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Scientific journal *Social Welfare: Interdisciplinary Approach* is a joint periodic international research edition of Lithuania and Ukraine that presents methodological studies and researches of authors from different countries, reflects variety of scientific sociocultural schools and topics concerning interdisciplinary approach in the understanding of human social welfare. The articles published in the journal are reviewed by two members of the editorial board or their appointed experts. The journal is published twice a year: in June and in December of each year. June edition is published in Šiauliai University (Lithuania). December edition is published in Open International University of Human Development "Ukraine" (Ukraine)

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# CONTENTS

<b>Editor's letter</b>	5
<b>I. SOCIAL CHALLENGES</b>	7
<b>Examining Inclusive Practices in Nicaraguan Schools</b>	8
<i>J. Delkamiller, K. Swain, E. M. Leader-Janssen, M. J. Ritzman</i>	
<b>Positive Experiencing of Loneliness as a Factor of Personality Socialization in the Society</b>	19
<i>I. Mukhanova, V. Romanova</i>	
<b>Domestic Violence against the Man: the Structure of Emotional Experience</b>	31
<i>D. Alifanovienė, O. Šapelytė, L. Patkauskienė</i>	
<b>II. THE DEVELOPMENT OF PROFESSIONAL COMPETENCES</b>	41
<b>Empowering Families: The Early Intervention in Natural Environments Professional Development Community of Practice Project in Ohio</b>	42
<i>S. Harjusola-Webb, M. Gatmaitan, A. Lyons</i>	
<b>Development of Psychological Readiness to Work with Gifted Children for Preschool Institution Teachers</b>	56
<i>O. Bondarchuk, N. Dovgan</i>	
<b>Changes of Professional Value Orientations of Teachers in the System of Postgraduate Education</b>	66
<i>O. Bondarchuk, H. Pecherska</i>	
<b>Ability to Generalize in Foreign Language of the First Years Students in the Higher Educational Institutions</b>	79
<i>N. Mylnikova</i>	
<b>Assessment of Own Life Prospects as a Factor of Student's Academic Motivation</b>	90
<i>L. Serdiuk</i>	
<b>III. DISABILITY STUDIES</b>	101
<b>Longitudinal Research of Calf Muscles Functional Changes for Healthy and with Achilles Tendon Rupture Subjects</b>	102
<i>V. Aleknavičiūtė-Ablonskė, A. Skurvydas</i>	

<b>Research on Functional Mathematical Literacy of Pupils with Moderate Special Educational Needs Learning in Mainstream Schools</b> <i>L. Tomėnienė</i>	114
<b>IV. PSYCHOSOCIAL REHABILITATION</b>	127
<b>Assessment of Job Capacities of Young People with Mental Disabilities according to the Evaluation of Motor Skills</b> <i>I. Baranauskienė, L. Radzevičienė</i>	128
<b>Prevocational Training Situation of Young People with Special Educational Needs (SEN) in Germany</b> <i>U. Spichtinger, A. Valaikiėnė</i>	138
<b>Evaluation of Work Capacity of Vocational School Students of Decorator's Speciality with Ergos II Work Simulator</b> <i>D. Mockeviėnė, I. Dobrovolskytė</i>	149
<b>About the authors</b>	157
<b>Requirements for Publication in "SOCIAL WELFARE INTERDISCIPLINARY APPROACH"</b>	162

## Preface by Editors-in-Chief

The fifth issue of the joint scientific Journal *SOCIAL WELFARE: INTERDISCIPLINARY APPROACH* published by Šiauliai University in Lithuania (by Faculty of Social Welfare and Disability Studies) and Open International University of Human Development “Ukraine” (Ukraine) is presented to the community of scientists and researchers.

In the Journal 13 articles have been presented that reflect four main topics of the Journal: *Social Challenges*, *The Development of Professional Competences*, *Disability Studies*, *Psychosocial Rehabilitation*. In the issue 3 (1) 2013 the articles have been prepared by 26 researchers from Lithuania, Ukraine, United States of America, Germany. All presented articles are original scientific works in the field of human social welfare and successful participation in the societal life, reflecting the criteria of new knowledge, interculturality, interdisciplinarity.

The chapter *Social Challenges* features three articles by the researchers from different countries that present the research analyzing challenges and dilemmas of social groups different in the aspects of gender, age and disability. The group of the researchers from University of Nebraska at Omaha (USA) examines Nicaraguan teachers' efficacy for inclusive practices and current teaching practices in Nicaraguan schools as the first step in developing a special education training program (*J. Delkamiller, K. Swain, E. M. Leader-Janssen, M. J. Ritzman*). Meanwhile *I. Mukhanova & V. Romanova (Ukraine)* focus on the theoretical analysis of such a phenomenon as loneliness and the forms of experiencing it. The article provides an empirical research of loneliness, isolation, separation and personality's emotional intellect as determinants of possible positive experience of loneliness. *D. Alifanovienė, O. Šapelytė, L. Patkauskienė (Lithuania)* invite to discuss about domestic violence in the context of women violence against the man.

In the chapter *The Development of Professional Competences* the topics related to the expression and development of specialists' competences in different social contexts and analyzing the peculiarities of theoretical learning and learning in practice have been analyzed. *S. Harjusola-Webb, M. Gatmaitan, A. Lyons (USA)* describe a model of professional development for Early Intervention, including evidence-based practices and recommended practices from national professional organizations, university-community-family partnerships, tools for effective communication, collaboration, and coaching to support adult learning. Also in this chapter a model of pre-school teachers' psychological readiness to work with gifted children is presented (*O. Bondarchuk, N. Dovgan, Ukraine*) and the ability of the first years students to generalize in foreign language in the higher educational institutions is discussed in the article by *N. Mylnikova (Ukraine)*. The articles also deal with an especially relevant issue of the formation/change of values in the process of specialists' training (*O. Bondarchuk, H. Pecherska, Ukraine*) and life perspective indexes, life purpose orientations of sample students enrolled into an integrated learning environment (*L. Serdiuk, Ukraine*).

The chapter *Disability Studies* deals with the needs of a person in the situation of disability and challenges related to calf muscles strength and proprioception changes of a healthy person and a person with Achilles tendon rupture (*V. Aleknavičiūtė, A. Skurvydas, Lithuania*) and functional mathematical literacy of pupils with moderate special educational needs learning in mainstream schools with the purpose to reveal how pupils are able to apply existing mathematical knowledge in real-life situations and solving practical type problems (*L. Tomėnienė, Lithuania*).

In the chapter *Psychosocial Rehabilitation* the peculiarities of psychosocial rehabilitation of people with special educational needs and special needs have been analyzed, highlighting peculiarities of prevocational training of SEN pupils in Germany (*U. Spichtinger (Germany)*), *A. Valaikienė (Lithuania)*, also motor performance needed for participant in open labour market of young people with mental disabilities, using Ergo2 equipment (*I. Baranauskienė, L. Radzevičienė, Lithuania*). Besides changes in work capacity in students of the speciality of decorator applying vocational rehabilitation programmes have been discussed in the Journal (*D. Mockevičienė, I. Dobrovolskytė, Lithuania*).

All articles in the journal are presented in English. The journal is published twice a year: *June edition* is published in Šiauliai University (Lithuania), *December edition* is published in Open International University of Human Development “Ukraine”. The articles included in the journal are indexed/abstracted in EBSCO: SocINDEX with Full Text (<http://search.ebscohost.com>) and Copernicus Index (<http://journals.indexcopernicus.com>).

The Editors-in-Chief acknowledge everyone who has contributed to the publication of the Journal “SOCIAL WELFARE: *INTERDISCIPLINARY APPROACH*”. The special thanks are for our future readers. By inviting for collaboration we believe that the ideas discussed in the published articles will be received in the community of practitioners and researchers and will be developed and complemented in other scientific works.

***Editors-in-Chief Ingrida Baranauskienė  
and Kateryna Kolchenko***



## I. SOCIAL CHALLENGES

# EXAMINING INCLUSIVE PRACTICES IN NICARAGUAN SCHOOLS

*Julie Delkamiller, Kristine Swain,  
Elizabeth M. Leader-Janssen, Mitzi J. Ritzman  
University of Nebraska at Omaha, USA*

## **Abstract**

The purpose of this study was to examine Nicaraguan teachers' efficacy for inclusive practices and current teaching practices in Nicaraguan schools as the first step in developing a special education training program. Sixty-one teachers in 15 schools completed the Teacher Efficacy of Inclusive Practice (TEIP) survey to determine their confidence in inclusive practices, collaboration and dealing with disruptive behaviors. Classroom observations were also completed to examine the environment, teaching/learning strategies, student behaviors, learning materials, and time distribution in the classroom. Results from the TEIP indicated Nicaraguan teachers were highly efficacious in inclusive practices. The survey and observation data collected provided a baseline to develop goals and objectives for a two-year special education training.

**Key words:** *Nicaragua, inclusive practices, teacher efficacy.*

## **Special Education Teacher Training Needs Assessment in Nicaragua**

It has been nearly 65 years since the United Nations General Assembly proclaimed the Universal Declaration of Human Rights. On December 10, 1948, the long road to inclusive education as a human right began on paper while the implementation in practice continues to develop throughout the world (Reiser, 2012). It was not until 1990 that the Jomtien Declaration was passed with "Education for All" (EFA) emphasizing the inherent right of every child to an education that is diverse and meets the individual needs of primary school children. Nicaragua was one of 138 nations that signed the United Nations Convention on the Rights of Persons with Disabilities (UNCRPD) that was adopted in December 2006 (Reiser, 2012).

Nicaraguan Law 202 protects the rights of individuals with disabilities but the statutes are not well known and not enforced (International Disability Network, 2003). Nicaraguan policies have been established for students to attend schools and for accommodations to be provided for inclusive education (International Disability Network, 2004; Martinez Garcia, 2011). Therefore, it is imperative that both pre-service and in-service teachers receive training on inclusive teaching practices and universal access to education for all students (Peters, 2003).

The Ministerio de Educación Pública, Cultura y Deporte, Ministry of Public Education, Culture and Sport (MECD) is responsible for Nicaraguan education nationwide (Education

International, 2010). The Central American Governance Institute estimates indicate that of all countries in the region, Nicaragua spends the least on education – an average of 42 dollars per pupil per year (Laguna, 2005). The MECD estimates that 75% of public schools lack the basic conditions for teaching with only 37% having drinking water and 30% having consistent access to electricity (Laguna, 2005). Fifteen percent of children 5-14 years of age are involved in child labor, which directly impacts a child's ability to attend school (Laguna, 2005; UNICEF, 2013).

The MECD has also begun to promote the integration of students with disabilities into the mainstream school with approximately 30% of students with disabilities being placed in general education settings (Martinez Garcia, 2011). However, there is little funding to support this integration. For individuals with disabilities, an average of 4.3 years is spent in formal education contributing to the 44% illiteracy rate (Martinez Garcia, 2011). Access to higher levels of education is extremely limited for individuals with disabilities.

In Nicaragua, the severity of a disability is assessed by how much difficulty the disability causes in daily activities, such as mobility, communication, self-care and domestic life (Instituto Nacional de Estadísticas y Censos, 2004). The categories are “mild” which is seen as less than 25% decrease in daily functioning. “Moderate” is 25-50% and “severe” results in a decreased capacity of 50 to 95%. “Profound” is seen as 95-99% decrease in ability with “Complete” being 100% disabled. For individuals six years of age and older, 6% are in the mild category, 11% moderate, 37% severe and 31% profound (Education International, 2010; Martinez Garcia, 2011).

Besides overseeing the schools, the MECD is also responsible for training teachers and administrators. However, in 2006 approximately 27% of teachers had no training and that number has continued to rise (Visser-Valfrey, Jané, Wilde, & Escobar, 2010). One teacher commented on the importance of applying the Ministry of Education (MINED) accessibility standards to create inclusive environments in schools but the importance of training teachers is paramount (Martinez Garcia, 2011, p. 21).

### **Educational & Cultural Considerations for Students with Disabilities**

Developing countries such as Nicaragua experience such immense economic distress that providing access to education for students with disabilities is not a primary concern (Education International, 2010). Nicaragua is the second poorest country in the western hemisphere: 44% of people live on less than a U.S. dollar per day and 75% on less than two U.S. dollars per day (Bradshaw & Linneker, 2003). This level of poverty is often cited as the reason why 43% of children do not attend pre-school and 50% of adolescents are not in secondary school (UNICEF, 2013). For the 10.7% of the population with a disability, the percentage of youth not attending school is even higher (Mont, 2007; UNICEF, 2013). Economics, out of necessity, must dictate the formation of policy and this policy must be practical. Finances, poverty, discrimination, severity of disability and family supports are all factors in impacting special education change but with the multiple layers of complexities, the basic human right of education for all will not be a simple fix (Hill, 2013; Navarro & Verdisco, 2000; Sanyal, 2009; Thomas, 2012).

### **Teachers**

A critical factor for students' academic success in the school system is teacher performance (Darling-Hammond, 1997; Goldhaber & Brewer 1997). In Nicaragua, there is an extreme shortage of teachers (Martinez Garcia, 2011). This shortage may be attributed to a complexity of issues including wages of less than \$100 a month, low prestige of teachers as portrayed by the government, privatizing schools for profit, and the educational policies

set by the government (Education International, 2010; Thomas, 2010). A large majority of individuals choosing to become teachers are from rural areas with low income levels, who were not able to get into other university degree programs. Moreover, they are allowed to study at a teachers college for as few as six months as long as they have completed the ninth grade (Education International, 2010).

Article 24 of the United Nations Convention on the Rights of Persons with Disabilities (UNCRPD) emphasizes the need to develop effective inclusive education in schools instead of merely integrating students with disabilities. The UN Special Rapporteur made specific recommendations and steps toward building inclusive education systems including policies, legislation and financial frameworks. Teacher training was specifically identified as a focal area. The report recommended training both pre-service and in-service teachers in techniques such as differentiated instruction and cooperative learning so these teachers could then train other teachers (Reiser, 2012).

Given the multitude of weaknesses in teacher training in Nicaragua, the teachers' union has made several recommendations for change. One of the foundational necessities includes requiring teachers to agree to ongoing and quality training before beginning their teaching career and continuing this process throughout their years of educating young Nicaraguans. The union is working to ensure both quality and accountability at all levels of educational policy and updated teacher training for making curriculum current and relevant (Education International, 2010; Martinez Garcia, 2011).

### **Purpose of the Study**

The **purpose** of this study was *to conduct a special education needs assessment in Nicaraguan schools as the first step in developing a training program for teachers related to special education*. The needs assessment identified areas upon which to build the goals and objectives of the two-year training course in special education. The teaching objectives and necessary materials will be developed based on the results of the needs assessment (Bosher & Smalkowski, 2002; Brown, 1995). The main **objective** was *gather background information about the teachers and identify current knowledge, skills and attitudes and what they need to acquire to educate children with disabilities*.

### **Methods**

#### **Participants and Setting**

Participants included 61 teachers (female = 56, male = 5) from 15 schools in the departments of León and Chinandega, Nicaragua. The average age was 38.87 years (range 25-53 years) with 15.73 years of teaching experience (range 1-33 years). Twenty-seven participants had an elementary education teacher license, 22 had a Bachelor's degree (7 indicated a discipline other than education), 3 had a Master's degree, and 2 had a post-graduate degree. Thirty-five participants indicated that they had received additional training in an area of education (range 1 hour-6 months), 22 had no additional training, and 4 participants did not respond to this item. Of the 35 participants who had completed additional training, 18 had training in an area of special education. Eight participants had training in sensory disabilities and ten had additional training specific to inclusive practices or general methods in special education. The majority of the respondents taught elementary age students ( $N = 32$ ) with preschool ( $N = 8$ ), and secondary ( $N = 5$ ) teachers also responding to the survey. Eight respondents were working as a counselor, physical therapist or as a school director and 8 respondents did not indicate the level that they were teaching. Demographic information is summarized in Table 1.

**Table 1.** Demographic Information for Study Participants

	<b>n</b>	<b>Percent</b>	<b>Mean</b>	<b>SD</b>
Gender	5	8		
Male	56	92		
Female				
Degree earned				
Bachelors	22	36.06		
Masters	3	4.91		
Post-graduate	2	3.27		
Elementary education certificate	27	44.26		
Additional training				
Yes	35	57.38		
No	22	36.07		
No response	4	6.56		
Level currently teaching				
Elementary	32	52.45		
Preschool	8	13.11		
Secondary	5	8.19		
Other	8	13.11		
No response	8	13.11		
Age			38.87	8.05
Age started teaching			23.09	4.86
Years of teaching experience			15.73	9.06

### Instrumentation

All materials were translated to Spanish by a university faculty member from León who had also spent a semester studying special education in the United States and therefore was familiar with the terminology. All translated documents were provided to the participants who were asked to sign a consent form to participate in the study.

**Demographic Questionnaire.** A 22- item demographic questionnaire was developed by the researchers to better understand the teachers' background. The demographic questionnaire asked participants their age, degree earned, number of years teaching, additional training completed and current and previous teaching assignments.

**Survey.** The Teacher Efficacy of Inclusive Practices scale (TEIP, Sharma, Loreman, & Forlin, 2011) was utilized to survey the participants. The TEIP is an 18-item Likert-scale survey that was developed with 607 pre-service teachers in four countries. A factor analysis was used to determine the three factors of the scale: 1) efficacy in inclusive practices, 2) efficacy in collaboration and 3) efficacy in dealing with disruptive behaviors. The reliability coefficient for the scale is .89.

**Classroom Observation Form.** The Classroom Observation Tool created by Ray Chesterfield, as part of the U.S. Agency for International Development, was modified by the researchers to meet the specific needs of this project and provide a systematic way of observing basic classroom procedures. The "Improving Educational Quality Project" was conducted from 1991-1997 in five different countries in order to systematically observe a wide variety of classrooms (Chesterfield, 1997). Observations focused on the classroom environment, teaching/learning strategies, student behaviors, learning materials, classroom management and time distribution in the classroom. The researchers also noted the number and gender of students and adults in the classroom. The observation form examined the physical classroom layout, the materials available, and the procedures being utilized in the classroom.

**Procedures.** The research team included two English faculty members and a Social Work graduate student from a Nicaraguan university and four researchers from the United States. Permission to conduct the research was granted by the district administrator prior to visiting the schools. The research team travelled to 15 schools where the Nicaraguan university representatives reviewed the consent forms and administered the demographics questionnaire and survey with the participants. The researchers from the United States spent between 15-45 minutes in each of the 45 classrooms and completed the observation forms over a five-day period.

## Results

### Survey

The results from the TEIP survey are summarized in Table 2. Examining the three factors, participants rated themselves as highest in the area of efficacy in inclusive instruction ( $M = 5.14$ ,  $SD = 0.72$ ), efficacy in collaboration was the second highest factor ( $M = 5.04$ ,  $SD = 0.83$ ), and efficacy in dealing with disruptive behavior ( $M = 4.90$ ,  $SD = 0.91$ ), was the lowest factor. Items that were rated the highest were providing alternate explanations, having students work collaboratively and assisting families of students with disabilities. Items rated the lowest were making clear expectations for students, preventing disruptive behavior in the classroom, and collaborating with other professionals in designing educational plans for students with disabilities.

**Table 2.** Teacher Efficacy for Inclusive Practice Scale (TEIP) Results by Factors

	Mean	SD
<b>Efficacy in Inclusive Instruction</b>	<b>5.14</b>	<b>0.72</b>
5. I can accurately gauge student comprehension of what I have taught.	5.15	0.78
6. I can provide appropriate challenges for very capable students.	5.12	0.75
10. I am confident in designing learning tasks so the individual needs of students with disabilities are accommodated.	5.04	0.76
14. I am confident in my ability to get students to work together in pairs or in small groups.	5.27	0.63
15. I can use a variety of assessment strategies (e.g., portfolio assessment, modified tests, performance-based assessment)	5.21	0.81
18. I am able to provide an alternate explanation or example when students are confused.	5.27	0.58
<b>Efficacy in Collaboration</b>	<b>5.04</b>	<b>0.83</b>
3. I can make parents feel comfortable coming to school.	5.18	0.70
4. I can assist families in helping their children do well in school.	5.24	0.78
9. I am confident in my ability to get parents involved in school activities of their children with disabilities.	4.98	0.84
12. I can collaborate with other professionals in designing educational plans for students with disabilities.	4.83	1.06
13. I am able to work jointly with other professionals and staff (e.g., aides, other teachers) to teach students with disabilities in the classroom.	5.0	0.85
16. I am confident in informing others who know little about laws and policies relating to the inclusion of students with disabilities.	4.95	0.70

Continued Table 2

<b>Efficacy in Problem Behavior</b>	<b>4.90</b>	<b>0.91</b>
1. I can make my expectations clear about student behavior.	4.79	1.15
2. I am able to calm a student who is disruptive or noisy.	5.05	0.69
7. I am confident in my ability to prevent disruptive behavior in the classroom before it occurs.	4.77	0.80
8. I can control disruptive behavior in the classroom.	5.03	0.69
1. I am able to get children to follow classroom rules.	5.0	0.69
17. I am confident when dealing with students who are physically aggressive.	4.85	1.27
<b>Mean of All Survey Items</b>	<b>5.05</b>	<b>0.50</b>

### Classroom Observation

Based on the classroom observations, there was an average of 14.23 students per classroom (range 2-28) with an average of 1.13 adults in the classroom (range 1-2). The majority of the students observed (N = 40; 89%) had adequate seating and writing surfaces and 69% (N = 31) of the teachers had a designated desk area. The majority of the classrooms were arranged in rows (N = 22; 49%) with other classrooms arranged in a circle (N = 14; 31%) or in groups (N = 6; 13%).

In the area of teaching and learning strategies, the most frequently noted strategy used was talking with individual students (N = 30; 67%) with the following strategies also observed: dictating to the class (N = 27; 60%); teacher writing notes or diagrams on the board (N = 23; 51%); asking questions (N = 20; 44%), marking books/papers at desk (N = 6; 13%) and teacher demonstrating experiments (N = 2; 4%).

Student behaviors noted during the observations included the following: answering teacher's questions (N = 29; 64%), giving choral answers (N = 24; 53%), writing (N = 23; 51%), asking the teacher questions (N = 12; 27%), misbehaving (N = 9; 20%), working with other students (N = 8; 18%), drawing (N = 7; 16%), completing math problems (N = 4; 9%), reading out loud (N = 2; 4%), and reading silently (N = 2; 4%). The classroom management strategy noted most frequently was complimenting and praising students (N = 23; range 1-15 times in a classroom) and quietly reminding the child who is misbehaving about the rules in the classroom (N = 12; range 1-17 times in a classroom). Yelling at the child who is misbehaving was noted in 6 classrooms.

### Discussion

When examining the TEIP, the results indicate that Nicaraguan teachers have a high sense of efficacy for inclusive practices based on the high overall mean (5.05 on a 6 point Likert scale). This finding is interesting since the IDN (2004) indicated that the majority of people in Nicaragua are unaware that Law 202, which protects the rights of individuals with disabilities, exists. Research indicates that one might be highly efficacious about one's own ability because they may be unaware of what they do not know, which could be the case for these teachers. Similarly, American preservice teachers often rate their efficacy in teaching high prior to student teaching (Woolfolk & Hoy, 1990), but following the student teaching experience, their efficacy drops because the reality of the complex task of teaching was underestimated. According to Visser-Valfrey, Jané, Wilde, & Escobar (2010), approximately 27 percent of Nicaraguan teachers enter the classroom with no preparation, which contributes to the lack of knowledge needed to understand the complexities of teaching, especially when working with students with disabilities. Eighteen percent of teachers in Nicaragua have only a

primary education and as few as 14 percent have a university diploma (Di Gropello & Marshal, 2005). Hill (2013) states, “The greatest obstacle is the lack of prepared teachers within the schools themselves” (p. 5).

In Nicaragua, the typical primary teacher’s entire educational experience averages 12 years, therefore most Nicaraguan teachers would not have the additional knowledge and training related to children with disabilities and the types of accommodations and modifications that are necessary for the environment to be conducive for learning (Laguna, 2005). Nicaraguan law guarantees a teaching position to all normal school graduates but only requires a primary school education to become a teacher (Reiser, 2012). With these low levels of education for the teachers, the urgency to define ways to improve level of skills for faculty in Nicaragua is compelling.

Teacher performance evaluation has been introduced and teachers view it as one more pressure that may lead to losing their much needed jobs. Therefore, efforts to attract, motivate, and retain quality teachers have been, and will continue to be, necessary to improve the quality of education (Education International, 2010). In her 2011 article, Vaillant makes three recommendations related to education in Nicaragua and all three relate to training teachers: 1) the need to recruit the most competent students, 2) provide quality pre-service education and 3) emphasize the importance of continuing education. One of the most interesting findings of the current study was that some responses on the survey did not correlate with what was noted during the classroom observations, which may be related to the fear of losing their jobs.

On the TEIP the teachers rated themselves the highest on the factor, Efficacy in Inclusive Instruction, but the researchers did not observe inclusive instruction in the classroom. The questions on inclusive instruction addressed using small group instruction, providing alternate explanations and using a variety of assessments. The classroom observations data showed that typically the classroom environment was set up in rows (49%) compared to only 13% arranged in groups. This indicates that the classroom environment is not set up for student interaction, which decreases the likelihood of small group instruction and active participation of all students. Addressing room arrangement is a necessary instructional decision that should be based on lesson objectives and student strengths and weaknesses, so teachers can begin to foster the most effective learning environment for all students (Evertson, Emmer, & Worsam, 2012). Effective room arrangement is one area that could be addressed in future trainings to help the teachers understand the impact on academic goals and behavior management.

The factor, Efficacy in Problem Behavior, was rated lowest by the teachers. The items for preventing disruptive behavior in the classroom, making expectations clear and dealing with students who are physically aggressive were ranked the lowest. Disruptive and problem behaviors were documented in the classroom observations conducted by the researchers. Since lecture/dictation to class (60%) was observed in the majority of the classrooms and used as the sole way to deliver content, it could contribute to the struggle of current behavioral issues and the prevention of future classroom behaviors. Research indicates that lecture style is the least effective for students with attention, language and/or memory problems (Childre, Sands, & Pope, 2009; McCoy, 2005; Wolery, 2012), yet these classrooms employed that teaching style the majority of the time.

Many times teachers are reactive versus proactive in response to behavior, which means quickly reacting to the behavior at that time, but not analyzing what happened prior to the behavior or the consequences following the behavior (Clunies-Ross, Little, & Kienhuis, 2008; Wilks, 1996). Teachers may also be focusing on the negative or inappropriate behaviors versus the positive, appropriate behaviors wanted in the classroom. It is important to have a behavior management plan that is well thought out and allows prevention of behavior issues in the classroom. Since this was the lowest ranked area, training in behavior management would be very beneficial for the teachers in this study.

The teachers rated the factor, Efficacy in Collaboration, moderately high. The questions in this section addressed working with families and other professionals to facilitate student success in school. One of the lowest ranked questions in this section focused on collaborating with others to design educational plans for students with disabilities. In order to best serve children with disabilities in the educational environment, collaboration is necessary. If a child has specific learning and/or behavioral needs, it is imperative that all teachers, teacher assistants and parents are aware of those needs and incorporate consistent strategies in school and home environments. In Nicaragua there are additional factors such as finances, poverty and family support that contribute to the lack of meaningful collaboration for inclusive practices for students with disabilities (Sanyal, 2009).

There are a few plausible reasons why some discrepancy might be seen in two sources of data: 1) The teachers viewed the survey as a tool to determine if they were doing their job and feared that they might lose their job if they responded that they were not knowledgeable. 2) They wanted to seem competent so they would be chosen for the training in special education that the researchers will provide over the course of the two years. 3) There may have been some misunderstanding of survey items. 4) Teachers may focus attention on children/youth with more significant disabilities (i.e., intellectual disabilities, deafness, blindness) due to current practices in Nicaraguan schools.

### **Limitations**

The potential concern by the participants that results from the survey may have an impact on their jobs needs to be considered when interpreting the information. Teachers may have rated items higher on the Likert scale in order to appear more competent in their ability to teach students with disabilities. Another potential limitation is the possible misunderstanding of the definition of students with disabilities, as teachers may have focused responses on students with more severe disabilities. While the researchers observed 45 different classrooms, each of the observations was limited to an average of 20 minutes. Conducting multiple observations at different times of the day may yield more reliable results.

### **Conclusions**

Quality of education is a problem experienced by the majority of students in the developing world. In Nicaragua, finding qualified teachers and creating a rigorous curriculum must be seen in light of a severe shortage of materials for students and adequate school facilities. Raising educational levels has an immediate impact on society. Without effective basic education, individuals, families and even entire communities become vulnerable to exploitation. Therefore, learning tools are crucial for acquiring new knowledge and for productive daily functioning.

A teacher may feel highly efficacious about providing an inclusive environment for students with disabilities, but creating an inclusive environment that meets the needs of all learners is a much more difficult task. In order to make lasting change in Nicaraguan schools, intentional training must be provided to address systematic change in preparing effective teachers for inclusive practices. This indicates the need for a supportive environment that encourages changes in daily practices for students with disabilities and for meaningful collaboration among all stakeholders. Teachers must be trained to shape the future of Nicaragua.

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## EXAMINING INCLUSIVE PRACTICES IN NICARAGUAN SCHOOLS

### Summary

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It has been about 65 years since the United Nations General Assembly proclaimed the Universal Declaration of Human Rights. On December 10, 1948, the long road to inclusive education as a human right began on paper while the implementation in practice continues to develop throughout the world (Reiser, 2012). It was not until 1990 that the Jomtien Declaration was passed with “Education for All” (EFA) emphasizing the inherent right of every child to an education that is diverse and meets the individual needs of primary school children. Nicaragua was one of 138 nations that signed the United Nations Convention on the Rights of Persons with Disabilities (UNCRPD) that was adopted in December 2006 (Reiser, 2012).

*The purpose* of the study that is presented in the article was to examine Nicaraguan teachers' efficacy for inclusive practices and current teaching practices in Nicaraguan schools as the first step in developing a special education training program. The main **objective** was *gather background information about the teachers and identify current knowledge, skills and attitudes and what they need to acquire to educate children with disabilities*. Sixty-one teachers in 15 schools completed the Teacher Efficacy of Inclusive Practice (TEIP) survey to determine their confidence in inclusive practices, collaboration and dealing with disruptive behaviors. Classroom observations were also completed to examine the environment, teaching/learning strategies, student behaviors, learning materials, and time distribution in the classroom. Also Demographic Questionnaire was included. A 22- item demographic questionnaire was developed by the researchers to better understand the teachers' background. The demographic questionnaire asked participants their age, degree earned, number of years teaching, additional training completed and current and previous teaching assignments.

Empirical data shows that quality of education is a problem experienced by the majority of students in the developing world. In Nicaragua, finding qualified teachers and creating a rigorous curriculum must be seen in light of a severe shortage of materials for students and adequate school facilities. Raising educational levels has an immediate impact on society. Without effective basic education, individuals, families and even entire communities become vulnerable to exploitation. Therefore, learning tools are crucial for acquiring new knowledge and for productive daily functioning.

Results from the TEIP indicated a teacher may feel highly efficacious about providing an inclusive environment for students with disabilities, but creating an inclusive environment that meets the needs of all learners is a much more difficult task. In order to make lasting change in Nicaraguan schools, intentional training must be provided to address systematic change in preparing effective teachers for inclusive practices. This indicates the need for a supportive environment that encourages changes in daily practices for students with disabilities and for meaningful collaboration among all stakeholders. Teachers must be trained to shape the future of Nicaragua.

The survey and observation data collected provided a baseline to develop goals and objectives for a two-year special education training.

# POSITIVE EXPERIENCING OF LONELINESS AS A FACTOR OF PERSONALITY SOCIALIZATION IN THE SOCIETY

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## **Abstract**

The article focuses on the theoretical analysis of such a phenomenon as loneliness and the forms of experiencing it. The article provides an empirical research of loneliness, isolation, separation and personality's emotional intellect as determinants of possible positive experience of loneliness. No association is established between evaluation of notions of the semantic field of loneliness and the degree of emotional intellect maturity.

**Key words:** *loneliness, seclusion, isolation, positive loneliness experience, emotional intellect, personal reflection, youth, adult age, determinant, perspective.*

## **Introduction**

Loneliness is a complicated and contradictory phenomenon of personality's existence. On the one hand, this phenomenon is associated with deformation of various relations in which an individual is involved and, in such an event, it is accompanied by realization or feeling of the hostility of the world and own disability to find a more or less stable position in it. In other words, loneliness is a hindrance to successful integration of an individual into a wider context of social relations, and a lacking feeling of community results in insufficient development of meaningful relations with the world. Besides, loneliness has a negative effect on the development of an individual's motivational sphere (needs, aspirations, feelings) and, generally, impedes appropriate development of psyche and personality. However, in the perspective of some theoretical approaches, particularly, the existential and humanistic ones, loneliness is perceived as a phenomenon allowing plunging into personal reflection, into contemplation about key issues of senses; loneliness embraces an opportunity of personality's deep spiritual development.

Currently, the field of scientific research demonstrates a sufficient variety of notions of loneliness, as well as theoretical conceptions and philosophical approaches focused on the

phenomenology of loneliness. However, it is apparent that there is a lack of a uniform and consistent notion of this phenomenon, of determinants of its positive experience and its link to personal factors, and that knowledge of age-specific regularities of loneliness experience is inappropriately developed, the same observation being true in respect of demarcation of the notions of “isolation” and “separation” which are adjacent to each other, and integration of these notions into the structure of the phenomenology of loneliness. Therefore, the range of issues to be focused on for exploring the phenomenon of loneliness may be outlined by the following *areas*: study of loneliness as a social and psychological phenomenon (Абульханова-Славская, 1991; Старовойтова, 1995; Тихонов, 1996; Пузанова, 2009) study of cultural and historical forms of loneliness (Покровский, 2008; Ветров, 1996; Хамитов, 1995; Швалб, Данчева, 1991); psychological peculiarities of loneliness at the age of adolescence and juvenile age (Кон, 1986; Перешина, 1999; Шагивалеева, 2007; description of phenomena close to loneliness: isolation, separation (Лебедев, 2000; Хараш, 2000).

At the same time it should be mentioned that published scientific research papers insufficiently explored the issue of *positive experience of loneliness*. The positive sense of loneliness is that it can activate a person's creative potential (Мустакас, 1989) and facilitate personality's self-cognition, the feeling of uniqueness and singularity of own “Его” (Бердяев, 1994) and establishment of ethical self-consciousness (Ильин, 2001). Recognizing the possibility of positive, development-facilitating implication of loneliness opens new prospects for exploration and comprehension of this phenomenon, as well as for practical application of knowledge through development of a system of means aimed at prevention and correction of negative consequences ensuing from loneliness experience.

*The relevance* of this issue is obvious considering insufficient focus on this matter by various psychological studies, and also given that if it is possible to define the nature of loneliness as a subjective experience, it will also be possible to develop programs and methodologies of psychological work aimed at preventing the destructive and ruinous effects that loneliness might have on personality; and to develop guidance on activation of the positive potential of loneliness, especially for persons at the age of adolescence, based on the age-specific features and the tasks of development faced by an individual at this age.

Currently, two trends in studies of loneliness can be marked out: 1) interpretation of loneliness as a mental phenomenon or a subjective experience (taking into account its possible positive forms); 2) regarding loneliness as a negative state and experience. Considering loneliness to be a subjective phenomenon and acknowledgment that it has positive forms may seem a heuristic approach, since it introduces loneliness into the system of notions modeling the process of human personality development. This study is underlain particularly by the issues of subjective positive experience of loneliness.

***The object of this study*** is the phenomenology of positive experience of loneliness as a factor of personality socialization in the society.

***The subject under study*** is an individual's emotional intellect as a determinant of possible positive experience of loneliness.

***The goal*** of empirical research is to explore the specifics of experiencing loneliness as a subjective phenomenon and to explore the determinant bringing out positive aspects of this experience.

It can be *assumed* that the possibility of positive, or resource-bearing, experience of loneliness depends on the degree of maturity of emotional intellect, with its components being the ability to understand own emotions and emotions of other people (recognition, identification, verbal expression) and to control emotions (intensity control, external expression control).

***Methodology and methods of the research***: domestic and foreign philosophical theories and psychological concept, which highlight the problem of loneliness. Of significant

importance for the research of the conceptual plan are: philosophical and psychological concept, revealing the issues associated with the loneliness of a person, including issues associated with the resource experience of loneliness, the activation of the creative powers of the human experience of the uniqueness and originality of the “Self” (Вейс, 1989; Moustakas, 1975; Миюскович, 1989; Бердяев, 1994; Кон, 1989; Неумоева, 2005; Швалб, 1991); theoretical views, describing the concepts of “isolation” and “separation” related with loneliness (Ковалев, 1983; Лебедев, 2000; Хараш, 2004); modern psychological theories of emotional intelligence of the person (Люсин, 2009; Андреева, 2006). The important work in theoretical terms is the work by Винникотт (2002), which demonstrates the problems to stay in a state of solitude in connection with the emotional maturity of personality, as well as the modern theory of emotional intelligence (Люсин, 2009), which is the basis of the questionnaire “EmIn”, used in the present research.

For realization of tasks and verification of assumptions complex methods of research, adequate to the subject were used: methods of theoretical level (the analysis of the literature on the problem of research, theoretical modelling); for the research of subjective valuation of positions researched and for building a semantic space of the concepts of loneliness, isolation and separation for two groups the method of semantic differential was used; to determine the level of severity of emotional maturity – questionnaire “EmIn” by Люсин (2009). Statistical processing of the results was carried out by methods of primary descriptive statistics, parametric methods of comparison of the two samples and correlation analysis.

#### **Assurance of reliability of data**

The reliability and validity of the research results provided the theoretical justification of assumptions, the use of a complex of empirical research methods, quantitative and qualitative analysis of the received results, the application of methods of mathematical statistics.

**Participants of the research:** 60 persons: among which 30 persons are the youth (the university students 17-18 years old) and 30 persons are the adults (between 40 and 60 years old). Distribution of sample by age was driven by scientific interest and is based on a number of assumptions made by loneliness psychology researches.

#### **Results of the research**

Loneliness is regarded as a cross-disciplinary phenomenon having an existential, social, personal and complex nature. Changing views on loneliness can be seen not only within the framework of different cultures and epochs but also within the framework of different theoretical approaches in the system of psychological science as such. In the Western European philosophical thought, loneliness acquired the status of a meaningful category at the verge of the XIX-XX centuries giving rise to numerous schools of philosophy, theoretical sociology and artistic culture conveying the feeling of alienation and loneliness. Analysis of major eastern religious and philosophical concepts and doctrines (Brahmanism, Buddhism, Zen Buddhism, Confucianism, etc.) leads to the conclusion that within their framework loneliness is regarded as the instrument of apprehending the truth and achieving unity with nature, God, Absolute, the way to embark on the path to the truth via self-cognition and self-improvement, rather than a phenomenon requiring philosophical comprehension.

An upsurge of interest towards the phenomenon of loneliness among psychologists is dated 1930s – middle 1980s. At that time conceptual fundamentals of phenomenological research were laid. Among the psychological approaches to understanding loneliness offered by foreign authors the most popular were the psychodynamic approach (Фрейд, 1989; Zilboorg, 1938; Sullivan, 1953; Фромм, 1996; Fromm-Reichmann, 1989); the interactionist approach (Weiss, 1973); the “privacy” approach (Derlega, Margulis, & Winstead, 1984);

the cognitive approach (Perlman & Peplau, 1981); the phenomenological approach (Rogers, 1970); the existential approach (Сартр, 1992; Камю, 1992; Moustakas, 1975; Франкл, 2004; Ялом, 1999).

