test has eight tasks for each of four group different age band (first band is children 4-6 years old, next age band2 is 7-8 olds, bend3 9-10 olds, and age band4 11-12 olds children).

Eight tasks on each level are identical and grouped in tree items, and that are Manual Dexterity (tree tasks), Ball Skills (two tasks) and Static and Dynamic Balance (tree tasks).

Each participant meets individually and it is very important that is explainer looks behavior of participant till he do contain tasks.

The second assessment component of the battery movement ABC Check list is a product of a research programs to get all impossible situation of child during the test.

2.9.3 Main features and functions of the M - ABC

Movement ABC battery test is combination qualitative and quantitative assessment in a united way.

M-ABC scores range from 0 to 5, with 5 indicating the highest level of impairment. Scores of 0 are achieved by 75% of the normative sample, and scores of 5 by the lowest 2%. A total impairment score is obtained from the sum of subsections and may then be converted to a percentile rank. A raw score of 0 to 9.5 is considered to be within the average range, a score of 10 to 13.5 (5th–15th percentile) is considered borderline, and scores of more than 13.5 (<5th percentile) are indicative of definite motor difficulties. Percentile cut-offs (15% and 5%) for the three subtests are also reported.

One of the cases that MABC has been extensively used is in studies measuring children, as developmental coordination disorder (Pless, Carlsson, Sundelin, & Persson, 2002; Rodger, Ziviani, Watter, Ozanne, Woodyatt, & Springfield, E., 2003; Smits-Engelsman, Niemeijer, & van Galen, G.P., 2001; Jongmans, Smits-Engelsman, & Schoemaker, 2003; Crawford, Wilson, & Dewey, 2001) and attention deficit hyperactivity disorder (Pitcher, Piek, & Barrett, 2002; Pitcher, Piek, & Hay, 2003). Additionally it has been used in other research domains as in children with MR (Spano, Mercuri, Rando, Panto, Gagliano, Henderson, & Guzzetta, 1999; Brasic, Barnett, Kowalik, Tsaltas, & Ahmad, 2004), in children born very prematurely (Cooke, 2005; Westrup, Bohm, Lagercrantz, & Stjernqvist, 2004; Chaudhari, Otiv, Chitale, Pandit, &

Hoge, 2004), as well as in children without disabilities (Van Waelvelde, De Weerd, De Cock, & Smits-Engelsman, 2003; Pedersen, Sigmundsson, Whiting, & Ingvaldsen, 2003; Brake & Bornholt, 2004).

It is the choice how to use the ABC battery either practical or theoretical elements. When time and resource are scarce it may be best to use checklist as screening instrument as a detailed diagnostic.

The test may be used to provide more objective data on children's performance and the Checklist may be used as a means of obtaining external validation. (Henderson & Sugden 1992)

2.9.4 Identification and screening

As professionals become increasingly aware that problems of motor development can cause as much distress children and their parents as any other childhood disorder, more attention is being paid to the provision of appropriate help through the school and/or health services. Increasingly, screening programs are being set up to identify children who require this help as early as possible. Either the test or the checklist is used to identify a child with motor difficulties by comparing the child's score to standardized norms for other children in the same age score. (Henderson & Sugden 1992).

3 AIMS AND OBJECTIVES

Aims

To compare motor abilities through motor skill performance of children in Czech Republic and Bosnia and Herzegovina measured by Movement Assessment Battery for Children test Henderson & Sugden (1992) related to:

- Different age (nine and ten)

- Different gender

Objectives

- Quantitative (we operate with quantity of data from 26 participants)
- Analytic – synthetic (data are analyzed, assessed, summarized)
- Comparative children from CZ and B&H

Research Questions

- Are there differences of motor skills between children from Czech Republic and Bosnia and Herzegovina?
- To what level motor skills impairment was presented in this study?

4 METHODS

4.1 *The Schools*

Measurements of intellectual disabilities, around 70IQ, by the children between nine and ten years, were done in Prijedor (Bosnia and Herzegovina). Prijedor is placed in the north-western part of Bosnia and Herzegovina. Its surface is 834 km² and the town is situated at the altitude of 135 a.s.l. Prijedor is after Banjaluka, the second-largest city in the Republic of Srpska.

Measurements were done in Prijedor, in few Schools, Primary Petar Kočić (children in inclusion), Primary Dositej Obradović (children in inclusion), Primary Branko Ćopić (children in inclusion), and Special Primary and higher School Đorđe Natošević, and in Czech Republic Children Home, Pre-school, Primary School and Practical School Zlín (Dětský domov, Mateřská škola, Základní škola a Praktická škola Zlín.)

Special Primary School Đorđe Natošević in Prijedor exist from Year 1971. The School have 82 students between 6 and 19 years old and 19 classes. At the moment 36 special teachers and other technical staff is employed. This school has also high school education, where children can learn the skills such as tailoring, locksmith and they learn for cook.

In Special Primary and Practical School in Zlín are two basic classes of pre - schools for children with visual impairments / 14 children / and 67 students in the school. Age of children is from 5 to 19 years. The school operates 28 special teachers, 1 psychologist, 1 speech therapist, a medicine nurse. There are also teaching assistants/7 /, and one social worker. This school exists for 52 years and offers accommodation for children who lived far away from the school. It started with 2 classes, which was a maximum of 20 children, gradually expanded menu, as it allowed the legislation. Today they have pre-school education in the preparatory stage, two education programs for children with mental disabilities, with light and medium intellectual disability and for children with profound intellectual disabilities. At school they have a high school education program for graduates of elementary special school.

It has been compared 18 children's from Prijedor and 8 children's from Czech Republic of the same age and the same level of IQ.

In Prijedor today works 12 primary and 6 secondary schools with about 12 000 students. There are primary and secondary musical schools and special schools for children with

disabilities. We should not forget pre - school in Prijedor “Radost” where can be seen about 500 kids from Prijedor.

A few years ago Prijedor recently had higher educational institutions, such as higher medical and Higher School of Business and Mining Geology Department Faculty of Technology of Banjaluka. (<http://www.opstinaprijedor.org>)

The children in this study are from two Countries and from four schools from Bosnia and Herzegovina (Prijedor) and one special school from Czech Republic (Zlín).

Measurements were done in these schools from Prijedor:

- Special basic School Đorđe Natošević
- Basic School Petar Kočić
- Basic School Desanka Maksimović
- Basic School Branko Ćopić

And in Czech Republic in Zlín

- Dětský domov, Základní škola speciální a Praktická škola.

Measurement concluded children between nine (9) and ten (10) years old, eighteen (18) children from Bosnia and Herzegovina, and nine (9), ten (10), eleven (11) and twelve (12) years old children, eight children from Czech Republic, Zlín.

4.2 Participants

Participation included 26 children 13 girls and 13 boys. The age range was from 9 to 12 years. All of them were attending fourth and fifth grade public schools.

Parents of the children were informed about research and they gave their approval for children to participate in whole research procedure.

Table 1 Number of participants from Bosnia and Herzegovina and Czech Republic

No of 9 years female - 4	No of 9 years male - 7	No of 10 years female - 7	No of 10 years male - 4	No of 11 years female - 1	No of 11 years male - 1	No of 12 years female - 1	No of 12 years male - 1
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4.3 Instrument of assessment

4.3.1 General guidelines for administration of the test

Planning is very important in administration for any test. The examiner knowledge of the test, timing of the assessment, amount of advance preparation and ability to establish rapport are crucial components of testing.