*Under the psychodynamic approach*, loneliness is regarded as a reflection of such personality traits as narcissism, megalomania and hostility. Representatives of the psychodynamic tradition absolutize the influence of intrapersonal factors on the origin and manifestation of loneliness. Zilboorg (1938), Sullivan (1953), Либерман & Либерман (2006) focus on the intrapersonal factors (personality traits, internal conflicts) which have loneliness as their consequence. Zilboorg (1938) believed that loneliness rests on the triad of causes such as early narcissism, megalomania and hostility of the surroundings. Fromm-Reichmann considers loneliness to be destructive and believes that it leads ultimately to the development of psychotic states. Highlighting the causes of loneliness, she emphasizes the detrimental consequence of premature weaning from mothering affection. Фромм (1996) asserts that human nature is unable to put up with isolation and loneliness. The feeling of loneliness has a fragmenting effect on personality which, in its turn, results in aggressiveness, violence, terrorism.

*The interactional approach*, first of all, emphasizes that loneliness is not solely a function of personality factors, nor of situation factors. Instead loneliness is the product of their combined (or interactive) effect. Secondly, while describing loneliness, Weiss (1973) meant social relationships, such as attachment, guidance and a sense of worth. He categorized loneliness into two types, which he believes have different antecedents and different affective responses. Emotional loneliness stems from the absence of an intimate figure or a close emotional attachment, such as a lover or a spouse. Social loneliness is a response to the absence of meaningful friendships or a sense of a community. A socially lonely person experiences boredom and feeling of being socially marginal.

The most salient aspect of *the cognitive approach* is its emphasis on cognition as a mediating factor between deficits in sociability and the experience of loneliness. Therefore, loneliness is a construct of consciousness. The representatives of cognitive approach believe that loneliness is caused by characteristic and situational factors as well as by the influence of the past and present experience on personality development.

Representatives of *the privacy approach* use “privacy” and “self-disclosure” concepts as a way of understanding loneliness. Like Weiss (1973), they believe that social relationships help the individual achieve various goals. Loneliness is caused by the absence of an appropriate social partner who could assist in achieving these goals. Loneliness is apt to occur when one’s interpersonal relationships lack the privacy needed for honest communication. The researchers sticking to this approach consider factors within both the individual and environment as leading to loneliness.

Yalom (1999) as one of representatives of the *existential approach* believed that isolation is intrinsic in our existence and emphasized that it is neither isolation from other persons with loneliness ensuing from it, nor internal isolation (from a part of own personality). It is fundamental isolation – both from other creatures (“the unbridgeable gap between oneself and any other being”) and the world (“the separation between the individual and the world”). Therefore, he classifies isolation into two types: existential and fundamental isolation, and considers several ways enabling to comprehend existential isolation – confrontation with death and freedom. It is the knowledge of “my death” that makes one fully realize that no one can die with one or for one. Freedom, which is understood as acceptance of responsibility for own life, implies own “authorship” of life and acceptance of the fact that there is no one else who creates or guards an individual.

Moustakas (1975) emphasizes the importance of distinguishing between loneliness anxiety and true loneliness. Loneliness anxiety is a system of defense mechanisms that

distracts people from dealing with crucial life questions and that motivates them constantly to seek activity with others. True loneliness stems from the reality of being alone and of facing life's ultimate experiences (i.e., birth, death, change, tragedy) alone. From Moustakas (1975) viewpoint, true loneliness can be a creative force. Existentialists thus encourage people to overcome their fear of loneliness and learn to use it positively.

Therefore, the conceptual provisions of existentialists (Moustakas, 1975; Yalom, 1999) are crucial for analysis of this issue, since they believe that an individual's ability of experiencing loneliness is a requisite condition of personality's shaping and development.

The analysis of major modern studies in the psychology of loneliness gives grounds to assert that issues related to positive loneliness experience are explored less than appropriate. Generally speaking, the positive sense of loneliness (loneliness as a resource) is that it is an integral part of human individuality development and of the socialization process. The positive potential of loneliness is implemented through the following of its functions: self-cognition function; self-regulation establishment function; creative activity and self-improvement function; psychophysical condition stabilization function. According to Андрусенко (1995) spiritual loneliness in its positive form involves shaping of an individual's "self-glorification", when search for forms of creative realization of own "Self" comes to the foreground. The capability to experience loneliness positively is currently studied by Андрусенко (1995), Майленовой (2001), Швалб (1991), Кон (1989), Неумоева (2005). The majority of researchers links the positive form of loneliness experience to the notion of separation and rigorously oppose to the notion of isolation. However, it should be emphasized that there is no uniform view on the interrelation and the system of these notions.

Results of analysis show that the problem of loneliness has age-specific boundaries. For the present study it is important that loneliness at the age of adolescence is inseparably associated with new psychological formations as well as with normative and psychological tasks of development. First of all, these are the tasks of personal and professional self-identification. At the age of adolescence, loneliness is associated with the main processes and phenomena of self-consciousness; it has an effect on how self-attitude and self-perception is shaped, as well as on the specific distinctive features and choice of the manner of behavior. At the adult age, loneliness ensues from unsolved life tasks, life failures which remain not "processed" by reflection, and disappointment in social interaction.

While analyzing literature, the authors highlighted the assumption that an individual's emotional maturity involves the ability to cope with loneliness positively (Винникот, 2002). A *scientific hypothesis* was put forward according to which the ability of experiencing the positive form of loneliness depends of the degree of maturity of an individual's emotional intellect. In a general sense, the emotional intellect (EI) involves the ability of cognition, comprehension and management of emotions; here both an individual's own emotions and emotions of other people are meant. Based on the existing concepts, Russian researcher Люсин (2009) suggested his own model of EI, which he understands as the ability to understand an individual's own emotions and emotions of other people and to control them. The EI construct has a dual nature – it is related to cognitive abilities and personality characteristics.

For the present empirical research the authors have chosen the notions of *loneliness*, *isolation*, *seclusion*. Evaluations of these notions enable to single out the notions in the structure of respondents' consciousness which are subjectively perceived as positive or resource-bearing. This allows further to correlate the perception of loneliness with the degree of emotional intellect maturity and thus support or reject the hypothesis that these two notions are interrelated.

The authors used SD technique (SD variant developed by Корчагина (2008) to study subjective evaluations provided by respondents and to build a semantic field of notions "loneliness", "isolation", "seclusion". The questionnaire by Люсин (2009) was used to

determine the degree of emotional intellect maturity. The quantitative analysis was made using the following techniques of statistical data processing: correlation analysis, parametric techniques for comparison of two samples. The research sample included 60 persons, of which 30 persons were at the age of adolescence (17-18 years old on the average), and 30 adult persons aged 40-60.

Results of the empirical research show that young people aged 17-18 evaluate the notion "loneliness" as destructive and negative (66,7% of total sample). Low scores by the factor of intensity – 0,2, 0,4 (70% of total sample) show that loneliness experience is regarded as a shallow phenomenon which does not have any significant influence on respondents' lives. Low scores by the factor of activity given by 73% of youth sample can be interpreted as low intensity of loneliness experience.

Young people also assess the notion of "isolation" as utterly destructive and believe that isolation has no objectively positive aspects. They evaluated the profoundness with which they perceive this notion with low scores. More than half of the sample represents uneasy emotional response to this state with middle-level intensity. 86,7% of respondents assess the notion of isolation as positive and prolific, with significant influence on life. More than half of the sample represents high intensity of youth separation experience and high emotional response to this phenomenon.

Therefore, the meaningful result obtained at this stage among young people is that separation is singled out as a phenomenon with the highest experience intensity and the largest positive capacity. Isolation is evaluated as an utterly negative phenomenon, loneliness is also perceived as a negative and destructive phenomenon.

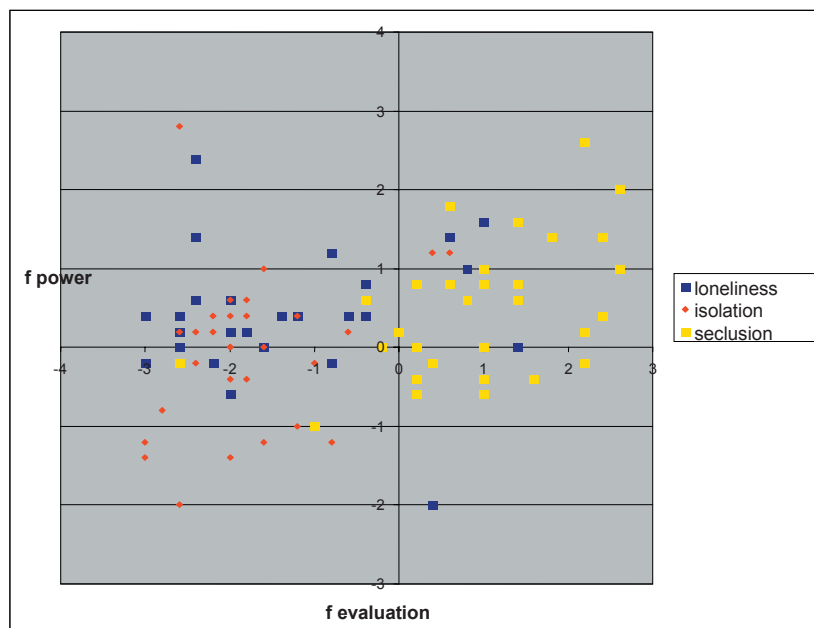
In the group of adults aged 40-60 the results of the present research show that they see loneliness as an utterly negative and emotionally charged phenomenon, however, scores given to it by the factor of intensity and activity evidence that in their opinion it has little depth and high intensity. It should be mentioned that unlike youth sample, the sample of adults demonstrates high individual regularity and changeability of data. In such a case it is rather difficult to make general conclusions about the intensity of phenomenon experience for the group without taking account of individual scores.

76,7% of the adult sample represents negative evaluation of "isolation". 50% of the sample have high negative scores from "- 3" to "- 0.8", by the factor of intensity the scores range from "- 1" to "- 0,2". This is accompanied by high individual regularity of data.

The notion of separation has high positive capacity (over 60% of sample), however, unlike in the youth group, high intensity and profoundness were not recorded for this phenomenon.

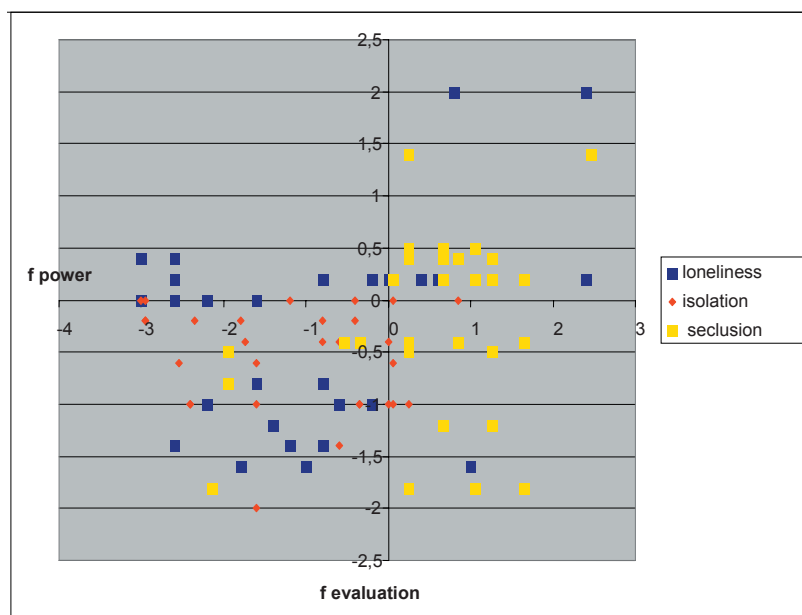
Therefore, results of the present research confirm that the phenomenon of loneliness is evaluated on an exclusively subjective basis, and give grounds to mark out separation as a positive and resource-bearing state, and loneliness and isolation – as destructive and negative states. In the age of adolescence, the experience of separation as a positive manifestation of loneliness is more intensive and its evaluation by the majority of respondents of the youth sample is more emotionally charged. It should be emphasized once again that the phenomena related to loneliness experience are marked out as subjective and filled with individual meaning and sense, and this is manifested in wide-range differences between evaluations given to them. This confusion of notions by respondents requires more investigation with the aim of accurately determining the structure of the phenomenological field of loneliness.

That is why the primary data processing techniques DS gives the possibility to obtain the results of the fulfilment of each of the concepts of subjective content, and the representation of the group semantic space of loneliness can be analyzed due to the built up schedule of scattering frequencies. If one considers the distribution of estimations of factors, presented on the chart, a model of structure of consciousness, one can interpret this distribution as the place of each of the concepts in the group consciousness of the surveyed youth age (see Figure 1).



**Figure 1.** The scattering of assessments of the concepts of loneliness, isolation, seclusion for youth

The concept of seclusion occupies space in the positive X-axis categories. This is evidenced by the positive assessment of this concept under investigation. On the Y-axis high scores were distributed mainly in the positive pole. As already noted, this is interpreted as the attribution of the great impact of this phenomenon on life. It can be seen that the concept of loneliness and isolation occupy in comparison with the concept of seclusion of a narrower range for the Y-axis, and occupy the space of the negative pole of the X-axis (especially the concept of isolation). This can be interpreted as the provision a little depth to this concept by the researched, and the respective roles of these phenomena in their lives.



**Figure 2.** The scattering of assessments of the concepts of loneliness, isolation, seclusion for adults

It can be seen that the concept of loneliness and isolation take on the chart of one field among the negative values of X and Y. However, some estimates occupy space among positive values. Thus, although it is possible to trace a trend in the evaluation of these concepts in the group and the individual differences should not be neglected. Such a difference in the assessment of the same concepts for those people who were under research, notes the fact of the exclusiveness of subjectivity feelings of loneliness and isolation for different personalities. The seclusion in the structure of adult's consciousness also takes the positive pole; however, the difference in the experience of the depth and intensity of the phenomenon can be observed. The proximity of points of the graph, reflecting the concept of seclusion, until the average values of (0,5, - 0,5) show about refusal failure to provide by the adults of great importance and depth of this phenomenon.

By results of the analysis of the two charts it is possible to draw conclusions about the presentation of the concepts of loneliness, isolation, seclusion in the structure of consciousness of the groups of persons of youthful age and adults. There is low differentiation of the concepts of loneliness and isolation, the perception of them as negative and destructive phenomena. At the same time seclusion is rated as a positive phenomenon, but has the difference in the power and the activity of its experiences of the two age groups. It should be stressed once more the allocation of phenomena connected with the experience of loneliness as subjective, filled with individual value and meaning, which manifests itself in a wide range of differences between their estimates.

In the "EMIN" technique by Люсин (2009) the scores of emotional intellect are evaluated using two scales: 1) interpersonal emotional intellect (understanding emotions of other people and control of such emotions) – InterPEI; 2) intrapersonal emotional intellect (understanding own emotions and control of such emotions) – IntraPEI. By summing up values of these scales the ratio of general emotional intellect – GEI is obtained. Comparative results are given in Table 1.

**Table 1.** Average values of InterPI, IntraPI, GEI for youth and adults

Scales	Youth, average values	Adults, average values
<b>InterPEI</b> (interpersonal emotional intellect)	42,5	44,4
<b>IntraPEI</b> (intrapersonal emotional intellect)	39,6	44,5
<b>GEI</b> (general emotional intellect)	82,1	87,9

The table above shows that, on the average, the general emotional intellect ratio for adults is higher than for young people and has a statistically significant difference under Student's t – criterion for two independent samples ( $t = -2,172$ , with  $p = 0.034$  ( $p > 0,05$ )). In other words, adults understand and control their own emotions much better than young people. It can be assumed that this ability is attributable to own life experience gained by an adult person.

Based on correlation of evaluations of the notion "loneliness" and EI ratios, it is possible to arrive at the conclusion that positive evaluation of the phenomenon of loneliness does not depend on high figures of emotional intellect maturity. Results of correlation analysis under r-Pearson criterion establish no association between evaluation of notions of the semantic field of loneliness and the degree of emotional intellect maturity ( $r = -0,019$  with statistical significance  $p = 0,88$  ( $p > 0,05$ )). There is also no association between isolation and general emotional intellect ( $r = -0,04$  with statistical significance  $p = 0,722$  ( $p > 0,05$ )) and separation and GEI ( $r = -0,011$  with  $p = 0,93$  ( $p > 0,05$ )).

Thus, the conclusion about the denial of a scientific hypothesis has to be accepted. It is obvious that the understanding of their own and others' emotions, the ability to manage

one's emotional state is not a determinant in the decision of the poles of the experiences of loneliness. These results give grounds for the continuation of studies in the direction of the search for personal, social, socio-cultural determinants that is positive, resource feeling of loneliness.

Generalizing the results of the study, some **conclusions** can be drawn:

1. The theoretical analysis enables to assume that issues related to positive experience of loneliness, particularly, its probability determinant, are still explored less than desirable. Generally speaking, the positive sense of loneliness (loneliness as a resource) is that it is an integral part of human individuality development and of the socialization process. The positive potential of loneliness is implemented through the following of its functions: self-cognition function; self-regulation establishment function; creative activity and self-improvement function; psychophysical condition stabilization function.
2. Loneliness is regarded as a cross-disciplinary phenomenon having an existential, social, personal and complex nature. Changing views on loneliness can be seen not only within the framework of different cultures and times but also within the framework of theoretical approaches in the system of the psychological science as such.
3. The empirical analysis proves that the evaluation, profoundness and intensity of loneliness, isolation and separation experience does not depend on the understanding of own and other individuals' emotional states, empathy, ability to control the expression of emotions, or emotional expression. The determining factors of the subjective positive experience of loneliness should apparently be sought in other areas – age, social situation, personality characteristics, own experience of living through different states which are close to loneliness. Thus, results of this research confirm that separation as a positive implication of the state of loneliness is felt more intensively at the age of adolescence, and the majority of youth sample gave more emotionally charged evaluation to this state, which can be explained by the tasks inherent in this age period – the tasks of self-cognition and self-establishment, personal and social self-identification.
4. The data of the empirical research are significant since, with further research efforts required, they allow to manage the state of separation as an additional resource at the age of adolescence and make it possible to transform and redirect the negative vector of loneliness experience in the productive way facilitating ultimate personality development. Understanding that solitude at the age of adolescence is a necessary state opens new prospects for psychological counselling practice and therapy. Recognition that loneliness can be perceived positively offers new prospects for the practice of psychological assistance, particularly, in order to develop applied approaches aimed at actualization of the positive resource of loneliness to prevent the destructive effects it may have on personality.
5. Constructive perception of loneliness, positive experience of feeling of loneliness is a prerequisite for personal growth, self-actualization and development of the creative potential of individuals of any age, as well as the effective integration in society.

Results of the empirical research enable to outline the following areas for further research of issues associated with loneliness experience: firstly, those related to determinants of subjective experience of loneliness as a positive phenomenon and, secondly, focus on the structure and functional links, subtle differentiation and demarcation of loneliness and such states as isolation and separation.

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## THE POSITIVE EXPERIENCING OF LONELINESS AS A FACTOR OF PERSONALITY SOCIALIZATION IN THE SOCIETY

### *Summary*

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The article focuses on the theoretical analysis of such a phenomenon as loneliness and the forms of experiencing it, presents the urgency of the study of loneliness as a subjective positive experience.

The goal of empirical research is revealed, which is to explore the features of experience of loneliness as a subjective phenomenon and study the determinants of the positive aspects of this experience.

The theoretical analysis showed that the issues related to positive experience of loneliness, particularly, its probability determinant, are still explored less than desirable. It has been disclosed that the positive sense of loneliness (loneliness as a resource) is that it is an integral part of human individuality development and of the socialization process, the positive potential of loneliness is implemented through the following of its functions: self-cognition function; self-regulation establishment function; creative activity and self-improvement function; psychophysical condition stabilization function.

It is shown that loneliness is regarded as a cross-disciplinary phenomenon having an existential, social, personal and complex nature, changing views on loneliness can be seen not only within the framework of different cultures and epochs but also within the framework of different theoretical approaches in the system of psychological science as such.

Two trends of the study of the phenomenon of loneliness have been defined: 1) interpretation of loneliness as a mental phenomenon or a subjective experience (taking into account its possible positive forms); 2) regarding loneliness as a negative state and experience.

It has been analyzed that the problem of loneliness has specific limits in every age and in adolescence loneliness is inextricably linked with psychological neoplasms as well as with normative and psychological tasks of development. First of all, these are the tasks of personal and professional self-identification. At the age of adolescence, loneliness is associated with the main processes and phenomena of self-consciousness, it has an effect on how self-attitude and self-perception is shaped, as well as on the specific characterological features and choice of the manner of behavior. At the adult age, loneliness ensues from unsolved life tasks, life failures which remain not “processed” by reflection, and disappointment in social interaction.

It is concluded that the evaluation, profoundness and intensity of loneliness, isolation and separation experience does not depend on the understanding of own and other individuals’ emotional

states, empathy, ability to control the expression of emotions, or emotional expression. The determining factors of the subjective positive experience of loneliness should apparently be sought in other areas – age, social situation, personality characteristics, own experience of living through different states which are close to loneliness. Results of research confirm that separation as a positive implication of the state of loneliness is felt more intensively at the age of adolescence, and the majority of youth sample gave more emotionally charged evaluation to this state, which can be explained by the tasks inherent in this age period – the tasks of self-cognition and self-establishment, personal and social self-identification.

It is shown that constructive perception of loneliness, positive experience of feeling of loneliness is a prerequisite for personal growth, self-actualization and development of the creative potential of individuals of any age, as well as the effective integration in society.

# DOMESTIC VIOLENCE AGAINST THE MAN: THE STRUCTURE OF EMOTIONAL EXPERIENCE

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## **Abstract**

The article presents problems of domestic violence in the context of women violence against the man. Domestic violence became one of the dominating and most controversially valued conceptual areas in the scientific discourse. The qualitative study aimed to disclose emotional experiences of the man who has experienced violence in the closest environment. The study disclosed broad and exhaustive spectrum of emotional experiences of the man who has experienced woman's violence. Applying content analysis method, five categories describing the structure of the man's emotional experiences and reflecting emotional experiences to be related to the very self, wife, stepmother, environment and mother-in-law were identified.

**Key words:** *domestic violence, emotional experience, women violence against the man.*

## **Introduction**

Researches on gender-based interpersonal violence in the family and social acknowledgement of this problem are related to revival of women's movement in the 6 decade of the 20 century and the second wave of feminism in Western culture (Reingardienė, 2004). During this period the focus of the society and politics on the analysis of inequality, conflict, violence and shift processes increases (Mažeikis, 1999). Family sociologists started to progressively deepen their knowledge of what is hidden behind static norms of family relationships and roles. Family phenomena that make us worry most are domestic violence and sexual violence against children (Giddens, 2005). Domestic violence became one of the dominating and most controversially valued conceptual areas in the scientific discourse. According to Giddens (2005), home becomes one of the most dangerous places of the modern society. According to statistics, is it much more likely that a person of any age (particularly children) or gender will become the subject of physical violence at home than on the street at night. In 2012, 18268 calls due to violence in the closest environment were registered in the registry of incidents at Lithuanian Police (6472 of them were violence cases against women, 625, against children and 693, against men)<sup>1</sup>.

The problem of domestic violence is most often presented in descriptive works, analysing cases of violence and abuse against children and women (Purvaneckienė, 1998). However, these researches are most often based on gender stereotypes, whilst one more type of domestic

<sup>1</sup> <http://www.bukstipri.lt/lt/statistika>

violence – male victimisation – does not receive bigger attention in scientific practice. One of the possible explanations of such tendency is masculine manifestations in multi-layered postmodernist culture space (Tereškinas, 2003). In Western societies systematic researches on this issue (including aspects of male victimisation in the family) were started to be performed and presented for public discussion only around seventies (Hines, Brown, & Dunning, 2007). However, the biggest share of domestic violence cases recorded and raised for discussion is violence against women and children (Giddens, 2005; Hines & Saudino, 2003). Only about 5 per cent of cases were women physical violence against men (Giddens, 2005), and researches conducted by Hines, Brown, & Dunning (2007) demonstrated (N=246 were men calling the “hot” line) that 43.7% of them were struck by their wives, 41.8% were shoved, 39.2% were kicked and 24.7% experienced punching. However, many authors notice that women violence against men should be analysed in the context of women self-defence, fear (Swan, Gambone, Caldwell, Suliwan, & Snow, 2008) and personal freedom (Kernsmith, 2005; Giddens, 2005). Researches performed by Caldwell, Swan, Allen, Sullivan, & Snow (2009) confirmed the fact that main motives of violence against men are related to expression of negative emotions, self-defence, control, jealousy, and tough guise.

Thus, it is acknowledged that domestic violence in principal is gender-based problem, violating the individual's right to freedom, secure life and self-realisation. In scientific literature the problem of defining violence against men is encountered. As it has already been mentioned, the domestic violence phenomenon is mostly analysed in the feminist and child violence aspects. Men victimisation is mostly analysed in the discourse on sexual violence in various social spaces. Normative concepts of masculinity, which so far have been firmly entrenched in the patriarchal Lithuanian society, hinder development of progressive gender relations and at the same time social analysis of the man as a likely victim of violence because masculinity as a cultural form represents political, moral, physical and sexual power. There is a tendency that violence should be treated not through the sexuality prism but as a large-scale human problem. In spite of that, the scientific discourse on domestic violence also starts pointing out sub-feminist domestic violence aspects when a man becomes the victim of violence. Seeking to perceive all aspects of domestic interpersonal violence, it is purposeful to analyse experiences and emotional feelings of the man experiencing domestic violence.

Scientific and practical relevance of the topic presupposes the following problem questions: *How could emotional experiences of the man experiencing domestic violence be described? What are essential components of emotional experience in the violence situation?*

**Research subject:** emotional experiences of men who have experienced domestic violence.

**Research aim:** to disclose emotional experiences of the man who has experienced domestic violence.

**Research methods.** Seeking to disclose and present as broad holistic description of domestic violence as possible, qualitative research approach was chosen. This study was conducted employing **semi-standardised interview**. It is convenient because the conversation is not strictly standardised, there is a possibility for interpretation, conversation takes place in a more liberal atmosphere. The structure of the semi-standardised interview was drawn up after operationalization, distinguishing groups of questions about implied categories, making up the scale of emotional experiences of the man who has experienced domestic violence. During two meetings with the respondent conversations were recorded on dictaphone, later the recording was stenographed and coded. Empirical data are processed using the **content analysis** method.

### Structure of Emotional Experiences: Data Analysis of the Empirical Study

Informant N, aged 59. Was born and grew in the village, was the second child in the family. Father used to drink. N's mother was an unyielding woman and used to show the man his place. When N was 12, his mother died. Step-mother in the family was fond of drink. After a drink there were rows, the step-mother would teach the husband by words, screams and fists. Father would never raise a hand on a woman. When N married, he settled in the house of parents-in-law, where authority was in the hands of the mother-in-law and the father-in-law was calm but greedy for honours. In this family N was only a worker who has never had the right of opinion or word.

Having analysed the empirical materials, the informant's personal experience, the following main categories can be named, related to the informant's emotional experiences as a consequence of experienced domestic violence (see Table 1).

**Table 1.** Structure of Experiences of the Man Experiencing Domestic Violence

No	Categories	Subcategories		N <sup>2</sup>	N <sup>3</sup>
1.	Emotional experiences related to the person	The feeling of worthlessness		23	110
		Positive self-image		20	
		Shame		19	
		Reconciliation		19	
		Anger		11	
		Loneliness		11	
		Guilt		7	
2.	Emotional experiences related to the wife	Demonstration of arrogance		13	55
		Demonstration of powers (manifestation of verbal aggression)		10	
		Usage of physical violence		7	
		Ambivalent emotions		6	
		Manifestation of positive emotions related to love, warmth		5	
		“Ostentatious” positive emotions, their demonstration		5	
		Dissatisfaction with surrounding people, distrustfulness		5	
		Strictness, demands of the wife		4	
3.	Emotional experiences related to the environment	Work and relations with co-workers	Shame	10	32
			Feeling of affinity	5	
		Relations with neighbours	Respect	7	
			Shame	7	
		Relations with other surrounding people	Shame	3	
4.	Emotional experiences related to the step-mother	Demonstration of step-mother’s authority, degrading of others		9	30
		Acceptance of the step-mother, reconciliation		6	
		Constant reproaches, humiliation		6	
		Highlighting of difference from the mother		5	
		Experiences of insecurity, guilt feelings		4	
5.	Emotional experiences related to the mother-in-law	Humiliation		6	20
		Worthlessness		6	
		Anger		5	
		Guilt		3	

<sup>2</sup> N (Frequencies) – number of statements making up subcategories.

<sup>3</sup> N (Frequencies) – number of statements making up the category.

These categories influenced the content of the informant's emotional experiences depending on time and situation. They also had impact on emotions of different purposefulness but negative emotional experiences were prevailing.

Analysing interview materials, most frequently occurring empirical indicators were added: the informant mentioned himself and his emotions 110 times; this should be treated as a central category surrounded by other significant categories: emotional experiences related to the wife (N=55), to the environment (N=32), to the step-mother (N=30), and to the mother-in-law (N=20).

**Emotional experiences related to the person.** The very respondent evaluates himself controversially. On the one hand, he feels being a good man, on the other, he humiliates himself, despises for lack of autonomy, obedience, surrender to his wife. Speaking about himself, the respondent is trying to present himself as a slow and good person, who is sociable and liked by surrounding people, neighbours, co-workers. However, in reality, having analysed research materials, it becomes clear that his good qualities are disclosed only outside the walls of his home. Communicating at work or anywhere else, this man as if changes, discloses himself, opens up. Then his real personal traits show up. However, this is only subjective self-assessment, partially based on neighbours' and co-workers' opinion about him (see Table 2).

**Table 2.** Structure of the Category "Emotional Experiences Related to the Person"

No	Subcategories	Examples of empirical indicators (statements)	Frequencies
1.	The feeling of worthlessness	"As people say, small and black"; "...when you don't have cash, you are like a donkey"; "...why should she discuss with me, according to her, can I know anything..."; "...I was called a calf, absent-minded"; "...I was like a hireling..."; "...am I a man if I am under the woman's thumb"; etc.	23
2.	Positive self-image	"...I am calm..."; "tender"; "I don't raise voice or hand against my wife or children"; "I am not feuding, I adjust to the conditions of the environment"; "...I am not violent and I won't; father valued well"; etc.	20
3.	Shame	"Somehow I am ashamed for my wife's whims"; "who likes to be under your wife's thumb"; "...if they knew everything, I wouldn't know where to drop my eyes, then perhaps only the loop of rope remains"; "...it is important that not in the presence of my co-workers..."; etc.	19
4.	Reconciliation	"...it is better to keep silent and wink"; "...it is better sometimes to keep silent than to be struck with some broom"; "I have already got used to her shouting and complaints"; "... you get drunk and then let her say what she wants, let her do what she wants"; "... it is not only me alone who is under the wife's thumb"; etc.	19
5.	Anger	"... sometimes I get angry, then I go off the deep end and say that she is not right"; "...quite many times in my mind I thought that when I get home, I'll show her"; "...sometimes you get angry on yourself and the whole life"; etc.	11
6.	Loneliness/reticence	"...we live in our own world..."; "I stayed alone with my opinions and ideas, they were not interesting to anyone"; "...I used to be reserved; not everyone is brave enough to speak about one's problems..."; etc.	11
7.	Guilt	"...you say something in response, then you regret.."; "you only feel guilty"; "...I felt as if I were guilty"; etc.	7

One of the strongest emotions experienced due to violence in spite of the feeling of worthlessness is shame (N=19). The respondent is ashamed of his maltreatment, he is worried what co-workers, neighbours speak about him. He is also ashamed that he is under his wife's thumb, that she uses violence against him and that others will learn about it. This witnesses the respondent's self-worth. The respondent is more inclined to experience his trouble alone, not to share his emotions with anybody. Due to the intensive feeling of shame there are less communication possibilities, which even more encourage loneliness (N=11).

**Emotional experiences related to the wife.** Emotions to be related to the wife are distributed into 8 subcategories (see Table 3).

**Table 3.** Structure of the category "Wife Related Emotional Experiences"

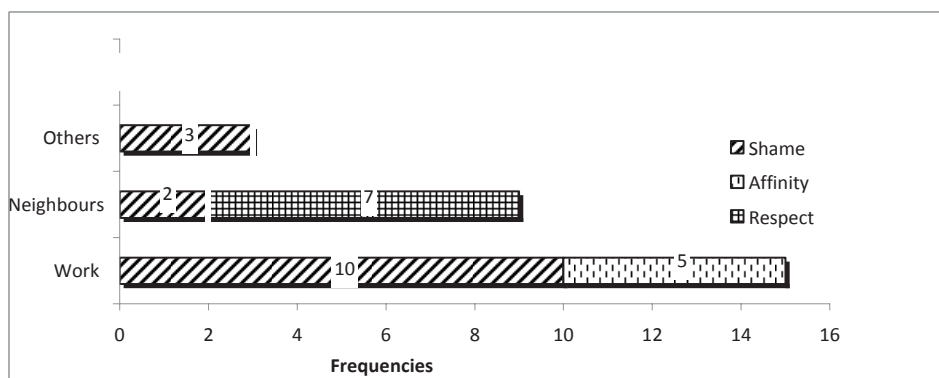
No	Subcategory	Examples of empirical indicators (statements)	Frequencies
1.	Demonstration of Arrogance	"arrogant"; "...cocksure"; "stuck-up..."; "she is wayward..."; "if she is at some party, she doesn't want to talk to neighbours"; etc.	13
2.	Demonstration of powers (manifestation of verbal aggression)	"and my wife would attack me..."; "whatever I did without her knowledge was often wrong"; "she shows everyone's place"; "when we came she made quite a storm, you can say that co-workers remembered its consequences for quite long"; etc.	10
3.	Usage of physical violence	"... she throws the plate too"; "she slaps on the face"; "sometimes throws some stick at you"; "but if somebody made her angry that day, then she will be with a broom in the hand..."; etc.	7
4.	Ambivalent emotions	"I find it difficult to judge how they would describe her"; "I value my wife as a wife"; etc.	6
5.	Manifestation of positive emotions related to love, warmth	"If she is in a good mood, then you speak..."; "...tender"; "let me think; tolerance"; etc.	5
6.	"Ostentatious" positive emotions, their demonstration	"she doesn't have to attempt, she is used to look polite, simple"; "many wouldn't say that she can be so strong when she is angry"; etc.	5
7.	Dissatisfaction with surrounding people, distrustfulness	"she maintains that they gossip about her"; "all the time she finds everything wrong"; "... when neighbours succeed, she doesn't like it"; etc.	5
8.	Strictness, demands of the wife	"Strict..."; "...demanding..."; "...wild"; etc.	4

There are least emotions to be related to the wife's positive traits (*manifestation of positive emotions related to love, warmth*, N=5), and most, to negative (e.g. demonstration of arrogance (N=12); demonstration of powers, manifestation of verbal aggression (N=10), etc.). Having been asked to name the wife's good traits, he had to stop to think. Sometimes he feels respect to his wife because she seeks an aim, wants to distinguish herself from others. In public his wife can behave politely and nicely, create the impression of a well-brought up woman and the respondent notices it. However, most often his wife's behaviour causes only negative emotions to the respondent. The informant is dissatisfied with his wife's behaviour with neighbours, his co-workers and most of all, with himself. The man most suffers due to wife's bad behaviour in public; e.g., *when she destroys men's company and makes him go home*. It is evident that the fact that surrounding people to a greater or lesser degree know about the wife's behaviour with him damages the respondent's male ego. Physical or moral

suffering is not that important for him compared to publicising this to surrounding people (e.g., economic sanctions, particularly publicized (e.g., in the shop, at work) arouse more inconveniences and negative emotions that bigger or smaller physical suffering after the wife's slap in the face or hit).

Caldwell et al. (2009) disclosed in the research that one of the strongest motives of violence against men is related to the control factor. The control motive factor was an interesting combination of items relating to women's efforts to control their partners' behaviour (e.g., "to make him do the things you wanted him to do"). The positive relationship between control motives and physical, psychological, and coercive control aggression suggests that at times women used aggression in a calculated attempt to get their partners to behave in a particular way (Caldwell et al., 2009).

**Emotional experiences related to the environment.** Emotional experiences related to the environment are distributed into three subcategories: work and co-workers, neighbours, other surrounding people. The subcategory of work and co-workers in turn is broken down still in greater detail: emotions of shame and affinity are distinguished. 10 empirical indicators are attributed to the emotion of *shame* (e.g., "... if they knew everything, I wouldn't know where to drop my eyes"; "...I was time and again asked what kind of man I was if I was under the woman's thumb"), of *affinity*– 5 (e.g., "... if the co-worker is ashamed, I'll always help him..."). The subcategory of neighbours is distributed into experiencing of the emotions of shame and respect. 7 empirical indicators are attributed to respect (e.g., "... I value my neighbours well...", etc.), to shame – 2 (e.g., "Shame, so that neighbours should not know what is going on in our family", etc.). 3 empirical indicators representing the feeling of shame are attributed to other surrounding people (see Figure 1).



**Figure 1.** Structure of the Category "Emotions to Be Related to the Environment"

These facts enable to state that the respondent is not indifferent to approaches and attitudes of surrounding people to him and to what he is experiencing at home, his relationships with his wife. Most often he feels shame due to experienced violence. He feels shame with regard to co-workers who time and again have been witnesses of violence and compulsion, to neighbours who live in the neighbourhood and know everything (often see as well), to other surrounding persons (e.g., people met in the shop, friends). In addition to other feelings, the respondent experiences respect to surrounding people for their silent support. He appreciates other people, which is not the case with him. It is evident that the environment is very significant for the respondent's emotions: if surrounding people's attitude is favourable, he experiences positive emotions, but if they see violence against him, he experiences shame.

**Emotional experiences to be related to the step-mother.** It is easy to see several feelings differing in their content in the respondent's emotional experiences related to the step-mother. On the one hand this is acceptance of her as a family member, on the other, highlighting of her bossiness, experienced insecurity, her difference from his mother (see Table 4).

**Table 4.** Structure of the Category "Emotional Experiences Related to the Step-Mother"

No	Subcategories	Examples of empirical indicators (statements)	Frequencies
1.	Demonstration of step-mother's authority, degrading of others	"... knew how to show herself and her character"; "...the final word was after the step-mother"; "... when she gave money for me, hers was the decisive word"; etc.	9
2.	Acceptance, reconciliation with the step-mother	"Who else will you love? If the real mother is no longer here"; "...as she said, children need mother and she will act for her"; etc.	6
3.	Constant reproaches, humiliation	"... step-mother would always reproach that I don't help her to do the chores, that I am busy with myself"; "...that I forgot that she did me much good"; etc.	6
4.	Highlighting of difference from the mother	"I did not feel real love as for mother"; "...I often thought that it wouldn't be so if my mother were here"; etc.	5
5.	Experiences of insecurity, feelings of guilt	"There were no very warm relationships"; "...It used to be insecure, I felt not at ease..."; "...I felt as if it were my fault..."; etc.	4

It is evident that emotions related to the step-mother were changing while the respondent was growing. In the beginning he accepted her favourably. Only as time was passing he noticed step-mother's differences from the real mother (N=5) and started to understand that he felt different feelings to that woman, which differed from those he felt to the dead mother. Partially this is related to step-mother's bossiness, autocracy (N=9), which is likely to be related to the informant's experienced humiliation, worthlessness (N=6) (he felt poor and insecure when there were rows at home, when the step-mother alone managed money, keeping the father under her thumb; being an adolescent, he often had to suffer step-mother's reproaches regarding ingratitude, taking care only of himself, youthful egoism, which was not pleasant (illustrating example: "*black and small*"). It can be assumed that the step-mother's behaviour with the informant was a prelude of long and intensively experienced violence.

Emotional experiences to be related to the mother-in-law. The study has disclosed that the mother-in-law has always exerted emotional and psychological violence against him and in certain cases, economic violence. The respondent felt humiliated, poor, he was always reproached for lower social status and other similar things. The following emotional experiences to be related to the mother-in-law were distinguished: humiliation, worthlessness, anger, guilt (see Table 5).

**Table 5.** Structure of the Category "Emotional Experiences to Be Related to the Mother-in-Law"

No	Subcategories	Examples of empirical indicators (statements)	Frequencies
1.	Humiliation	"... I was a houseboy who follows <...> instructions at home and doesn't know anything..."; "...this is how I felt, being humiliated, under the thumb"; etc.	6
2.	Worthlessness	"...no one listened to me, did the way they found it useful"; "...used to call a donkey, drunkard, beggar"; etc.	6

Continued Table 5

3.	Anger	"...it used to be annoying that I was so degraded..."; "in principal we had arguments about work"; etc.	5
4.	Guilt	"Then you regret"; "... only you yourself feel guilty"; etc.	3

Expressing of negative emotions is clearly an important motive for women's perpetration of domestic violence (Caldwell et al, 2009). It is noticed in the study that participants who scored highly on the expressing negative emotions factor committed more frequent physical and psychological aggression, even when controlling for victimization and social desirability (Caldwell et al, 2009). It is noticed in the qualitative study that the mother-in-law is inclined to humiliate, degrade (e.g., "*used to call a donkey, drunkard, beggar*"), express negative feelings, and her violence used to arouse feelings of worthlessness (N=6) and humiliation (N=6) for the informant. Namely due to this he started to experience anger (N=5) and sometimes guilt (N=3) due to inability to oppose psychological and emotional violence. Complexity of experiences is partially related to inability to oppose: he was both economically and financially dependent on parents-in-law, lived in their home.

### Conclusions

- In research literature Lithuania is quite often presented as a modernising state but the society in which interpersonal relationships develop not so quickly as theoreticians and practitioners would like is still strongly dominated by patriarchal traditions. Thus, according to scientists, normative masculinity, characterised by such traits as bravery, intellect, physical power, does not correspond to expectations of the society. The attitude to men's domination in important social life areas is in principle changing: increasingly more women participate in science, politics and business. The man is traditionally perceived as the "head" of the family but having lost the most important "wage-earner's" functions, he experiences strong psychological pressure in the society and even aggression and violence in the family.
- Statistical and scientific research data demonstrate that in violence situations the weak (children, women) suffer most often. However, women also exert domestic violence and here not the gender of the violent person but the interaction (strong and weak) and the kind of used violence are important. Research data show that women, who are weaker, more often use emotional, economic violence and neglect, and prevailing violence is emotional.
- Due to prevailing and still tenacious patriarchal stereotypes ("men do not cry"), present men who want to meet expectations of the society, family and their own expectations are lost in multi-layered requirements. They find it difficult to perceive and acknowledge their weakness, limitation, difficulties, they are not inclined to share this with close family and specialists, and moreover that social connotation of this phenomenon is exceptionally negative. If such stereotypical attitude is formed from childhood, later men find it difficult to learn to speak about their feelings and experiences, address professionals for support.
- The results of the conducted study enable to state that the social image of the man who has experienced women violence is negative, has degrading, stigmatising meaning and is to be valued as manifestation of social stereotypes in the sexuality aspect. Men particularly suffer due to public humiliation and violence against them. It has been identified that the man who has experienced women violence in public would be sneered at and lose the image of masculinity but the woman would not be condemned for that while the man would almost not be supported and sympathised. It should be noted that violence situations take place both in asocial and prosocial families, in which violence against women is perceived as abuse, while violence against men, as protection.

- The study disclosed a broad spectrum of emotional experiences of the man who has experienced women violence: such man feels negative and ambivalent feelings and emotions, which often affect simultaneously and arouse confusion of feelings. Such man feels lonely, embarrassed and humiliated; besides, he experiences shame due to experienced violence act and worthlessness as a consequence of all of it. Due to such confusion of feelings men find it difficult to address for help, despite equal opportunity policy implemented in Lithuania.

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## DOMESTIC VIOLENCE AGAINST THE MAN: THE STRUCTURE OF EMOTIONAL EXPERIENCE

### Summary

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Problems of domestic violence in the context of women violence against the man are analyzed in the paper. Domestic violence became one of the dominating and most controversially valued conceptual areas in the scientific discourse. In 2012, 18268 calls due to violence in the closest environment were registered in the registry of incidents at Lithuanian Police (6472 of them were violence cases against women, 625, against children and 693, against men. However, many authors notice that women violence against men should be analysed in the context of women self-defence, fear (Swan, Gambone, Caldwell, Suliwan & Snow, 2008) and personal freedom (Kernsmith, 2005; Giddens, 2005). Researches performed by Caldwell, Swan, Allen, Sullivan, & Snow (2009) confirmed the fact that main motives of violence

against men are related to expression of negative emotions, self-defence, control, jealousy, and tough guise. Thus, it is acknowledged that domestic violence in principal is gender-based problem, violating the individual's right to freedom, secure life and self-realisation. In scientific literature the problem of defining violence against men is encountered. As it has already been mentioned, the domestic violence phenomenon is mostly analysed in the feminist and child violence aspects. Men victimisation is mostly analysed in the discourse on sexual violence in various social spaces. However, many authors notice that women violence against men should be analysed in the context of women self-defence, fear (Swan, Gambone, Caldwell, Suliwan, & Snow, 2008) and personal freedom (Kernsmith, 2005; Giddens, 2005). Seeking to perceive all aspects of domestic interpersonal violence, it is purposeful to analyse experiences and emotional feelings of the man experiencing domestic violence.

Scientific and practical relevance of the topic presupposes the following problem questions: *How could emotional experiences of the man experiencing domestic violence be described? What are essential components of emotional experience in the violence situation? Research subject:* emotional experiences of men who have experienced domestic violence. *Research aim:* to disclose emotional experiences of the man who has experienced domestic violence.

Seeking to disclose and present as broad holistic description of domestic violence as possible, qualitative research approach was chosen. This study was conducted employing *semi-standardised interview*. During two meetings with the respondent conversations were recorded on dictaphone, later the recording was stenographed and coded.

The qualitative study aimed to disclose emotional experiences of the man who has experienced violence in the closest environment. Applying *content analysis method*, five categories describing the structure of the man's emotional experiences and reflecting emotional experiences to be related to the very self, wife, stepmother, environment and mother-in-law were identified. The study disclosed broad and exhaustive spectrum of emotional experiences of the man who has experienced woman's violence: such man feels negative and ambivalent feelings and emotions, which often affect simultaneously and arouse confusion of feelings. Such man feels lonely, embarrassed and humiliated; besides, he experiences shame due to experienced violence act and worthlessness as a consequence of all of it. Due to such confusion of feelings men find it difficult to address for help, despite equal opportunity policy implemented in Lithuania.



# EMPOWERING FAMILIES: THE EARLY INTERVENTION IN NATURAL ENVIRONMENTS PROFESSIONAL DEVELOPMENT COMMUNITY OF PRACTICE PROJECT IN OHIO

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## **Abstract**

This paper describes a model of professional development for Early Intervention based on an ongoing project taking place in a Midwestern state in the United States of America. The Project framework is presented as a model for high-quality professional development in Early Intervention by combining a) content including evidence-based practices and recommended practices from national professional organizations; b) university-community-family partnerships, an invaluable component without which the Project would not be possible; and c) tools for effective communication, collaboration, and coaching to support adult learning. As the Project is ongoing, research and program evaluation data are not reported in this paper. However, implications for young children and families, early intervention practitioners and stakeholders, and professional development in both the authors' local context and the wider global context are discussed.

**Key words:** *early intervention, professional development, family empowerment.*

## **Introduction**

In both Europe and the United States of America, early childhood intervention services are provided to young children with disabilities or, in some cases, who may be at risk of not reaching developmental milestones. Although there is great variability in how early childhood intervention systems are developed, administered, and implemented in different countries, the aims of early childhood intervention are similar – to improve young children's developmental outcomes by offering targeted services or supports. Furthermore, most policies governing systems of early childhood intervention recognize the importance of including families and caregivers as partners on a team of service providers that each has expertise in specific areas of development (IDEA, 2004; United Nations Convention on Rights of People with Disabilities, 2006). Organizations that recommend best practices in the field also strongly emphasize a family-focused approach as integral to successful intervention (Division for Early Childhood, 2007; Meijer, Soriano, & Watkins, 2007; Soriano, 2005). In order to involve families in early

childhood intervention and to help families meet their needs, early childhood intervention practitioners should seek to fully understand families' needs and priorities. Equally important is to establish a collaborative partnership with families to assist them in identifying child- and family-level outcomes that are relevant and meaningful to them. The role and support of early childhood intervention practitioners is critical in the process of family empowerment.

In the United States, Early Intervention (EI) is provided as a comprehensive system of supports for infants and toddlers with developmental delays or who are at risk for disabilities. Early Intervention is supported by federal funds and governed by Part C of the Individuals with Disabilities Education Act (IDEA, 2004), and each state in the country applies annually to continue to receive funding. State funding is determined by formulas that consider in large part the extent to which the state meets targeted national indicators of quality and compliance. U. S. Congress has reauthorized the EI program multiple times since the initial establishment in 1986 with increasing emphasis on improving quality of life, educational outcomes, and positive family functioning. Given the fact that the federal program is designed for the youngest members of the society, parent and caregiver participation is required by law, its effectiveness is demonstrated by evidence-based research, and family-focused service provision is advocated for by major national early childhood professional organizations.

The next section describes current recommended practices, namely EI in natural environments and the transdisciplinary team model, to set the stage for the shifts in practices in the United States in general and in one state in particular. Along with the changes are the current challenges in the field, specifically the training needs of practitioners to deliver services according to the practices recommended by research. Finally, a description of one state's response to local needs in the form of a professional development model that targets increased practitioner competence and ultimately, family empowerment is provided.

**Object of the research** – empowering families through the early intervention in natural environments professional development community of practice project in Ohio.

**The aim of the research** – to discuss the early intervention in natural environments professional development community of practice project in Ohio.

**Method of the research** – ethnographic approach, analyzing empowerment of families in the early intervention in natural environments professional development community of practice in Ohio.

### **Early Intervention in Natural Environments**

The primary goal of EI services offered as a part of the Individuals with Disabilities Education Act (IDEA, 2004) is to improve outcomes for infants and toddlers with disabilities and their families, while serving children in natural environments to the maximum extent possible. The term *natural environments* refer to settings in which the child would participate had he or she not had a disability (IDEA, 2004). Leaders in the field of EI recommend embedding natural learning opportunities and evidence-based intervention strategies into daily activities and focusing on caregivers as primary implementers of intervention within family routines (ERIC/OSEP Special Projects, 2001; Friedman, Woods, & Salisbury, 2012; McWilliam, 2000; Woods & Kashinath, 2007; Woods, Kashinath, & Goldstein, 2004). Embedding natural learning opportunities throughout the day ensures that intervention is delivered in ways that are acceptable, functional, and relevant to families, and encourages the child's generalization of skills (Macy & Bricker, 2007; Woods & Kashinath, 2007). However, natural environments refer not merely to the location in which services are provided, but rather the context of the everyday activities of the family and the interactions between the child and significant adults (Moore, Koger, Blomberg, Legg, McConahy, Wit, & Gatmaitan, 2012). As such, it is no longer

simply about teaching the child alone. Delivering services according to the principle of natural environments requires a specialized skill set to work with and support families. With the shift from professional-centered practices to a family-centered approach, families are empowered as agents of change in promoting their child's development and meaningful participation within everyday activities and routines.

### **Transdisciplinary Team Model**

EI services are also delivered using a team approach. The team includes the family and practitioners from various disciplines such as EI, social work, speech and language pathology, occupational and physical therapy, as appropriate to the child and family's needs. The recommended practice in EI is the transdisciplinary approach (Woodruff & McGonigel, 1988) in which the team collaborates and collectively determines the course of action to support family-generated outcomes and priorities. In the transdisciplinary model, team members are required to demonstrate "role release" from their specialized, discipline-specific training and to move toward a high level of collaboration between team members (Woodruff & McGonigel, 1998). This approach to teaming requires a high level of collaboration and consensus among the team members and the family as the team members systematically share roles to address family needs across all disciplines and developmental domains. The transdisciplinary approach potentially reduces the number of different early intervention professionals interacting individually with the family and the child (Bruder, 1994). In contrast to having several different professionals in the family's life, a primary service provider, supported by the team, builds a meaningful working relationship with the child and family and implements coordinated services (Workgroup on Principles and Practices in Natural Environments, 2007).

### **Shifting Practices**

In the past, EI services for infants and toddlers were delivered in either home settings or in centers specifically tailored for children with disabilities. Services delivered in these segregated settings tended to follow a more medical, deficit-based approach to intervention. Even services provided in the home, albeit a "natural environment" for the child, also reflected a medical approach in which interventions were provided directly to the child without the active engagement of the parent or caregiver. More recently, local EI systems across each state are moving towards more natural environments such as the home and community-based settings in which children without disabilities participate, such as neighborhood child care centers. In a 2011 report on EI program settings, out of a total of 14, 103 children served under Part C in Ohio, 10, 932 were receiving EI services in the home, 905 children were receiving services in community-based settings, and 2, 266 children were receiving services in "other" environments which may include clinics and programs exclusively for children with disabilities (IDEA Data Accountability Center, 2011). Although there are still children being served in segregated settings, the numbers indicate that a significantly greater number of children are being served in natural environments. Thus, professionals must have a unique and specialized skill set to work effectively with families and caregivers in the home and community context, rather than with the child alone in clinics or other non-natural settings.

As communities in Ohio work to eliminate segregated classrooms and achieve 100% natural environment services, the need for specialized training becomes more urgent. Professionals who had been previously trained to deliver child-focused services in classrooms following a more medical, deficit-based approach are now required to learn a different approach to intervention. The natural environments approach focuses not just on child-specific

interventions but also on adult learning strategies to support and empower family members in using everyday activities and routines as learning opportunities for the child (Moore et al., 2012).

Further, EI specialists come into the Part C workforce with a variety of educational backgrounds. “In Ohio, the rule for [initial] early intervention certification does not put any limits on specific educational background. Only a bachelor’s degree is needed; a related degree gets one to certification faster, but it is not required” (Katrina Bush, personal communication, May 23, 2011). This statement reflects the finding from the 2004 nationwide survey indicating the lack of training specific to infants, toddlers, families, and natural environments (Center to Inform Personnel Preparation Policy and Practice in Early Intervention and Preschool Education, 2004). If an individual with a bachelor’s degree from any discipline (that may not be related to EI) can become certified as an EI Specialist without prior training in the necessary competency areas, then the quality of services for the most vulnerable population will be negatively impacted. EI services that fail to meet intended outcomes for young children and families will result in more costly special education services in the future. High-quality professional development, then, is vital.

### **Early Intervention Community of Practice Project**

As the U.S. moves towards more contemporary models of service delivery, states across the country are investigating innovative methods of professional development and, in some instances, the development and implementation of state-based systems of technical assistance (for example: Kansas Inservice Training System [KITS]; California Early Intervention Technical Assistance Network [CEITAN]; Pennsylvania Early Intervention Technical Assistance System [EITA]). In the fall of 2012, the Ohio Department of Developmental Disabilities (one of two agencies that oversee various aspects of EI in the state) requested grant proposals to a) increase practitioners’ understanding of evidence-based practices in EI; b) ensure dissemination of the evidence-based practices; and c) improve the fidelity of implementation of the evidence-based practices. Kent State University was awarded grant funding to develop, implement, and evaluate a high-quality, evidence-based inservice professional development (PD) project in EI. The Project is a university-community partnership, and is being fulfilled in collaboration with various EI programs in Ohio that provide home-based and community-based services for families of infants and toddlers with developmental delays or disabilities.

What follows is a general blueprint for the Ohio Project. The Project is intended to ultimately empower families by increasing EI practitioner capacity to deliver high-quality EI services. Data are not provided in this paper since the Project is ongoing and the authors seek mainly to describe key components of the work. However, understanding the framework of the Project can assist practitioners, administrators, and other stakeholders in the field of early childhood intervention across the globe to consider a variety of evidence-based PD practices that support practitioners, empower families, and improve child and family outcomes.

**The Ohio Community of Practice framework.** The professional development model for the Project utilizes a Community of Practice (CoP) framework, in which participants collaborate on a regular basis to share best practices, problem-solve complex issues, and advance the field by disseminating knowledge (Buysse, Sparkman, & Wesley, 2003; Wesley & Buysse, 2001). The CoP framework includes a series of modules with relevant EI content and state-of-the-art practices in coaching.



**Figure 1.** Foundation for High Quality EI Services

The Project is aligned with the Division for Early Childhood (DEC) Recommended Practices (Sandall, Hemmeter, Smith, & McLean, 2005) and the Seven Key Principles of Early Intervention Services in Natural Environments from the U. S. Office of Special Education Programs (Workgroup on Principles and Practices in Natural Environments, 2007). These key principles and practices are grounded in family-centered philosophy and widely accepted as best practice in EI, which assumes that all families have strengths and that the family plays a pivotal role in child development (Bailey, McWilliam, & Winton, 1992; Bailey, McWilliam, Darkes, Hebbeler, Simeonsson, Spiker, & Wagner, 1998; Bruder, 2000; Dunst, Bruder, Trivette, Hamby, Raab, & McLean, 2001; Thompson, Lobb, Elling, Herman, Jurkiewicz, & Hulleza, 1997; Turnbull, Turnbull, Erwin, Soodak, & Shogren, 2011). Family-centered early intervention aims to strengthen and support families' abilities in caring for their children (Bailey et al., 1998). The natural environments principles also reflect the evidence and recommendations from EI research, such as (a) routines-based, relationship-focused, parent-implemented intervention, which utilizes supportive, empowering practices to recognize the family's existing routines, interactions, and activities as sources of intervention (Dieterich, Landry, Smith, Swank, & Hebert, 2006; Friedman et al., 2012; Jung & Grisham-Brown, 2006; Kaiser & Hancock, 2003; Landry, Smith, & Swank, 2006; Web & Jaffe, 2006; Woods et al., 2004; Woods & Kashinath, 2007); and (b) integrated services through the transdisciplinary team approach, which is based on the concept that the child is an integrated whole and can best be served through coordinated, integrated services delivered by a primary service provider with support and consultation from a team of different disciplines (Bush, Christensen, Grove, & Nagy, 2009; Woodruff & McGonigel, 1998). These principles and practices, which have been identified as areas of focus for service delivery in Ohio, are incorporated into the theoretical framework of the Project.

The work of an Early Intervention (EI) practitioner and/or primary service provider is to support the competence and confidence of parents and caregivers in promoting the development of their infant or toddler within natural learning opportunities. Evidence-based practices should guide the implementation of EI services for enhanced child and family outcomes. Evidence-based practices in EI include: (a) focusing on contextualized learning in family routines, not decontextualized learning in contrived tasks; (b) supporting the child's participation in interest-based activities, rather than simply embedding therapy exercises; and (c) going beyond teaching the child discrete skills but rather promoting the parent or caregiver's responsiveness to the child (Shelden & Rush, 2004). According to Dunst (2000),

evidence-based practices in EI are in contrast to the traditional professional-centered, deficit-based paradigm of providing services. Table 1 compares and contrasts the evidence-based model with the traditional paradigm.

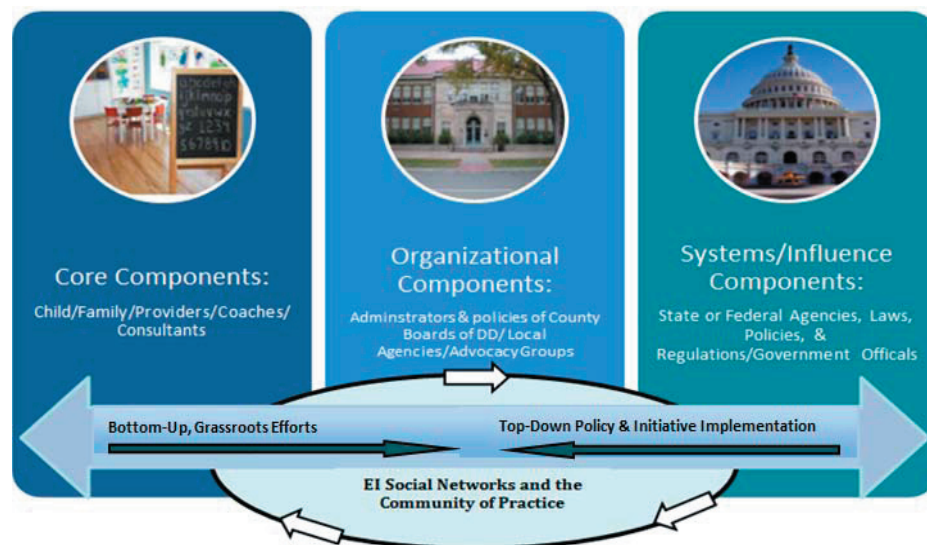
**Table 1.** Comparison between the evidence-based model of EI and traditional model (Dunst, 2000)

<b>Evidence-based model of EI</b>	<b>Traditional model</b>
Promotion of family competence and positive functioning	Treatment of a problem
Building capacity: helping children and families use existing abilities and develop new skills	Relying on the expertise of a professional to solve problems
Strengths-based	Deficit-based
Resource-based: focusing on formal and informal supports within the community	Service-based: focusing on services provided only by the professional directly to the child
Family-centered	Professional/clinical-centered

As indicated in Table 1, the evidence-based model of EI makes the role of the EI practitioner a complex one, distinct from the role of a classroom teacher. Professional development (PD) is a key practice in order to increase the fidelity with which evidence-based practices are implemented. According to the National Professional Development Center on Inclusion (2008), professional development is defined as “facilitated teaching and learning experiences that are transactional and designed to support the acquisition of professional knowledge, skills, and dispositions as well as the application of this knowledge in practice” (p. 3). Effective PD is based on adult learning principles and geared toward actual change in practitioners’ behaviors and practice (Dunst & Trivette, 2009). Researchers have identified coaching with performance feedback as an effective method of professional development (Brown & Woods, 2011; Marturana & Woods, 2012), in contrast with the “sit-and-get” model or one-dose workshops delivered without follow-up. Coaching is based on the principles of adult learning, and designed to “build capacity for specific professional dispositions, skills, and behaviors and is focused on goal-setting and achievement for an individual or group” (NAEYC, NACCRRA, 2011, p. 11)

In order to target EI practitioner’s ability to work effectively with children and families and support developmental outcomes, the Community of Practice (CoP) framework uses an implementation science approach (Fixsen, Naoom, Blase, Friedman, & Wallace, 2005) and operates on multiple levels to ensure communication and collaboration is happening at the practitioner, community, and state level.

*Implementation science is the study of the process (and related procedural components) of implementing evidence-based practices with fidelity (Fixsen, et al., 2005). In other words, implementation science seeks to identify what is necessary to bring research (evidence-based practices [EBP]) in alignment with policy (at the local, state, and federal/national level) and practice (awareness of EBP, implementation with fidelity). In the current training the concept of the CoP is an integral piece of increasing awareness and fidelity of implementation of EBP at minimum, while also striving to inform policy and practice on a regional and statewide scale (Gatmaitan & Lyons, 2013, p. 18).*



**Figure 2.** The Importance of Early Intervention Social Networks and the Community of Practice (adapted from Lyons, 2012 and in Gatmaitan & Lyons, 2013)

The CoP framework includes a “coaching the coach” model, whereby regional and parent coaches partner together to provide performance feedback to EI practitioners in the field within four regions in Ohio. Master consultants provide performance feedback to regional and parent coaches related to their coaching sessions with EI practitioners. In addition to the coaching component, an online CoP space is utilized to disseminate information and encourage discussion through five specific learning modules corresponding to the following content areas:

1. Natural Environments, the Office of Special Education Program’s Agreed Upon Mission and Key Principles (AMKP) and Evidence-Based Practices
2. Contemporary Practices for Family and Child Assessment
3. Planning for Quality Individualized Family Service Plans (IFSP)
4. IFSP Implementation and Data-Driven Progress Monitoring
5. Coaching Practices as the Adult Interactional Style

The Project relies on the use of distance learning technologies, used through both synchronous and asynchronous means, in order to communicate, collaborate, deliver content, and support the various regions and Project participants. The online tools include Kent State University’s Blackboard course management system to provide modules to Project participants; a website with Project information developed via Weebly (a free online tool for website creation), Wiggio (an online collaborative workspace) for sharing module information and other resources with regional teams of EI practitioners; the virtual Dropbox for video file sharing; and Adobe Connect for web-conferencing, to allow content sharing and synchronous or “live” coaching.

Lastly, the Project was built around supporting practitioners in both the implementation of evidence-based early intervention tools and strategies, and using coaching as an interactional style among the team members. The coaching format utilized in the Project is outlined in Table 2. Coaching practices are a critical part of the professional development of practitioners and a tool for fostering the relationships between EI practitioners and family members.

**Table 2.** Format for coaching in the supervision process (adapted from Hanft, Rush, & Shelden, 2004)

Stage	Description
Initiation	<ul style="list-style-type: none"> <li>Identify coaching opportunities</li> <li>Clarify the purpose and outcomes of coaching</li> <li>Identify and address any barriers to making the coaching process effective</li> </ul>
Reflection	<ul style="list-style-type: none"> <li>Assist the learner in discovering what he or she already knows or needs to discover about the topic through the use of effective questioning and active listening</li> </ul>
Observation or Action	<ul style="list-style-type: none"> <li>Observe the learner in an activity related to use of targeted skill</li> <li>Provide opportunity for learner to observe the coach using targeted skill</li> <li>Allow the learner to practice the targeted skill with the coach present</li> </ul>
Reflection and Performance Feedback	<ul style="list-style-type: none"> <li>Ask the learner about the skill or activity observed or practiced               <ul style="list-style-type: none"> <li>What went well?</li> <li>What would you do to improve on the practice?</li> <li>How will you do this under different conditions, circumstances, or in different settings?</li> </ul> </li> <li>Provide feedback on observation and/or action; feedback should be:               <ul style="list-style-type: none"> <li>descriptive, specific, directed toward changeable behavior, concise, and checked for understanding or clarity (Friend &amp; Cook, 2010)</li> </ul> </li> <li>Share information, resources, and supports (as necessary)</li> <li>Confirm the learner's understanding</li> <li>Review what has been discussed or accomplished</li> <li>Plan new actions or strategies to observe and/or implement between coaching sessions</li> </ul>

In summary, the progression from initial exposure to adaptation and long-term practice depends heavily on the practitioner's skills and confidence in executing the skills, as well as a vision of how such skills can be integrated into ongoing EI practitioner activities. In addition to the initial training, substantial hands-on coaching and practice are necessary parts of the Project.

**Roles of project staff and participants.** The Project was a collaborative effort between the state-level lead agencies (Ohio Department of Health and Ohio Department of Developmental Disabilities), an institution of higher education (Kent State University), and early intervention agencies in different regions of the state. The personnel for the Project include the project director, master consultants, regional coaches, and parent master coaches. The master consultants and coaches work closely together in teams to support the regional EI teams. Next, the model for collaboration between the project staff and regional early intervention team participants will be described.

**Master consultants.** The two master consultants oversee the development of the online learning space on Blackboard, including selecting and disseminating research and practitioner-based articles from scholarly publications; rubrics to monitor coaching practices; measures for evaluating individual and program practices; relevant videos; and other materials that benefit the CoP. Each master consultant is assigned to two pairs of regional and parent coaches, and they facilitate and participate in either weekly or bi-weekly triad meetings to develop and modify work plans for providing support to interested EI practitioners, teams, or programs.

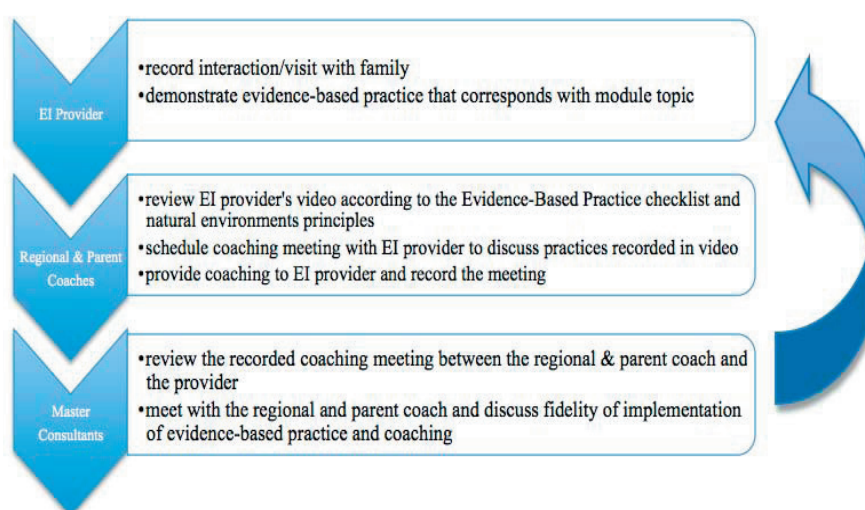
The Project involves multiple layers of coaching. The master consultants review videos of regional and parent coach pairs engaging in targeted coaching sessions with an EI practitioner. The content of the coaching is based on the EI practitioner's recorded video of

himself or herself coaching a parent or caregiver on evidence-based practices that correspond with the learning modules. Using a coaching fidelity checklist, the master consultants code the behaviors demonstrated by the coaches in supporting the EI practitioner as well as the behaviors of the EI practitioner coaching a family.

The consultants, along with the Project Director, also host the whole-group CoP sessions with all regional and parent coaches, and co-develop the content for the CoP sessions based on module topics. To facilitate collaborative problem-solving between and among participants, shared concerns are also raised and discussed during the CoP sessions. Finally, master consultants provide technical assistance and support to the regional and parent coach pairs in the development and implementation of full EI team professional development sessions as applicable.

**Regional and parent master coaches.** Two regional and two parent master coaches were selected for participation in the Project based on their experience and training in the coaching process through previous professional development Projects in the state. Parent master coaches have had additional preparation in coaching through state initiatives, including how to coach others to learn to coach, and as such serve as mentors to regional coaches. Coaches were paired based on their weekly availability, and they work together to teach one another about their perspectives and experiences as a practitioner or a parent of a child with a disability or delay. To that end, each coach works to model effective transdisciplinary teaming practices to the EI practitioners they support. The paired coaches work with at least one team or program, but in some instances they work with several programs, to provide coaching support to a minimum of one EI practitioner based on review of videos that capture the interactions between the EI practitioner, caregivers, and children. Programs seeking support identify program-level needs based on self-assessment tools, and the regional and parent master coaches offer technical assistance and PD to those teams based on their specific priorities and the needs of families they serve.

Additionally, paired coaches participate in the weekly or bi-weekly “triad” meetings with their master consultant via phone conference, as well as monthly coaching sessions with selected EI practitioners. During triad calls, coaches reflect on their practice, share successes and challenges, discuss new learning, and receive performance feedback on their coaching practices with the EI practitioner. Each EI practitioner is part of a team that supports families and children, and as such it is expected that the EI practitioner will share their learning with team members during meetings. The cycle of interactions during each module are summarized in Figure 3.



**Figure 3.** Summary of Interactions between Consultants, Coaches, and EI Practitioners

In summary, the ongoing cycle of self-assessment, planning, goal setting, practice, and coaching is designed to increase practitioners' fidelity to evidence-based practices and improved outcomes for children and families.

### Conclusions

1. The aim of the Project was to create a Community of Practice as a framework for high-quality professional development for regional EI coaches throughout the state, who in turn will support EI practitioners and programs toward evidence-based practices. While organizational-level implementation issues are not covered in the scope of the Project, it is speculated that variations in the amount or quality of professional development and training activities may be important to EI practitioner fidelity and family- or child-level outcomes. Measurement of the organizational features may provide useful information and help guide the next steps in the implementation process at each program in the state of Ohio. Upon completion of the Project and analysis of the data that emerge, it is predicted that the EI practitioner-level data might be a critical predictor of family and child outcomes, showing that programs with higher fidelity of implementation produce better outcomes. In addition, programs can continue using the Project modules as well as evaluation instruments to further improve practice even after the end of the Project period. Program evaluation instruments can be used in an effort to maintain the impact of training and monitor progress in an ongoing manner, for long-term changes that will truly enhance outcomes for children and families. Simply stated, families and children do not benefit from interventions they do not experience.
2. The goal of early childhood intervention is to provide supports and services to the child and family. Early intervention practitioners play a critical role in the process of family empowerment and helping families to advocate for their child. Early childhood intervention by definition is relationship-based as families work together with the practitioners as equal partners to design a service plan that is responsive to family priorities and child needs. Parents and caregivers are the experts on the unique characteristics of the child and invaluable informants on the child's strengths, interests, and abilities, as well as the naturally occurring learning opportunities that exist in the child and family's life. The contemporary model of early childhood intervention is family-centered, and these adult-to-adult interactions between caregivers and professionals can significantly influence the family's well-being, parenting skills, and positive parental perceptions of their child's behavior (Dunst, 2007). Through strengths-based, empowering practices, the use of evidence-based intervention within natural learning opportunities and the coaching approach to support parents and caregivers, families themselves drive the early intervention process and become agents of change. Ultimately, early intervention aims to support young children and families to participate meaningfully not only in immediate family activities but also in educational, social, and recreational contexts within their communities for improved quality of life.
3. As the demands for early intervention practitioners have shifted and the recommended and evidence-based practices are becoming more clearly defined, practitioners need ongoing support in the implementation of the state-of-the-art practices. While the Ohio Project hypothesizes a relationship between professional development and the fidelity with which intervention is provided to the family and child, intervention effectiveness is difficult to test. Importantly, however, ongoing and high-quality professional development has been identified as an important "driver" (Fixsen, et al., 2005) to support the quality of early intervention practices. Globally, the field of early childhood intervention needs effective professional development models and approaches to support practitioners' competence and promote successful family outcomes. Professional development research needs to define the core components and intervention dosage in more detail as we try to find usable and practical solutions for increased fidelity of intervention implementation.

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## **Empowering Families: The Early Intervention in Natural Environments Professional Development Community of Practice Project in Ohio**

### ***Summary***

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In both Europe and the United States of America, early childhood intervention services are provided to young children with disabilities or, in some cases, who may be at risk of not reaching developmental milestones. Although there is great variability in how early childhood intervention systems are developed, administered, and implemented in different countries, the aims of early childhood intervention are similar – to improve young children's developmental outcomes by offering targeted services or supports. Furthermore, most policies governing systems of early childhood intervention recognize the importance of including families and caregivers as partners on a team of service providers that each have expertise in specific areas of development (IDEA, 2004; United Nations Convention on Rights of People with Disabilities, 2006). Organizations that recommend best practices in the field also strongly emphasize a family-focus approach as integral to successful intervention (Division for Early Childhood, 2007; Meijer, Soriano, Watkins, 2007; Soriano, 2005). In order to involve families in early childhood intervention and to help families meet their needs, early childhood intervention practitioners should seek to fully understand families' needs and priorities. Equally important is to establish a collaborative partnership with families to assist them in identifying child- and family-level outcomes that are relevant and meaningful to them. The role and support of early childhood intervention practitioners is critical in the process of family empowerment.

In the United States, Early Intervention (EI) is provided as a comprehensive system of supports for infants and toddlers with developmental delays or who are at risk for disabilities. Early Intervention is supported by federal funds and governed by Part C of the Individuals with Disabilities Education Act (IDEA, 2004), and each state in the country applies annually to continue to receive funding. State funding is determined by formulas that consider in large part the extent to which the state meets targeted national indicators of quality and compliance. U.S. Congress has reauthorized the EI program multiple times since the initial establishment in 1986 with increasing emphasis on improving quality of life, educational outcomes, and positive family functioning. Given the fact that the federal program is designed for the youngest members of the society, parent and caregiver participation is required by law, its effectiveness is demonstrated by evidence-based research, and family-focused service provision is advocated for by major national early childhood professional organizations.

The next section describes current recommended practices, namely EI in natural environments and the transdisciplinary team model, to set the stage for the shifts in practices in the United States in general and in one state in particular. Along with the changes are the current challenges in the field,

specifically the training needs of practitioners to deliver services according to the practices recommended by research. Finally, a description of one state's response to local needs in the form of a professional development model that targets increased practitioner competence and ultimately, family empowerment is provided.

As the demands for early intervention practitioners have shifted and the recommended and evidence-based practices are becoming more clearly defined, practitioners need ongoing support in the implementation of the state-of-the-art practices. While the Ohio Project hypothesizes a relationship between professional development and the fidelity with which intervention is provided to the family and child, intervention effectiveness is difficult to test. Importantly, however, ongoing and high-quality professional development has been identified as an important “driver” (Fixsen, et al., 2005) to support the quality of early intervention practices. Globally, the field of early childhood intervention needs effective professional development models and approaches to support practitioners' competence and promote successful family outcomes. Professional development research needs to define the core components and intervention dosage in more detail as we try to find usable and practical solutions for increased fidelity of intervention implementation.

# DEVELOPMENT OF PSYCHOLOGICAL READINESS TO WORK WITH GIFTED CHILDREN FOR PRESCHOOL INSTITUTION TEACHERS

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## **Abstract**

The article presents a model of pre-school teachers' psychological readiness to work with gifted children. The program of a special course designed for extensive development of readiness and teachers' training to work with gifted children is presented. The effectiveness of the developed program is confirmed by a formative experiment. The obtained results can become a basis for psychological activities aimed at such readiness formation.

***Key words:*** *preschool education institution (PEI), PEI teachers, gifted children, psychological readiness.*

## **Introduction**

***Problems and relevance of the research.*** Effective work of preschool teachers with gifted preschool children is possible only at a high level of psychological readiness to professional work. However, the authors' data (Довгань, 2011a, 2011b, 2011c) show that a vast majority of preschool educators have average or low levels of psychological readiness to work with gifted children. In the authors' view, this is because of a number of contradictions inherent in techniques of pre-school teacher training, including:

- the traditional system of teachers training and the reality of practical work with gifted preschool children;
- future teacher commitment to use standard programs for preschoolers' education and lack of satisfaction of constant renewal with best practices of education methods and techniques for gifted preschoolers;
- traditional approaches to the development and training of preschool children without taking into account of gifted children's specifics and needs;

Today, one of the most important areas of modern education is the need to prepare psychologically competent caregivers, teachers who can play a decisive role in preschooler's

personality formation. Therefore, timeliness to introduce special forms into teachers' preparing process has led the authors to creation of a program of psychological readiness development to work with gifted children for pre-school teachers.