To administer the Test successfully, the examiner must have a complete knowledge of the item instruction. Before conducting a formal assessment, it is essential that the administration and demonstration of each item be practiced until all the mechanics have been mastered. Who work primarily with special categories of children may find it is useful to test some children without problems before using the Test in their own hospital, clinic or classroom. (Henderson & Sugden 1992).

Materials

All of the materials needed to administer the Test are contained in a carrying case except for a stopwatch and clipboard. Some of materials will require replacement from time to time. Example, for the throwing and catching ball tasks must be in good condition since resilience is important, will need a change the items once a year.

If any of the test materials become broken or lost, standard replacements should be obtained from the publisher.

Testing room and set-up

The Movement ABC was designed to be an individually administered test. A one-to-one testing situation permits the building of rapport between examiner and examinee and minimizes distractions so that optimum performance is achieved.

For the ideal assessment, the ideal testing room should be at least 6m x 4m and should have one blank wall without window, at least part the floor surface should be relatively smooth for ball bouncing and jumping. The room for testing in school or clinic must have a good ventilation and light.

All markings on wall and floor should be made prior to testing!

Clothing

When the M-ABC is being used as a screening test or in a large research project it may not be possible to specify how a child should be dressed. Suitable physical education clothing (gym shorts, T-shirt, gym shoes or trainers) is strongly recommended so that movement is unimpaired and easily observed.

The examiner should also wear appropriate clothing to facilitate demonstration of the tasks for the child.

Safety considerations and testing time

It is very important that the examiner administers this Test in a way that ensures safety of the child being tested. Testing room has to be clean so that child cannot bump into staff and things.

The testing time is around 20-30 minutes. If there is young child or one with significant motor difficulties is likely to take longer. Some may become physically and unable to perform well after 20 minutes or so.

Establishing rapport and maintaining motivation

The examiner should make every attempt to make the child feel at ease and enjoy the testing experience. The items in the Test are fun and can be presented as game. Some children need a lot of communication with examiner to complete certain physical exercise.

When a child seems at ease, the examiner should give a brief instruction to the Test, explain that some task may be easier than others, and illustrate the variety of activities involved.

Throughout the Test, the examiner should attempt to convey enthusiasm to child and continuously encourage the child for effort. Give comments as a “you are doing well” or “good job” (Handreson & Sugden, 1992).

When it is obvious that the child is doing badly on a task the examiner might say “This one is a little hard” The children should not know anything about failure criterion. Examiner can say simply “Good try, let’s see can you make it faster”

If child just say that is too hard for him, examiner must give him support and say “Just try your best” or “I bet you can do it”

Children lose interest in an activity quite suddenly. The examiner should be alert for such changes in interest and stop testing if is necessary. (Henderson & Sugden 1992).

4.4 General information for age band 3 (9 and 10 years old children)

General information about the band 3 measurements are made and applied to children of 9 and 10 years old. In order to successfully complete the band 3 measurements, certain amount of materials are required, such as:

- Materials supplied in the kit
- Materials to be supplied by the tester and
- Floor taping

Materials supplied in the kit

Record form (including Flower Trains)	Target box
Table top mat	2 jumping stands
Peg board	Bean bag
12 plastic pegs (plus 4 extra)	Tennis ball
Bolt with fixed nuts	Tape measure
3 loose nuts	Colored tape
Fine tippel red pain	

Materials to be supplied by the tester

Stopwatch
Writing base (clipboard)

Floor taping

Two hand catch

4.5 Practical test with children between 9 and 10 years

❖ Manual Dexterity -Shifting Pegs by Rows

Materials:

- Peg Board
- 12 plastic pegs
- Table – top mat
- Stopwatch

Task:

The child hold the board steady with one hand and grasps the first peg to be moved with the other. The grasped peg must not be moved from its hole until the child is not told to begin. At a signal the child moves the pegs in the second row to the first (top) row, those in the third to the second row, and those in the fourth row to the third. Stop timing when the child releases the last peg. Both hands are testing.

- Child has one practice attempt with each hand.



Picture 1. Plastic pegs needed for task



Picture 2. Correct position for testing

- Holding the board steady
- Moving the pegs one at time
- Using only one hand during a single trial
- Works as quickly as possible

❖ Manual Dexterity - **Threading Nuts on Bolt**

Materials:

- Bolt with fixed nut
- 3 loose nuts
- Table top mat
- Stopwatch

Task:

The child holds the bolt in one hand and one of the nuts in other. At a signal the nut is screwed down the bolt until it touches the fixed nut. The second and third nuts are then screwed on, one at a time, to meet the nuts already in position. Stop timing when the last of the three nuts is fully screwed on. All strategies that accomplish the task of putting the nuts on the bolt one at a time are acceptable.

- Child has a one practice attempt.



Picture 3. Nuts



Picture 4. A child during task

- Screwing on one nut at a time
- Holding the nut squarely to the bolt so that the thread engages
- Working as quickly as possible

❖ Manual Dexterity -**Flower Trail**

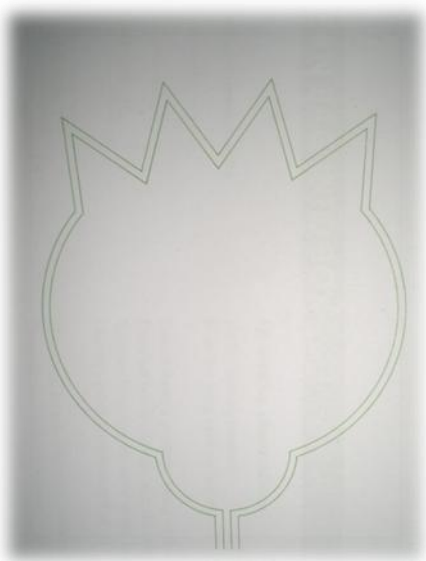
Materials:

- Flower trails (on Record Form)
- Fine- tipped red pen
- Smooth writing base that is not hard or slippery

Task:

The child draws one continuous line, following the trail without crossing its boundaries. The child is not penalized for lifting the pen provided he or she starts drawing again at the same point. Allow the child to make small adjustments to angle of the paper (up to 45 degrees) so it is easier to perform the task. Only the preferred hand is tested.

- Child has one practice attempt.



Picture 5. Flower trails



Picture 6. Work with child

- Keeping the pen in contact with the paper
- Keeping between the boundary lines
- Drawing as slowly as necessary to keep within the boundaries
- Drawing the line in only one direction, especially over the points of the flower

❖ Ball skills-Two hand catch

Materials:

- Tennis ball
- Colored tape

Task:

The child throws the ball from behind the marked distance and catches it on the return with both hands.

- Give to child five practice attempts.



Picture 7. Testing with ball



Picture 8. Child during testing

- Staying behind the line while throwing the ball
- Stepping over the line or to side, when necessary, to catch the ball
- Throwing the ball hard enough to give a good floor
- Catching the ball before it bounces on the floor
- Catching the ball with hands rather than trapping it against the body or clothing.

❖ **Ball skills-Throwing Bean Bag intro Box**

Materials:

- Bean bag
- Target box
- Colored tape

Task:

The child throws the bean bag into target box with one hand. Only one hand is tested. Place the target box on the floor with the short side facing the child. Measure a distance of 2.5m from the front of the target box and mark with a short piece of tape.