It should be noted that the problem of working with gifted children was investigated by national and foreign researchers. Thus, foreign psychologists Guilford (1967); Taylor (1998); Sisk (1990) and others used a variety of conceptual models for education and training program development.

Over the past three decades, national scientists were creating programs to identify and support gifted children development Дьяченко (1997); Шадриков (1996); Богоявленская (2005); Щебланова (2008); Шумакова (2004); Савенков (2010); Джумангулова (2009); Рубцов (2010).

In Ukraine at the regional level, the targeted program "Talented Children" of the National Foundation is being implemented. The programs were designed to promote state provisions relating to talented creative children progress.

However, the question of psychological preparation of future preschool teachers to work with gifted preschool children during graduate and post-graduate courses in universities was not raised in psychological researches and state programs.

**Object of the research** is development of pre-school teachers' psychological readiness to work with gifted children.

**Aim of the research** is to develop and test a program of development of pre-school teachers' psychological readiness to work with gifted children.

**Objectives of the research:**

- 1) to propose a program of development of pre-school teachers' psychological readiness to work with gifted children.
- 2) to test the program of development of pre-school teachers' psychological readiness to work with gifted children
- 3) to prove the efficacy of the program on a base of a formative experiment.

**Sample of the research**

The study involved 50 teachers from preschool education institutions of traditional and new types in Kyiv. Levels of psychological readiness to work with gifted children and social and professional characteristics of the participants (intermediate variables) were relatively homogeneous.

**Methods and organization of the research**

A special diagnostic system was applied to determine the levels of teachers' psychological readiness to work with gifted children at the beginning and at the end of the special course-training. Techniques from modern psychological diagnostics literature (Поров (2000), Райгородский (1998), Ярошевский (1982) that have passed appropriate checking and meet the context of the present research program have been selected. Unfortunately, most of the selected techniques are intended for secondary school teachers, so it was necessary to create customized options taking into account pre-school teachers' diagnosis specific features. Therefore, it was necessary to develop additional diagnostic tools (questionnaires and a technique).

Statistical analysis of the data was performed using the computer statistical software package SPSS (version 16.0).

### Methods of the research.

The formative experiment to develop teachers' psychological readiness on the base of the program of a special course was held as extensive work within the preschools' methodological framework (1 time per week) in experimental groups during 8 weeks in 2011-2012 in the preschool No 580 of a new type "Olbia" of educational institution "Giftedness" and in the traditional type preschool No 789 in Kyiv.

- I) Standardized techniques were used: 1) the method to determine teachers' orientation on interaction with gifted children by Torrance (1998) modified by Лейтес (1996), 2) the questionnaire "Studying of roles in a creative group" by Ярошевский (1982), 3) the method for diagnostics of empathic ability levels by Бойко (Райгородский, 1998); 4) the method for diagnostics of communicative tolerance by Бойко (Фетискин, 2002), and 5) the method "Your creative potential" by Рогов (2000).
- II) Additional diagnostic tools: 1) the questionnaire "Psychological and pedagogical features for working with gifted children", 2) the questionnaire "Styles of interaction with a gifted child", and 3) the questionnaire "Features of gifted preschoolers", and 4) the technique "The motives for working with gifted children."

### Principles of sampling of research participants

In order to form a representative sample, the respondents were divided into groups depending on:

- 1) their age: 32,3% were 24-34 years old, 33,3% were 35 to 44, 26% were 45 to 54; 8,3% were 55 to 70;
- 2) their length of service: 43,8% worked from 1 to 13 years; 32,3% did 14 to 22 years; 17,7% did 23 to 31 years; 6,2% worked 32 to 46 years;
- 3) types of pre-school educational institutions: 49% worked in traditional pre-schools, 51% did in pre-schools of new forms.

The experimental group consisted of 25 teachers and was divided into the sub-groups: 13 teachers from the preschool No 580 of a new type "Olbia" of educational institution "Giftedness" and 12 educators from the traditional type preschool No 789. The control group consisted of 25 people (a subgroup of 12 educators from the preschool No 580 "Olbia" and 13 pre-school teachers from the traditional preschool No 789).

Development of preschool teachers' psychological readiness to work with gifted children is based on the author's model of preschool teachers' psychological readiness to work with gifted children. According to the model, psychological readiness to work with gifted preschoolers is made of a combination of motives, knowledge, skills, personal qualities that provide effective training, education and personal development of gifted preschoolers. Accordingly, the structure of readiness includes the following components: 1) *motivational* (complex motives that raise teachers' desire to educate gifted preschoolers with high quality), 2) *cognitive* (knowledge about psychological characteristics of gifted children and psychologically sound forms and methods of work with them), 3) *operational and regulatory* (set of abilities and skills necessary for effective interaction "teacher - gifted child"), 4) *personal* (set of personal qualities needed to work with gifted children – creativity, tolerance, etc.).

The program "*Development of preschool teachers' psychological readiness to work with gifted children*" goes on 42 academic hours (4 hours for input and output diagnostics, 18 hours for lecture work, 18 hours for trainings, 2 hours for practical work) and 18 hours of independent work (home tasks).

The program was implemented in a form of a training workshop, where input and output diagnostics was performed to determine teachers' psychological readiness before and after the formative experiment (see Table 1).

**Table 1.** Program of the special course “Development of preschool teachers’ psychological readiness to work with gifted children”

Modules of the study course	Sections of the special course
Input diagnostics in order to determine the levels of teachers’ psychological readiness to work with gifted children <i>before</i> the special course-training	
Module 1 “Development of the cognitive component of teachers’ psychological readiness to work with gifted children”	Theoretical part.
	Practical part.
	Independent work
Module 2 “Development of the motivational component of teachers’ psychological readiness to work with gifted children”	Theoretical part.
	Practical part.
	Independent work
Module 3 “Development of the operational and regulatory component of teachers’ psychological readiness to work with gifted children”	Theoretical part.
	Practical part.
	Independent work
Module 4 “Development of the personal component of teachers’ psychological readiness to work with gifted children”	Theoretical part.
	Practical part.
	Independent work
Output diagnostics in order to determine the levels of teachers’ psychological readiness to work with gifted children <i>after</i> the special course-training	

The main part of the program is aimed at solving of the problems identified during an acknowledged experiment 1) the *cognitive* component: lack of awareness among teachers about features and characteristics of gifted preschoolers and peculiarities of work with them, 2) the *motivation* component: insufficient focus on quality of gifted preschoolers’ training and education, 3) the *operational and regulatory* component: insufficiently developed skills of effective interaction at work with gifted children, and 4) the *personal* component: lack of personal qualities necessary for effective interaction with gifted children.

Thus, the experimental group, as a result of formative experiment, recorded statistically significant differences ( $p < 0.01$ ) by criterion  $\chi^2$  between the results of the first and second studies that reflects the importance for teachers of motives of work with gifted children.

### Results of the research

The analysis of implementation results for the program of development of pre-school teachers’ psychological readiness to work with gifted children has proved its effectiveness.

This is manifested, in particular, in the fact that teachers from the experimental group, who attended the extensive special course within the methodological work, reported increased share of such motives as self-development and self-improvement, professional, social motives, etc. The control group did not show positive trends as for these motives.

**Table 2.** Levels of the motivational component of teachers’ readiness to work with gifted children before (1<sup>st</sup> study) and after (2<sup>nd</sup> study) the formative experiment

Levels of the motivational component	Tested groups (%)			
	1 <sup>st</sup> study		2 <sup>nd</sup> study	
	Experimental	Control	Experimental	Control
Low	20	8	0,0*	25
Average	68	88	44*	70,8
High	12	4	56*	4,2

\* – differences are statistically significant at the level  $p < 0,01$ .

At the beginning of the experiment (see Table 2) only 12% teachers in the experimental group indicated a high level of significance of motivation to work with gifted children, but after the experiment of 56% teachers indicated such a level, as the number of teachers with a low level of motives to work with gifted children decreased from 20% to 0%.

As for the *control group*, the 1st and 2nd studies have only minor differences, which generally do not significantly alter the situation on the significance of motives to work with gifted children for the studied preschool teachers. Thus, 4% and 4.2% of tested persons had a high level of significance of motives before and after forming experiment respectively, and 8% and 25% preschool teacher had a low level.

Statistically significant changes ( $p < 0.01$ ) were noted for levels of the readiness cognitive component among the teachers from the experimental group, while positive trend in the control group was not observed (Table 3).

In particular, the number of teachers with a high level of knowledge about psychological characteristics of gifted children and work with them significantly increased (from 0% to 56%) in the experimental group, while a number of teachers with a low level of knowledge decreased from 48% to 0%. Thus the results of the special course on cognitive matters showed that the main part of preschool teachers obtained the necessary knowledge.

The *control group* has not shown, as the result of *cognitive component* training workshop, significant changes in knowledge about psychological characteristics of gifted children and work with them.

**Table 3.** Levels of the cognitive component of teachers' readiness to work with gifted children before (1<sup>st</sup> study) and after (2<sup>nd</sup> study) the formative experiment

Levels of the cognitive component	Tested groups (%)			
	1 <sup>st</sup> study		2 <sup>nd</sup> study	
	Experimental	Control	Experimental	Control
Low	48	52	0,0*	62
Average	52	48	44*	37,5
High	,0	,0	56*	,0

\* – differences are statistically significant at the level  $p < 0,01$ .

Comparative analysis of the first and second studies for levels of the *operational and regulatory component* of teachers' readiness from the experimental group showed positive dynamics of its indexes (at the trend) after formative experiment, while the *control group* showed negative dynamic (8% teachers with a high level of readiness before the formative experiment to 0% after it) (Table 4).

**Table 4.** Levels of the operational and regulatory component of teachers' readiness to work with gifted children before (1<sup>st</sup> study) and after (2<sup>nd</sup> study) the formative experiment

Levels of the operational and regulatory component	Tested groups (%)			
	1 <sup>st</sup> study		2 <sup>nd</sup> study	
	Experimental	Control	Experimental	Control
Low	60	48	48	41,7
Average	32	44	24	58,3
High	8	8	28	,0

The fact draws attention that although the number of teachers from the experimental group with a high level of operational and regulatory component after formative experiment increased by 20%, statistically significant changes of this readiness component occurred only as a trend. This indicates that practical implementation of learned knowledge and skills acquisition require quite a long time.

Statistically significant differences in levels of the personal readiness component for experimental group teachers before and after the formative experiment were noted, while teachers from control group did not show statistically significant differences in the levels (table 5).

As it is shown in the table 4, a low level of the personal readiness component decreased from 52% to 32% in the *experimental group* after the formative experiment and a high level increased from 12% to 40% ( $p < 0.05$ ).

The results of the control group did not change, only the number of teachers with a high level of readiness slightly increased (from 4.5% to 12.5%). Other results were not changed significantly.

**Table 5.** Levels of the personal component of teachers' readiness to work with gifted children before (1<sup>st</sup> study) and after (2<sup>nd</sup> study) the formative experiment

Levels of the personal component	Tested groups (%)			
	1 <sup>st</sup> study		2 <sup>nd</sup> study	
	Experimental	Control	Experimental	Control
Low	52	50	32*	50
Average	36	45,5	28*	37,5
High	12	4,5	40*	12,5

\* – differences are statistically significant at the level  $p < 0,05$ .

In general, the experimental group showed positive trends as for the level of teachers' psychological readiness to work with gifted children, while significant changes during the training workshop in the control group did not occur (Table 6).

**Table 6.** Levels of teachers' readiness to work with gifted children before (1<sup>st</sup> study) and after (2<sup>nd</sup> study) the formative experiment

Levels of readiness development	Tested groups (%)			
	1 <sup>st</sup> study		2 <sup>nd</sup> study	
	Experimental	Control	Experimental	Control
Low	48	50	4*	54
Average	48	50	64*	45,8
High	4	,0	32*	,0

\* – differences are statistically significant at the level  $p < 0,05$ .

Thus, a number of teachers with a high readiness level in the experimental group increased from 4% to 32%, and with a low one decreased from 48% to 4% ( $p < 0.01$ ). The results in the control group were virtually unchanged.

At the final stage of determination of the effectiveness of formative experiment, a comparative analysis of teachers' *positive expectations* at the first and second studies of possibility was performed to find out and develop special and general giftedness of every

child on the base of the authors' projective techniques "Circles", where teachers mentally transformed images of gifted children in their groups into circles and extent of potential natural abilities was described by the circle sizes at the beginning and at the end of the training workshop (Table 7).

**Table 7.** Teachers' positive expectations as for possibility to find out and develop special and general giftedness of every child

Degree of teachers' positive expectations as for possibility to find out giftedness of every child	Tested groups (%)			
	1 <sup>st</sup> study	2 <sup>nd</sup> study	1 <sup>st</sup> study	2 <sup>nd</sup> study
	Experimental	Experimental	Control	Control
Low	56	28*	36	44
Average	36	24*	56	52
High	8	48*	8	4

\* – differences are statistically significant at the level  $p < 0,01$ .

A number of teachers with high expectations as for possibility to find out and develop giftedness in every child in the experimental group increased from 8% to 48% ( $p < 0.01$ ). At the beginning of the seminar these teachers pointed to "lack of clearly gifted children", "a small number of children with high potential giftedness", but after the formative experiment teachers, stating that they "had difficulty in performing this task", while noted: "all children are gifted." Teachers' attitude towards talent waiting in each child in the control group did not change.

At the next step of the analysis of special course implementation, the features of the components of teachers' psychological readiness to work with gifted children depending on age and professional organizational factors (such as pre-school types and lengths of work at pre-school) were investigated.

In order to determine the dependence of these characteristics on the levels of pre-school teachers' psychological readiness to work with gifted children, the results of the formative experiment with  $\chi^2$  criterion were analyzed and correlation analysis with Pearson's rank correlation coefficient was performed.

The results showed the absence of statistically significant correlations between the overall level of psychological readiness, its components and the subjects' age and professional organizational factors (pre-school types and lengths of work at pre-school).

This confirms once again the important influence of the special course-training "Development of teachers' psychological readiness to work with gifted children" on development of psychological readiness and has proven its effectiveness.

### Conclusions

1. Development of teachers' psychological readiness to work with gifted children is possible with a special program that consists of modules including development of motivational, cognitive, operational & regulatory and personal components of readiness.
2. Analysis of program implementation during the methodological work with teachers in preschools proved its effectiveness. Thus, study of statistically significant indicators showed that importance of quality of work with gifted children increased for the teachers from the experimental group. Improvement of their psychological readiness to work with gifted children was also reported. Statistically significant changes of these parameters among the teachers from the control group were not observed.
3. In the future, the authors believe it is necessary to prepare individual programs of teachers'

psychological readiness to work with gifted children on the basis of continuous monitoring of personal and professional development. It is important from the authors' point of view to develop programs for preschool psychologists' training in the field of psychological support of work with gifted children.

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## DEVELOPMENT OF PSYCHOLOGICAL READINESS TO WORK WITH GIFTED CHILDREN FOR PRESCHOOL INSTITUTION TEACHERS

### Summary

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The article states that effective teachers' working with gifted preschool children is possible with a high level of psychological readiness for professional activity. The analysis of the scientific literature states that the issue of psychological preparation of preschool teachers to work with gifted preschoolers in the system of higher education and post-graduate teacher education in psychological research and government programs is not revealed. *Aim of the research* is to develop and test a program of development of pre-school teachers' psychological readiness to work with gifted children. *Object of the research* is development of pre-school teachers' psychological readiness to work with gifted children.

*Sample of the research.* The study involved 50 teachers from preschool education institutions of traditional and new types in Kyiv. Levels of psychological readiness to work with gifted children and social and professional characteristics of the participants (intermediate variables) were relatively homogeneous.

The paper presents the formative experiment of psychological readiness program of the designed course for teachers. The study was conducted with extensive option within the methodological work of preschool education. The work took place one day a week in the experimental group for 8 weeks in 2011-2012 at the CCA number 580 a new type of "Olbia" NVZOSHL "Giftedness" and PEI traditional type number 789 in Kyiv.

The program "*Development of preschool teachers' psychological readiness to work with gifted children*" goes on 42 academic hours (4 hours for input and output diagnostics, 18 hours for lecture work, 18 hours for trainings, 2 hours for practical work) and 18 hours of independent work (home tasks).

The program was implemented in a form of a training workshop, where input and output diagnostics was performed to determine teachers' psychological readiness before and after the formative experiment.

The main part of the program is aimed at solving of the problems identified during an acknowledged experiment 1) the *cognitive* component: lack of awareness among teachers about features and characteristics of gifted preschoolers and peculiarities of work with them, 2) the *motivation* component: insufficient focus on quality of gifted preschoolers' training and education, 3) the *operational and regulatory* component: insufficiently developed skills of effective interaction at work with gifted children, and 4) the *personal* component: lack of personal qualities necessary for effective interaction with gifted children.

The analysis of the results of the implementation of the program of development of pre-school teachers' psychological readiness to work with gifted children has proved its effectiveness.

This is manifested, in particular, that in the experimental group students who attended a special course for the option within the extensive technical work, growth reached a high level of psychological readiness and its components. In the control group, a positive trend with respect to these parameters was observed.

At the next step of the analysis of special course implementation, the features of the components of teachers' psychological readiness to work with gifted children depending on age and professional organizational factors (such as pre-school types and lengths of work at pre-school) were investigated.

In order to determine the dependence of these characteristics on the levels of pre-school teachers' psychological readiness to work with gifted children, the results of the formative experiment with

$\chi^2$  criterion were analyzed and correlation analysis with Pearson's rank correlation coefficient was performed.

The results showed the absence of statistically significant correlations between the overall level of psychological readiness, its components and the subjects' age and professional organizational factors (pre-school types and lengths of work at pre-school).

This confirms once again the important influence of the special course-training "Development of teachers' psychological readiness of to work with gifted children" on the development of psychological readiness and has proven its effectiveness.

Conclusions show that the development of teachers' psychological readiness to work with gifted children is possible with a special program that consists of modules including development of motivational, cognitive, operational & regulatory and personal components of readiness. The analysis of program implementation during the methodological work with teachers in preschools proved its effectiveness, too. Thus, study of statistically significant indicators showed that importance of quality of work with gifted children increased for the teachers from the experimental group. The improvement of their psychological readiness to work with gifted children was also reported. Statistically significant changes of these parameters among the teachers from the control group were not observed. In the future, the authors believe it is necessary to prepare individual programs of teachers' psychological readiness to work with gifted children on the basis of continuous monitoring of personal and professional development. It is important from the authors' point of view to develop programs for preschool psychologists' training in the field of psychological support of work with gifted children.

# CHANGES OF PROFESSIONAL VALUE ORIENTATIONS OF TEACHERS IN THE SYSTEM OF POSTGRADUATE EDUCATION

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## **Abstract**

The paper presents the features of changes in professional value orientations of teachers in the system of postgraduate education. The means implementing the development of the program and change of teachers' professional value orientations was a special course-training, which provided the impact on cognitive, emotional-evaluative and behavioral components of professional value orientations. Results of the formative experiment demonstrated the possibility of the development of professional value orientations of teachers and effectiveness of the special course-training proposed for professional teacher training in the system of postgraduate education.

***Key words:*** *teacher, changes in professional value orientations, special course-training, system of postgraduate education.*

## **Introduction**

A personality of a teacher has a special significance in the modern humanistic education paradigm because a teacher is a main acting person for implementation of education goals and objectives. The modern society needs a teacher who is characterized by a holistic humanistic worldview, professionalism, high professional and personal culture and who implements at own professional work the way of life based on the integration of universal and professionally significant values (Мешко, 2009).

The last decade in Ukraine, Europe and worldwide is characterized by spreading of interest in values in education (Booth & Dyssegaard, 2008; Kosnik & Beck, 2009) and to teachers' value orientations. Thus, an axiological component of the future teachers' training is revealed in the works of several researchers (Briska, 2008; Волкова, 2005; Іванцев, 2000; Курлянд, 2004 and others). Researchers' attention is drawn to studies of different aspects of teachers' professional values, their development and a role in professional activities (Astashova, 2000; Бобро, 2006; Никитина, 2000); the professional values of teachers of physical education

were studied in detail (Ennis & Chen, 1996; Gillespie, 2011; Morgan, 2008; Timken & Mars, 2009). Professional value orientations have a decisive impact on a teacher's professional and personal identity, they determine all teaching activities. Existence of personal professionally meaningful values provides conscientious attitude to work, encourages professional searches, creativity, self-improvement and, to some extent, compensates underdeveloped skills and abilities; lack of positive orientation can cause occupational failure, loss of already existing skills (Никитина, 2000). Humanistic orientation is considered to be a positive professional value for teachers, which means that a teacher thinks about a child as about the highest value, recognizes their rights to freedom and happiness, free development and expression of their abilities.

Many researches are directed at uncovering of administrators' values and examining how these values are articulated and acted upon (Бондарчук, 2008; Begley & Leonard, 1999).

It should be noted that the data obtained in previous studies (Печерська, 2012) indicate insufficient level of development of professional values for the majority of school teachers. This situation demonstrates the need of a special axiological training for teachers to develop and change their professional values that can be made in the system of postgraduate education. However, the problem development and change of teachers' professional values in the system of postgraduate education remains unexplored.

**Aim of the research:** to test a program of teachers' professional value changes in postgraduate education universities.

**Object of the research:** changes of professional value orientations of teachers in the system of postgraduate education.

Objectives of the research are:

1. To define conditions of changes in professional value orientations of teachers;
2. To make a special axiological course-training for teachers and test effectiveness of its implementation in the system of postgraduate education.
3. To review possibility of development and change in professional value orientations of the teachers by the means of using special axiological course-training.

**Sample of the research.** The investigation was done on a sample of 90 teachers. A formative experiment was made at the base of Crimean Republican University of Postgraduate Pedagogical Education (Simferopol).

#### **Methods and organization of the research**

The methodological basis of the formative experimental program was relied on the main ideas of the axiological genesis theory (Карпенко, 1999, 2009; Леонтьев, 1996; Радчук, 2007), humanistic and value approach in the system of postgraduate education (Бондарчук, 2009).

Indicators of the level of cognitive component development included teachers' knowledge on professional values and awareness of their own professional values. In order to determine them, the questionnaire "My professional values" was used, teachers were asked to describe educational values and justify their answers. Indicators of the level of the development of emotional-evaluative component included teachers' acceptance of their own professional values, their humanistic orientation, job satisfaction and positive attitude to professional work. In order to determine them, teachers were asked to arrange the list of values by rank, the test "Value orientations" (Rokeach, 1960) was used. The list of values by Rokeach (1960) was added with several educational values (e.g., respect for a child's personality, pedagogical empathy, knowledge of child psychology, etc.). The test "Study of the teacher's satisfaction with profession and job" was also used (Ильин, 2002). Indicators of the

level of the development of behavioral component included: implementation of professional values in professional activities and stability of demonstration of professional and value beliefs in daily professional activities and behavior. In order to determine them, the test “Teachers’ professional positions” (Мартинюк, 2003) was used that allows to determine stability of demonstration of professional and value beliefs in professional activities. Teachers were also asked to describe value implementation in their professional activities with the questionnaire “Styles of professional activities”. For comparison of results, the report of results is foreseen as a scale, the extreme values of which are characterized as “high” and “low” levels at each by a method. Statistical analysis of the data was performed using the computer statistical software package SPSS (version 16.0).

### **Principles of sampling of research participants for formative experiment**

In order to form a representative sample, the respondents were divided into groups depending on:

- 1) their age: 31,1% were 26-35 years old, 48,9% were 36 to 45, 17,8% were 46 to 55; 2,2% were 56 to 70 years old;
- 2) their gender: 83,3% were women, 16,7% were men;
- 3) their duration of service: 24,4% worked from 3 to 10 years; 52,2% did 11 to 20 years; 21,1% did 21 to 30 years; and 2,2% worked from 31 to 40 years;
- 3) types of educational institutions: 81,1% worked in traditional secondary schools, 18,9% did in school of new forms (upper secondary schools, lyceums).

The respondents were divided into two subgroups of 45 people: an experimental group and a control one, homogeneous for socio-demographic, organizational and professional characteristics, as well as for development of professional value orientations.

### **Results and discussion**

Given the features of professionals’ advanced training in the system of postgraduate education and the conditions for individual’s value orientation formation and development, the following organizational, methodological and psychological conditions for teachers’ professional value orientations changes have been identified:

*Organizational and methodological conditions:* 1) inclusion of knowledge on pedagogical axiology into the professional training of teachers, 2) a harmonious combination of subjective and objective aims of teachers’ training on the basis of personality oriented and humanistic and value approach, 3) usage of interactive learning and combining of team, group and individual work, 4) dialogical interaction based on subject-subject relations, 5) creating of a favorable learning atmosphere, of efficient interaction with the audience.

*Psychological conditions:* 1) motivation of teachers to work with their own professional value orientations; 2) formation of representations about teachers’ professional values, 3) actualization of existing professional values of teachers, 4) reflexive analysis of value-meaning attitudes to various aspects of educational activities, 5) involvement of emotional and evaluative teachers’ attitudes to professional values, focus on creative changes, enrichment of humanistic professional and value beliefs, 6) sharing experience regarding of the professional value orientations during teacher’s work.

Logics of the program for teachers’ professional value orientation changes are based on a technological approach (Капамышка, 2005), and consists of the following units:

- a) *an information and meaning unit* (teachers’ recognition of an essence of professional value orientations and their essential characteristics);
- b) *a diagnostic unit* (diagnostics of a level of the development of teachers’ professional value orientation);

c) *a development and forming unit* (actualization, development and changes of teachers' professional value orientations).

**A special course-training** "Axiological problems of modern education" became the main way of implementation of the program for the development and change in teachers' professional value orientation in educational process. As it is known, individual acceptance of values occurs the most effectively during active cognitive and valuation activities.

The program special course-training "Axiological problems of modern education" was planned in the volume of 36 academic hours, 10 hours of individual work, 8 hours of training and diagnostics after the training.

The special course-training influences cognitive, emotional-evaluative and behavioral components of teachers' professional value orientations and involves psychological mechanisms: identification, reflection, self-evaluation of own values, interiorization, emotional experience, emotional evaluation, exteriorization, goal-setting, planning.

The special course-training consists of three interrelated thematic modules:

**1 module.** *Pedagogical axiology in the activities of the teachers.*

The module is aimed at development and changes of the cognitive component of teachers' professional value orientations.

The theoretical part is focused at acquiring of knowledge on the basics of educational axiology: the humanistic sense of axiological characteristics of pedagogical activities; values of education and training; a human life as the highest value; free development of a personality as a value; education as a value.

The practical part and individual work consisted of a series of exercises designed to clarify teachers' awareness about their own professional value orientations. For example, the exercises "Determination of professional value concept", "Professional space", writing a mini-composition "My professional position".

**2 module.** *Value priorities in the modern education.*

The module is aimed at development and changes of the emotional-evaluative component of teachers' professional value orientations.

The theoretical part of the second module discusses basic values of a modern society: democratization, informatization; transition to a new information-oriented society – society of global competence, which requires intellectual activities, information culture, communicative and social activities from a modern person; educational values of the modern society.

In the practical part and individual work of the second module teachers were offered the exercises the function of which was acquisition of skills and forming attitudes towards analysis and reflection, self-improvement, value approach in their professional activities; exercises aimed at the emotional experience, the emotional evaluation of professional values. For example, the exercises "Diamond values", "Professional life schedule", teachers also discuss people, events that caused deep emotions, feelings, strong impressions.

**3 module.** *Values in my teaching activities.*

The module is aimed at development and changes of the behavioral component of teachers' professional value orientations.

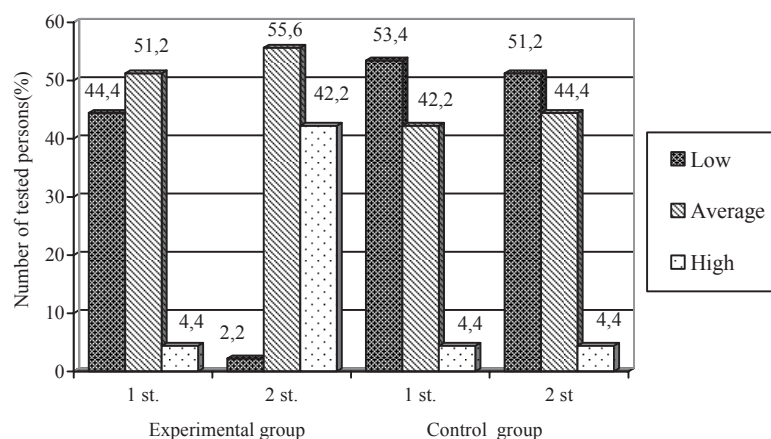
The theoretical part is aimed on mastering of knowledge on teachers' professional values: pedagogical values as a basis for development of teachers' professional competence; professional value orientations as essential components of teacher's professional consciousness; the essence, structure and content of teachers' professional value orientations; value and meaning of self-determination of teachers in the system of professional communication.

The practical part and individual work of the third module includes exercises aimed at the emotional experience, the rational evaluation of professional values, exteriorization values, goal-setting, planning. For example, the exercise "Picture of professional values", in which

teachers are asked to paint symbolically the structure of their professional values; role-playing game “Parents’ meeting”, etc.

To test the effectiveness special axiological course-training for development and change of professional value orientations of teachers by its implementation in the system of postgraduate education, a comparative analysis of professional value orientations of teachers before training (1<sup>st</sup> study) and after the training (2<sup>nd</sup> study) in the experimental and control groups were conducted.

A comparative analysis of diagnostic studies of an overall level of the development of teachers’ professional values before and after the formative experiment showed significant differences in the *experimental and control groups* (Fig. 1).

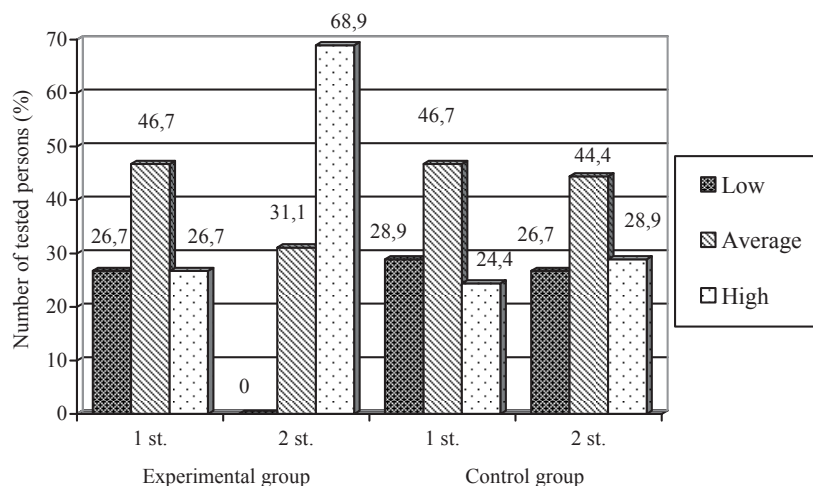


**Figure 1.** The overall level of the development of teachers’ professional values before and after the formative experiment

The experimental group after the formative experiment showed a positive trend for the overall level of professional value orientations: a number of teachers with the low level decreased significantly (from 44,4% to 2,2%), a number of teachers with the average level increased slightly (from 51,2% to 55,6%). Minor changes in the group with the average level were associated with teachers’ transition from low to average level, and teachers with the average levels achieved the high level. Significant increase of a number of teachers with the high overall level of professional value orientations drew attention (from 4,4% to 42,2%). Identified changes in the experimental group, unlike the control group, were statistically significant by Pearson  $\chi^2$  criterion ( $p < 0,01$ ). The control group showed little changes in the direction of increasing of a number of teachers with the average level (from 42,2% to 44,4%) and reduction of the number of teachers with the low level (from 53,3% to 51,2%), a number of subjects with the high level remained unchanged (4,4%), these changes were not significant statistically and did not change, in general, the situation with the overall level of professional value orientations.

The changes as a result of formative experiment in the experimental and control groups for the components of professional teacher value orientations were also analyzed: *cognitive, emotional-evaluative and behavioral* ones.

Thus, statistically significant ( $p < 0,001$ ) difference between the levels of the cognitive component of the teachers’ professional value orientations for the experimental and control groups after the formative experiment was found out (Fig. 2).



**Figure 2.** The level of the cognitive component of teachers' professional value orientations before and after the formative experiment

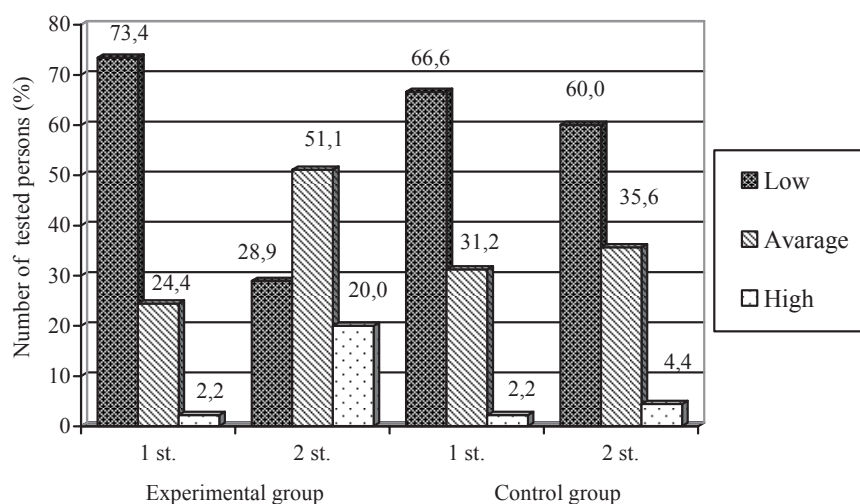
As it can be seen from Figure 2, the levels of the development of cognitive component in the experimental and control groups before the formative experiment did not differ significantly. After the formative experiment a positive trend for the development of cognitive component in the experimental group was observed: a number of teachers with the high level rose from 26,7% to 68,9%, while a number of teachers with the average level decreased from 46,7% to 31,1% because a large group of tested persons achieved the high level, a number of teachers with the low level, which before the experiment was 26,7%, became 0,0%. The control group showed little changes in the level of the development of cognitive component that are not statistically significant: a number of subjects with the low level declined from 28,9% to 26,7%, a number with the average level decreased from 46,7% to 44,4% and that with the high levels rose from 24,4% to 28,9%. Small positive change for the development of cognitive component of the control group is associated with diagnostics tool impact that updates ideas on values and led to their comprehension and attempts to justify.

For a more detailed analysis changes in several indicators of the components were examined. In case of the cognitive component indicator, teachers' awareness about professional values, changes were observed in both the experimental and the control groups. However, changes in the experimental group are significantly more substantial. Most tested teachers who before the formative experiment had fragmented awareness of professional values, so they had the low level (15,6%), after the special course-training they demonstrated sufficient awareness of teachers' professional values and, thus, went to a group with average development of the indicator of this cognitive component. In turn, a significant number of subjects with the average level (71,1%) after training with the program of the special course-training deepened their awareness and understanding of professional educational values, their humanist professional beliefs. Therefore, the results of the second study of the experimental group showed that 2,2% of subjects had the low level and 48,8% of teachers had the average one. A number of subjects with the high level of development before the experiment equalled 13,3%, after the formative experiment increased by three times and reached 48,9%. There were minor changes in the control group: a number of teachers with the low level decreased from 13,3% to 6,7%, a number of the ones with the average level increased from 77,8% to 82,2%, and a number of the ones with the high level increased from 8,9% to 11,1%. Data analysis by the Pearson

$\chi^2$  criterion indicated statistically significant difference in changes ( $p < 0,001$ ) between the experimental and the control groups.

Level distributions of the next indicator of the cognitive component – educators' knowledge of their own professional values – were the same in the experimental and control groups before the formative experiment. In particular, a number of subjects with the low level in the groups was: in the experimental group – 26,7%, in the control group – 28,9%. A number of teachers with the average level was 48,9% and 48,9%, of the ones with the high level was 24,4% and 22,2%, respectively. Results after the formative experiment varied: a number of subjects with the low level in the experimental group was 0.0%, whereas of the ones in the control group was 26,7%, a number of teachers with the average level in the experimental and control groups, at first glance, did not differ significantly – 42,2% and 48,9% respectively, however, a significant number of teachers of the experimental group who had the average level of awareness of their own professional values before the experiment, unlike the teachers with the average level of the control group, achieved the high level of knowledge, a number of subjects with the high level in the control group was 24,4%, but a number in the experimental group nearly doubled and amounted to 57,8%. Consequently, a major part of listeners from the experimental group after implementation of the formative program gained awareness and understanding of their own professional values, humanist professional beliefs and ability to defend own professional positions. In general, the difference between the indicators of educators' awareness of own professional values after the formative experiment for the experimental and control groups was statistically significant ( $p < 0,001$ ).

As a result of the formative experiment a level of development of the emotional-evaluative component of teachers' professional value orientations was changed (Fig. 3). Before the formative experiment a large percentage of the tested persons had the low level of the emotional-evaluative component: the percentage in the experimental group was 73,4%, in the control group it was 66,6%, teachers with the average level were: 24,4% in the experimental group, 31,1% in the control group. Only 2,2% of the tested persons had the high level, both in the experimental and in the control groups.



**Figure 3.** The level of the emotional-evaluative component of teachers' professional value orientations before and after the formative experiment

As it can be seen from the data of Fig. 3, after the implementation of the formative program, the experimental group showed the decrease of a number of teachers with the low level (28,9%) and increase of a number of subjects with the average (51,1%) and high (20,0%) levels of emotional-evaluative component. In the control group, the difference between the results of the first and second studies is negligible: some growth of percentage of teachers with the average (35,6%) and high (4,4%) levels and reducing of percentage of teachers with low level (60,0%) and high level reaching by a small number of subjects with the average level of the emotional-evaluative component. The analysis of the data obtained during formative experiment showed statistically significant changes ( $p < 0,006$ ) in the experimental group in comparison with the control group.

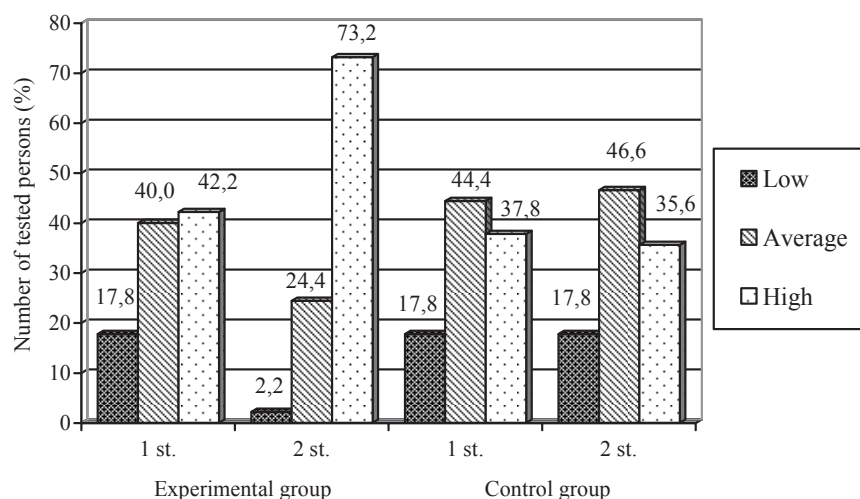
Comparison of results for such an indicator of the emotional-evaluative component as professional value acceptance showed that before the formative experiment teachers from the experimental and control groups had mostly the average level of development (57,8% in both groups), numbers of subjects with the low level were: 28,9% in the experimental group, 31,1% in the control group; numbers of subjects with the high level were: 13,3% and 11,1% respectively. After the formative experiment, the experimental group indicated a positive trend in professional value acceptance by teachers: a number of subjects with the high level rose to 28,9%, of the ones with the average level increased up to 71,1%, but subjects with the low level of development were not recorded. In the control group, the changes in terms of professional value acceptance did not happen nearly at all: a number of subjects with the high level remained unchanged (11,1%), a number of teachers with the average level of development increased to 60,0% due to a proportional reduction of a number of teachers with low development (28,9%). Analysis of the data obtained after the formative experiment confirmed the existence of statistically significant changes ( $p < 0,01$ ) for the experimental group in contrast to the control group, where these changes did not occur.

Levels for the second indicator of the emotional-evaluative component – job satisfaction and positive attitudes to the profession – were compared in the experimental and control groups before the formative experiment. After the formative experiment, the experimental group showed the following positive changes: decreasing from 73,3% to 44,4% of subjects with the low level, increasing from 26,7% to 42,2% of teachers with the average level and, that is remarkable, there are teachers characterized by the high level – 13,3%. The control group also had changes but less significant ones: a number of the subjects with the low level decreased from 66,7% to 57,8%, a number of teachers with the average level increased proportionally from 33,3% to 42,2%, the high level was not recorded. A comparative analysis of the changes in the experimental and control groups revealed the existence of statistically significant ( $p < 0,04$ ) differences in the positive dynamics of the experimental group. Therefore, it can be noted that the attitudes of teachers towards various aspects of their job in the experimental group after formative experiment improved and their attitude to professional work became more positive.

At the following step, analysis of a level of the behavioral component of teachers' professional value orientations was performed for the first and second studies (Fig. 4).

Analysis of the data for the experimental group in comparison with the control group indicated statistically significant changes ( $p < 0,002$ ). A part of the experimental group subjects with the low level (that before the experiment was 17,8% and after it was 2,2%) achieved the average level (40,0% before the experiment, 24,4% after it), and many teachers who had the average level came to the group with the high level of behavioral component (42,2% before the experiment, 73,2% after it). There were changes in the control group, reflecting a slight regression process. This was exhibited in increasing of a number of teachers with the average level (44,4% before the experiment, 46,6% after it) and in proportional decreasing

of a number of teachers with the high level (37,8% before the experiment, 35,6% after it). A number of subjects of the control group with the low level of the behavioral component remained unchanged (17,8%). Positive development in a form of level growth for the behavioral component is less expressive than level increase for the cognitive and emotional-evaluative components of teachers' professional value orientations. This result explains and confirms the fact that practical acquisition of the learning material is somewhat complicated and requires elaboration and refinement in practice, and this component cannot be changed qualitatively for a short period of time.



**Figure 4.** The level of the behavior component of teachers' professional value orientations before and after the formative experiment

For more detailed analysis of behavioral component change several indicators from the data of the first and second studies were compared: implementation of value orientation during professional activities and sustainability of professional and value beliefs in behavior.

Data analysis for a level of the implementation of teachers' professional value during teaching activities showed that changes in the experimental group compared with the changes in the control group were close to statistically significant ( $p=0,067$ ) results. A number of subjects with the low level of this indicator in the experimental group after the formative experiment decreased (from 8,9% to 2,2%) and a number of subjects with the average level did also (from 68,9% to 60,0%), a number of teachers with the high level increased from 22,2% to 37,8%. At the same time small changes in the direction of indicator deterioration were observed in the control group: a number of subjects with the low level increased from 6,7% to 11,1%, a part of subjects with the average level decreased proportionally from 73,3% to 68,8%, a number of teachers with the high level remained at the previous level of 20,0%.

As for indicator of sustainability of professional and value beliefs in behavior, the level in the experimental and control groups before the formative experiment did not differ qualitatively. After the formative experiment, a percentage of teachers in the experimental group who had low level of this indicator decreased from 17,8% to 2,2%, a number of subjects with the average level increased from 48,9% to 51,1%, and a number of teachers with the high level rose from 33,3% to 46,7%. Small changes for the average level are due to the fact that a part of teachers with the average level achieved the high level of indicator development. However, in the control group, pre- and final diagnosis did not show changes for the levels

of sustainability of professional and value beliefs in behavior. Comparative analysis of the changes in the experimental and control groups for this indicator revealed the existence of statistically significant ( $p < 0,03$ ) differences in comparison with the results of the experimental group.

At the next step of the analysis of the implementation of special course, the features of teachers' professional value orientations depending on age-gender and professional organizational factors (such as school types and duration of work at school) were investigated.

In order to determine the dependence of these characteristics on teachers' professional value orientations, the results of the formative experiment with  $\chi^2$  criterion were analyzed and correlation analysis with Pearson's rank correlation coefficient was performed.

The results showed the absence of statistically significant correlations between the overall level of development of teachers' professional value orientations, its components and the subjects' age, gender, school types and duration of work at school.

This confirms once again the important influence of the special course-training "Axiological problems of modern education" on the development of teachers' professional value orientations and has proven its effectiveness.

### Conclusions

1. The conditions are determined changes in professional value orientations of teachers, among which are organizational-methodical (inclusion of knowledge on pedagogical axiology into the professional training of teachers, a harmonious combination of subjective and objective aims of teachers' training, usage of interactive learning, etc.) and psychological (actualization of existing professional values of teachers; involvement of reflection, self-evaluation of own values, emotional experience, emotional evaluation; sharing experience regarding of the professional value orientations during teacher's work, etc.).
2. The analysis of the results of implementation showed the effectiveness of introduction of the special axiological course-training in training programs for teachers in the system of postgraduate education. The study results showed statistically significant increase of the levels of the indicators of cognitive, emotional-evaluative and behavioral components of professional value orientations for the teachers of the experimental group who were trained with the special course-training programme: knowledge of professional values, the assignment of professional values, the development of their humanistic orientation, achieving demonstration of the stability of humanistic professional values in the everyday professional activity and behavior of teachers. Statistically significant changes for teachers from the control group were not observed.
3. Thus, the possibility of development and change of professional value orientations of teachers has been detected by the means of using special axiological course-training in the system of postgraduate pedagogical education.

The research findings can be used in teachers' training at the institutions of postgraduate education. Prospects for further research are the study of readiness of lecturers' system of postgraduate pedagogic education to develop and change teachers' professional value orientations.

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## CHANGES OF PROFESSIONAL VALUE ORIENTATIONS OF TEACHERS IN THE SYSTEM OF POSTGRADUATE EDUCATION

### *Summary*

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The actuality of the study on changes of professional value orientations of teachers in the system of postgraduate education has been revealed. Aim of the research has been to test a program of changes of professional value orientations of teachers in postgraduate education universities. Objectives of the research were: 1) to define conditions of changes in professional value orientations of teachers; 2) to make a special axiological course-training for teachers and test effectiveness of its implementation in the system of postgraduate education; 3) to review the possibility of development and change in professional value orientations of the teachers by the means of using special axiological course-training. A formative experiment was made at the base of Crimean Republican University of Postgraduate Pedagogical Education (Simferopol).

The methodological basis of the experimental program on the development and change of value orientations of the teachers has been outlined. The organizational, methodological and psychological conditions for development and change of value orientations of the teachers have been identified. The means implementing the program on the development and change of value orientations of the teachers was a special course-training "Axiological problems of modern education". The special course-training consisted of three interrelated thematic modules. Each module contained a theoretical part, practical training and individual work. First module "Pedagogical axiology in the activities of the teachers" is aimed at the development and changes of the cognitive component of professional value orientations of teachers. Second module "Value priorities in the modern education" is aimed at the development and changes of the emotional-evaluative component of professional value orientations of teachers. Third module "Values in my teaching activities" is aimed at the development and changes of the behavioral component of professional value orientations of teachers. To test the effectiveness special axiological course-training for the development and change of professional value orientations of teachers of its implementation in the system of postgraduate education, a comparative analysis of professional value orientations of teachers before and after the training in the experimental and control groups were conducted. Indicators of the level of the development of cognitive component included teachers' knowledge on professional values and awareness of their own professional values. Indicators of the level of the development of emotional-evaluative component included teachers' acceptance of their own professional values, their humanistic orientation, job satisfaction and positive attitude to professional work. Indicators of the level of the development of behavioral component included: implementation of professional values in professional activities and stability of demonstration of professional and value beliefs in daily professional activities and behavior. The analysis of the results of the formative experiment, which demonstrated statistically significant changes in the levels of the development of cognitive, emotional-evaluative and behavioral composition of professional value orientations of the

teachers has been presented. The absence of statistically significant correlations between the level of development of professional value orientations of teachers and the subjects' age, gender, school types and duration of work at school has been revealed that confirms influence of special course-training on the change of teachers' professional value orientations and proved its effectiveness.

It has been concluded that the conditions of the changes in professional value orientations of teachers are organizational-methodical (inclusion of knowledge on pedagogical axiology into the professional training of teachers, a harmonious combination of subjective and objective aims of teachers' training, usage of interactive learning, etc.) and psychological (actualization of existing professional values of teachers; involvement of reflection, self-evaluation of own values, emotional experience, emotional evaluation; sharing experience regarding of the professional value orientations during teacher's work, etc.).

The effectiveness of introduction of the special axiological course-training in training programs for teachers has been confirmed. The possibility of the development and change of professional value orientations of teachers by the means of using special axiological course-training in the system of postgraduate pedagogical education has been established.

The prospects for further research have been defined: the study of readiness of lecturers' system of postgraduate pedagogic education to develop and change teachers' professional value orientations.

# ABILITY TO GENERALIZE IN FOREIGN LANGUAGE OF THE FIRST YEARS STUDENTS IN THE HIGHER EDUCATIONAL INSTITUTIONS

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## **Abstract**

The article presents an overview of works of the foreign and national psychologists that carry out search of opportunities to optimize the system of specialists training in foreign language, clarify specific character of generalization processes influence within learning of a foreign language in traditional and modern psychological science, provide empirical studies of qualitative indicators of this phenomenon.

**Key words:** *ability to generalize, empirical thinking, classification, image, practical thinking, theoretical thinking.*

## **Introduction**

In the age of the world's economic and cultural processes globalization one may notice increase of social demand for training of competitive specialists with highly developed mind, flexible thinking, and fluency in foreign languages.

Psychological research related to the observation of various aspects of thinking process gives a chance to greatly optimize the training system of specialists with the higher education. In particular, research of specific character of generalization processes during foreign language learning is intended not only to acquisition of linguistic knowledge, but also to optimization of students' foreign language thinking.

Mental mechanism of generalization is considered as a basis: socially produced concepts (Брушлинский, 1990; Выготский, 2005; Давыдов, 1973), the formation and existence in the minds of values, meanings, space-time coordinates (Абульханова-Славская, 1990; Артемьева, 1999; Леонтьев, 2003; Петренко, 2005). Attention of foreign researchers mainly focused on the features for a generalization (Restle, 1962; Wason, 1972; Johnson-Larid, 1983), homeland – mostly on finding factors for generalization (Менчинская, 1989; Талызина, 2001), in generalizing the role of word (Ахутина, 2000; Холодная, 2012), the sense of action investigated during generalization (Ельконин, 1994).

Generalization as a process of judgment formation that leads to selection and attribution of relatively stable properties of objects is interpreted as result, process, method and attribute of

thinking. Generalization refers to the system of intelligent actions, subsystem of mental (logical) operations, along with the comparison, analysis, synthesis, abstraction and classification.

The basic mechanisms of generalization within concept formation include: implicit mechanism (integration, addition, transformation, presupposition); categorization as a process of attribution of a single object, event, experience to some class; analysis through synthesis as incorporation of the object of knowledge to new connections; semantic abstraction as selection from the items of their generalized and significant properties and relations; syncretic grip as identification by a single word of disordered number of separate items etc.

Specific character of generalization on the basis of foreign language is distinguished by its tentative link and operational structure of speaking activity. In foreign language activities the following mechanisms of thinking and speaking activities are realized: realization, coding and decoding, transition from abstract to concrete, mechanism of advance reflection (in subtypes of probabilistic forecasting and advanced synthesis). In adolescence the leading position in formation of ability to generalize belongs to the native language sign system; the foreign language system has complementary importance. While mastering of the foreign language concept system the students will acquire an ability to discover general in singular.

In the works of Запорожець (1964) and his colleagues it is found that the generalization process depends on the nature of tentative actions directed to generalize subjects. In particular, Талызина (2001), having studied dependence of generalizing properties from their place in the structure of the person activity, concludes that generalization occurs under such properties of objects that are included in the content of basic recommendations. This proves that generalization is determined not directly by objects, but indirectly by the person's activities with these objects.

The ability is traditionally interpreted as mental and physical state in which an individual is able to perform some kind of productive activity. The ability to generalize is seen in the intellectual thinking abilities of the individual which at the point of view of Занічковська (2010) allow to refuse from patterns and stereotypes that exist and to find new estimates, generalizations, approaches, actions.

The ability to generalize occupies a certain place in the action model of the life path by Роменец (2001). Describing the adolescence as a creation process of the "life philosophy" with its aspiration for absolute values, the scientist examines connection of centration and decentration mechanisms. Actional concept of personality states that in the adolescence there is subconscious attraction to decentration, melding with the entire world, aspiration to transform the real world in such way that it could come near to ideal. This aspiration on the intellectual and procedural level is provided by generalization mechanism of different knowledge about the world.

The concept of ontogenetic development of Піаже (2004) interprets special character of adolescence in the spirit of intellectual approach to the human being ontogenetic development. The scientist states that intellectual development in adolescence can be characterized by complexity of mental operations (transfer to formal operations), that causes aptitude to theorizing, reflection and generalization, which allow to understand life as a whole, create a picture or a concept of one's own life. While the peculiar restraining force of development of the ability to generalize is self-centered adolescent thinking, which mostly relies on the category of possible, but not real.

At this age Головаха (1984) observes appearance of a special formation – life perspective that incorporates past, present and future of the personality as certain stages of life. According to the authors, establishment of global life goals appears through understanding and generalizing of value-semantic aspects of one's own self-realization, self-actualization.

The ability to generalize acquires special applicability in the process of adequate personal formation, in particular, in the context of one of its three components – cognitive component as the amount of self-knowledge, ideas about one's qualities and properties. Thus, formation of qualities system that characterizes the “nature” of individual: self-organization, self-regulation, self-respect, self-realization, self-actualization, self-confidence, independence, self-love, is associated with mental processes of reflection, self-determination, self-comprehension, self-appraisal and one of the leading intellectual mechanisms of which is generalization.

The general trend of intellectual processes in adolescence, according to Выготский (2005), is their subsequent internalization, coagulation and transition to reflexive level. New formation regarding the generalization processes is the fact that the present period witnesses formation of a new level of the image integration, change of the “objectivistic” view of the “outside” world for “inside” subjective, dynamic position. Therefore, the student, having formed scientific concepts in a particular area, may think by these concepts without evoking in his/her consciousness of the images of specific objects to which they relate. However, each abstract, generalized concept carries the possibility of image appearance: they may appear at the first need as a certain specification, illustration of the abstract content of the concept.

However, despite the significant developments in the field of formal logic, cognitive, developmental, educational psychology, during the long-term period one may feel the lack of researches of generalization as process of judgment formation, selection and attribution of relatively stable properties of objects on the basis of foreign language.

**Research object** - Ability of the first years students to generalize in foreign language in the higher educational institutions.

**The object of article** is thinking processes of the first years students to generalize in foreign language in the higher educational institutions.

### **Subject of the research**

The first years students of pedagogical, historical, philological faculties and the faculty of pedagogy and psychology of the State Higher Education Institution “Pereyaslav-Khmelnytskyi State Pedagogical University named after Hryhorii Skovoroda”. Period of the research – November 2009 till April 2012 and included.

### **Methods and methodology of the research**

Empirical research of the ability to generalize on the basis of foreign language was carried out with the help of the complex of psychognostic methods, techniques and approaches that were selected according to the objectives of the research. Mathematical and statistical data processing was implemented using the SPSS 17 software package.

The primary task of the determining stage became the investigation of the second language acquisition level by the first year students of the higher education institutions. For this purpose a modified technique of Зейгарный (2006) “Interrelation of proverbs” (cited by Сборник психологических тестов, 2006) which reveals an understanding of the figurative meaning of expression, ability to distinguish the main idea in the specific content phrase, differentiation, determination of judgments and therefore the level of ability to generalize was used. An assumption from the scientific position that understanding by the speaker of the hidden, latent, obscure meaning characterizes the level of his/her handling the notion was made. Just as in the things hidden, obscure, latent properties are opening, so at the level of word meanings possibilities of new use of word and specification of its content within an entire system appear.

The priority character of concepts in the thinking of students was determined with the application of the modified method of pictograms by Выготский (2005).

The method of “Distinguishing of essential features” by Рубинштейн (1958) was used for establishment of the actual level of generalization.

For determination of the students’ ability level to complex logical relations and distinguishing of abstract relations the “Logic of connection” method was used, which is used in the scientific literature as “Sophisticated analogies” by Коробкова (1995) (cited by Сборник психологических тестов, 2006).

Four verbal tests of the Intellect Structure Test by Amthauer (1973) adapted by Гуревич, Борисова, Логинова (1997) (cited by Сборник психологических тестов, 2006) was used in order to determine the students’ ability to distinguish essential features, categorical belonging of the concept, its class and understanding by them of regular connections between the concepts on the basis of their native language. From two equivalent forms A and B of the test the A form was chosen. It was stopped on the first four subtests because they diagnose verbal intelligence of the speaker as the most relevant display for the purposes of the present research. The last three components of intelligence, calculating and mathematical, dimensional and mnemonic component have not been considered. Selection of these subtests was determined by the possibility to detect the formation level of main thinking operations in the concepts (inductive thinking (subtest 1); selection of essential feature of the concept (subtest 2); understanding of natural connections between events (subtest 3); establishment of categorical belonging, class determination (subtest 4).

The C-test by Rats (1995) helped to find out the mechanism of contextual deduction as a way for generalization by the students of the concepts on the basis of foreign language. The C-test by Rats (1995) was used as a means of psychosemantic analysis of the verbal semantics of text in which concepts of the contextual connections are measured by parametric methods. The mechanism of contextual deduction here appears as the generalization mechanism, since one word is connected as usual with several generalizations, and the use of one of them depends on the context of situation, statement, from the speaker’s motives and objectives.

Contextual analysis as the method of finding the contexts for use of words (collocations) in its objective is similar to the method of content analysis in the sense that the contexts of the words use can be subject to content analysis – determination of simple categories frequencies, relative frequencies, definition of categories with the respect to norms etc. If necessary the contextual analysis allows highlighting several thematic lines in the text and analyzing them separately.

While processing the data, presence or absence of generalization and its character was considered: whether the nearest generic concept or wider concept was used. Thus the following was stated: the students were inclined to use too general, detached from the immediate context generalizations or concrete thinking, difficulty in generalization.

Methods of diagnosis of verbal creativity by Медник (1962) adapted by Воронин (2006) (cited by Сборник психологических тестов, 2006) were used to determine the mode of generalization on the basis of foreign language.

The method “Peculiarities of concept formation” was used for determination of the nature of common and distinctive features in comparison of other language notions. It is known that generalizations can be produced as a result of diverse organization of research activities, for example, generalization, based on the minimum required data, generalization based on redundant data.

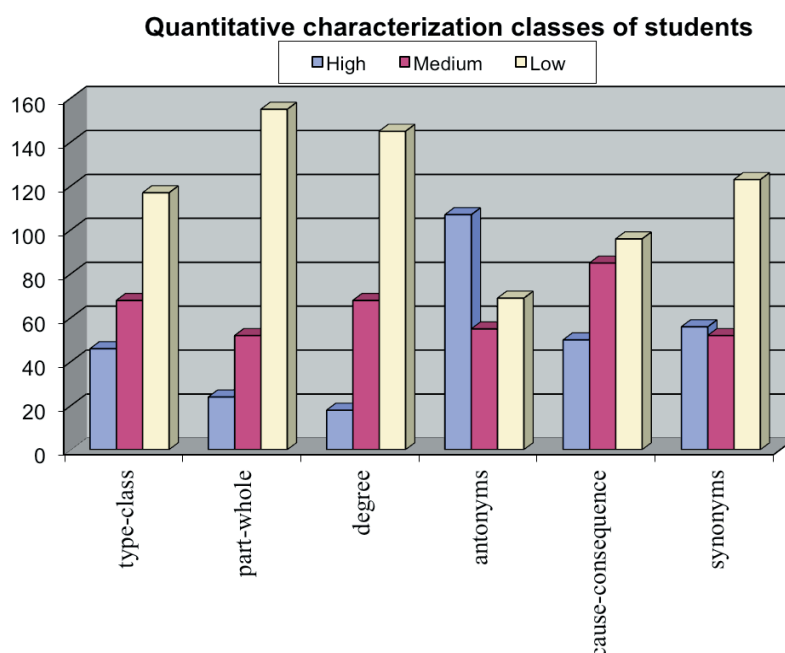
The objective was to research the comparing process of concepts by students in order to highlight similarities and differences of significant or insignificant features of the notion.

### Results of the research

The analysis of empirical material showed that only the first year students which are having the major “foreign philology”, use a foreign language at a relatively high level. The students who study the Ukrainian philology have medium-high level of competence in language. Psychologists, historians, students with the major “primary education” have language competence on the level below average. In general, received data indicates the presence of influence from particularity of professional qualification of the students under test on the foreign language competence level.

Based on the analysis of empirical data correspondence between quality indicators and substantial features of the ability to generalize was determined. In the selection there is a quantitative dominance of students under test with empiric way of thinking, with its low abstractness, low ability to generalize, with average (to low) ability for classification. It is also determined that the low level of development of ability to generalize is due to split growth of its components. Most of categories of thought (class-type, part-whole, degree, and cause-consequence) are developed insufficiently among the students of the first years of studies at university.

The results of measurements of development of basic logical categories in the speech thought of the first years students are presented on the Figure 1.



**Figure 1.** Statistically significant differences in terms of development categories in the speech thought of students

The test showed that most of thought categories such as: class-type, part-whole, degree, and synonymy were underdeveloped. With a low level of these categories common features were fixed on the basis of sensory experience, experience, observation of the operation of a facility based on life situations. The communication system is specific, but when displaying linguistic material is detailed translation sentence.

The speech thought middle-level categories of development inherent to the system links with the categories that make up the categorical matrix. Reflection of these categories was based on their specificity to establish relationships between semantic layers in each specific category. In a study this category was “cause-effect”.

At the level of analysis of speech-thought processes the high level of categories is characterized by the predominant use of such categories, which form a relationship with other categories of this level and concretized the content within an integrated system. On the other hand, these concepts have their own semantic organization in point of the other categories.

In thinking of the speaker semantic categories are collapsed into a single integrated system of concepts, ideas, knowledge produced by humanity. The most advanced category of the testing group was the category of contrasting (antonyms).

Instead, nonlinearity of changes in logical relations of opposition (antonyms) and similarity (synonymy) do not allow making the conclusion on statistical significance of their development for intellectual function to generalize among the students.

The most productive for identification by students of similarity between the other language concepts were the categories of “functional similarity” and “belonging to one class or generic concept”. Generalization of the common features of objects was as through the nearest generic concept, so by means of more remote generic concept. The standard of comparison according to functional similarity has the highest measure of dispersion of majority of data around the median, criterion of belonging to one-class occupies medial position, the criterion of common components and similarity in size, color and shape completes this range.

In the processes of the concepts distinction difference in size, color or shape had the biggest significance. Quantitative indicators in distinction of concepts while comparing them turned out to be in three times fewer than the indicators of concepts similarity, this fact can be explained with the low analyticity of thinking among respondents. Among the distinguished criteria the highest dispersion is observed in the criterion of differences in size, color, shape; the lowest – in functional differences. In general, synthesis operations dominate analytical operations in the students’ thinking on the statistically significant level.

Thus, at this stage of research the following intellectual properties of the students that participate in the generalization process were diagnosed: theoretical thinking, practical thinking, empirical thinking, and predominance of abstract, mixed or specific images, ability of classification, linguistic skills, performance, originality and unique character of verbal thinking and actual ability to generalize.

Summarizing selected objects for type, class and other features, students showed not only significant, but common to multiple objects characteristics (Table 1).

**Table 1.** Levels of ability to generalize in mastering foreign language by the students of different specialties (n=231)

Level of generalization	Specialities										Total	
	Psychology		History		Elementary education		Ukrainian philology		Foreign philology			
	Absolute number	%	Absolute number	%	Absolute number	%	Absolute number	%	Absolute number	%	Absolute number	%
High	5	7,6	0	0	0	0	0	0	0	0	5	2,2
Medium	23	34,9	7	11,9	6	12,8	4	8,5	0	0	40	17,3
Low	38	57,5	52	88,1	41	87,2	43	91,5	12	100	186	80,5
Total:	66	100	59	100	47	100	47	100	12	100	231	100

As a result of previous estimates following quantitative distribution was obtained: a group of students with a low level of ability to generalize – 186 people (80.5% of total number). Low ability to concentrate on the material properties of objects accompanied them in vague diffusivity of conceptual thought. Significant factor limiting analytic-synthetic activity, the results of which become a low ability to generalize is the high level of youth Internet addiction. For this group of students the process of internalization intellectual processes of coagulation and transition to reflexive level is still incomplete.

Group with a medium level of ability to generalize were 40 individuals (17.3%). In this group the adolescents of self-centered thought are stopping developing the ability to generalize, balanced timely complexity of mental operations, decentration, generalization of knowledge.

The group with a high level of ability to generalize was only 5 persons (2.2%). Students of this group showed the ability to give up the templates and the stereotypes, and looked for new assessment approaches.

Subsequently, each of the designated groups determined the percentage of students, in which some of the components of the ability to generalize dominate: concreteness of thought, the level of classification, class-type components, the component “part-whole”, category “degree” “cause-consequence”, the category of contrasting (antonyms), the category of similarity (synonyms). The results are shown in the table (Table 2).

**Table 2.** The dominant components of the ability to generalize in groups of students with different levels of development

The components	Levels of development the components (%)		
	High	Medium	Low
Abstraction thought	1,3	5,6	93,1
Classification level	9,1	38,1	52,8
Class-Type correlation	19	29,9	51,1
Correlation “part-whole”	10	22,5	67,5
Category “degree”	6,9	29,9	63,2
Correlation “cause-consequence”	23,4	36,4	40,2
Correlation contrast (antonymy)	46,8	23	30,2
Correlation similarities (synonyms)	25,1	22,5	52,4

As the results showed, the subgroup with a low level of ability to generalize, which consists mainly of people who have dominated concreteness of thought, is the largest. This distribution suggested that low ability to generalize in this group is caused by the low resolution of the classification and also lack of development of logical components of “part-whole”, “class-type” similarity (synonyms) and the category of “degree.”

The medium level of ability to generalize provided the optimal capacity for classification; enough developed are the category “cause-consequence”, class-type category, and logical category “degree.”

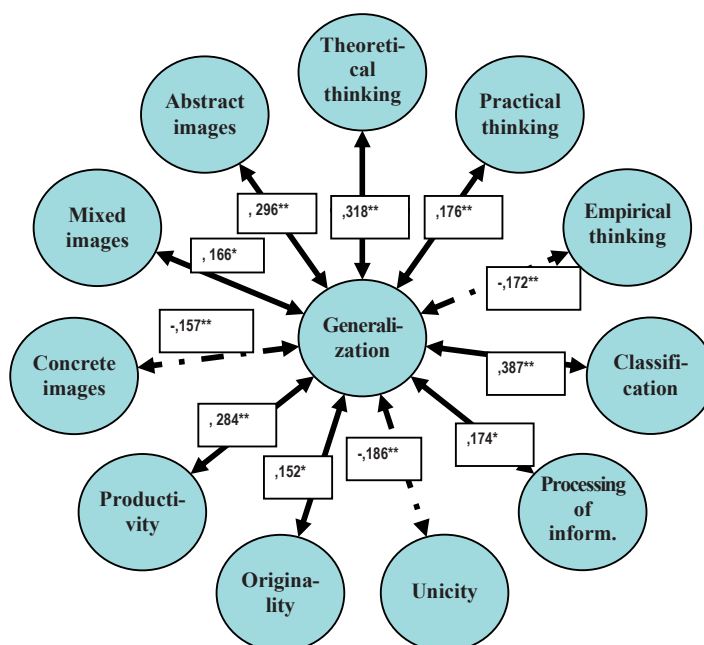
In the subgroup with a high level of ability to generalize was the largest number of individuals with abstract thought, the developed category of contrasting and similarity combined with the developed category “cause-consequence”.

The attention is drawn by the fact that the decrease in the total level of ability to generalize is connected with a reduction of its components as abstract thought, the ability to grading, installation of class-type relations, relations “part-whole” and underdeveloped category “level”.

Logical category of contrasting (antonymy) and similarity (synonyms) vary non-linearly – in the middle group they are lower than in the two extreme groups, as evidenced by the confusion in the case of antonymy median (median = 30.2) in the direction of lower showing and, in the case of synonymy (median = 25.1) – in the direction of higher values.

In addition, the analysis revealed that the most uniform distribution of components of the ability to generalize is observed in the group with medium level of development ( $\sigma x = 10,24$ ), in comparison with the high ( $\sigma x = 14,41$ ), or low ( $\sigma x = 18,98$ ). Instead of thought dominance of specificity in the ability to generalize the structure had a much higher rate than other components in all subgroups.

Finally, each of the obtained indicators was subjected to pair-wise correlation analysis with all other. The correlation coefficients were built around the most essential component for the research that is the ability to generalize. The correlation analyses results are made evident in the form of correlation plead (Figure 2.).



**Figure 2.** Correlation plead of components of the ability to generalize

*Note:* positive correlation relationship is marked with the single line; negative correlation relationship is marked with the dashed line. Correlation relationships at the level  $p \leq 0,01$  are marked \*\*, correlation relationships at the level  $p \leq 0,05$  are marked\*.

The correlation plead of components of the ability to generalize vividly demonstrates the importance of all presented scales. The mentioned phenomenon has a direct correlation with the scale “ability of classification” (0,387;  $p \leq 0,01$ ), which should be regarded as an indicator of genetic and procedural proximity of these two qualities.

The positive correlation is also present with the scale of “theoretical thinking” (0,318;  $p \leq 0,01$ ), “predominance of abstract images” (0,296;  $p \leq 0,01$ ), “efficiency of verbal thinking” (0,284;  $p \leq 0,01$ ), from this a conclusion can be made that theoretical substance and abstraction combined with efficiency are capable to provide quality of the generalization procedures.

The positive relationship is observed also with the scales “practical thinking” (0,176;  $p \leq 0,01$ ), “originality of verbal thinking” (0,152;  $p \leq 0,05$ ) and “foreign language competence”

(0,174;  $p \leq 0,05$ ), which should be interpreted as the ability of the most part of those, who study foreign language, to make generalization on the basis of this language.

Negative relationship in this plead is observed in the scale of “empirical thinking” (-0,172;  $p \leq 0,01$ ) and “predominance of specific images” (-0,157;  $p \leq 0,01$ ) which is another proof of the importance and applicability of theoretical and abstract criterion for generalization purposes. Expressive negative relationship with the unique character of verbal thinking (-0,186;  $p \leq 0,01$ ) confirms the abovementioned fact that inappropriate verbal responses to adequate stimulus indicate on deviations from the line of formation of proper generalization.

### Conclusions

These results give rise to the conclusion that the ability to generalize is provided by the cumulative effect of a number of factors:

- total ignorance;
- specific character of inductive thinking of students (narrowing of the grounds for inductive choice, ignorance of lexical meanings and dogmatism of judgments);
- interruption of logical relations: while fixing essential features of concepts – time and space; while revealing relations of similarity between the concepts – functions, similarities and cause – consequence; while establishing categorical belonging of the object – too wide or narrow grounds for generalization; while classifying the objects – use of purely formal criteria;
- verbal-semantic criterion: the most regular generalizations the students use to the concepts specific by their semantics are combined by the syntagmatic associative link; the lowest potential of generalization have paradigmatic combinations of concepts with abstract semantics.

Correction of the causes, found in the research, of faulty generalization by students of concepts in foreign language will be the main objective of the next forming phase of the research.

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## ABILITY TO GENERALIZE IN FOREIGN LANGUAGE OF THE FIRST YEARS STUDENTS IN THE HIGHER EDUCATIONAL INSTITUTIONS

### *Summary*

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Psychological research related to the observation of various aspects of thinking process gives a chance to greatly optimize the training system of specialists with the higher education. In particular, research of specific character of generalization processes during foreign language learning is intended not only to acquisition of linguistic knowledge, but also to optimization of students' foreign language thinking.

The analysis of generalization processes influence within learning of a foreign language in modern psychological science was done.

Specific character of generalization on the basis of foreign language is distinguished by its tentative link and operational structure of speaking activity was shown. In adolescence the leading position in formation of ability to generalize belongs to the native language sign system; the foreign language system has complementary importance.

The following intellectual properties of the students that participate in the generalization process: theoretical thinking, practical thinking, empirical thinking, and predominance of abstract, mixed or specific images, ability of classification, linguistic skills, performance, originality and unique character of verbal thinking and actual ability to generalize were found.

The correspondence between quality indicators and substantial features of the ability to generalize was determined.

In the selection there is a quantitative dominance of students under test with empiric way of thinking, with its low abstractness, low ability to generalize, with average (to low) ability for classification.

It was also determined that the low level of development of ability to generalize is due to split growth of its components. Most of categories of thought (class-type, part-whole, degree, and cause – consequence) are developed insufficiently among the students of the first years of studies at university.

The most productive for identification by students of similarity between the other language concepts were the category of “functional similarity” and “belonging to one class or generic concept”. Generalization of the common features of objects was as through the nearest generic concept, so by means of more remote generic concept. The standard of comparison according to functional similarity has the highest measure of dispersion of majority of data around the median, criterion of belonging to one-class occupies medial position, the criterion of common components and similarity in size, color and shape completes this range.

In the processes of the concepts distinction difference in size, color or shape had the biggest significance. Quantitative indicators in distinction of concepts while comparing them turned out to be in three times fewer than the indicators of concepts similarity, this fact can be explained with the low analyticity of thinking among respondents. Among the distinguished criteria the highest dispersion is observed in the criterion of differences in size, color, shape; the lowest – in functional differences. In general, synthesis operations dominate analytical operations in the students’ thinking on the statistically significant level.

The conclusion was made that the ability to generalize is provided by the cumulative effect of a number of factors:

- total ignorance;
- specific character of inductive thinking of students (narrowing of the grounds for inductive choice, ignorance of lexical meanings and dogmatism of judgments);
- interruption of logical relations: while fixing essential features of concepts – time and space; while revealing relations of similarity between the concepts – functions, similarities and cause – consequence; while establishing categorical belonging of the object – too wide or narrow grounds for generalization; while classifying the objects – use of purely formal criteria;
- verbal-semantic criterion: the most regular generalizations the students use to the concepts specific by their semantics are combined by the syntagmatic associative link; the lowest potential of generalization have paradigmatic combinations of concepts with abstract semantics.

# ASSESSMENT OF OWN LIFE PROSPECTS AS A FACTOR OF STUDENT'S ACADEMIC MOTIVATION

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## **Abstract**

The paper analyzes life perspective indexes and life purpose orientations of sample students enrolled into an integrated learning environment. A comparative analysis of the data on students with disabilities and healthy students was performed. Characteristics of interrelation between value and life purpose orientation indexes and students' academic motivation were researched. Dual determination of human behavior by temporal factors was stated: the first type defines behavior regulation within a short period of time, in specific situations, activities, and the second one determines behavior regulation for a long time and is associated with planning of well-aimed self-development

**Key words:** *life prospects, life purpose orientations, value orientation, self-fulfilment, academic motivation, integrated learning environment.*

## **Introduction**

The current stage of psychological science development is characterized with post-non-classical approaches for scientific studies where a person is regarded as an active self-determined subject, a creator of their own life. Post-non-classical psychology insists on impossibility to study a human in isolation from the context of their life, it considers such problems as life's journey, lifestyle, life strategies, goals and meaning of a person's life as the most important ones.

The emphasis at specialists' training is shifting from the competence-based approach to self-development and personal fulfilment. In this context, a problem of future professionals' academic motivation as a self-determined and self-organized process occupies a central place.

Thus, vocational education becomes for a person and their life perspective, to some extent, a guarantee of the future. Therefore, relationship of person's academic motivation with life goals, perspectives and values determines person's potential for development in the future, and satisfaction in the present, and reveals essential forces of self-realization and psychological well-being for future professionals.

Studying of a personal life perspective is an important problem of psychology, but it has not been investigated properly yet. Studying of the life plans, objectives, prospects is usually focused on person's conscious conception about their future.

The mostly employed approach in psychology is an approach to studying life prospects associated with subject's development and personality formation, where person's activity and creativity are crucial factors of life transformation, and life strategy availability and sophistication are important indicators of person's being as an own life subject (Абульханова-Славская, 1991).

The problem of life perspective is related to the problem of personal time, so it belongs to subjective parameters of time, to determination of its value. Абульханова-Славская (1991) proposes to distinguish psychological, personal and life perspectives as three different phenomena.

*A psychological perspective* is a person's ability to predict the future consciously in cognitive terms, to make prognoses, to visualize themselves in the future, and this ability depends on a personality type. Therefore, some people have an idea about their future associated with a professional choice, others connect the future with claims in personal life (friends, love, family). These differences and perspective variety are caused by young people's desires to have self-realization in the areas of life that are the most appropriate to their value orientations.

*A personal perspective* means commitment to the future in the present, preparedness to difficulties in the future, its uncertainty. The personal perspective is an indicator of personal maturity, their development potential, and existing ability to organize time.

Life perspective is a more meaningful and profound concept that includes a set of circumstances and conditions of life that under otherwise equal conditions create opportunities for optimal life-promoting, self-development, self-actualization.

Person's activity in every aspect of life is important for life perspective formation. Activity serves as the need for actions and identifies goals, directions, motives, and is a source of personal potential. Activity performs multiple roles, serving all areas of a person's life, enhances life plans and manifests itself in self-realization, in timely actions, in self-expression as a manifestation of own self in life.

Ability of subject's life regulation is based on origin and development of personal concepts that give people freedom from a current stimulation and is the basis of the self-determination. Lines of formation of a personality, of a subject and of a conceptual system for human activity regulation create natural unity (Карпинский, 2002). Development of personal concept sphere brings a person to the highest level of own development as a subject of own life (Анциферова, 1999), that is characterized by a qualitatively new way of self-organization and self-direction (Брушлинский, 1991).

Formation of a personality as a subject of own life is associated with formation of life plans (Абульханова-Славская, 1991; Головаха & Кроник, 1984; Карпинский, 2002; Логинова, 1985 etc.) and mechanisms of behavior and activity regulation (Леонтьев, 2002) that cover main areas of life and specify its overall meaning. All these studies reveal mainly the content of value-concept regulation of life sustenance, but its dynamic principles were studied much less. The dynamic characteristics of conception include tension that occurs when personal existential expectations are compared with a current life situation.