- Give to child five practice attempts. During this task the child can change hands if they wish, but must choose one for testing.



Picture 9. Throwing test

- Remaining behind the line while throwing
- Standing in the position most comfortable for throwing the bag
- Throwing the bag with only one hand

❖ Static Balance-One board Balance

Materials:

- Stopwatch
- Balance board
- Child must wear gym shoes or trainers

Task:

The child balances on one foot, on a balance board, for up to 20 seconds. Once the child has achieved the balance position, start timing. Both legs are tested.

- Give to child one practice attempt with each leg for maximum 10 seconds.



Picture 10. Balance test



Picture 11. Static balance test

- Placing the foot on the middle of the board, directly over the keel
- Keeping the board from tilting so the sides do not touch floor
- Keeping the free foot off the floor, away from the other leg and balance board
- Using the arms to balance if is necessary.

❖ Dynamic Balance-Hopping in Squares

Materials:

- Colored tape

Task:

The child starts the task standing on one foot inside the first square. The child makes five continuous hops forward from square, stopping inside the last square. The last hop does not count if the child fails to finish in a balanced, controlled position, or makes an extra hop outside the square. Both legs are tested.

- Give a child one practice attempt with each leg.



Picture 12. Work with a boy dynamic balance test

- Hopping inside the square
- Hopping once inside each square
- Keeping the free foot from touching the ground
- Finishing the series of hops in a balanced, controlled position inside the last square-this is achieved by bending the knee to accommodate the hop, and controlling momentum.

❖ Dynamic Balance-**Ball Balance**

Materials:

- 2 jumping stands
- Tennis ball
- Peg board

Task:

Place the peg board and ball on a table so the child may pick them up with either hand. The child takes up a position halfway between the two jumping stands. The child lays the peg board on the palm of one hand and places the ball in the middle of it. The child must steady the board so that ball remains stationary without being held. No part of the hand should be above the upper surface of the board. The child then walks around the outside of the jumping stands and returns to the starting point. If the ball is dropped, the examiner picks it up and returns it child, who replaces it on the board. Once it is steady again, the child continues walking from the point at which the ball fell. Only one hand is tested.

- Give the child one practice attempt



Picture 13. Work with a girl balance



Picture 14. Balance test

- Balancing the board on the palm of the hand
- Walking as slowly as necessary to keep ball balanced
- Replacing the ball and continuing to walk from that point if the ball is dropped

4.6 Data evolution

The statistical analyses were done with the T-Test and mean values of motor abilities of the two participants.

The t-test assesses whether the means of two groups are statistically different from each other. This analysis is appropriate whenever you want to compare the means of two groups, and especially appropriate as the analysis for the posttest-only two-group randomized experimental design.

The statistic of main validity was done in MS office in Excel program. The statistics are done in assistance with teacher from University of Banjaluka, Branko Djurić.

4.6.1 Descriptive statistics

In M-ABC test the Children can score between 0 and 5 on each item, so that the total score will range from 0 to 40, with increased impairment associated with higher scores. The Total Impairment Score (TIS) is the sum of all scaled scores and this is then expressed as a percentile of the norm. For example, TIS of 13+ would indicate that the child lies in the 5th percentile, and therefore has a very impaired score. For the purpose of this study, the performance test was used. This allows for both quantitative and comments/observations gathered and identified in this study as qualitative data. This instrument is not still translated in Serbian language, so it was used in English language.

4.6.2 T- Test processing

The results are statically processed by T-test with 0, 1 and 0, 5% degree of freedom. The following variants are compared:

- Czech Republic male (M) and female (F) with Bosnia and Herzegovina male (M) and female (F)
- Czech Republic male with Bosnia and Herzegovina male
- Czech Republic female with Bosnia and Herzegovina female
- Bosnia and Herzegovina male with Bosnia and Herzegovina female
- Czech Republic male with Czech Republic female

4.7 Research management

Examination is done, at first in Bosnia & Herzegovina upon 18 students from Prijedor in January 2011. Afterwards the examination was continued in Czech Republic, but because of technical problems it was not possible to do the measurements at the very first day in Czech Republic. First was necessary to find the adequate School and then the examination is done upon 8 students os special School in Zlin in the m month of June 2011.

Directors of schools in Bosnia and Czech Republic gave all information that are necessary for conducting this research: providing classroom for interventions, information about participants and their individual programs, approval from parents about children's participation in research.

Protocol from the MABC was followed, and standardized testing procedures were used. The test permits the administrator to give verbal directions, and a physical demonstration of the task. The instructions as well as the demonstration were given, acknowledged of the instrument. Author of this study measured and recorded with assistance of one faculty student. As examiner, the author was engaged in the observation of their motor performance with regards to qualitative patterns. The teacher of the students was also presented, in order to make the students feel more comfortable and secure. The participants were randomly assigned to perform 8 items of Movement ABC Test (a description of these items is presented in chapter 4.5) and the time needed for each participant was approximately 40 min.

Parents of the children were informed about research and intervention procedure, and they gave their approval for children to participate in whole research procedure.

5 RESULTS AND DISCUSSION

In this chapter quantitative and qualitative results are presented. We will focus mainly on the quantitative results, that include the Total Impairment score (T.I.S), and the scores in the three Subtests of MABC, Manual Dexterity (M.D), Ball Skills (B.S) and Static & Dynamic Balance (S & D.B).

Because there was no difference in T - Test, the main validity of the test is done and the slight differences are found.

Table 2 Results of children from Bosnia and Herzegovina

	Gender	Age	M.D	B.S	S&D.B	Total
1.	M	9	5.5	5.0	5.5	16
2.	M	9	3.0	0	3.0	6.0
3.	M	9	3.0	0	7.5	10.5
4.	M	9	8.5	5.0	1.0	14.5
5.	M	9	8.0	0	5.0	13.0
6.	M	9	8.0	3.0	12.5	23.5
7.	M	10	15.0	10.0	10.0	35.0
8.	M	10	4.0	2.0	7.0	13.0
9.	M	10	5.0	1.0	2.0	8.0
10.	F	9	0.5	1.0	0	1.5
11.	F	9	15.0	0	7.5	22.5
12.	F	9	8.0	8.0	0	16.0
13.	F	9	1.0	1.0	0	2.0
14.	F	10	15.0	10.0	12.0	37.0
15.	F	10	3.5	0	0	3.5
16.	F	10	6.5	0	2.0	8.5
17.	F	10	6.0	0	0	6.0
18.	F	10	7.0	0	2.5	9.5

Legend: M – Male, F – Female M.D- Manual Dexterity; B.S- Ball Skills; S&D.B- Static & Dynamic Balance; Total – Total impaired score

All participants in first three tasks M.D did not have any problems, in the main, they all did task very easy. For them that was something like a game, and they got very good results. Results of these tasks are that the children with easy mental retardation did not have any

problems and they focused on work and had a competitive spirit. According to this it can be explained with fact that M.D was first task on program.

Small problem occurred on second two tasks B.S. Generally, children thought that they will play a game when they saw a ball, and because of that they did not have focus on a task. But some of them realized all task and did measurements as best as they could.

Generally, the biggest problem was on the third task, S & D.B. Because of the fact that children at age nine and ten could not make a balance longer then few seconds.

Also there are differences between boys and girls of same age, not only in physical constitution, but in their interest in different things.

Table 3 Results of children from Czech Republic

	Gender	Age	MD	BS	SDB	Total
1.	M	9	15,0	10,0	9,0	34,0
2.	M	10	7,0	2,0	1,0	10,0
3.	M	11	12,0	8,0	10,0	30,0
4.	M	12	15,0	4,0	14,0	33,0
5.	F	10	13,0	9,0	7,5	29,5
6.	F	10	15,0	8,0	14,0	37,0
7.	F	11	15,0	6,0	10,5	31,5
8.	F	12	5,5	10,0	1,0	16,5

Legend: M – Male, F – Female M.D- Manual Dexterity; B.S- Ball Skills; S&D.B- Static & Dynamic Balance; Total – Total impaired score

From the previous two tables we can see that it was possible to make comparison between eight children from Check Republic and eighteen children from Bosnia and Herzegovina. To be able to do statistical analysis, we choose eight children out of eighteen from Bosnia and Herzegovina.

Children who made the tests had the same picture about M-ABC Test. For them every task was very interesting and for example when they finished all tasks, they were surprised how everything was very fast, and some of them wanted more and more.

It was very important that they did not have idea that they are doing a test. If they knew, maybe some of them would feel a fear and could not give the best from themselves. Very necessary and important fact is support and praise for children during the testing.

5.1 Analysis of the results

Because of technical problems in Czech Republic where the test and research has been done only with 8 children, to be able to compare adequately with Bosnia and Herzegovina (B&H) we had to choose 8 children from B&H as well. The selection is based on age of the children. It was aimed for children from both countries to be nearly same age.

Table 4 M.D results of children

N ^o	MD B&H (M+F)	MD CZ (M+F)
1.	8	15
2.	15	7
3.	4	12
4.	5	15
5.	8	13
6.	15	15
7.	15	15
8.	15	5,5

Legend: MD – Manual Dexterity; B&H – Bosnia and Herzegovina; M- male; F- female; CZ- Czech Republic

Table 5 Statistical analysis

t-Test: Paired Two Sample for Means	Variable 1	Variable 2
Mean	10,625	12,1875
Variance	23,69642857	14,85267857
Observations	8	8
Pearson Correlation	-0,391685932	
Hypothesized Mean Difference	0	
Df	7	
t Stat	-0,605652367	
P(T<=t) one-tail	0,281929452	
t Critical one-tail	1,894578604	
P(T<=t) two-tail	0,563858904	
t Critical two-tail (0,5%)	2,364624251	
t Critical two-tail (0,1%)	3,499483297	

From table 4 and 5 it can be seen that there is no significant difference in MD between Check and Bosnian male and female children. Both groups of participants are on the same intellectual disability and also their MD shows very small differences because in that particular age the children only start to develop exact abilities.

Đurović, (2010) presented the similar work on the children with intellectual disability and he made exam with 100 participants. This paper reports findings about relationship between different aspects of executive functions and social skills in children with mild intellectual disability. The sample consisted of 100 children, both gender, aged from 10 to 13 years. Analysis revealed that social skills are significantly correlated to the planning ability (strategy employment) and inhibitory control.

According to (Čokorilo, 2010). For the accomplishment of educational ideals of free, versatile, integral, mature and healthy person, it is necessary already in the pre-school age to start with educational activities in those directions. This time of mental awakening in life represents the base for entire subsequent activity. The main characteristic is exceptional mobility of psychomotor system, although the movements are uncertain and imprecise because of insufficient development of mechanism in the brain.

For understanding of psycho-physic development pre-school child it is necessary to know his rightness determined in developmental psychology, so it is possible to point the right moment for adequate psychic and physic activities.

In case that unknown and unused that right moment, latter on will be very difficult to catch up. It is the same with a child with intellectual disability.

Table 6 BS results of children

N ⁰	BS B&H (M+F)	BS CZ (M+F)
1.	3	10
2.	10	2
3.	2	8
4.	1	4
5.	8	9
6.	10	8
7.	9	6
8.	5	10

Legend: BS- Ball Skills; B&H- Bosnia and Herzegovina; M- male; F – female; CZ – Czech Republic

Table 7 Statistic analysis

t-Test: Paired Two Sample for Means	Variable 1	Variable 2
Mean	6	7,125
Variance	13,71428571	8,410714286
Observations	8	8
Pearson Correlation	-0,212823169	
Hypothesized Mean Difference	0	
Df	7	
t Stat	-0,61584431	
P(T<=t) one-tail	0,278741446	
t Critical one-tail	1,894578604	
P(T<=t) two-tail	0,557482893	
t Critical two-tail (0,5%)	2,364624251	
t Critical two-tail (0,1%)	3,499483297	

From table 6 and 7 it can be seen that there is no significant difference in BS between Czech and Bosnian male and female children. Motor abilities of children with the same intellectual disability are quite similar, first because of the same age level, and second because of ability of the children, no matter where they live.

Čepička, et. al (2009) says, to get the exact results with mind validity the research has to be done on more than 30 children in single group. If the research is done in less amounts of

children the results will confirm assumption that the testing of gross motor skills in children with psychic handicap is disputable. However additional study is needed on larger sample of children.

Table 8 SDB results of children

N ^o	SDB B&H (M+F)	SDB CZ (M+F)
1.	12,5	9
2.	10	1
3.	7	10
4.	2	14
5.	0	7,5
6.	12	14
7.	9,5	10,5
8.	11,5	1

Legend: SDB – Statistic and Dynamic Balance; B&H – Bosnia and Herzegovina; M- male; F- female; CZ- Czech Republic

Table 9 Statistic analysis

t-Test: Paired Two Sample for Means	Variable 1	Variable 2
Mean	8,0625	8,375
Variance	22,24553571	25,76785714
Observations	8	8
Pearson Correlation	-	0,241282415
Hypothesized Mean Difference	0	
Df	7	
t Stat	-	0,114522885
P(T<=t) one-tail	0,456019505	
t Critical one-tail	1,894578604	
P(T<=t) two-tail	0,912039011	
t Critical two-tail (0,5%)	2,364624251	
t Critical two-tail (0,1%)	3,499483297	

From table 8 and 9 it can be seen that there is no significant difference in SDB between Czech and Bosnian male and female children. For the children in this level of age was very hard to follow up this test because of lack of motor ability.

Greyerova & Blahutkova, (2008) used the methods of structures questionnaires, guided interviews, systematic, intentional observations and chosen psycho-diagnostic tests to find out about their skills and to prove the hypotheses. The conclusion is that the defects in the motor activities are connected to the work habits, and getting these under control improves integration into society.

Table 10 Total results of children

N0	Total B&H (M+F)	Total CZ (M+F)
1.	23,5	34
2.	35	10
3.	13	30
4.	8	33
5.	16	29,5
6.	37	37
7.	33,5	31,5
8.	31,5	16,5

Legend: Total impaired score; B&H – Bosnia and Herzegovina; M- male; F- female; CZ- Czech Republic

Table 11 Statistic analysis

t-Test: Paired Two Sample for Means	Variable 1	Variable 2
Mean	24,6875	27,6875
Variance	124,8526786	87,99553571
Observations	8	8
Pearson Correlation	-0,339752235	
Hypothesized Mean Difference	0	
Df	7	
t Stat	-0,503445508	
P(T<=t) one-tail	0,31505189	
t Critical one-tail	1,894578604	
P(T<=t) two-tail	0,63010378	
t Critical two-tail (0,5%)	2,364624251	
t Critical two-tail (0,1%)	3,499483297	

From table 10 and 11 it can be seen that there is no significant difference in Total between Czech and Bosnian male and female children. Because of entire testing MD + BS +

SDB = Total is expected to be with very small differences between this two groups of participants.