Based on these problems, the aim of the research is to identify the impact of students' own life perspective on academic motivation.

**Object of the research** is academic motivation of university students.

**Subject of the research** is the value-concept determinants of academic motivation of university students.

#### **Method**

Review of the problem of academic motivational determination for a personality in an integrated learning environment, which can be regarded as a model of value environment, opens

possibility to study motivational system organization of healthy students, who are considered to be a “norm”, as well as students with physical illness and disabilities. Importance of study of academic motivation for university students trained in integrated groups also increases due to increase of a part of young people with disabilities in universities.

The empirical study involved 436 students with disabilities and 355 healthy students who are enrolled in the integrated learning environment.

The following psychological diagnostic methods have been used: morphological test of values (Сопов & Карпушина, 2002); the technique “Assessment of five-year intervals” (Головаха & Кроник, 1984); the method of academic motivation examination in universities by Илуна (Практическая психодиагностика, 2002); Purpose-in Life Test by Crambo, Makholik adapted by Leontiev (Леонтьев, 1992); the questionnaire to measure achievement motivation by Mehrabian modified by Mohammed-Eminov (Фетискин, Козлов, & Мануйлов, 2002); the questionnaire to measure achievement motivation by Ehlers (Практическая психодиагностика, 2002).

*Methods of empirical data processing and interpretation:* quantitative and qualitative analysis (descriptive statistics, comparison of sample means by Student’s t-test, correlation analysis). Processing of the empirical results was carried out using the statistical software package SPSS 19.0 for Windows.

### Results and Discussion

A system of personal meanings is a recognized, internalized part of a person’s value system. Study of life purpose orientations of the students from the chosen groups that form the basis of their self-image was performed with the Purpose-in Life Test (Леонтьев, 1992). The Table 1 shows the obtained results.

**Table 1.** Life purpose orientations of the students from the integrated groups

		Life purposes	Life process	Life results	Locus of control - self	Locus of control - life	The overall index of meaningfulness of life
Students with disabilities		29,6	28,1	23,1	18,7	27,6	93,6
	Md	30,0	29,0	23,0	19,0	29,0	95,0
	Mo	33 <sup>a</sup>	30	24	16 <sup>a</sup>	25 <sup>a</sup>	98 <sup>a</sup>
	S <sub>x</sub>	7,6	6,8	5,1	4,9	7,5	20, 1
Healthy students		30,8	30,7	24,5	21,7	30,3	112,9
	Md	30,0	32,0	25,0	22,0	31,0	109,1
	Mo	33	32	24	24	27	109
	S <sub>x</sub>	7,7	6,1	4,1	5,1	6,8	27,1

*Note:* – mean; Md – median; Mo – mode; S<sub>x</sub> – standard deviation; a – There are several modes available, the smallest one was chosen

In performing the analysis of the data presented in the table, it should be noted that the major part of the tested students are characterized by high levels (25-42) at the test scales, so they can be described as goal-directed people who perceive their life processes as interesting, emotionally rich and full of meaning, and a spent part of their lives is productive

and meaningful. This part of the sample has sufficient freedom of choice to build their lives in accordance with their aims and beliefs about life purposes, they have a clear belief that a person can control own life, make decisions freely and implement them.

However, there is a number of the subjects who have low levels at the test scales. The students with disabilities have two modes, 33 and 34 points, at the "life purpose" scale, points of this scale characterize presence or absence of life purposes in the future for the subjects, providing life meaningfulness, focus and temporal perspective. 24% of the students with disabilities and 17% of the healthy students have low scores at this scale. 9% of the students with disabilities and 3.4% of the healthy students have low scores (less than 17) at the "life process" scale that shows an interest for life and its emotional intensity, which means that this part of the students are dissatisfied with their lives at present. 4.8% of the students with disabilities and 4.1% of the healthy students have low scores (less than 14) at the "life results" scale or the self-realization and satisfaction index, indicating dissatisfaction with the spent part of life. 9.7% of the students with disabilities and 2.7% of the healthy students do not believe (less than 11 points) into their strength and abilities to control events of own life (the "locus of control – self" scale). This scale is characterized by two modes with 16 and 20 points for the students with disabilities. 11.7% of the students with disabilities and 4.1% of the healthy students show low scores (less than 17) at the "locus of control – life" scale, i.e. ability to manage own life, so they are characterized by the belief that human life cannot be controlled consciously, that freedom of choice is rather illusory. Indexes of students with disabilities for this scale have two modes but both are high – 25 and 34 points.

In general, it can be said that life of modern students is characterized by meaningfulness, availability of goals, plans for the future, but prospects for the future are not always supported by faith in their capabilities. It is not always possible to observe a clear correlation of purposes with the future, emotional intensity with the present, pleasure with the results, the past.

In functional terms, there are temporal factors that determine behavior in two ways. The first type defines behavior within a short period of time, in specific situations, activities, and the second one defines behavior regulation for a long time and is associated with planning by a person of targeted changes and self-development. This type is based on self-knowledge of mechanisms to capture own internal reserves for self-realization.

Studying of relationship between subjective length of time and various activity characteristics has a long history and achievements, including relations with nature of personal activities, attitude toward work, level of motivation and emotional states (Фресс & Пиаже, 1978); it was found out that levels of intelligence and personal anxiety influence temporal perspective and events during life course; it was found out that also a certain time order of the major events of life is represented in minds of different members of social groups, that order retardation is perceived subjectively as a failure, which means that vision of the future is not a phenomenon of self-consciousness only, but also determined by objective social factors (Головаха & Кроник, 1984). Mental age change occurs whenever a person is dissatisfied with their chronological age because of a variety of reasons. Psychological age not only depends on the ratio of the past, the present and the future and on life expectancy, but also on personal time localization about the center of the chronological time axis.

In terms of personal development complicated by disabilities, temporal decentralization is almost obvious for the point of view of a life way. However, disability, on the one hand, is a drawback, weakness, limitation of development, but, on the other hand, it also stimulates increased, enhanced moving forward; so compensation, as a response to the individual defect, gives rise to new, roundabout processes of development, replaces, overbuilds, adjusts psychological functions. Such a person should consider their life not from a passive observer's position, but actively, creatively react to own life. Since psychological age is determined,

above all, by a part of realized events and their links in an overall structure, it can be changed by a personality through rehabilitation of these links: to review perspective, to rethink a role of past events and their impact on the present and the future.

“Assessment of five-year intervals” technique (Головаха & Кроник, 1984) has been used to identify possible regulations of personal consciousness and behavior through the study of the perception of links between the past, the present and the future in the structure of psychological time, which made it possible to identify a number of interesting features of students with disabilities and healthy students. The results are shown in the Table 2.

**Table 2.** Average values of students subjective evaluation of life course

			Lifetime	Feeling of being actualized	Psychological age	Real age	Estimation of the past	Estimation of the present	Estimation of the future
Students from the integrated groups	with disabilities		64,6	0,36	24,3	19,5	4,9	6,3	6,9
		$S_x$	16,4	0,08	4,5	2,5	1,9	1,6	1,8
	healthy		82,7	0,23	21,9	19,4	3,4	5,6	6,3
		$S_x$	9,7	0,06	2,1	2,3	1,2	1,2	1,6

Note – mean  $S_x$  – standard deviation

The presented data show that students with disabilities have indicators of life expectancy significantly lower than healthy subjects, 21.6 years at average. They are also characterized by relatively large scatter of the data (standard deviation).

The index of actualization, which depends on the proportion of spent life in the subjective picture of life, is lower for the healthy student, that shows slightly higher estimation of life perspectives for these people, but this index for the students with disabilities is also within the normal range for this age group. Because the index of actualization is connected with life satisfaction, which is one of the main aspects of personal subjective well-being, it is an integral assessment by a subject of own life. High rates of life satisfaction indicate retention by a personality of own self, reinforce a desire to remain unchanged, so a very high level of satisfaction with life decreases developmental potential. As for life quality assessment, it is important to balance both lines (preservation and change).

It was found out that person's psychological age, which is an integral indicator of person's attitude to the time of life, of the healthy students is close to chronological age. This index for the students with disabilities is slightly higher than that of the healthy subjects, while there is a large scatter of data: only 40% of students with disabilities have adequate chronological age, the age of 27% is within 14 years that may be an indicator of an unrealized creative potential or immaturity. Age of 33% is within 28 years, and this may be a cause of pessimism and poorer life prospects and may be accompanied by severe consumptive and hedonistic orientations.

In general, assessments of the five-year life intervals, their levels, indicating of person's attitude to the present, the past and the future, show high importance of student days in the life of both healthy students and students with disabilities, few 10-point estimates suggests the rational perception of own being.

Correlation analysis between indicators of value and life purpose orientations and motivational indicators was performed on the samples of students with disabilities and healthy students. The data are presented in Tables 3-8.

**Table 3.** Correlations between indicators of value orientations and motivational indicators for students with disabilities

	Life values							
	Self-development	Spiritual satisfaction	Creativity	Active social contacts	Own prestige	Achievements	High wealth	Preservation of self
Acquisition of knowledge	0,46**	0,33**	0,24*	0,22*	0,27*	0,23*	-0,04	0,23*
Profession acquisition	0,36**	0,38**	0,36**	0,32**	0,17	0,23	0,16	0,29**
Receiving of diploma	-0,12	0,12	0,01	0,30**	0,49**	0,12	0,25*	0,06
Success motivation	0,35**	0,41**	0,33**	0,35**	0,38**	0,35**	0,22*	0,28**
Achievement motivation	-0,15	-0,13	-0,18	-0,05	-0,05	-0,08	-0,11	-0,07

Note: \*\* correlation is significant at the 0.001 level; \* correlation is significant at the 0.05 level

The data in Table 3 shows that “acquisition of knowledge” and “the profession” motives of students with disabilities, which are internal academic motives, significantly correlate with the values of “self development”, “spiritual satisfaction”, “creativity”, “active social contacts”, i.e. the values of humanistic orientation.

The “receiving of diploma” motive is related with the values of “active social contacts”, “own prestige” and “high wealth”. All value indexes are linked with “success motivation”. However, no connection between value sphere indexes and “achievement motivation” can be seen, and correlation coefficients have a negative sign, but it is obviously due to the fact that the level of “achievement motivation” is low and indicates “avoiding failure” motivation trend.

The data presented in the Table 4 show significant correlation between “acquisition of knowledge” and “profession acquisition” motives, related to intrinsic motivation, with values in the field of “training” and “education and a profession.” As for “success motivation”, these indicators correlate significantly with all spheres of life, which is quite logical.

**Table 4.** Correlation between life sphere indexes and motivation of students with disabilities

	Life sphere					
	Training	Education and a profession	Family	Social activity	Interests	Physical activity
Acquisition of knowledge	,30**	,36**	,19	-,03	,17	,03
Profession acquisition	,35**	,29**	,08	,28*	,25*	,03
Receiving of diploma	,06	,09	,05	,04	-,01	,19
Success motivation	,35**	,34**	,29**	,33**	,36**	,31*
Achievement motivation	-,13	-,08	-,09	-,12	-,18	-,11

Analysis of relationship between life purpose orientations and motivational indicators of students with disabilities (see Table 5) shows that the internal motives – “acquisition of knowledge” and “profession acquisition” – correlate in varying degrees with all indicators of life purpose orientations. They are linked mostly with “life purposes”, “locus of control – life” and “general meaningfulness of life.”

The fact draws attention that “achievement motivation” is associated very strongly and positively with the “receiving of diploma” motive, which belongs to externally determined motivation.

**Table 5.** Correlation between life purpose orientations and motivation of students with disabilities

	Life purposes	Life process	Life results	Locus of control - self	Locus of control - life	The overall index of meaningfulness of life	Achievement motivation
Acquisition of knowledge	0,56**	0,16*	0,34**	0,26**	0,42**	0,47**	-0,17
Profession acquisition	0,23**	0,23**	0,25**	0,34**	0,44**	0,44**	-0,17
Receiving of diploma	0,09	0,34**	0,06	-0,07	0,06	0,35**	0,48**
Success motivation	0,23*	0,29**	0,15	0,19	0,27**	0,28**	0,24*
Achievement motivation	-0,09	-0,13	-0,18*	-0,09	-0,05	-0,19*	1

Note: \*\* correlation is significant at the 0.001 level; \* correlation is significant at the 0.05 level

Table 6 shows correlation between values and motivational indicators of the healthy students. These data are slightly different from those obtained from students with disabilities. So the “acquisition of knowledge” motive is not related to the “spiritual satisfaction” value, relationship with the “self-development” value is somewhat weaker. The “receiving of diploma” motive does not correlate with the “active social contacts” value in comparison with students with disabilities.

**Table 6.** Correlations between indicators of value orientations and motivational indicators for healthy students

	Life values							
	Self-development	Spiritual satisfaction	Creativity	Active social contacts	Own prestige	Achievements	High wealth	Preservation of self
Acquisition of knowledge	0,27*	0,13	0,24*	0,25*	0,06	0,23*	-0,04	0,19
Profession acquisition	0,37**	0,29*	0,25*	0,32*	0,19	0,22	-0,05	0,27*
Receiving of diploma	-0,11	0,12	0,01	0,16	0,46**	0,12	0,32**	0,05
Success motivation	0,56**	0,56**	0,45**	0,45**	0,37*	0,46**	0,34*	0,48**
Achievement motivation	-0,17	-0,13	-0,20	-0,04	-0,05	-0,07	-0,11	-0,07

Regarding relationship of motivational indicators with value orientations of the life spheres, the data describing the sample of the healthy students (Table 7) are almost similar to the obtained ones for the students with disabilities, excluding the values of some indicators. In the authors' opinion, it is quite natural as they live and study in the same society.

**Table 7.** Correlation between life sphere indexes and motivation of the healthy students

	Life spheres					
	Training	Education and a profession	Family	Social activity	Interests	Physical activity
Acquisition of knowledge	0,27*	0,35**	0,15	-0,02	0,17	0,03
Profession acquisition	0,35**	0,29**	0,07	0,24	0,26	0,03
Receiving of diploma	0,06	0,09	0,04	0,04	-0,01	0,19
Success motivation	0,42**	0,45**	0,42**	0,48**	0,49**	0,31*
Achievement motivation	-0,12	-0,08	-0,09	-0,12	-0,18	-0,11

Life purpose orientations of the healthy students as that of the students with disabilities are connected with the most motivational indicators (data presented in Table 8).

Thus, the “acquisition of knowledge” motive correlates strongly with the following life purpose orientations as “life purposes”, “life results”, “locus of control – life” and “overall meaningfulness of life”.

The “profession acquisition” motive correlates to a greater extent with the scales of “locus of control – self”, “locus of control – life” and “the overall index of meaningfulness of life”. The “receiving of diploma” motive is associated with “the overall index of meaningfulness of life”. Achievement motivation of the healthy students has also positive relationship with the “receiving of diploma” motive.

The performed evaluation demonstrates quite strong correlation between indexes of students' motivational sphere and indicators of the value-meaning unit.

**Table 8.** Correlation between life purpose orientations and motivation of the healthy students

	Life purposes	Life process	Life results	Locus of control - self	Locus of control - life	The overall index of meaningfulness of life	Achievement motivation
Acquisition of knowledge	0,56**	0,16*	0,31**	0,22**	0,40**	0,36**	-0,15
Profession acquisition	0,19*	0,23**	0,27**	0,31**	0,46**	0,44**	-0,22
Receiving of diploma	0,19*	0,33**	0,11	-0,14	0,29**	0,35**	0,33**
Success motivation	0,35**	0,33**	0,12	0,34**	0,42**	0,18*	0,14
Achievement motivation	-0,19	-0,16	-0,19*	-0,11	-0,05	-0,19*	1

It is known that the universal model of the regulatory process, in addition to the parts of goal-setting, programming, planning, also includes processes of result evaluation and

corrections, which are largely performed on the base of a personal level – personal qualities and characteristics, a person's system of expectations, aspirations and attitudes.

### Conclusions

Analysis of the study results indicates the need to develop adequate assessment by students of their own life perspective during university training. Therefore, education shall be directed, in particular, onto addressing of such problems as development of initiative, responsibility, sense of time (timeliness), life's journey integrity, life perspective that allows students to be an active subject of professional and personal development, self-development and self-realization.

Studying of persons' life perspective, conscious ideas about the future shows that the most subjects can be described as motivated people who perceive their life processes as interesting, emotionally rich and full of meaning, and a spent part of their lives is productive and meaningful. However, future prospects are not always supported by beliefs in their capabilities, it is not always possible to observe a clear correlation of purposes with future, emotional intensity with the present, pleasure with the results, the past.

It was found out that temporal factors determine behavior in two ways. The first type defines behavior within a short period of time, in specific situations, activities, and the second one defines behavior regulation for a long time and is associated with planning by a person of targeted changes and self-development. This type is based on self-knowledge of mechanisms to capture own internal reserves for self-realization.

It was found out that personal resources are especially significant for healthy students as well as for students with disabilities, as they are a source of stability, on the one hand, and potential for development, on the other hand.

It was revealed that learning, specifics of communication in the integrated environment activate mind restructuring for the students with disabilities into the direction of a healthy person adapted to life, who seeks self-fulfilment, and helps to correct deformities in subjective picture of life's journey through the balance of retrospective and prospective elements, reconstruction of cause-target relationship between life events.

Professional future that a person imagines as potentially possible one performs functions of subjective regulation and affects life choices, actions and human activities, the vector of personal and professional development.

Given the overall formation of student values during education and training, one should promote the values of self-development to form educational environment of developing type.

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## ASSESSMENT OF OWN LIFE PROSPECTS AS A FACTOR OF STUDENT'S ACADEMIC MOTIVATION

### Summary

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The paper is devoted to studying of value and concept determinants of person's learning motivation. The aim of the paper is to identify impact of life perspective assessment by students on their learning motivation.

The paper analyzes life perspective indexes and life purpose orientations in sample students enrolled into an integrated learning environment. The integrated learning environment is regarded as a model of persons' value environment. The empirical study embraced 436 students with physical illnesses and disabilities and 355 healthy students, who are considered as "normal". Importance of study of academic motivation for university students trained in integrated groups also increases due to the increase of a part of young people with disabilities in universities.

A comparative analysis of the data on students with disabilities and healthy students was performed. Characteristics of interrelation between value and life purpose orientation indexes and students' academic motivation were researched. The analysis demonstrates quite distinct correlation between parameters of the students' motivational sphere and indicators of the value-concept block.

Studying of persons' life perspective, conscious ideas about the future shows that the most subjects can be described as motivated people who perceive their life processes as interesting, emotionally rich and full of meaning, and a spent part of their lives is productive and meaningful. However, future prospects are not always supported by beliefs in their capabilities, it is not always possible to observe a clear correlation of purposes with future, emotional intensity with the present, pleasure with the results, the past.

It was found out that temporal factors determine behavior in two ways. The first type defines behavior within a short period of time, in specific situations, activities, and the second one defines behavior regulation for a long time and is associated with planning by a person of targeted changes and self-development. This type is based on self-knowledge of mechanisms to capture own internal reserves for self-realization.

It was found out that personal resources are especially significant for healthy students as well as for students with disabilities, as they are a source of stability, on the one hand, and potential for development, on the other hand.

It was revealed that learning, specifics of communication in the integrated environment activate mind restructuring for the students with disabilities into the direction of a healthy person adapted to life, who seeks self-fulfilment, and helps to correct deformities in subjective picture of life's journey through the balance of retrospective and prospective elements, reconstruction of cause-target relationship between life events.

Analysis of the study results indicates the need to develop adequate assessment by students of their own life perspective during university training. Therefore, education shall be directed, in particular, onto addressing of such problems as development of initiative, responsibility, sense of time (timeliness), life's journey integrity, life perspective that allows students to be an active subject of professional and personal development, self-development and self-realization.

Professional future that a person imagines as potentially possible one performs functions of subjective regulation and affects life choices, actions and human activities, the vector of personal and professional development.

Given the overall formation of student values during education and training, one should promote the values of self-development to form educational environment of developing type.



### III. DISABILITY STUDIES

# LONGITUDINAL RESEARCH OF CALF MUSCLES FUNCTIONAL CHANGES FOR HEALTHY AND WITH ACHILLES TENDON RUPTURE SUBJECTS

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## **Abstract**

Achilles tendon is the strongest tendon in human body, but despite that, it is also one of the common ruptured tendons. When the Achilles tendon rupture (ATR) occurs, strength of calf muscles, proprioception, and postural stability always decrease. It is well known that rehabilitation influences the greater recovery after Achilles tendon rupture, but despite that the probability of the Achilles tendon re-rupture one year follow up still remains. Therefore, it is very important to understand the ruptured Achilles tendon and calf muscles healing possibilities not only after applied physiotherapy, but also one year follow up. During the present longitudinal research calf muscles strength and proprioception changes of a healthy person and a person with ATR were examined.

**Key words:** *muscle torque variability, isometric maximal voluntary contraction torque, visual feedback.*

## **Introduction**

Achilles tendon is the strongest body tendon (Kaya, Nyland, Toprak, & Turhan, 2012; Mafulli, Oliva, & Ronga, 2013), but despite the strength, it is the most frequently ruptured tendon in the body and comprises about 20 % of all large tendon ruptures (Hashim, Dahabreh, Bin Jemain, & Williams, 2012; Mafulli et al, 2013). Supposedly, one of the reasons of Achilles tendon rupture (ATR) may be inadequate relationship between small tendon cross-sectional area and external forces (Kongsgaard, Aagaard, Kjaer, & Magnusson, 2005). ATR causes various acute limitation and chronic adaptation such as calf muscles weakness, decreased functional ability (Bressel, Larsen, McNair, & Cronin, 2003; Maquirriain, 2011), proprioception (Salonikidis, Amiridis, Oxyzoglou, Villared, Zafeiridis, & Kellis, 2009). It is known that pathological musculoskeletal conditions after ATR may be influenced by the development of adaptive changes in motor strategies, due to mechanical and neural factors (Don, Ranavalo, Cacchio, Serrao, Costable, Iachelli, Camerota, Frascarelli, & Santilli, 2007). Mechanoreceptor activity after ATR is disturbed (Hong & Newell, 2008) Inadequate sensory

feedback from mechanoreceptors in the ankle joint region distorts a person's perception of foot position (proprioception) during movement (Bressel et al., 2003).

Movement stability depends on the amount and quality of the proprioception information. Muscle torque variability (movement stability) depends on the muscle torque, task complexity and somatosensory information (Christou, Grossman, & Carlton, 2002). Disrupted afferent information from joints, muscles and tendons decreases movement stability (Harrison, Duenkel, Dunlop, & Russel, 1994). It is established that the movement during the task could be improved when it is performed with visual feedback and lasts more than 150 ms (Salonikidis et al., 2009). Information from visual feedback as well as from muscles and tendons is important to movement stability during the task (Osu, Franklin, Kato, Gomi, & Domen, 2002).

According to literature, ruptured Achilles tendon stiffness and strength can be affected most within first 18 weeks after the Achilles damage occurred. Longer period of time reduces the influence (Schepull, Kvist, Anderson, & Aspenberg, 2007). If the Achilles tendon stiffness and strength are not restored, the probability of repeated tendon rupture (Doral, Alam, Bozkurt, Thurnan, Atay, Donmez, & Maffulli, 2010; Torbert & Panchbhavi, 2009) of the same or the other leg increases. Mostly all physiotherapy protocols after ATR includes earlier weight bearing, range of motion and strengthening eccentric exercises (EE) (Maquirriain, 2011). It is established, that EE influence calf muscles torque and proprioception changes, but differences between injured and non-injured leg remain one year follow up (Finni, Hodgson, Lai, & Edgerto, 2006; Torbert et al., 2009). However, ankle proprioception changes in an ATR population are still not well understood. In literature, EE influence on healthy person calf muscles changes is controversial. It is established that 4-6 week strengthening exercises determine structural changes in muscles (Hotermann, Roeleveld, Engstrom, & Sand, 2007). 8 weeks EE influence greater muscle hypertrophy (Farthing & Chilibeck, 2003; Duclay, Martin, Duclay, Cometti, & Pousson, 2009) and strength compared to concentric exercises (Farthing & Chilibeck, 2003). However EE have no influence to greater Achilles tendon collagen synthesis for healthy person (Roig, O'Brien, Kirk, Murray, McKinnon, Shadgan, & Reid, 2009).

In addition, the examination of the Achilles tendon healing possibilities could help to provide a better understanding of how physiotherapy may influence the properties of scarred Achilles tendon and avoid tendon re-rupture.

**The object of the study** – the plantar flexion MVC and VT changes one year follow up for healthy and with ATR subjects.

**The aim of this study was** to estimate EE effect on the dominant leg, non-dominant leg, non-injured leg and injured leg plantar flexion muscles maximal voluntary contraction torque and movement variability changes one year follow up for healthy and after ATR persons.

Twelve men have participated in this study. Experimental group consisted of 5 participants (age  $35 \pm 5$ ), who were 6,5 weeks after Achilles tendon surgery and 10 rehabilitation procedures. Control group consisted of 7 (age  $28 \pm 5$ ) persons who had never had ankle strain, calf muscles rupture and they were not physical active.

### Methods and organization

Quantitative survey of changes in plantar flexion MVC and VT were analyzed using "Biodex medical System PRO 3". All measurements for both groups were made 7 times: first time for the experimental group was – 6,5 weeks after Achilles tendon surgery and 10 rehabilitation procedures, second – after 8 weeks physiotherapy. For control group – first time before and second after 8 weeks eccentric exercises for plantar flexor muscles. All other 5 times were repeated every two months in one year period.

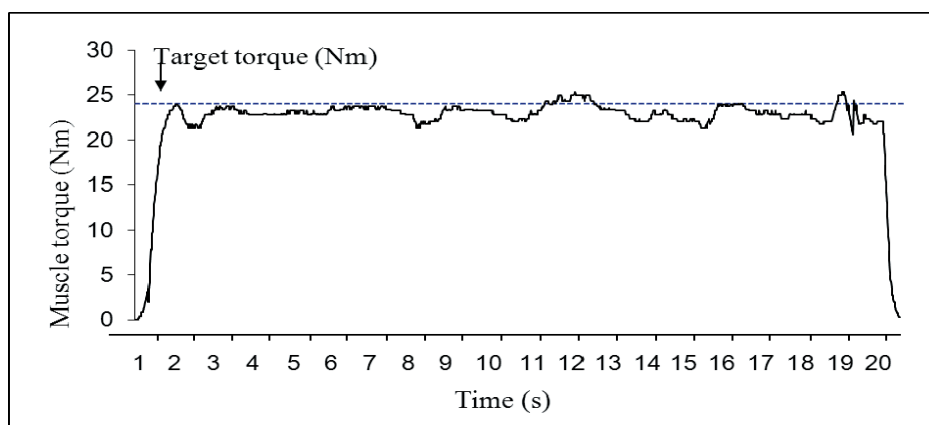
The sensitivity of the Biodex in torque measurements is  $\pm 1.36$  Nm. The subjects were secured on an adjustable chair in a slightly reclined position: hip flexed at  $75^\circ$ , knee at  $30^\circ$  angle and strapped at the chest. The foot was held in a place by a heel block and was tightly attached to the plate by two straps. One strap was placed around the foot, 1–2 cm proximal to the metatarsophalangeal joint of the toe, and the second strap was placed around the foot, just below the ankle joint. The position of the subject was adjusted to obtain a  $90^\circ$  angle for the ankle (neutral position  $0^\circ$ ). To correct the effect of gravity on the measured joint movements, the passive mass of the foot was measured in the dynamometer at  $15^\circ$  ankle angles. All subjects were tested without shoes.

Plantar flexion muscles isometric maximal voluntary contraction (MVC) torque was measured in the non-injured (NIL) and injured (IL) leg as well as in the dominant (DL) and non-dominant (NDL) leg. The test started from the NIL and DL leg accordingly in control and experimental groups. Calf muscles MVC torque for each participant was tested at randomized  $-15^\circ$ ,  $0^\circ$ , and  $15^\circ$  ankle angles. Participants at each ankle angle performed two ankle flexion and extension repetitions. Rest period between repetitions – 30 seconds, and between different ankle angles – 60 seconds.

Plantar flexion muscles isometric variability of torque (VT) was measured in the NIL, IL, DL and NDL leg. The test started from the NIL and DL leg plantar flexion, muscles VT. Calf muscles VT were tested at  $-15^\circ$ ,  $0^\circ$ ,  $15^\circ$  ankle angles, which corresponded to ankle angles performed at MVC torque measurement. Isometric torque variability was established during the 20 second isometric contraction at the target torque equal to 40% of isometric MVC torque (see Figure 1). The participants were asked to perform the task as accurately as possible. Participants at each ankle angle performed three ankle flexion and extension repetitions: one with visual feedback (VF) and one without VF. Rest period between repetitions – 30 seconds and between different ankle angles – 60 seconds.

Physiotherapy took 8 weeks, three times per week; one session lasted 30 minutes. The PT program was directed towards recovery of motion, power and proprioception. All exercises were performed without pain and intensity increased over 8 week PT program period. Each session started with gentle 10 minute warm up. In pronounced ankle joint stiffness, ankle and subtalar joint mobilization was performed, in addition to increase range of motion. For gastrocnemius and soleus muscles – tendon complex stretching exercises were started gently and became more intensive. Eccentric strength training exercises (EE) were applied to increase plantar flexor muscles strength. Resistance exercise were started from and gradually increased to isokinetic close chain. Body balance as well as weight bearing on both legs exercises, were applied for proprioception improvement.

8 week EE for healthy group were performed in order to identify the exercises impact to plantar flexion muscles strength in both groups. All EE were performed three times per week twice a day, one session lasted for 15 minutes. For the first week EE were performed in close chain and stable surface, for second 4 weeks EE were performed in close chain and not stable surface.



**Figure 1.** Calf muscle torque VT and target torque sample

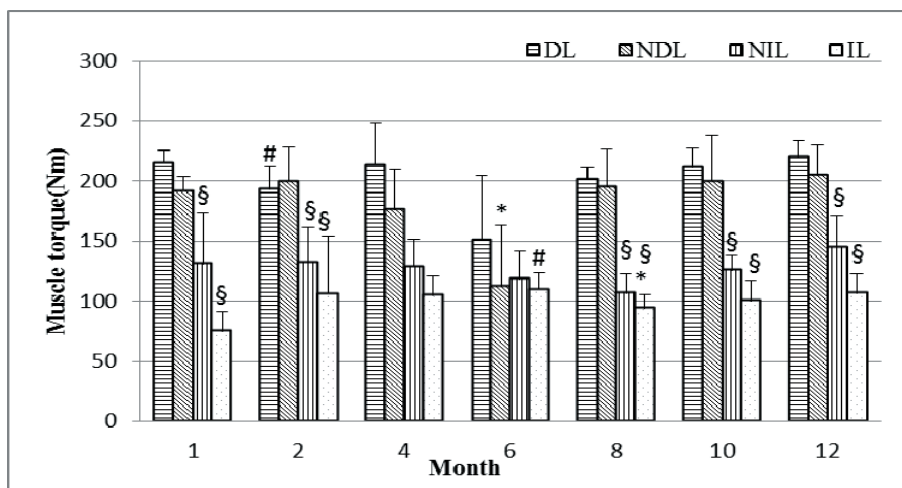
**Mathematical statistics.** The research data were processed employing Microsoft Excel 2010 software for mathematical statistical analysis. The data are reported as group mean values  $\pm$  standard deviations (SD). Changes between the injury effect (the INL and NL as well as DL and NDL), time impact (before and after 2, 4, 6, 8, 10 month), the task (with or without visual feedback) were evaluated using Student's test ( $p < 0,05$  level of significance).

### Results

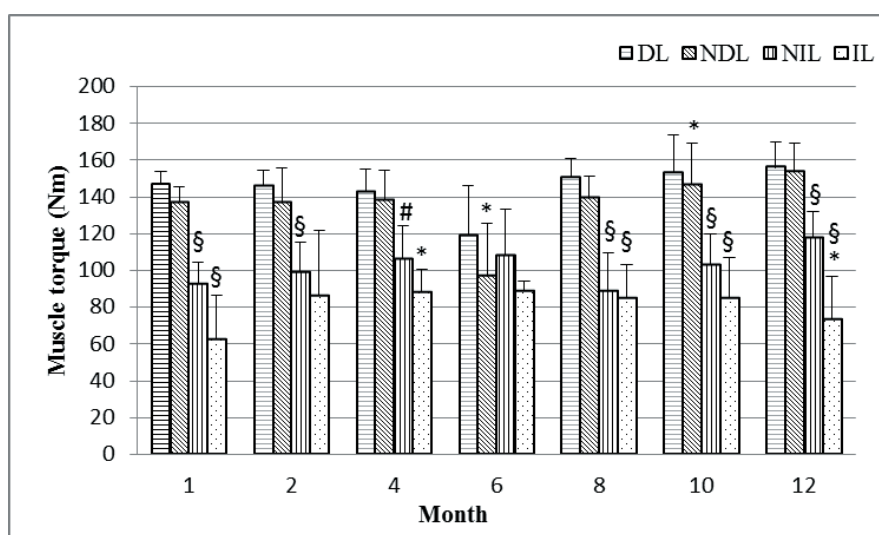
At  $-15^\circ$  ankle angle, **plantar flexion muscles MVC torque** (see Figure 2) was greater ( $p < 0,05$ ) in DL than in NDL at 6 month, and in NIL than in IL at 8 month. MVC torque was greater ( $p < 0,05$ ) in DL than in NIL and NDL greater ( $p < 0,05$ ) than in IL, at 1, 2, 8, 10, 12 month. Having compared results in first and other month, MVC torque increased ( $p < 0,05$ ) in IL after 6 month, but decreased ( $p < 0,05$ ) in DL after 2 month.

At  $0^\circ$  ankle angle, **plantar flexion muscles MVC torque** (see Figure 3) was greater ( $p < 0,05$ ) in DL than in NDL at 6, 10 month and in NIL than in IL at 4, 12 month. MVC torque was greater ( $p < 0,05$ ) in DL than in NIL at 1, 2, 8, 10, 12 month also NDL greater ( $p < 0,05$ ) than IL, at 1, 8, 10, 12 month. Having compared results in first and other month, MVC torque increased ( $p < 0,05$ ) in NDL after 4 month.

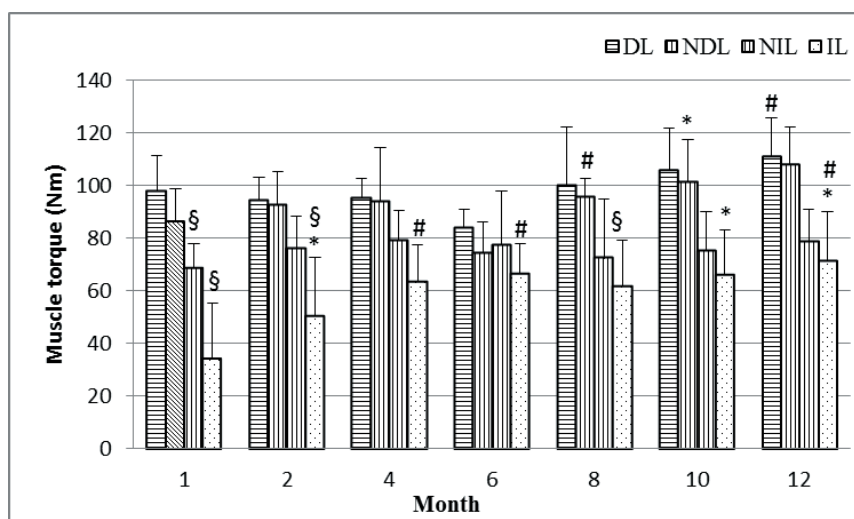
At  $15^\circ$  ankle angle, **plantar flexion muscles MVC torque** (see Figure 4) was greater ( $p < 0,05$ ) in DL than in NDL at 10 month and in NIL than in IL at 2, 10, 12 month. MVC torque was greater ( $p < 0,05$ ) in DL than in NIL at 1 month, also NDL greater ( $p < 0,05$ ) than IL, at 1, 2, 8 month. Having compared results in first and other month, MVC torque increased ( $p < 0,05$ ) in DL after 12 month, in NDL after 8 month, in IL after 4, 6, 10 month.



**Figure 2.** MVC torque of plantar flexion muscles changes at  $-15^\circ$  ankle angle; \* -  $p < 0,05$ , changes between the injured and non-injured leg as well as dominant and non-dominant leg; # -  $p < 0,05$ , changes between first test time and after 2, 4, 6, 8, 10, 12 month; § -  $p < 0,05$ , changes between dominant and non-injured leg, as well as non-dominant and injured leg.



**Figure 3.** MVC torque of plantar flexion muscles changes at  $0^\circ$  ankle angle; \* -  $p < 0,05$ , changes between the injured and non-injured leg as well as dominant and non-dominant leg; # -  $p < 0,05$ , changes between first test time and after 2, 4, 6, 8, 10, 12 month; § -  $p < 0,05$ , changes between dominant and non-injured leg, as well as non-dominant and injured leg.

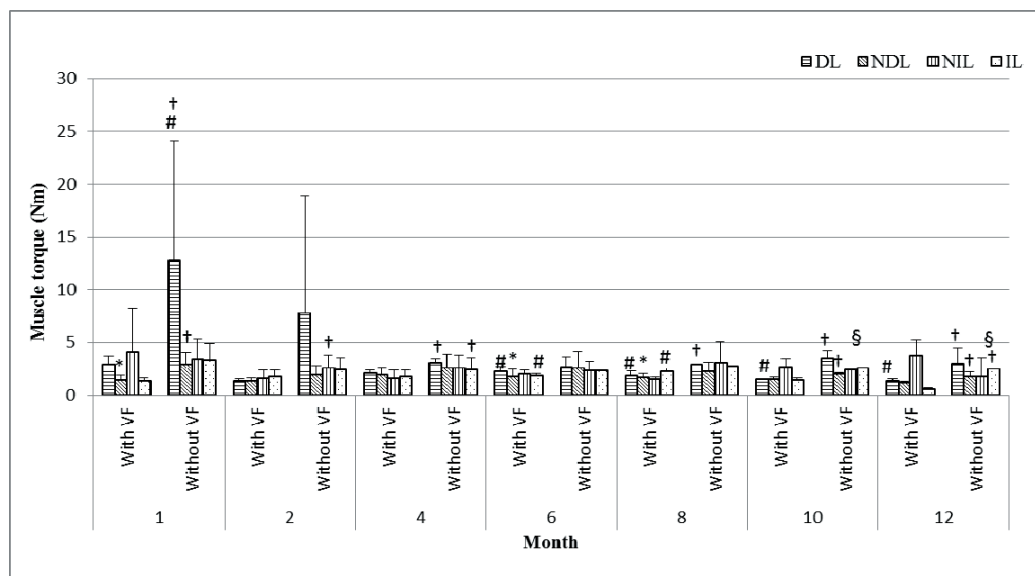


**Figure 4.** MVC torque of plantar flexion muscles changes at 15° ankle angle; \* -  $p < 0,05$ , changes between the injured and non-injured leg as well as dominant and non-dominant leg; # -  $p < 0,05$ , changes between first test time and after 2, 4, 6, 8, 10, 12 month; § -  $p < 0,05$ , changes between dominant and non-injured leg, as well as non-dominant and injured leg.