Children with special needs represent specifically population of every social community. From the way of representing children and young people with special needs education and program and opportunities which they are participant in the middle in high measure is dependent from their ID and special educator.

Table 12 MD results of M

N0	MD CZ (M)	MD B&H (M)
1.	8	15
2.	15	7
3.	4	12
4.	5	15

Legend: MD – Manual Dexterity; CZ- Czech Republic M- male; B&H- Bosnia and Herzegovina

Table 13 Statistic analysis

t-Test: Paired Two Sample for Means	Variable 1	Variable 2
Mean	8	12,25
Variance	24,66666667	14,25
Observations	4	4
Pearson Correlation	-0,782291762	
Hypothesized Mean Difference	0	
Df	3	
t Stat	-1,028886806	
P(T<=t) one-tail	0,189614646	
t Critical one-tail	2,353363435	
P(T<=t) two-tail	0,379229293	
t Critical two-tail (0,5%)	3,182446305	
t Critical two-tail (0,1%)	5,840909309	

From table 12 and 13 the mean of male tested children shows that Bosnian male tested children are with higher percentage of MD which means that they are a bit slower while completing the test. The reason why the Bosnian male tested children are a bit slower than Czech male tested children while completing the test is lack of work conditions (proper equipment and environment).

Table 14 BS results of M

N°	BS CZ (M)	BS B&H (M)
1.	3	10
2.	10	2
3.	2	8
4.	1	4

Legend: BS- Ball Skills; CZ- Czech Republic; M- male; B&H- Bosnia and Herzegovina

Table 15 Statistic analysis

t-Test: Paired Two Sample for Means	Variable 1	Variable 2
Mean	4	6
Variance	16,66666667	13,33333333
Observations	4	4
Pearson Correlation	-0,581377674	
Hypothesized Mean Difference	0	
Df	3	
t Stat	-0,5814019	
P(T<=t) one-tail	0,300886105	
t Critical one-tail	2,353363435	
P(T<=t) two-tail	0,601772209	
t Critical two-tail (0,5%)	3,182446305	
t Critical two-tail (0,1%)	5,840909309	

From table 14 and 15 it can be seen that there is no significant difference in BS between Czech and Bosnian male children. The reason for this result is because of conclusion that both, Bosnian and Czech male tested children have shown that they can handle the ball very well.

Ozer, et. al. (2008) says that sport as activity of itself can increase to move, to exercise, to increase life motivation of people. Children with special needs have "physical education and sport justices" like the other children. A Sport Program For children with special needs was introduced at Akdeniz University in 2001 for the first time with the aim of meeting the sport needs of children with special needs in Turkey.

Table 16 SDB results of M

N°	SDB CZ (M)	SDB B&H (M)
1.	12,5	9
2.	10	1
3.	7	10
4.	2	14

Legend: SDB- Statistic and Dynamic Balance; CZ- Czech Republic; M- male; B&H- Bosna and Herzegovina

Table 17 Statistic analysis

t-Test: Paired Two Sample for Means	Variable 1	Variable 2
Mean	7,875	8,5
Variance	20,39583333	29,66666667
Observations	4	4
Pearson Correlation	-0,640288136	
Hypothesized Mean Difference	0	
df	3	
t Stat	-0,138409133	
P(T<=t) one-tail	0,449342698	
t Critical one-tail	2,353363435	
P(T<=t) two-tail	0,898685396	
t Critical two-tail (0,5%)	3,182446305	
t Critical two-tail (0,1%)	5,840909309	

From table 16 and 17 Results are with very small differences because the task of balance in this case for the children of 9 to 12 years of age usually represents a problem.

According to Kojić (1999) the development of motor dimensions is significant because of integral development of individual. Motor is the base for committing of physical education, which have to be examined in order to reach the elements which are important for reform of this particular area.

Table 18 Total results of M

N°	Total CZ (M)	Total B&H (M)
1.	23,5	34
2.	35	10
3.	13	30
4.	8	33

Legend: Total- Total impaired scores; CZ- Czech Republic; M- male; B&H- Bosnia and Herzegovina

Table 19 Statistic analysis

t-Test: Paired Two Sample for Means	Variable 1	Variable 2
Mean	19,875	26,75
Variance	143,3958333	127,5833333
Observations	4	4
Pearson Correlation	-0,797545686	
Hypothesized Mean Difference	0	
df	3	
t Stat	-0,6232453	
P(T<=t) one-tail	0,288646279	
t Critical one-tail	2,353363435	
P(T<=t) two-tail	0,577292558	
t Critical two-tail (0,5%)	3,182446305	
t Critical two-tail (0,1%)	5,840909309	

From table 18 and 19 the results for mean validity shows the differences between the Czech and Bosnian male tested children. The reason for this visible difference is the result of Bosnian male tested children which is pointed to be lower. Lack of the proper work conditions for children with intellectual disabilities is the main reason of low results.

Bosnia & Herzegovina is less developed country and it is significantly behind comparing to other countries of EU. Related to that, the work with people with disabilities becoming recognized only couple year ago and only then the more attention was placed, and the work with children with disabilities got more serious and responsible. Because of that fact, the better results shell come with time, and we do suggest that to repeat the examination I few years.

Table 20 MD results of F

N°	MD CZ (F)	MD B&H (F)
1.	8	13
2.	15	15
3.	15	15
4.	15	5,5

Legend: MD- Manual Dexterity; CZ- Czech Republic; B&H- Bosnia and Herzegovina; F- Female

Table 21 Statistic analysis

t-Test: Paired Two Sample for Means	Variable 1	Variable 2
Mean	13,25	12,125
Variance	12,25	20,3958333
Observations	4	4
Pearson Correlation	-0,129165362	
Hypothesized Mean Difference	0	
df	3	
t Stat	0,371258992	
P(T<=t) one-tail	0,367556836	
t Critical one-tail	2,353363435	
P(T<=t) two-tail	0,735113672	
t Critical two-tail (0,5%)	3,182446305	
t Critical two-tail (0,1%)	5,840909309	

From table 20 and 21 it can be seen that there is no significant difference in MD between Czech and Bosnian female children. The main validity of MD test has resulted as very slight. This result was expected because in general the Female children are more developed comparing to Male children of same age.

From the article (Van Houtte, 2004): recently, research of gender differences in achievement has mainly concentrated on the underperformance of boys in comparison with girls. Qualitative research in particular points to the importance of the gender-specific cultures adolescents' experience. The purpose of this article is to test quantitatively the explanatory value of academic culture with respect to the stated gender differences in achievement. Use is made of data of 3760 pupils in the third and the fourth year of secondary education in a sample of 34 schools in Flanders (Belgium). A distinction is made between general schools preparing students

for higher education and schools offering technical and vocational education. It is demonstrated that boys' culture is less study oriented than girls' culture and that this difference can be held responsible for the gender differences in achievement, at least in general schools. In technical/vocational schools, boys seem to oppose the study culture.

Table 22 BS results of F

N ^o	BS CZ (F)	BS B&H (F)
1.	8	9
2.	10	8
3.	9	6
4.	5	10

Legend: BS- Ball Skills; CZ- Czech Republic; B&H- Bosnia and Herzegovina; F- female

Table 23 Statistic analysis

t-Test: Paired Two Sample for Means	Variable 1	Variable 2
Mean	8	8,25
Variance	4,666666667	2,916666667
Observations	4	4
Pearson Correlation	-0,72280632	
Hypothesized Mean Difference	0	
df	3	
t Stat	-0,13912167	
P(T<=t) one-tail	0,449084134	
t Critical one-tail	2,353363435	
P(T<=t) two-tail	0,898168267	
t Critical two-tail (0,5%)	3,182446305	
t Critical two-tail (0,1%)	5,840909309	

From table 22 and 23 it can be seen that there is no significant difference in BS between Czech and Bosnian female children. This test shows that both groups of female tested children handle the test with BS equally well.

By earlier examinations it is proven that the females are more developed comparing to males and therefore the abilities of women are bigger and better then of a man and this measurements are also improving that there is no significant difference between females of Bosnia & Herzegovina and Czech Republic.

Table 24 SDB results of F

N°	SDB CZ (F)	SDB B&H (F)
1.	0	7,5
2.	12	14
3.	9,5	10,5
4.	11,5	1

Legend: SDB- Statistic and Dynamic Balance; CZ- Czech Republic; F- female; B&H- Bosnia and Herzegovina

Table 25 Statistic analysis

t-Test: Paired Two Sample for Means	Variable 1	Variable 2
Mean	8,25	8,25
Variance	31,41666667	30,41666667
Observations	4	4
Pearson Correlation	0,07548157	
Hypothesized Mean Difference	0	
df	3	
t Stat	0	
P(T<=t) one-tail	0,5	
t Critical one-tail	2,353363435	
P(T<=t) two-tail	1	
t Critical two-tail (0,5%)	3,182446305	
t Critical two-tail (0,1%)	5,840909309	

From table 24 and 25 it can be seen that there is no significant difference in SDB between Czech and Bosnian female children. The SDB test has shown that both groups of female tested children have exactly the same mean validity.

Testing the balance was harder for both groups because the children at this age having difficulties to establish either static or dynamic balance. Therefore the result is absolute matching of these two groups.

Table 26 Total results of F

N°	Total CZ (F)	Total B&H (F)
1.	16	29,5
2.	37	37
3.	33,5	31,5
4.	31,5	16,5

Legend: Total- total impaired scores; CZ- Czech Republic; F-female; B&H- Bosnia and Herzegovina

Table 27 Statistic analysis

t-Test: Paired Two Sample for Means	Variable 1	Variable 2
Mean	29,5	28,625
Variance	86,16666667	75,39583333
Observations	4	4
Pearson Correlation	0,158185571	
Hypothesized Mean Difference	0	
df	3	
t Stat	0,150026793	
P(T<=t) one-tail	0,445131226	
t Critical one-tail	2,353363435	
P(T<=t) two-tail	0,890262451	
t Critical two-tail (0,5%)	3,182446305	
t Critical two-tail (0,1%)	5,840909309	

From table 26 and 27 it is visible only slight mean validity which is positive for female tested Bosnian children comparing to Czech female tested children. The females showed that they rule the motor abilities almost identically in MD, BS and also in SDB. There is no significant difference which means that working conditions with children are not a huge obstacle to overcome the motor abilities and also that the M-ABC test is very adequate no matter in which region is done.

Table 28 MD results of M and F

N°	MD B&H (M)	MD B&H (F)
1.	8	8
2.	15	15
3.	4	15
4.	5	15

Legend: MD- Manual Dexterity; B&H- Bosnia and Herzegovina; M- male; F- female

Table 29 Statistic analysis

t-Test: Paired Two Sample for Means	Variable 1	Variable 2
Mean	8	13,25
Variance	24,66666667	12,25
Observations	4	4
Pearson Correlation	0	
Hypothesized Mean Difference	0	
df	3	
t Stat	-1,728136563	
P(T<=t) one-tail	0,091205544	
t Critical one-tail	2,353363435	
P(T<=t) two-tail	0,182411087	
t Critical two-tail (0,5%)	3,182446305	
t Critical two-tail (0,1%)	5,840909309	

From table 28 and 29 the results in the MD test between boys and girls from both groups have shown significant difference in mean validity where is clearly notable that boys comparing to girls are having better results in this test.

Quite similar conclusion has Bigović (2006) Based on previous analyses, it is evident that the group of boys and girls has significant static differences. Having in mind that the males and females are from the same area of town, quite similar social-economic conditions, that the measurement is done at the beginning of the school and that the groups were attending the same program of physic education, the question appears if there actually are any differences? Are they just random or they could be related to a less amount of male and female participants of this examination? However, the stated differences could be also caused by a different pace of biological growth and development between the genders as well as with the fact that the females are facing tremendous growth changes, much faster comparing to males.

Table 30 BS results of M and F from

N°	BS B&H (M)	BS B&H (F)
1.	3	8
2.	10	10
3.	2	9
4.	1	5

Legend: BS- Ball Skills; B&H- Bosnia and Herzegovina; M- male; F- female

Table 31 Statistic analysis

t-Test: Paired Two Sample for Means	Variable 1	Variable 2
Mean	4	8
Variance	16,66666667	4,66666667
Observations	4	4
Pearson Correlation	0,718132499	
Hypothesized Mean Difference	0	
df	3	
t Stat	-2,717464882	
P(T<=t) one-tail	0,036352356	
t Critical one-tail	2,353363435	
P(T<=t) two-tail	0,072704713	
t Critical two-tail (0,5%)	3,182446305	
t Critical two-tail (0,1%)	5,840909309	

From table 30 and 31 Mean validity of BS test between male and female tested children from both groups shows that male children poses better ball skills comparing to female children. The similar conclusion is presented by Junaid & Fellowes (2006).

Table 32 SDB results of M and F from

N°	SDB B&H (M)	SDB B&H (F)
1.	12,5	0
2.	10	12
3.	7	9,5
4.	2	11,5

Legend: SDB- Statistic and Dynamic Balance; B&H- Bosnia and Herzegovina; M- male; F- female

Table 33 Statistic analysis

t-Test: Paired Two Sample for Means	Variable 1	Variable 2
Mean	7,875	8,25
Variance	20,39583333	31,41666667
Observations	4	4
Pearson Correlation	-0,66335045	
Hypothesized Mean Difference	0	
df	3	
t Stat	-0,08116017	
P(T<=t) one-tail	0,47021295	
t Critical one-tail	2,353363435	
P(T<=t) two-tail	0,940425899	
t Critical two-tail (0,5%)	3,182446305	
t Critical two-tail (0,1%)	5,840909309	

From table 32 and 33 mean Validity between male and female tested children presented the slight difference in results. The male tested children had a slightly better results comparing to female tested children. By the analysis of these results we are coming to conclusion that both, males and females had the problems with static and dynamic balance. This is closely related to age of children where the coordination of movement and posture is still developing.