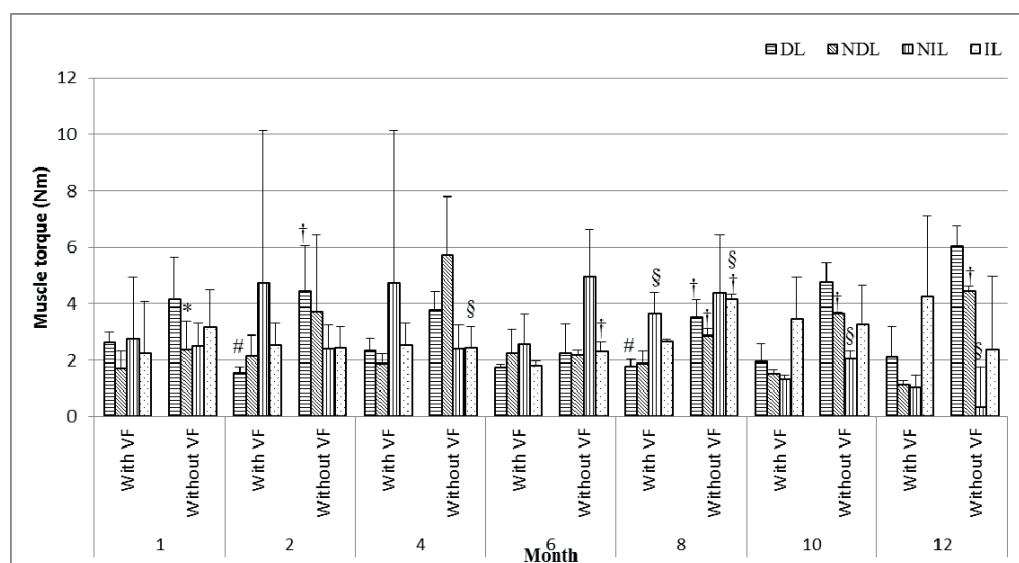
At -15° ankle angle, **plantar flexion muscles VT torque** (see Figure 5) was greater ( $p < 0,05$ ) in DL than in NDL at 1, 6, 8 month with VF. MVC torque was greater ( $p < 0,05$ ) in NDL than in IL at 10, 12 month without VF. Having compared results in the first and other months, VT torque decreased ( $p < 0,05$ ) in DL after 6, 8, 10, 12 month and in IL after 6, 8 month with VF. Having compared data between tasks, VT torque was greater ( $p < 0,05$ ) in task without VF in DL at 1, 4, 8, 10, 12 month, in NDL at 1, 10, 12 month, in IL at 4, 12 month.

At 0° ankle angle, **plantar flexion muscles VT torque** (see Figure 6) was greater ( $p < 0,05$ ) in DL than in NDL at 1 month without VF. MVC torque was greater ( $p < 0,05$ ) in DL than in NIL at 8 month with VF and 10, 12 month without VF. MVC torque was greater ( $p < 0,05$ ) in NDL than in IL at 6, 8 month without VF. Having compared results in first and other month, VT torque decreased ( $p < 0,05$ ) in DL after 2, 8 month with VF. Having compared data between tasks, VT torque was greater ( $p < 0,05$ ) in task without VF in DL at 2, 8 month, in NDL at 8, 10, 12 month, in IL at 6 month.

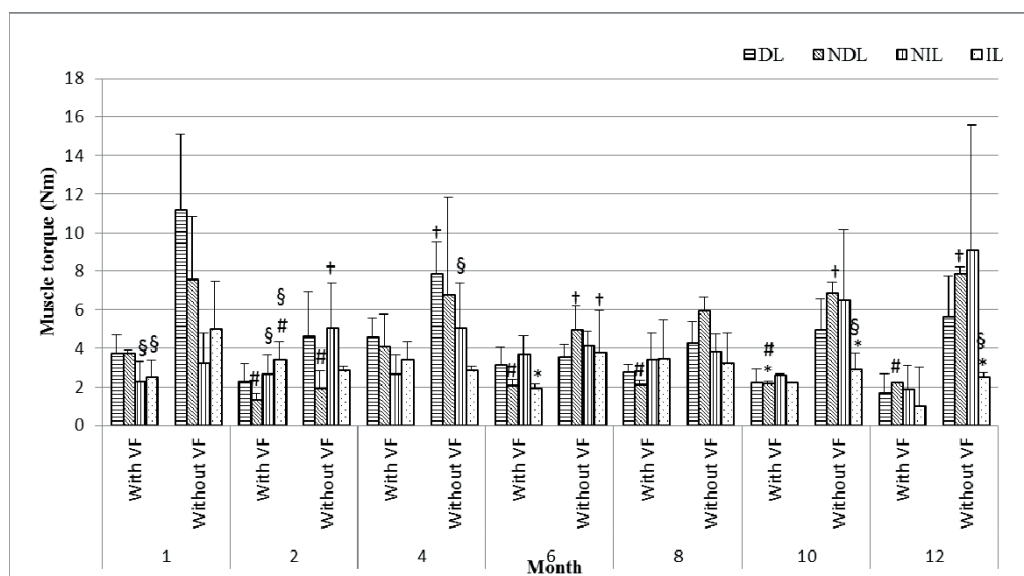
At 15° ankle angle, **plantar flexion muscles VT torque** (see Figure 7) was greater ( $p < 0,05$ ) in DL than in NDL at 10 month with VF, and NIL than in IL at 6 month with VF and at 12 month without VF. MVC torque was greater ( $p < 0,05$ ) in DL than in NIL at 1, 2 month with VF and at 4 month without VF. MVC torque was greater ( $p < 0,05$ ) in NDL than in IL at 1, 2 month with VF and at 10, 12 month without VF. Having compared results in the first and other months, VT torque decreased ( $p < 0,05$ ) in NDL after 2, 6, 8, 10, 12 month with VF and at 2 month without VF. VT torque increased ( $p < 0,05$ ) in IL after 2 month with VF. Having compared data between tasks, VT torque was greater ( $p < 0,05$ ) in task without VF in DL at 4 month, in NDL at 6, 10, 12 month, in NIL at 2 month, IL at 6 month.



**Figure 5.** VT of plantar flexion muscles changes at -15° ankle angle; \* -  $p < 0.05$ , changes between the injured and non-injured leg as well as dominant and non-dominant leg; # -  $p < 0.05$ , changes between first test time and after 2, 4, 6, 8, 10, 12 month; § -  $p < 0.05$ , changes between dominant and non-injured leg, as well as non-dominant and injured leg.



**Figure 6.** VT of plantar flexion muscles changes at 0° ankle angle; \* -  $p < 0.05$ , changes between the injured and non-injured leg as well as dominant and non-dominant leg; # -  $p < 0.05$ , changes between first test time and after 2, 4, 6, 8, 10, 12 month; § -  $p < 0.05$ , changes between dominant and non-injured leg, as well as non-dominant and injured leg.



**Figure 7.** VT of plantar flexion muscles changes at 15° ankle angle; \* -  $p < 0,05$ , changes between the injured and non-injured leg as well as dominant and non-dominant leg; # -  $p < 0,05$ , changes between first test time and after 2, 4, 6, 8, 10, 12 month; § -  $p < 0,05$ , changes between dominant and non-injured leg, as well as non-dominant and injured leg.

### Discussion

The main finding of this study was that (1) eccentric exercises programme decreases calf muscles MVC torque but movement stability becomes greater for healthy person also (2) muscles MVC torque differences between IL and NIL one year follow up for persons with ATR still remain.

Plantar flexion muscles isometric MVC. Calf muscles isometric MVC torque was greater in the DL compared to the NDL as well as in the NIL compared to IL. Plantar flexion muscles isometric MVC torque was greater at -15° (6 month), 0° (6, 10, month), 15° (10 month) ankles angles in the DL compared to the NDL. Some of the authors propose that there is no statistical significant difference in calf muscle strength between legs (Damholt & Termansen, 1978; Moraux, Canal, Ollivier, Ledoux, Doppler, Christine Payan, & Hogrel, 2013). The present results are similar to the ones of investigators. The authors of the present research did not establish any statistical significant difference between DL and NDL in first testing time, the difference between DL and NDL was established after 6 and 10 month of participating in investigation. It is well established that 4-6 weeks exercises influences muscle structural changes (Hotermann et al., 2007). 8 week eccentric exercises may influence muscle hypertrophy (Farthing et al., 2003; Duclay et al., 2009) and greater muscle strength (Farthing et al., 2003). It can be supposed that calf muscle MVC torque between DL and NDL were influenced by 8 weeks muscle strengthening programme. Plantar flexion muscles isometric MVC torque was greater at -15° (8 month), 0° (4, 12 month), 15° (2, 10, 12 month) ankles angles in the DL compared to the NDL. It is proved that isometric muscle torque differences between NIL and IL remain one year after Achilles tendon rupture surgery (Maquiriain, 2011). Finni (2006) with co-authors examine NIL and IL isometric MVC torque differences of nine persons after Achilles tendon rupture. Results show that after 8 week rehabilitation, plantar flexion muscles isometric MVC torque of the IL increased but still remained lower than of the NIL. Don (2007) with co-authors examines NIL and IL isometric MVC torque differences of

49 persons after Achilles tendon rupture. Results show that MVC torque differences between IL and NIL remain for more than two years. The present results are similar to the ones of the investigators; it can be supposed that it may be the result of inequality muscle spindle (Bressel et al., 2004; Don et al., 2007) which was influenced by immobilization (Bressel et al., 2004).

After 8 week EE programme calf muscles isometric MVC torque decreases in DL leg at  $-15^\circ$  ankle angle. Results data of EE influence in healthy person muscle strength is controversial. Some authors propose that EE increases muscle strength (Farthing et al., 2003; Duclay et al., 2009; Roig et al., 2011). However intensive EE exercises may induce loss of muscle strength, range of motion, and/or myoglobin concentration in the blood (Chen, Lin, Chen, Lin, & Nosaka, 2011). The present research results are similar to the ones of the investigators; it can be supposed that it may be the result of increased calf muscles tendon stiffness (Duclay et al., 2009). The authors of the present research also established that IL and NIL leg muscles isometric MVC torque increased accordingly at  $-15^\circ$  (6 month);  $0^\circ$  (4, 12 and 6, 8 month);  $15^\circ$  (2, 10, 12 and 10 month) ankle angles. PT program consisted of eccentric muscles strengthening exercises. It is established that six week eccentric muscle strengthening exercises increased concentric and eccentric muscle strength (Kaminski, Wabbersen, & Murphy, 1998). Gastrocnemius and soleus muscles complex can perform 65% of the total 100% MVC force during the plantar flexion movement (Finni et al., 2006). It can be supposed that NIL and IL muscles isometric MVC torque increased due to muscles strengthening exercises.

Muscles isometric variability of torque VT. It is identified that muscles isometric VT shows movement stability during the task (Kaminski et al., 1998). Plantar flexion muscles isometric VT was greater in DL compared to NDL at  $15^\circ$   $0^\circ$  ankle angles as well as NIL compared to IL at  $15^\circ$  ankle angle. Separate studies on different subject samples indicate that torque variability depends on muscle torque level, type of contraction and muscle group as well as on variability in discharge rate among active motor units (Skurvydas et al., 2010). It is known that during the tendon injury mechanoreceptors (Kaminski et al., 1998) are disrupted, and this disturbs optimal afferent impulse emanation to CNS (Hong & Newell, 2008). However, it was recently concluded that motor output variability may have beneficial or adverse effects (Stergiou, Harbourne, & Cavanaugh, 2006). An optimal amount of variability of motor performance is beneficial because it reduces the risk of injury (Skurvydas, Masiulis, Gudas, Dargevičiūtė, Parulytė, Trumpickas, & Kalesnikas, 2010). It can be supposed that greater plantar flexion muscles isometric VT in DL may be influenced by CNS as “protecting mechanism” from risk of injury. And greater muscle VT in NIL compared to IL may be influenced by intensive healing process in ruptured Achilles tendon.

Movement stability depends on working muscles strength, quality and amount of visual feedback, complexity of task (Smigielski et al., 2008), amount and impulse frequency of recruited motor units (Kaminski et al., 1998). There is non-linear affiliation between isometric muscle torque and isometric muscle VT. Muscles isometric VT increased at 20 – 60% of muscles isometric MVC torque and decreased at 60 – 80% of muscles isometric MVC torque (Christou et al., 2002). Training-induced strength improvement is accompanied by an enhancement of motor-unit synchronization in the agonist muscle as well as reduction of the coactivation of antagonists (Salonikidis et al., 2009). The present results show decreased calf muscles isometric VT (movement stability during the task was improved); it can be supposed that it was influenced by increased DL and NDL as well as in NIL and IL calf muscles isometric MVC torque.

It was found that visual feedback information is important for the continued maintenance of muscle strength (Hong & Newell, 2008). If the movement was performed with visual feedback and lasted longer than 150 ms, proprioception information allows improving movement stability during the task (Salonikidis et al., 2009). Information about movement

stability during the task is received from many sources: spinal cord, muscles, tendons, joints, skin, eyes (Finni et al, 2006). Movement stability decreases when it is performed without visual feedback (Kaminski et al, 1998). The present results show that visual feedback improved DL, NDL, NIL and IL movement stability during the task.

### Conclusions

After eight week muscle strengthening programme calf muscles isometric MVC increased in IL, but decreased in DL. Movement stability improved in NIL at 0°; 15° and IL at 15° ankle angles. After one year isometric muscle MVC torque increased in DL, NDL and IL at 15° ankle angle. Movement stability improved in NDL at 15° ankle angle. However, calf muscles isometric MVC as well as isometric muscles VT remain greater in the DL than in the NDL as well as in NIL than in IL. Also after one year MVC torque differences between IL and NIL leg still remain

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## LONGITUDINAL RESEARCH OF CALF MUSCLES FUNCTIONAL CHANGES FOR HEALTHY AND WITH ACHILLES TENDON RUPTURE SUBJECTS

### *Summary*

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Achilles tendon is the strongest body tendon, but despite the strength, it is the most frequently ruptured tendon in the body and comprises about 20% of all large tendon ruptures. It has been established that EE influence calf muscles torque and proprioception changes, but differences between injured and non-injured leg remain one year follow up. However, ankle proprioception changes in an Achilles tendon rupture population are still not well understood. The examination of the Achilles tendon healing

possibilities could help to provide a better understanding of how physiotherapy may influence the properties of scarred Achilles tendon and avoid tendon re-rupture. **Aim of the study** was to estimate EE effect on the dominant leg, non-dominant leg, non-injured leg and injured leg plantar flexion muscles maximal voluntary contraction (MVC) torque and movement variability (VT) changes one year follow up for healthy and after Achilles tendon rupture persons.

Twelve males divided in two groups have been measured. Experimental group consisted of 5 participants, who were 6,5 weeks after Achilles tendon rupture and 10 rehabilitation procedures. Control group consisted of 7 persons who had never had ankle strain, calf muscles rupture and they were not physically active. Control and experimental group performed isometric ankle flexion force accordingly with injured leg, non-injured leg and non-dominant leg and dominant leg. MVC torque and VT were measured at  $-15^{\circ}$ ;  $0^{\circ}$ ;  $15^{\circ}$  angles. The variability of target force was 40% of MVC torque. Both groups performed 8 weeks calf muscles strengthening programme. Calf muscles MVC torque and VT were observed 7 times one time in two month in one year period.

The results of the research. It has been determined that after 8 week muscle strengthening programme calf muscles isometric MVC increased in injured leg, but decreased in dominant leg. Movement stability improved in non-injured leg at  $0^{\circ}$ ;  $15^{\circ}$  and injured leg at  $15^{\circ}$  ankle angles. After one year isometric muscle MVC torque increase in dominant leg, non-dominant leg and injured leg at  $15^{\circ}$  ankle angle. Movement stability improved in non-dominant leg at  $15^{\circ}$  ankle angle. However, calf muscles isometric MVC as well as isometric muscles VT remain greater in the dominant leg than in the non-dominant leg as well as in non-injured leg than in injured leg. Also after one year MVC torque differences between injured leg and non-injured leg still remain.

# RESEARCH ON FUNCTIONAL MATHEMATICAL LITERACY OF PUPILS WITH MODERATE SPECIAL EDUCATIONAL NEEDS LEARNING IN MAINSTREAM SCHOOLS

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## **Abstract**

The article deals with the research on functional mathematical literacy of pupils with moderate special educational needs (SEN) learning in eighth forms of mainstream schools. Research data were collected applying quantitative approach. The article describes aspects of research structure, material selection and received research results. The questionnaire survey was employed to find out how pupils with moderate SEN learning in eighth forms of mainstream schools are able to apply existing mathematical knowledge in real-life situations and solving practical type problems, their functional mathematical literacy abilities are assessed.

**Key words:** *functional abilities, mathematical achievements, mathematical literacy, pupils with moderate special educational needs.*

## **Introduction and problematics**

Reforming the system of education of Lithuania, teaching becomes increasingly centred on the learner who is preparing to live in the modern society, which cannot be imagined without quickly changing information, productive thinking and the ability to apply subject knowledge acquired at school in various areas of life and education. It is accentuated in the analysis of educational problems “National Strategies of Education 2013-2022: Aims, Problems, Fields of Improvement<sup>1</sup>” (2012) that international researches into learning achievements (TIMSS, PIRLS, PISA) demonstrate different work quality in different levels of schools: achievements in primary education are assessed as good but achievements of senior class pupils (particularly 15-year-olds) are significantly lower than the mean of European countries. This is confirmed by the data of the National Agency for School Evaluation, stating that dominating achievement levels of Lithuanian pupils in all assessed areas – abilities of reading, mathematics and natural sciences – on an international scale were second and third (in total there are 6 levels), whereas there were particularly few pupils of Lithuania who had reached highest – fifth and sixth – levels, their shares were smaller than corresponding means of countries who took part in the research.

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<sup>1</sup> Valstybinė švietimo strategija 2013–2022 m.: tikslai, problemos, tobulinimo kryptys. (2012).

All of it shows that it is necessary to assess and compare pupils' achievements and their shift on the basis of received results, look for new forms, methods, aids of education that help to improve senior class pupils' Lithuanian language, cultural, mathematical, natural science, informational, etc. literacy. Because the role of mathematics, natural sciences and technologies in the modern world is very important, pupils just have to be literate in these areas. The comprehensive school faces a task both to convey knowledge, experience accumulated by the society and help every pupil to form the system of values, learn to learn and solve problems, develop personal competencies which would help to actively act in the society and adjust to changing social, economic conditions through constant self-development (General Curricula for Primary and Basic Education<sup>2</sup>, 2008). It is sought that the pupil should be able to use existing knowledge and information in everyday life (Bulotaitė & Gudžinskienė, 2004; Šiaučiukėnienė, Visockienė, & Talijūnienė, 2006; Baranauskienė, Geležinienė, Tomėnienė, Vasiliauskienė, & Valatkienė, 2010, Tomėnienė, 2012 et al.).

In research literature (Briggs, 2002; Būdienė, 1998; Cibulskaitė & Sičiūnienė, 2007; Cuban, 2001; Dudaitė, 2006, 2008; Madison, 2003 et al.) mathematical literacy is defined as the ability to recognise, understand mathematics and apply its knowledge, make grounded decisions about the existing and future role of mathematics in the person's private, professional life and communicating with peers, relatives, participate in mathematical activities in such ways which correspond to the life needs of the individual as a constructively acting, interested and conscious citizen. Functional mathematical literacy is effective practical usage of mathematics, seeking to implement general life needs at home, at work and participating in the life of the community and society (Siemon, 2000); the ability to understand and use numbers and data analyses in everyday life (Madison, 2003). This demonstrates that General Curriculum of Mathematics for Basic Education (General Curricula for Primary and Basic Education, 2008) pays much attention to the factor of functionality, to the development of functional mathematical literacy because comprehension of familiar mathematical concepts, comprehension and application of mathematical methods provide preconditions for every pupil (both more gifted and weaker and with SEN) to both cognize and freely orientate in practical and everyday life.

The review of research literature of recent years enables to state that development of mathematical literacy of pupils with moderate SEN is insufficiently discussed and there is no information about academic abilities and achievements of pupils with moderate SEN who are integrated and are learning in mainstream schools as well as about their functional abilities to apply acquired knowledge in practical activities. In 2009-2010, seeking to improve this situation and disclose manifestation of mathematical literacy abilities of senior class pupils and youngsters with moderate SEN, the authors surveyed mathematics teachers of mainstream schools and profession teachers in vocational education centres. Research data (Baranauskienė & Tomėnienė, 2010, 2012; Tomėnienė, Tamutytė & Geležinienė, 2011; Tomėnienė, 2012) disclosed pedagogues' opinion about the importance of functional mathematical literacy of pupils and youngsters with moderate SEN, the necessity to improve these pupils' mathematics teaching process in the mainstream school, review the content of the curriculum, developed abilities, attitudes, applied strategies and methods. Research results demonstrated that development of functional mathematical literacy has to become an important constituent of SEN pupils' preparation for self-sufficient life (Baranauskienė & Tomėnienė, 2010, 2012; Tomėnienė, 2011, 2012). According to respondents, the level of mathematical literacy of SEN pupils who come to learn to vocational education centres is insufficient for learning the future speciality; they find it difficult to apply knowledge of mathematics acquired at school in everyday, professional activity and real-life situations. However, in addition to teachers'

<sup>2</sup> Pradinio ir pagrindinio ugdymo bendrosios programos. (2008).

opinion, better development of mathematics of these pupils requires knowledge of the level of these pupils' functional mathematical literacy. Only suitable familiarisation with the pupil's interests, abilities, talents and possibilities will enable to start formation of practical mathematical abilities (Tomėnienė, 2011). It is evident that such knowledge of academic and practical abilities of senior age pupils with moderate SEN educated in mainstream schools is missing; therefore, relevance of this research is determined by the wish to evaluate real situation of development of SEN pupils' mathematical literacy and identify manifestation of functional mathematical literacy of pupils with moderate SEN learning in eighth forms of mainstream schools.

**Research aim:** to explore the manifestation of functional mathematical literacy of pupils with moderate SEN learning in eighth forms of mainstream schools.

**Research subject:** assessment of functional mathematical literacy of pupils with moderate SEN.

**Methods and methodology of the research.** Research instrument was prepared: the questionnaire for testing the ability of pupils with moderate SEN learning in eighth forms of mainstream schools to apply existing mathematical knowledge in real-life situations and solving problems. Data necessary for the research were collected performing quantitative survey in the written form. The questionnaire used during the survey was drawn up on the basis of survey data of mathematics and profession teachers of 2009-2010, of proposals of 6 experts' group, of curricula described in General Curricula for Primary and Basic Education (2008), Curriculum of the Special School (Štitiienė, 1999), National Methodology for Assessment of Pupils' Achievements in Mathematics and for Presentation of Tasks (the permission to use these data was received from the head of the Education Development Centre) and later in Recommendations for Adjustment of General Curricula of Basic Education for Education of SEN Pupils with Low (Limited Intellect) and Very Low (Mild Learning Difficulties) Intellectual Abilities<sup>3</sup> (2010). The notebook of tasks (questionnaire) consisted of explanation how to fill in the questionnaire, collection of mathematical formulas necessary for doing the tasks, questions to find out demographical data about respondents and 5 practical type rubrics of tasks. At the end of the academic year 2009-2010, the pilot study was conducted. It was attended by 100 pupils with moderate SEN. All tasks were reviewed, results were discussed with the experts' group, scopes of problems were reduced, and 37 problems were selected for the main study, which took place at the end of the academic year 2010-2011. The questionnaire consists of two parts. It was recommended to fill them in at different time or after a break so that pupils do not get tired and suitably do all tasks. The first part of the questionnaire consisted of 3 blocks of questions and problems (rubrics "Questions about You", "Test if You Can Measure" and "Test if You Can Apply Knowledge of Geometry Practically"), and the second part of the questionnaire consisted of 3 blocks of problems (rubrics "Test if You Can Apply Knowledge of Geometry Practically", "Test if You Can Apply Knowledge of Mathematics in Professional Activity" and "Test Your Existing Economics Skills"). Pupils with moderate SEN had to solve 37 selected practical type problems in order to find out the peculiarities of applying knowledge of main analysed topics of mathematics. These were problems for evaluating pupils' factual knowledge, understanding, skills, their application in everyday and well familiar subject-based, real-life context. Respondents were given the notebook of problems-questionnaire, made up of main topics of mathematics: *Numbers and Calculus, Geometry, Measures and Measurements, Statistics, Foundations of the Probability Theory*. The content of all conditions of problems is related to the environment that is familiar to the pupil, everyday situations and professional activities. The majority of groups of tasks contained several problems so that it

<sup>3</sup> Pagrindinio ugdymo bendrųjų programų pritaikymo rekomendacijose specialiųjų poreikių žemų ir labai žemų intelektinių gebėjimų mokinių ugdymui (2010)

could be possible to evaluate pupils' mathematical abilities more objectively. All tasks were different: some of them were simpler, easier, others, more difficult.

Drawing up a questionnaire, the format of the problem was also considered. One fourth of problems contained an answer that could have been chosen (pupils had to circle the chosen answer). Solving problems with short answers (solution) (15 per cent), pupils had to write in the answer. The questionnaire also contained problems requiring giving both the answer and the derivation. During the main survey every pupil was given a notebook with problems, which they could solve during several lessons. Pupils were allowed to use additional aids; i.e., calculators, tables of measures, etc. There was space left next to given problems for derivations, so pupils were encouraged to do all derivations in the sheets of the notebook.

The results of solving problems were analysed in three aspects: of *knowledge and skills* (main concepts and procedures, their knowledge, comprehension and solving); *communication* (comprehension of the condition of the problem, rendering of the solution of the problem, usage of mathematical symbols and terms); *solving of practical problems* (choice of the way of solving the problem, writing the answer, making elementary conclusions). All research participants were familiarised with the content of the questionnaire and rules of filling it in. Besides, pupils were warned that data about their personalities would not be recorded.

Empirical data were managed applying quantitative data analysis and descriptive statistics. Results were calculated using SPSS Program version 17.0 and Microsoft Office Excel 2007 software. The results of pupils' general achievements by areas of the curriculum of mathematics are given indicating percentages of correctly done tasks whilst the relation of doing tasks with the difference of equations is analysed employing Chi-square criterion ( $\chi^2$ ).

**Participants of the research.** Choosing the participants of the research, targeted sampling method was employed, "when the very researcher decides which respondents it is more purposeful to select" (Luobikienė, 2000). In this case the quantitative research target group was SEN pupils of eighth forms learning in mainstream schools of Lithuanian cities and regions. The research sample consisted of 391 respondents who corresponded to the following criteria: the eighth form pupil of the mainstream school with moderate SEN, educated according to adapted curriculum of mathematics (after the issue of Order No. V-1795 of the Minister of Education and Science of the Republic of Lithuania, dated 2011-09-30, according to adapted or individualised curriculum).

### Research Results and their Interpretation

Before doing the tasks pupils had to give several data about themselves in the rubric "Questions about You" (the demographic block); i.e., to write gender, age, form, to indicate who helps to do homework, learn mathematics). Conducting the research, respondents were not selected according to gender or age. The main criterion of selection was that respondents had to be eighth form pupils with moderate SEN learning in mainstream schools according to adapted (currently adjusted or individualised) curriculum of mathematics. Having calculated research results, it was found that more boys than girls were questioned; i.e., 60,4 % of boys and 39,6 % of girls. Respondents were from all regions of Lithuania.

The age of pupils who participated in the research ranges from 13 to 16 years. The majority of respondents were aged 13-15, which makes up 85,3 % (40,9% aged 13-14 and 44,4% aged 15) of all respondents. Interest was taken in who helped to do homework, learn mathematics, if pupils attended additional mathematics classes. Based on these data, later received research results – pupils' achievements – were compared. The received data demonstrate that the majority of respondents (N=291) no longer attend additional mathematics lessons, only one fourth of pupils use the possibility to learn additionally what is more difficult for them in the

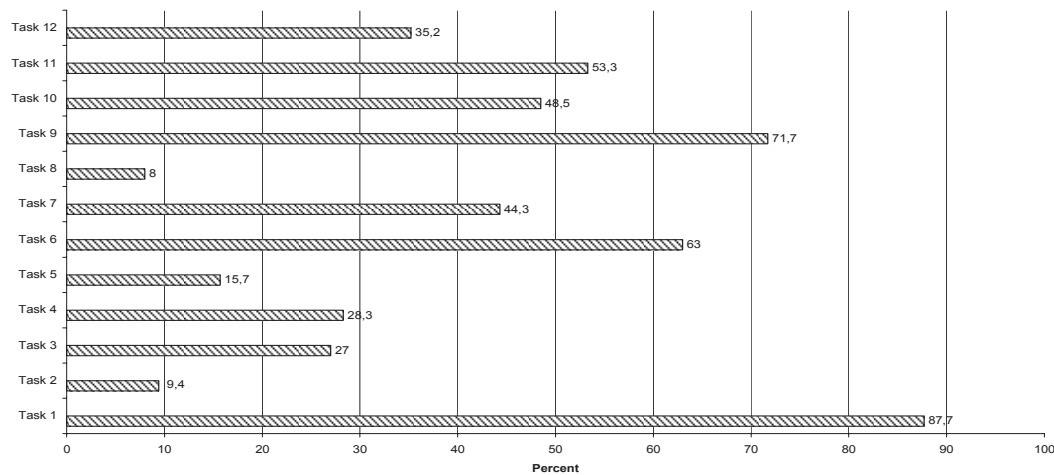
areas of mathematics after the lessons (13,6%). Main forms of assistance learning mathematics are assistance provided by the mathematics teacher (37,3%) and the special educator (34,4%) during lessons. One tenth of pupils indicated that both the mathematics teacher and the special educator assisted them during mathematics lessons. Only eight pupils attend additional private classes. It has been found that parents no longer regularly help children to do their homework, girls more often ask for assistance (38%), boys, less often (25%). However, more than half of pupils (68%) often or sometimes nevertheless address adults for assistance doing homework tasks. Assistance doing mathematics homework is provided often for one fourth of pupils, sometimes, for 42% of eight-formers.

It has been aimed to find out what type of general mathematical and knowledge application abilities had been developed among SEN pupils. The research demonstrated that pupils with moderate SEN did tasks differently. The majority of application problems were moderately difficult and difficult for pupils.

Research results demonstrated that pupils with moderate SEN most successfully did tasks of the areas *Numbers and Calculus*, *Measures and Measurements*. The area *Numbers and Calculus* contained operation series related to the environment familiar to the pupil, everyday situations, professional activity. Pupils achieved best doing these tasks because they could use calculators. The first part of the questionnaire consisted of two blocks of tasks: “Test if You Can Measure” and “Test if You Can Apply Knowledge of Geometry Practically”.

The biggest share of problems in the questionnaire (two rubrics in the questionnaire) was from that area of content of mathematics the knowledge of which pupils often need in everyday activities: the area of *Measures and Measurements*. However, doing certain problems one also has to use knowledge of the area *Numbers and Calculus*. Pupils achieved differently doing these tasks.

Research results of the rubric “Test if You Can Measure” are given in Figure 1.

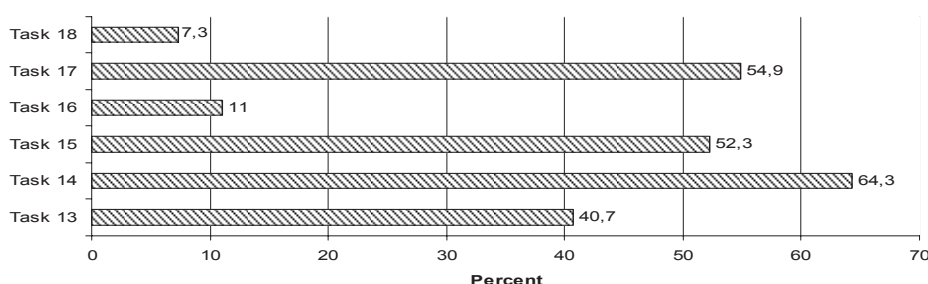


**Figure 1.** Results of Correctly Solved Problems of the Rubric “Test if You Can Measure”, in Percents

As it can be seen in Figure 1, respondents achieved well doing the task where they had to identify the length of the segment according to the given ruler (Problem 1, 87,7%), the value of shown angle (Problem 6, 63%), to calculate how long it took for the employee to go to work (Problem 9, 71,7% of correct answers), to write how many grams the tape recorder

shown in the picture weighed (Problem 11, 53,3%). Pupils were also quite good at doing the task, where they had to indicate what time the electronic clock showed (Task 7, even 85,3% of respondents indicated correctly), to calculate the readings of the thermometer (Problem 10, 48,5% of correct answers). Respondents faced difficulties doing problems where they had to write the length of the strip in millimetres (Problem 2, 9,4% of correct answers), to write the diameter of the circle in centimetres (Problem 5, 15,7% of correct answers), draw the hands of the clock so that they show the written time (Problem 8, only 8% of correct answers), indicate what time mechanical clocks showed (Task 7, 28%).

In the second rubric “Test if You Know Concrete Units” 6 tasks were given where according to the example pupils had to write numerals mentioned in the sentence in numbers, combine or break apart concrete numbers, write them in decimals or vice versa, compare values written in different concrete units, identify temperature changes. Survey results are given in Figure 2.



**Figure 2.** Results of Correctly Solved Problems of the Rubric “Test if You Know Concrete Units”, in Percents

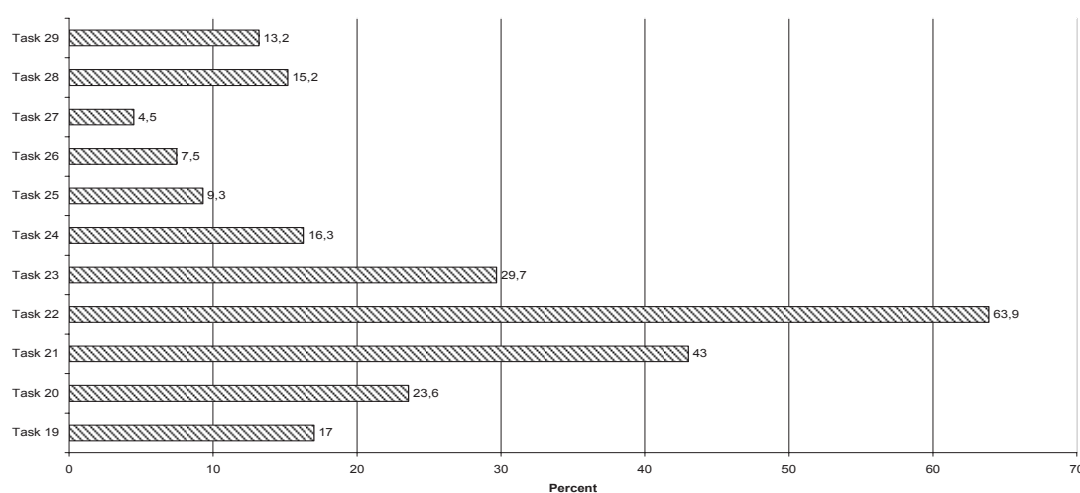
As it can be seen in Figure 2, respondents were doing well where they had to combine or break apart concrete units (Task 14 and 15), identify temperature changes in the room (Task 17, 54,9%). Pupils found it most difficult to write decimals in concrete numbers or vice versa, to express concrete numbers in decimals (Task 16). There were particularly many problems with the task where it was necessary to compare the length of planks written in decimetres, centimetres or metres (Task 18, 7,3%).

To sum up knowledge of pupils with moderate SEN and their application abilities doing tasks of the rubrics “Test if You Can Measure” and “Test if You Know Concrete Units”, the following has been noticed:

- Eighth form pupils did best identifying the length of the segment, measuring the value of the angle according to the given protractor, solving time calculation problem, calculating the weight of the thing in grams according to the drawing, combining or breaking apart simple concrete numbers according to the example.
- It was most difficult to comprehend the mechanical clock and the clock with Roman numerals. It can be assumed that pupils better know digital clock because they more often see it in their everyday life. In order to know the time, many pupils used their mobile phones, computers, digital clocks of institutions.
- Like during the pilot study, respondents most often made mistakes converting the decimal into the concrete number; for example, for 2 t 15 kg learners most often wrote 2,15 kg instead of 2,015 kg. The forgotten zero was namely the mistake of the majority of pupils.

In the second part of the questionnaire three blocks of tasks were given: “Test if You Can Apply Knowledge of Geometry Practically”, “Test if You Can Apply Knowledge of Mathematics in Professional Activity” and “Test Your Existing Economics Skills”.

The rubric “Test if You Can Apply Your Knowledge of Geometry Practically” contained eleven tasks from the area of *geometry*. Pupils had to draw the strip of the corresponding length, segment it into parts; draw angles of the corresponding value, connect geometrical figures with their involutes; using the scale, to draw the plan of the car park; to remember the existing knowledge of this area while solving problems the conditions of which are related to professional (hairdresser’s, carpenter’s, builder’s, knitter’s, land-surveyor’s) activities. The results of correctly done problems are given in Figure 3.



**Figure 3.** Results of Correctly Solved Problems of the Rubric “Test if You Can Apply Your Knowledge of Geometry Practically”, in Percents

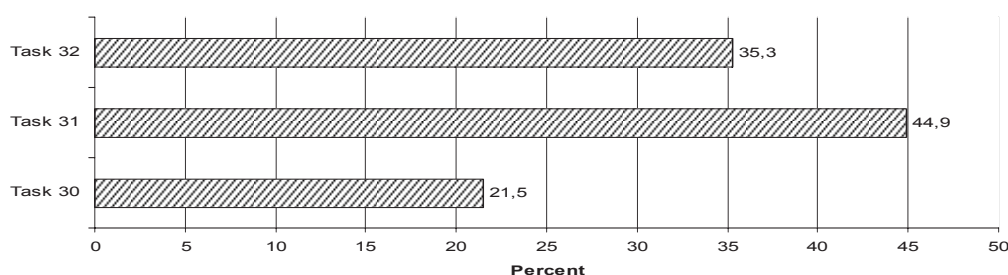
Data in Figure 3 demonstrate that pupils achieved best doing Task 22, in which they had to connect 4 geometrical figures with their involutes and draw angles of the corresponding value. Pupils were especially good at drawing the  $90^\circ$  angle. Almost one third of pupils who took part in the research (29,7%) managed to draw the car park plan correctly; to draw the stripe of the corresponding length and divide it into equal parts (Problem 20, 23,6%); to use aids (the given formula for calculating volume) and to calculate how many cubic metres of ground the workers dug (Problem 28, 15,2%); what the volume of the pool was (Problem 29, 13,2%). Respondents found it more difficult to calculate areas of the rectangular, circle (Problems 27, 26). Eighth form pupils found it extremely difficult to correctly calculate the length of linoleum for the living room (Problem 25, 9,3% of correct answers).

To sum up knowledge and its application abilities of pupils with moderate SEN doing problems of the rubric “Test if You Can Apply Knowledge of Geometry Practically”, it should be noted that:

- Problems of the area of *Geometry* were quite difficult for pupils, particularly solution of word problems;
- A more detailed analysis enabled to find out that in the main study, like in the pilot study, pupils quite well recognised main geometric figures of plain and space, their key elements but they found it difficult to do such problems which required to ground something or use concepts of perimeter, area, volume, scale (as it has been

mentioned, misunderstanding of these concepts particularly showed up at the level of knowledge as well). Many respondents were not able to use formulas which were given in the beginning of the rubric and only one sixth of pupils were able to use the formulas for calculating volumes of cube or parallel-piped rectangular which were given in the condition of the problem, they did not name tallies.