Table 34 Total results of M and F

N0	Total B&H (M)	Total B&H (F)
1.	23,5	16
2.	35	37
3.	13	33,5
4.	8	31,5

Legend: Total- Total impairments score; B&H-Bosnia and Herzegovina; M-male; F- female

Table 35 Statistic analysis

t-Test: Paired Two Sample for Means	Variable 1	Variable 2
Mean	19,875	29,5
Variance	143,3958333	86,16666667
Observations	4	4
Pearson Correlation	0,03973349	
Hypothesized Mean Difference	0	
df	3	
t Stat	-1,2956893	
P(T<=t) one-tail	0,142883588	
t Critical one-tail	2,353363435	
P(T<=t) two-tail	0,285767176	
t Critical two-tail (0,5%)	3,182446305	
t Critical two-tail (0,1%)	5,840909309	

From table 34 and 35 Total results between the male and female tested children of Bosnia and Herzegovina has shown that the male tested children in general have completed better results comparing to female tested children.

There is no significant differences, but when all of motor abilities are placed together for example as the MD test supports the males as well as the BS, while the SDB almost does not have any differences, we reach the conclusion that the males are more skilled comparing to females as well as they are faster in some of manual skills, but that they are equal with females when it comes to balance. Overall, males from Bosnia & Herzegovina are more successful in M-ABC testing comparing to females

Table 36 MD results of M and F

N°	MD CZ (M)	MD CZ (F)
1.	15	13
2.	7	15
3.	12	15
4.	15	5,5

Legend: MD- Manual Dexterity; CZ- Czech Republic; M- male; F- female

Table 37 Statistic analysis

t-Test: Paired Two Sample for Means	Variable 1	Variable 2
Mean	12,25	12,125
Variance	14,25	20,395833
Observations	4	4
Pearson Correlation	-0,61834538	
Hypothesized Mean Difference	0	
df	3	
t Stat	0,033488734	
P(T<=t) one-tail	0,487694195	
t Critical one-tail	2,353363435	
P(T<=t) two-tail	0,975388391	
t Critical two-tail (0,5%)	3,182446305	
t Critical two-tail (0,1%)	5,840909309	

From table 36 and table 37 Mean Validity in MD test between the Czech male and female tested children has shown that difference in results is very slight. It is almost equal. But, the females of Czech Republic showed slightly better skills because there is a difference in nurture and development in various regions. The Czech Republic is significantly developed country comparing to Bosnia & Herzegovina.

Table 38 BS results of M and F

N ⁰	BS CZ (M)	BS CZ (F)
1.	10	9
2.	2	8
3.	8	6
4.	4	10

Legend: BS-Ball Skills; CZ- Czech Republic; M - male; F - female

Table 39 Statistic analysis

t-Test: Paired Two Sample for Means	Variable 1	Variable 2
Mean	6	8,25
Variance	13,33333333	2,91666667
Observations	4	4
Pearson Correlation	-0,213808994	
Hypothesized Mean Difference	0	
df	3	
t Stat	-1,034642248	
P(T<=t) one-tail	0,188462205	
t Critical one-tail	2,353363435	
P(T<=t) two-tail	0,376924411	
t Critical two-tail (0,5%)	3,182446305	
t Critical two-tail (0,1%)	5,840909309	

From table 38 and 39 mean validity of BS test has shown that the results between the tested male and female children from Czech Republic are slightly better for male children comparing to female children.

Cvetković et. al. (2007) wrote: A battery of 7 motor tests has been applied on the sample of 609 males and 587 females in nurseries in the region of Vojvodina. The aim was to analyze the differences in motor abilities between preschool males and females. By application of t-test for independent samples, it was determined that the males were significantly better in tests evaluating the coordination of the body, explosive strength and running speed, where the females were better in flexibility. The authors interpret these differences as due to the males tendency to practice more diversified and more intensive forms of movement, and by an increased interest of the females for quiet and less dynamic games with higher concentration of attention and higher amplitude of movement. In

addition, greater differences between males and females not only in motor fields but also in other anthropological dimensions can also be explained by the fact that the growth and development trends are higher in males than in females.

Table 40 SDB results of M and F

N ⁰	SDB CZ (M)	SDB CZ (F)
1.	9	7,5
2.	1	14
3.	10	10,5
4.	14	1

Legend: SDB – Statistic and Dynamic Balance; CZ- Czech Republic; M- male; F- female

Table 41 Statistic analysis

t-Test: Paired Two Sample for Means	Variable 1	Variable 2
Mean	8,5	8,25
Variance	29,66666667	30,41666667
Observations	4	4
Pearson Correlation	-0,8877252	
Hypothesized Mean Difference	0	
df	3	
t Stat	0,04694956	
P(T<=t) one-tail	0,48275201	
t Critical one-tail	2,35336343	
P(T<=t) two-tail	0,96550403	
t Critical two-tail (0,5%)	3,182446305	
t Critical two-tail (0,1%)	5,840909309	

From table 40 and 41 mean variability in this test is very slight. It can be seen that there is no significant difference in SDB between Czech female and male tested children.

Tsaia et. al. (2008) says the purpose of this study was to compare the postural sway profiles of 9/10-year-old children with developmental coordination disorder and balance problems (DCD-BP, n = 64) with those of non-DCD children (n = 71). We measured center of pressure excursions in conditions with and without vision for 30 s while standing still on the dominant leg, the non-dominant leg, or both legs. Sway area, total path length, and Romberg's

quotient were analyzed. Most measures differed significantly between groups, except sway area when the children stood with vision on either the dominant leg or both legs. When standing on the dominant leg or both legs, DCD-BP children demonstrated greater total path length in all conditions and a greater sway area in without-vision conditions. DCD-BP children showed more difficulty standing on the non-dominant leg with eyes both open and closed. While males showed results similar to the total group, the females with DCD-BP only exhibited significant differences in three conditions with eyes closed, but not with eyes open. Analysis of Romberg's coefficient also indicated that children with DCD-BP did not over-rely on visual information.

Table 42 Total results of M and F

N ⁰	Total CZ (M)	Total CZ (F)
1.	34	29,5
2.	10	37
3.	30	31,5
4.	33	16,5

Table 43 Statistic analysis

t-Test: Paired Two Sample for Means	Variable 1	Variable 2
Mean	26,75	28,625
Variance	127,583333	75,3958333
Observations	4	4
Pearson Correlation	-0,6810071	
Hypothesized Mean Difference	0	
df	3	
t Stat	-0,2044082	
P(T<=t) one-tail	0,42555818	
t Critical one-tail	2,35336343	
P(T<=t) two-tail	0,85111637	
t Critical two-tail (0,5%)	3,182446305	
t Critical two-tail (0,1%)	5,840909309	

From table 42 and 43 Total mean validity between the male and female tested children of Czech Republic is with a slight difference. The results shown that the male tested child poses slightly better general skills compared to female tested children.

According to Došen (2005) Children with mental retardation display behavior problems are more often mentally disturbed than their peers with normal development. The reasons for this difference are biological and developmental factors, as well as specific social interaction and frequent conflicts with their surroundings. Symptoms of mental illnesses in these children may be different from those in children with normal development. Psychiatric diagnostics may be difficult. For an appropriate diagnostics and treatment of these children, an adequate knowledge of different professionals cooperating in a multidisciplinary team (among which also a psychiatrist) is necessary. The specialist knowledge concerning the diagnostics and the treatment

of these individuals has made significant advances during the last two decades in the countries of Western Europe. Organized mental health care institutions and specialized institutions are there to help this population exist in many countries. This sort of care does not exist in Croatia. The article presents a short survey of the current situation in this field and some critical remarks regarding the current situation in Croatia

5.2 Comparison between countries

The results showed that there are no major differences between the participants from Czech Republic and Bosnia and Herzegovina. We can say for shore that the working conditions in Czech Republic are much better and whey ahead of the working conditions in Bosnia and Herzegovina. The Schools are in much better conditions and they poses more and better equipment for work, and which is very important the Schools in Czech Republic have assistants for students and the students are also separated in suitable classes classified by the level of their disability.

5.3 Ccomparison betweenen male – female

In the activities such as Manual Dexterity (M.D) and Ball Skills (B.S) male have better results comparing to females, because the males are physically stronger and they poses better motor skills comparing to females. All of results obtained are confirming this statement.

5.4 Summary discussion – from different aspects

From the teachers point of view there could be a bit of discussion. For better and more affective results and better improvement in work with children with special needs there is a lot of things needed at this moment in Bosnia and Herzegovina such as financial support, more educators, more investments and more working equipment and more institutions for this particular type of physical education and Bosnia as a country is not developed enough. Even so, the results obtained in Bosnia and Herzegovina went above the expectations.

It would be very good to conduct the project where the children from Czech Republic and Bosnia and Herzegovina would meet at least once a year and where the good and useful would be placed together. The children from different regions, cultures, habits and system of education would be gathered in one place and the educational programs of both countries would be shared between teachers and children and it would be also nice for children to get to know each other.

6 CONCLUSION

The Movement Assessment Battery for Children is one of the most valid tests in the world. That is a USA test which is valid and accepted in Europe. Entire administered results and information could be valuable not only to child and teachers, but for coaches as well and all others who work with children and youth. Conclusion obtained in this study can be used as guidelines in creating the curriculum of physical education.

Related to assessment 13 male tested children and 13 female tested children from Czech Republic and from Bosnia and Herzegovina, of the same level of age and the same intellectual disability, we found that differences in the t-test are not significant. We noticed that there are very slight differences in mean validity. Those slight differences are actually able to point certain assumptions about disabilities such as: that the child or the group of children was not fully interested to complete the task, or that their developmental and growing environment are not on such level like in Czech Republic, or that the child did not clearly understand directions of how to complete the task.

The largest differences are between male and female children. In general, male children poses better motor skills comparing to female children, even so that the female children of same age are generally a bit more developed.

Mean validity between Bosnian and Czech tested female children is very slight as well as for male tested children of both countries.

Larger mean validity is noticed between male and female tested children of Bosnia and Herzegovina especially in the Manual Dexterity (MD) test where the female children had lower score comparing to male children. In the Ball Skills (BS) test the main validity is also lower for female children in BS, but in the Static and Dynamic Balance (SDB) test the main validity is almost equal. All of the children had difficulties with the dynamic and static balance (difference result 0,4), while for the male and female children from Czech Republic in MD test spotted very slight difference in mean validity. In the BS test the male tested children are better skilled but in the SDB test the female tested children are with slightly better results.

The conclusion is that this type of testing can be applied in both countries, Bosnia and Czech Republic and this kind of tests should be used more often when working with children of Bosnia

and Herzegovina because it will always provide an overall details to parents, teachers, and skilled professionals if there is increased improvement with a child and also to point what is exactly that child is missing, and to work on that particular case.

The results have shown that there is no significant difference between Czech and Bosnian children. There is only a slight difference between male and female children.

Benefits of M - ABC test from the aspect of school maturity are:

- Age appropriate for preschool children
- International normative data is available
- Quantitative and qualitative assessment
- Highly suitable for impairment detection

Usable in educational setting

Disadvantages M - ABC test from the aspect of school maturity:

- No information of skill mastery above skill level
- Rather low efficiency (unfavorable proportion of items tested versus assessment time)

But, the validity of M-ABC test is very confident and therefore the results of the test are exact and reliable.

The conclusion is that children from Czech Republic have better motor abilities comparing to the children of Bosnia & Herzegovina.

7 SUMMARY

Physical exercise is included in many regular education curriculums, and also is systematically or consistently utilized with children with intellectual disability. Health benefits of various exercise programs have been touted, including changes in physical as well as mental wellbeing. As children are provided with frequent opportunities to participate in everyday fun and engaging physical activities, they gain foundational skills that lead to success in task-specific abilities. The combined benefits from physical activity can improve a child's self-concept, self-esteem, and socialization skills, which are aspects of the affective developmental domain.

The aim was to compare motor abilities of nine and ten years old children with the same intellectual disability from Czech Republic and Bosnia and Herzegovina. Children were compared by means of Movement Assessment Battery for Children methodology (Henderson & Sugden, 1992).

Survey was accomplished on 26 children (13 male and 13 female) from Czech Republic and Bosnia and Herzegovina.

Protocol from the M-ABC was followed and standardized testing procedures were used. Participants were measured on the following 8 items: Shifting Pegs by Rows, Threading Nuts on Bolt, Flower Trail, Two hand catch, Throwing Bean Bag into Box, One board Balance, Hopping in Squares, and Ball Balance. Qualitative results were based on personal observation, which was accomplished during the testing procedure.

From this study it can be concluded that differences between children from Czech Republic and Bosnia and Herzegovina does not exist. The only difference exists between males and females (male has better results).

Contribution of this work is that is done in both countries for the first time and data obtained from all items M - ABC in children nine and ten (9 and 10) years old, may be the base for further study and may be used for motion recommendation.

Individual can participate in the exercises, which may affect certain skills.

8 SOUHRN

Tělesná cvičení jsou zahrnuta do mnoha kurikul a jsou také systematicky nebo konsistentně užívána u dětí s mentálním postižením. Byl zjištěn přínos pro zdraví prostřednictvím různých cvičebních program včetně změn v ve fyzické i mentální pohodě. Jestliže jsou pro děti zajištěny četné příležitosti pro účast v každodenní pohybové zábavě a pohybových aktivitách, mají možnost získat základní dovednosti vedoucí k úspěchu ve specifických dovednostech. Prospěch ze zapojení do pohybových aktivit může ovlivnit sebevědomí i sebehodnocení dítěte, sociální dovednosti, které jsou jedním z hledisek pro emotivní rozvoj.

Cílem práce bylo srovnat pohybové schopnosti devíti a desetiletých dětí stejné úrovně mentálního postižení z České republiky a z Bosny a Hercegoviny pomocí instrumentu MABC (baterie pro hodnocení pohybu u dětí) (Henderson & Sugden, 1992).

Hodnoceno bylo 26 dětí z Bosny a Hercegoviny (13 chlapců a 13 dívek) z České republiky a z Bosny a Hercegoviny). Pro šetření byl užit standardizovaný instrument M-ABC. Participanti byli otestováni v 6 položkách: zasunování kolíčků do dírek, zašroubování matičky, obkreslení dráhy (květiny), chytání oběma rukama, házení pytlíku do krabice, rovnováha na jedné noze, přeskakování do čtverců, balancování na míči. Kvalitativní údaje byly založeny na osobním pozorování během procesu testování.

Na základě studie lze uzavřít, že nebyly nalezeny zásadní difference mezi dětmi z České republiky a z Bosny a Hercegoviny, difference byly nalezeny mezi chlapci a děvčaty (chlapci měli lepší výsledky).

Přínosem práce je, že poprvé byla v obou zemích získána data ze všech položek M-ABC u dětí 9-10 letých, které mohou být základem pro další studie a mohou sloužit pro pohybová doporučení. Jednotlivci mohou participovat ve cvičeních, které mohou ovlivnit určité dovednosti.

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