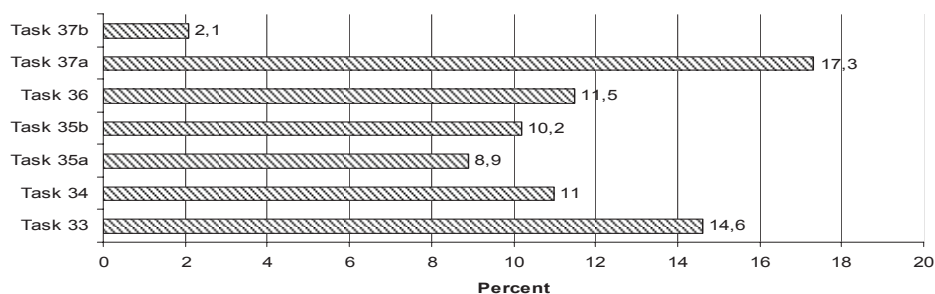
Solving three tasks of the rubric “Test if You Can Apply Knowledge of Mathematics in Professional Activity”, pupils had to remember existing knowledge of mathematics from the areas of *Numbers and Calculus*, *Statistics* and *Probability Theory* (Fig. 4). About two thirds of pupils did not manage to fully solve these problems. The results of correctly done problems are given in Figure 4.



**Figure 4.** Results of Correctly Solved Problems of the Rubric “Can You Apply Knowledge of Mathematics in the Professional Activity”, in Percents

As it can be seen in Figure 4, respondents were doing best where they had to read chart data and find out how many employees worked in “Svajonė” hotel (Problem 31, 44,9% of correct answers). Problem 30 was aimed at finding out if pupils understand how to calculate the mean of the sample; Problem 31, if pupils can read information, presented in the chart, analyse, make conclusions, answer questions related to data given in the chart, Problem 32, if they are able to apply knowledge of combinatorics, probability theory. Only one third of pupils managed to make up 6 kinds of sandwiches correctly. Many variants of sandwiches were contrived; their composition and names were related to the kinds of sandwiches which are most popular at the moment: *hamburgers, burgers, etc.*

Conducting the research, respondents were also given 5 tasks from family economy, calculation of percentages while shopping during sales. The results of correctly solved problems of the rubric “Test Your Existing Economics Skills” are given in Figure 5.



**Figure 5.** Results of Correctly Solved Problems of the Rubric “Test Your Existing Economics Skills”, in Percents

As it can be seen in Figure 5, pupils achieved better calculating how much money remained for the family after paying municipal taxes (Task 33, 14,6%) and calculating how many kWh of electrical energy the family used during February (Task 37a, 17,3%). Doing Task 33, pupils achieved calculating family budget; i.e., how much money the family spends for taxes, but many forgot to calculate how much money remains for them after paying all taxes. Respondents encountered difficulties working out problems where they had to calculate the amount of interest for the given credit (Problem 34, 11%), the discount of the camera and the existing price with the discount (Problem 35, 9,6% of correct answers), do banking: calculate currency exchange from Lithuanian Litas to Latvian Lats (Problem 36, 12% of correct answers). There were particularly many difficulties doing Task 37b (2,1% of correct answers) where pupils had to finish filling in the bill in the electricity billing book.

Quite many difficulties arose to the respondents calculating the discount (percents) of the camera and finding out the current price with the 20% discount. Quite many pupils made mistakes in this problem, choosing the operation incorrectly. Some pupils did not distinguish between the sum of the discount and the given price of the thing; therefore, they divided the price by the percent number. Research results demonstrated that knowledge of these pupils about percentages was still not consolidated, that is why they found it difficult to calculate partial price of the thing when it is reduced by several percents. The results of Problem 36 demonstrated that only a small share of pupils were able to calculate the amount of exchanged currency although in these times when people are fond of travelling every modern person must know how to do such operations. To solve this problem pupils had to think of the way of solution (multiply and then add), perform multiplication and addition operations (could use a calculator) and make a conclusion. The most frequent mistakes were: incorrect choice of the first operation, some pupils multiplied correctly but forgot to add the fee for currency exchange or sales operation. The aim of Task 37 was to find out whether pupils were able to calculate readings of the electrical meter and to fill in the receipt of the bill. The majority of pupils made mistakes incorrectly choosing the operation, some hesitated to do it at all. Task 37b aimed at finding out if pupils could read data given in the table and calculate municipal taxes. The received results demonstrate that 38,8 per cent of respondents managed to fill in at least part of the columns of the bill table correctly but 61,2 percent of pupils filled in the table incorrectly or even did not try to fill it in.

To sum up the results of solving problems of the rubric “Test Existing Economics Skills”, it can be stated that like in case of the pilot study, during the main study Tasks 33-37 were quite tricky for pupils with moderate SEN because only a small share of respondents managed to do them correctly. It can be assumed that during mathematics lessons more time should be spared for solving similar type tasks and for organisation of practical projects and excursions. This fact should be considered by mathematics teachers and textbook authors, preparing practical (real-life) type tasks for mathematics lessons.

Received results demonstrated that boys achieved better than girls doing mathematical tasks. Statistically significant differences between girls and boys were identified doing 11 tasks. Boys significantly better achieved finding out the length of the pencil ( $\chi^2=10,399$ ;  $df=2$ ;  $p=0,006$ ); solving the problem of time calculus ( $\chi^2=8,352$ ;  $df=1$ ;  $p=0,004$ ); combining and breaking apart concrete numbers (converting kilograms into tons and kilograms;  $\chi^2=4,988$ ;  $df=1$ ;  $p=0,026$ ); finding out temperature changes in the room ( $\chi^2=5,609$ ;  $df=1$ ;  $p=0,018$ ); calculating the length of the strip necessary for sowing around the edges of the knitted napkin ( $\chi^2=3,893$ ;  $df=1$ ;  $p=0,048$ ), and calculating the number of hotel employees ( $\chi^2=6,598$ ;  $df=2$ ;  $p=0,037$ ). Girls achieved better calculating the weight of the depicted thing ( $\chi^2=19,069$ ;  $df=1$ ;  $p=0,000$ ), writing figures mentioned in the sentence in numbers ( $\chi^2=5,787$ ;  $df=1$ ;  $p=0,016$ ); expressing a concrete number into a decimal ( $\chi^2=8,456$ ;  $df=2$ ;  $p=0,015$ ); calculating the area

of the detail ( $\chi^2=6,017$ ;  $df=2$ ;  $p=0,049$ ) and filling in the bill ( $\chi^2=6,235$ ;  $df=2$ ;  $p=0,044$ ). Doing other tasks, there is no statistically significant difference between girls' and boys' results. It has been noticed that girls achieved better than boys solving problems requiring reproduction of mathematical knowledge and procedures.

### Conclusions

1. Research results have demonstrated that the level of functional mathematical literacy of pupils with moderate special educational needs learning in eighth forms of mainstream schools who participated in the research is insufficient, pupils lack practical abilities and perception how and where existing knowledge can be applied in everyday activities. This as if contradicts the prevailing opinion that problems with actual content should be solved more easily because they are closer to the pupil's everyday experiences. Hence, it is necessary to constantly pay considerable attention to teaching to solve such type problems.
2. Pupils who participated in the research have most knowledge of mathematics in the areas of *Numbers and Calculus*, *Measures and Measurements*. Pupils achieved best doing arithmetical operations, calculating simple arithmetical series, combining and breaking apart easy concrete numbers, solving time calculus problems. Pupils were quite good at elementary problems in the area of *Statistics* when information given in the chart had to be analysed and simple questions had to be answered.
3. The main problems that pupils encountered doing tasks of the areas of *Numbers and Calculus*, *Measures and Measurements* were insufficiently developed skills of operations with fractional and concrete numbers, proportional values, proportions, percentages, relations of measures.
4. The biggest number of difficulties for pupils with moderate special educational needs arose solving word problems of *geometry* the condition of which required to justify something or use concepts of perimeter, area, volume, scale (incomprehension of these concepts particularly showed up at the level of knowledge as well) and doing *Economics* problems. Respondents were not able to use given formula, insert numbers and calculate an expression; they found it difficult to fill in the receipt, calculate discounts, credit sum, prices with discounts.
5. The problem characteristic to all areas of the curriculum of mathematics is that doing the test many pupils did not solve word problems and those pupils who were solving them experienced difficulties reading conditions, choosing the way of solution, writing derivation and answers. The aspects of mathematical activity requiring more attention in the educational process are as follows: the analysis of the condition of the problem, discussion of possible ways of doing the problem, modelling of real-life situations and imitation of solution operations of corresponding problems.
6. During the research girls better than boys solved standard problems which had a clear algorithm, whilst boys better than girls solved problem-orientated problems requiring more mathematical thinking.
7. Research results demonstrated that ways to achieve better functional mathematical literacy results should be searched. It should also be noted that it is important to improve attitude of pupils with moderate special educational needs to mathematics and its value in everyday and professional life.
8. In the process of teaching mathematics theory should be more often related to practice, it should be taught to apply mathematical knowledge solving practical type problems, to teach and accustom to use learning strategies, paying more attention to visual and practical demonstration and explanation of every separate step, using only such context of problems which pupils are familiar with and which is close to real-life situations, to teach to use supporting materials and supplementary calculation aids.

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## RESEARCH ON FUNCTIONAL MATHEMATICAL LITERACY OF PUPILS WITH MODERATE SPECIAL EDUCATIONAL NEEDS LEARNING IN MAINSTREAM SCHOOLS

### *Summary*

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Functional mathematical literacy is effective practical usage of mathematics, seeking to implement general life needs at home, at work and participating in the life of the community and society (Siemon, 2000); the ability to understand and use numbers and data analyses in everyday life (Madison, 2003). This demonstrates that General Curriculum of Mathematics for Basic Education (General Curricula for Primary and Basic Education, 2008) pays much attention to the factor of functionality, to the development of functional mathematical literacy because comprehension of familiar mathematical concepts, comprehension and application of mathematical methods provide preconditions for every pupil (both more gifted and weaker and with SEN) to both cognize and freely orientate in practical and everyday life.

The review of research literature of recent years enables to state that development of mathematical literacy of pupils with moderate SEN is insufficiently discussed and there is no information about academic abilities and achievements of pupils with moderate SEN who are integrated and are learning in mainstream schools as well as about their functional abilities to apply acquired knowledge in practical activities. The article deals with the research on functional mathematical literacy of pupils with moderate special educational needs (SEN) learning in eighth forms of mainstream schools. Research aim: to explore the manifestation of functional mathematical literacy of pupils with moderate SEN learning in eighth forms of mainstream schools.

Research data were collected applying quantitative approach. The questionnaire survey was employed to find out how pupils with moderate SEN learning in eighth forms of mainstream schools are able to apply existing mathematical knowledge in real-life situations and solving practical type problems, their functional mathematical literacy abilities are assessed. The results of pupils' general achievements by areas of the curriculum of mathematics are given indicating percentages of correctly done tasks whilst the relation of doing tasks with the difference of equations is analysed employing Chi-square criterion ( $\chi^2$ ).

The research sample consisted of 391 respondents who corresponded to the following criteria: the eighth form pupil of the mainstream school with moderate SEN, educated according to adapted curriculum of mathematics (after the issue of Order No. V-1795 of the Minister of Education and Science of the Republic of Lithuania, dated 2011-09-30, according to adapted or individualised curriculum).

Research results have demonstrated that the level of functional mathematical literacy of pupils with moderate special educational needs learning in eighth forms of mainstream schools who participated in the research is insufficient, pupils lack practical abilities and perception how and where existing knowledge can be applied in everyday activities. Pupils who participated in the research have most knowledge of mathematics in the areas of *Numbers and Calculus*, *Measures and Measurements*. Pupils achieved best doing arithmetical operations, calculating simple arithmetical series, combining and breaking apart easy concrete numbers, solving time calculus problems. Pupils were quite good at elementary problems in the area of *Statistics* when information given in the chart had to be analysed and simple questions had to be answered. The biggest number of difficulties for pupils with moderate

special educational needs arose solving word problems of *geometry* the condition of which required to justify something or use concepts of perimeter, area, volume, scale (incomprehension of these concepts particularly showed up at the level of knowledge as well) and doing *Economics* problems. The problem characteristic to all areas of the curriculum of mathematics is that doing the test many pupils did not solve word problems and those pupils who were solving them experienced difficulties reading conditions, choosing the way of solution, writing derivation and answers. During the research girls better than boys solved standard problems which had a clear algorithm, whilst boys better than girls solved problem-orientated problems requiring more mathematical thinking.

Research results demonstrated that ways to achieve better functional mathematical literacy results should be searched. It should also be noted that it is important to improve attitude of pupils with moderate special educational needs to mathematics and its value in everyday and professional life.



## IV. PSYCHOSOCIAL REHABILITATION

# ASSESSMENT OF JOB CAPACITIES OF YOUNG PEOPLE WITH MENTAL DISABILITIES ACCORDING TO THE EVALUATION OF MOTOR SKILLS

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## **Abstract**

Problem of employment talking about integration processes of people with disabilities in present economical situation is still unsolved. Changing labor market appreciates precise, productive and responsible workers. Employers look for employees who can easily deal with difficult situations, be creative and innovative. This viewpoint concerns adults with disabilities, who have problems in finding and keeping job after finishing training in professional rehabilitation centers. The aim of this research is to identify motor functions needed for successful integration into the labor market. It was set up that motor performance in static lifting and static pulling corresponds to the requirements of professions that are taught in the rehabilitation centre for young people with mental disabilities.

**Key words:** *motor performance, motor functions, job requirements, people with mental disability.*

## **Problem of the research**

The intensive changes in social life, development of “network” society, spreading of social, educational, economic standards in EU determine the rapid alterations in politics, education, culture, economy and in other spheres of living society. While the tendencies of globalization are getting more vivid, the integration and multicultural interaction are becoming inevitable in the open labor market as well. At the same time, growth of the number of people with disabilities in the population has brought a new challenge in the area of employment (Radzevičienė, Juodraitis, & Kazlauskas, 2005; Jacobson, Mulick, & Rojahn, 2007). The physical capacities and motor performance of people with mild mental disabilities in mentioned context became a challenge talking about processes of inclusion.

The problem of employment due to insufficient motor performance of people with mental disabilities becomes more and more universal. Such persons require special interest and help if they are going to integrate into open labor market (Gilbride, Stensrud, Vandergoot, & Golden, 2003). Such situation places them into the certain group of social risk. People with mental disabilities usually are employed in specific areas. Job searching is becoming

more demanding due to factors such as increased unemployment, technological evolution and competition among applicants, products and job value (Lenz, Peterson, Reardon, & Saunders, 2010).

The labor market appreciates growing rates of productivity, precision, responsibility, creativity and innovations. This requires developing of certain abilities such as high skilled motor performance, adequate responses to changing situations dealing with stress and at the same time being open facing with risk. Because of this, the risk of social disadvantage for young people with mental disabilities rises. Many of them cannot deal in an adequate way with their duties (Baranauskienė, 2002; Kučinskas, 2000; Kučinskas & Kučinskienė, 2000; Boyt Schell, Gillen, Scaffa, & Cohn, 2013). People face with situation of strong need to train them additionally in a direction of better psychomotor performance. The situation of social risk and possibility to take part in additional trainings depends on many factors: on the quality of evaluation of person's psychomotor skills needed for job activity, on certain motor functions affected by disability, on the type of chosen job. Jucevičienė (1997) adds the factor of social environment on which positive (or negative) attitudes of society towards a person with disability in labor market depend. Therefore, the development of psychomotor skills of young people with mental disabilities serves for the whole process of social rehabilitation (Lingam, Hunt, Golding, Jongmans, & Emond, 2009).

The range, severity and combination of additional disabilities within this population group vary, thus creating a heterogeneous population. Young people with mental disabilities often have additional conditions that may include learning disabilities, physical disabilities, problems in speech and communication, social and emotional disturbances (Agnew, 2011; Vermeer & Davis, 1995). The psychomotor development and social performance of young people with mild and moderate mental impairment requires some expedient training, before getting into the labor market. Motor functions of people with mental disabilities depend on the severity of the mental retardation. People with mild mental retardation may not appear to be impaired at all, and they could be adequate in job performance. The other forms of mental retardation are usually associated with more significant impairments of motor functions. Insufficient motor performance of people with mental disabilities has many explanations that must be taken into the mind planning rehabilitation processes (Drew & Hardman, 2004; Agnew, 2011; Lenz, Peterson, Reardon, & Saunders, 2010). To perform any job coordinate and exact action of CNS is required. Adequate realization of a motion or sequence of movements requires the convergence of numerous pathways and a central system in charge of integrating the information. The motor cortex, cerebellum, and vestibular system (which provide input about directionality, gravity, and motion) are all part of this central mechanism (Lingam, Hunt, Golding, Jongmans, & Emond, 2009). Proprioceptive information (sensation of where the body is in space and about the positions of the limbs and parts of the body), visual input (where the body is in space and where it should go), and an adequate degree of alertness (the reticular formation activated to an optimal degree) all provide information to the CNS. If one of these systems is not functioning adequately (as it is common for people with mental disabilities) the resulting planned movement may not be satisfactory or smooth (Souayah, 2009).

Motor planning as one of the highly multiplex functions of CNS is needed in every kind of work. Motor planning consists of the ability to imagine a mental strategy to carry out a movement or an action (Souayah, 2009; Vermeer & Davis, 1995). Performance of the job requires some planning in the sequencing of movements, including body coordination, the amount of strength to achieve a specific job goal. It means that motor planning involves a number of abilities, including the visual detection of motion and errors in movement, selection of responses, and self-corrective motions. Attention, as indicator of forceful activity, is necessary. Therefore, in case of mental disabilities this sphere is usually insufficient, as well.

The necessity to view, to understand and to learn the job movement slows the performance.

Other serious problem which burdens job performance of some people with mental disabilities is insufficient sensory integration that is closely connected with motor responses and refers to the whole brain functioning (Souayah, 2009). The central concept is that person may struggle to integrate sensory input (visual, auditory, tactile, and proprioceptive cues) and develop aversions (to being touched, to being exposed to new sounds). These persons are often referred to as having “sensory integration disorder” or “sensory processing disorder” (Aryes & Robbins, 1979).

Motor functioning of people with mental disabilities is closely connected with adaptive behavior that primarily refers to the level of social integration. Adaptive functioning refers to practical or social nature skills that demonstrate ability of independent living, taking care of oneself, participation in labor market according to job and social requirements (Gilbride, Stensrud, Vandergoot, & Golden, 2003). Adults having mild mental disorders may be employed at minimum wage jobs and can likely be self-supporting. In cases of moderate mental disorders persons typically live with their relatives or in supervised group settings. This group of adults can learn limited vocational skills as participants in specialized training schools, but are not likely to be self-supporting (Jacobson, Mulick, & Rojahn, 2007).

Therefore, evaluation of motor skills of young people with mental disabilities has triple significance: first, for young adults, that are going to participate in labor market; second, for professionals of vocational training and rehabilitation and third, for employees, who are focused on the person’s abilities and matches the worker with the job requirements. Discussed situation points the need to evaluate motor skills of young people with mild mental disability for participation in the open labor market, even before vocational training process.

**Object of the research:** Assessment of motor performance needed for participant in open labor market of young people with mental disabilities, using Ergo2 equipment.

**Aim of the research:** According to the assessment results to single out characteristics of motor functions needed for certain jobs capacities of young people with mental disabilities.

**Goals of the research:**

1. To discuss theoretical backgrounds of psychomotor and social context for participation in the open labor market of young people with mild mental disabilities.
2. According to the evaluation results to single out characteristics of biomechanical movements in certain motor skills (static lifting ankle and bench height; static pushing and static pulling; reaching forward and standing bending) needed for participant in open labor market of young people with mental disabilities.

**Methodology and method of the research:**

Functional Capacity Evaluations (FCEs) are used to determine the physical abilities of individuals who have had an injury and are perhaps having a difficult time returning to previous levels of function. The ERGOS Work Simulator allows evaluating job capacities based on international industrial standards of Methods-Time Measurement (MTM) and the National Institute of Occupational Safety & Health. ERGOS is three-panel computerized equipment that duplicates various movements and motions of real jobs. The work simulator’s computer provides all task instructions while taking detailed measurements of job performance. The computer then generates a printed evaluation, which details ability, consistency of effort and expected hourly work tolerance during a work day.

The results of the research are presented according to the three blocks of motor performance of three different professions that are chosen by the participants of the research. Apart from social skills the professions of house decorators, hotel workers and woodworkers need some precisely determined physical abilities. According to the profession requirements

that are indicated in the Ergo2 testing procedure there are 2 parameters of physical abilities: 1) tests that require static and dynamic strength in lifting, carrying and pulling in standing and bending, and 2) tests that evaluate the whole body range of motion in forward and overhead reaching. Following methods in the research were used:

1. Analysis of theoretical backgrounds of motor skills of young mentally impaired people.
2. Quantitative research was based on the assessment results of ERGO2 (work simulator) tests. According to the results of the tests the characteristics of biomechanical movements in certain motor skills (static lifting ankle and bench height; static pushing and static pulling; reaching forward and standing bending) needed for participant in open labor market of young people with mental disabilities were singled out.
3. For the processing of the research data, the descriptive statistical methods using computer programs SPSS and Excel were used. Significance of dependent variables was verified using Chi-square test.

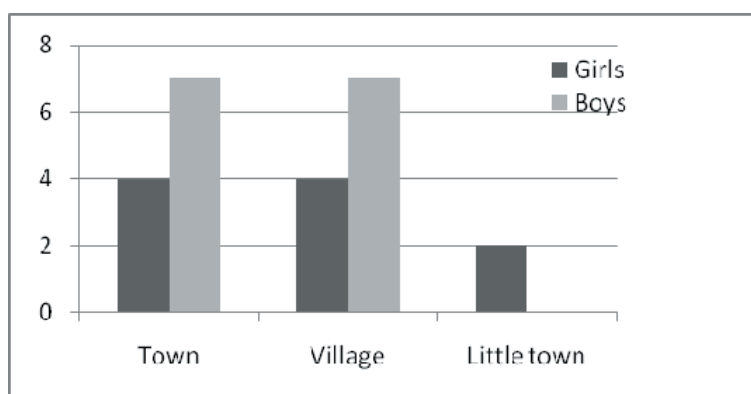
### Sample of the research

25 young people with mental disabilities from 18 to 27 years of age, visitors of Centre of Vocational Rehabilitation in Radviliškis took part in research.

#### 1. Results of the Research and Discussion

##### 1.1. Characteristics of the participants

Centre of Vocational Rehabilitation is an institution where young adults with mild and moderate mental disabilities are trained for certain professions. Centre give services according to the LR Law on Occupation Support (LR Socialinių paslaugų įstatymas, 2006), LR Law on the Social Integration of People with Disabilities (LR Neįgaliųjų socialinės integracijos įstatymas, 2011), LR Law on the United Nations Convention on the Rights of Persons with Disabilities (Jungtinių tautų neįgaliųjų teisių konvencija ir jos fakultatyvus protokolai, 2010) other state laws concerning occupation and vocational training of people with disabilities, it means that clients could get appropriate education and vocational training.



**Figure 1.** Respondents according to living place

25 young adults with mental disabilities at the age of 18 to 27 took part in the research. In ordinary life style, this group is clients of Rehabilitation Centre in Radviliškis who participate in vocational training education for 2 years. Together with professional skills they get some academic knowledge and develop their social skills actively. Because of mental disability they belong to the group of social risk that is why participation in open labor market is a serious

challenge for them. Participants of the research (young adults with mental disabilities) are a population of northern part of Lithuania that in the socioeconomic terms is described as economically depressed (Kavaliauskas, 2004).

This statement is illustrated with the analysis of living places from where the clients come (see Figure 1). In little towns and villages it is hard to find a job for women, because in rural area works that need more physical strength (stock-raising, agriculture, forester works, etc.) prevail.

Number of girls is larger. It could be that parents or care givers support girls' training in the centre of rehabilitation, because of wider opportunities to get job in the towns.

In the Centre of rehabilitation clients are trained to work in various fields of services (see Figure 2).



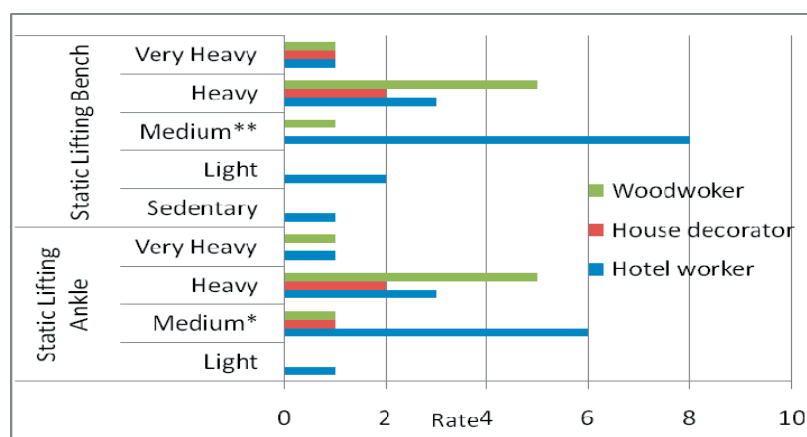
**Figure 2.** Professions chosen by the clients of rehabilitation centre

The representatives of 3 professions participate in the research. The hotel worker is the most popular profession among centre clients ( $p=0,00$ ) and especially among girls. The professions are mostly common to the town's service sectors. These professions require from workers active, creative attitudes, sufficient self-confidence dealing with different types of social situations in their professional life. They must be responsible not only for themselves, but for their nearest environment, as well. It means that adequate social skills and adaptive behavior for professional activity are in necessity.

### **Evaluation of motor functioning for job capacities of people with mental disabilities**

#### ***Results of static and dynamic strength***

Static and dynamic strength is one of essential requirements for any kind of job. Static and dynamic strength include evaluation of lifting, carrying and pulling activities in different positions: ankle and bench. Professions chosen by the clients in the centre of rehabilitation for young people with mental disabilities sometimes do not correspond to person's physical capacities. Any chosen profession requires certain abilities that could differ from another one. In order to train high skilled professional some additional trainings must be organized according to individual physical characteristics of clients.

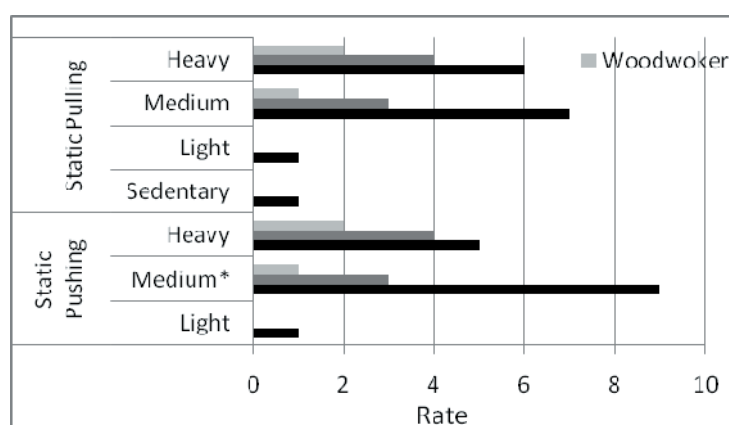


**Figure 3.** Comparison of static lifting (ankle and bench height)

Note: level of significance \* $p=0,00$ ; \*\* $p=0,02$

As the groups were different in their size job capacities were compared using *exact-test* for more reliable results. Static lifting in different height (bench and ankle) is important for the most of the professions. Starting position for evaluation of job capacities is industrial standards of certain job. There are different requirements for the level of static lifting for hotel worker (medium), house decorator (heavy) and woodworker (very heavy). It was set up (Figure 3) that results of three groups differ in their characteristics according to the respondents' capacities to perform a chosen job. Hotel workers show the best results in static lifting bench height ( $p=0,00$ ) (medium level) and most of all fit to the requirements for chosen profession. Talking about house decorators and woodworkers ( $p=0,02$ ) it must be mentioned that their job capacities do not correspond to the needed level. It means that addition physical trainings for students of Radviliškis Centre of Rehabilitation must be organized.

Comparing results of static lifting from different heights it is obvious that results in static lifting bench level are better than in ankle level. Differences could be explained in physical characteristics of participants. Most of them have additional health conditions (impairments in skeletal, muscular system, heart and lung pathology). These conditions could influence physical strength of young people with mental disabilities.

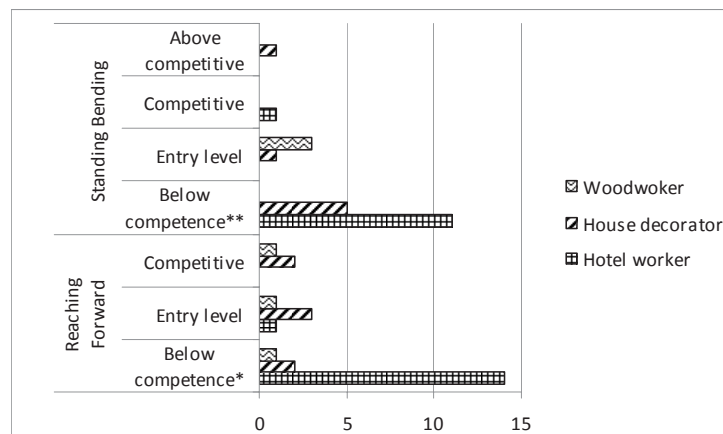


**Figure 4.** Results of Static Pushing and Static Pulling of young people with mental disabilities

Note: level of significance \* $p=0,04$

The representatives whose profession requires medium or light job capacities show better results in test performance. Sufficient job capacity (medium) level was demonstrated by hotel workers in static pulling and pushing ( $p=0,04$ ) tests. However, these results show that house decorators and woodworkers are stronger than hotel workers (Figure 4). Their job capacity must correspond to levels *heavy* and *very heavy* and in most cases it meets the demands of profession. Usually professions of house decorators and woodworkers are chosen by boys, so in comparison with girls they show higher upper muscles strength.

Comparing the results of static pulling and static pushing it seems that results of static pushing are better and it could be influenced by more developed forearm muscles, as well as by disorders of motor development due to the neurologic impairments that are common for people with mental retardation. For 18 participants of the research neurological impairments were fixed, they had problems of motor development in childhood and at present moment their consequences are felt. The same is in case of characteristics of static lifting, strength of the muscles of upper body must be developed pointing training of pectoral muscles especially. For the static pushing movement usually upper body weight is used and it is one more reason why results of static pushing are better. Anyway the results of the tests are not sufficient to the demands of Industrial Standards.



**Figure 5.** Results of Reaching Forward and Standing Bending of young people with mental disabilities

Note: level of significance \*  $p=0,00$ ; \*\* $p=0,03$

Motions of reaching forward and standing bending are more multiplex and they need certain level of attention, motor reaction and motor planning abilities, and appropriate level of motor development, as well. Physical readiness, functions of body coordination and trunk rotation permits in an appropriate way to perform job tasks. These motions involve person's psychical and physical abilities, that is why talking about people with mild mental disabilities it has some specific features.

For all professions that were chosen by participants of the research these functions are in high need. According to the requirements of job standards it must correspond to the level *competitive*. Comparing test results between groups future hotel workers show the lowest (*below competence*) results in reaching forward ( $p=0,00$ ) and standing bending ( $p=0,03$ ) tests. In a few cases the levels of capacities *competitive* and *above competitive* were set. Results of house decorators and woodworkers were better. It happens because these professions are prevailing mostly among boys and they are stronger and more developed physically than girls. Most of the participants show entry level and it means that wards of Radviliškis Center of

professional rehabilitation are not ready to go into the open labor market without doing harm for their health while performing motions of reaching forward and standing bending.

It must be mentioned that for 2 girls passing these tests health problems appeared. They stopped the test because of giddiness and enervation. These cases show indirectly that mental disabilities have brain damage conditions that influence job capacities and are not visible externally. As reaching forward and standing bending tests are multiplex and requires good integration of sensor, motor and psychical functions for the young people with mental disabilities they could be used as one of diagnostic methods while choosing future profession.

Discussed results are important trying to understand how condition of mental disability influences job capacities of young people with mental disabilities and what additional trainings are needed for participation in open labor market. The results of the research show that young people with mental disabilities are participating in the process of professional rehabilitation, they are choosing professions, but physically they are not ready for active work.

### Conclusions

1. Analysis of scientific studies shows that range, severity and combination of additional disabilities within group of people with mild mental retardation vary, thus creating a heterogeneous population. The psychomotor development and social performance of young people with mild and moderate mental impairment requires some expedient training before getting into the labor market.
2. Comparing results of static lifting from different heights it was set that results in static lifting bench level are better than in ankle level. Differences could be explained in physical and health conditions of participants (impairments in skeletal, muscular system, and heart and lung pathology). These conditions could influence physical strength of young people with mental disabilities. All groups show better results in static lifting bench level. Results of woodworkers and house decorators are better than of hotel workers, therefore, it means that future woodworkers and house decorators are physically stronger and better prepared for chosen profession. Results in static lifting ankle level in all groups were lower.
3. Comparing the results of static pulling and static pushing, the results of static pushing are better and it could be influenced by better developed forepart muscles, as well as by disorders of motor development due to the neurologic impairments that are common for people with mental retardation. For static pushing movement usually upper body weight is used and it is one more reason why results of static pushing are better than results of static pulling. Anyway the results of the tests are not sufficient to the demands of Industrial Standards.
4. According to the requirements of job standards reaching forward and standing bending capacities must correspond to the level *competitive*. Comparing test results between groups future hotel workers show the lowest (*below competence*) results in these tests. Results of house decorators and woodworkers were better. Most of the participants show entry level and it means that wards of Radviliškis Center of professional rehabilitation are not ready to go into the open labor market without doing harm for their health.

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## ASSESSMENT OF JOB CAPACITIES OF YOUNG PEOPLE WITH MENTAL DISABILITIES ACCORDING TO THE EVALUATION OF MOTOR SKILLS

### *Summary*

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Problem of employment talking about integration processes of people with disabilities in present economical situation is still unsolved. Changing labor market appreciates precise, productive and responsible workers. This viewpoint concerns adults with disabilities, who have problems in finding and keeping job after finishing training in professional rehabilitation centers.

Motor functioning of people with mental disabilities is closely connected with adaptive behavior that primarily refers to the level of social integration. Adaptive functioning refers to practical or social nature skills that demonstrate ability of independent living, taking care of oneself, participation in labor market according to job and social requirements (Gilbride, Stensrud, Vandergoot, & Golden, 2003).

Adults having mild mental disorders may be employed at minimum wage jobs and can likely be self-supporting.

Functional Capacity Evaluations (FCEs) are used to determine the physical abilities of individuals who have had an injury and are perhaps having a difficult time returning to previous levels of function. The ERGOS Work Simulator allows evaluating job capacities based on international industrial standards of Methods-Time Measurement (MTM) and the National Institute of Occupational Safety & Health. ERGOS is three-panel computerized equipment that duplicates various movements and motions of real jobs. The work simulator's computer provides all task instructions while taking detailed measurements of job performance.

The results of the research are presented according to the three blocks of motor performance of three different professions that are chosen by participants of the research. Apart social skills the professions of house decorator, hotel worker and woodworker need some precisely determined physical abilities. According to the profession requirements that are indicated in the Ergo2 testing procedure there are 2 parameters of physical abilities: 1) tests that require static and dynamic strength in lifting, carrying and pulling in standing and bending, and 2) tests that evaluate the whole body range of motion in forward and overhead reaching.

25 young people with mental disabilities from 18 to 27 year of age, visitors of Centre of Vocational Rehabilitation in Radviliškis took part in the research.

Analysis of scientific studies shows that range, severity and combination of additional disabilities within group of people with mild mental retardation vary, thus creating a heterogeneous population. The psychomotor development and social performance of young people with mild and moderate mental impairment requires some expedient training before getting into the labor market. Comparing results of static lifting from different heights it was set that results in static lifting bench level are better than in ankle level. Differences could be explained by physical and health conditions of participants (impairments in skeletal, muscular system, and heart and lung pathology). These conditions could influence physical strength of young people with mental disabilities. All groups show better results in static lifting bench level. Results of woodworkers and house decorators are better than of hotel workers so it means that future woodworkers and house decorators are physically stronger and better prepared for a chosen profession. Results in static lifting ankle level in all groups were lower.

Comparing the results of static pulling and static pushing, the results of static pushing are better and it could be influenced by better developed forepart muscles, as well as by disorders of motor development due to the neurologic impairments that are common for people with mental retardation. For static pushing movement usually upper body weight is used and it is one more reason why results of static pushing are better than results of static pulling. Anyway the results of the tests are not sufficient to the demands of Industrial Standards.

According to the requirements of job standards reaching forward and standing bending capacities must correspond to the level *competitive*. Comparing test results between groups future hotel workers show the lowest (*below competence*) results in these tests. Results of house decorators and woodworkers were better. Most of the participants show entry level and it means that wards of Radviliškis Center of professional rehabilitation are not ready to go into the open labor market without doing harm for their health.

# PREVOCATIONAL TRAINING SITUATION OF YOUNG PEOPLE WITH SPECIAL EDUCATIONAL NEEDS (SEN) IN GERMANY

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## **Abstract**

The article presents the analysis of educational situation of young people with Special Educational Needs (SEN) in Germany based on the example of Prevocational Training in a Vocational Training Institute. German Federal Law is discussed in the context of Germany Federal States regulations that have their own cultural sovereignty. Systems of special and regular education, performing vocational training and prevocational counselling are discussed in parallel with pupils having special educational needs education and preparation for the labour market relationships. Case of Vocational Training Institute Kirchseeon/Berufsbildungswerk Kirchseeon (BBW Kirchseeon) reflects compatibility of the needs of individual pupils with SEN and possibilities to get into labour market and general state regulations. On this basis, vocational education has the task to find ways for a precisely fitting promotion.

**Key words:** *students with SEN, vocational/pre-vocational counselling, institution education, legal system of Germany*

## **Introduction**

The integration of vocational education and training is important for giving students with special educational needs the opportunity to access mainstream provision during their education and in their future working life. Curricula should include workplace behaviours, occupational skills and careers awareness, as well as provide work exploration opportunities to help learners with special educational needs identify career interests and be proactive in developing the skills critical to a successful transition (European Agency for Development in Special Needs Education, 2012).

The agenda of educational policy in Germany implies that all young people should have the possibility to absolve a vocational training successfully or to take up gainful employment. Even young people with special educational needs should achieve this goal. Due to these special educational demands, proposals are offered to those in need for the permanent integration in the working life and society.

“Behind this concept is a particular image of humanity. Every human has multiple skills and talent potentials which can develop or diminish in a lifetime. Young people with special

educational needs often have a set of negative socialisations and learning experiences. In many cases they were confronted with unfavourable parameters under which they could not develop optimally. At the end of their school career and at the entry to adulthood they seem as dropouts or display behavioural problems to people, whose high expectations they cannot meet. In contrary the job integration promotion does not focus on the weaknesses of the young people but on the skills and talents. They believe in the young people and try to build up their trust in their own skills and talents” (Bundesministerium für Bildung und Forschung, 2005).

Vocational counselling is important for all students, but it is especially critical with learning disabilities. Learners with special educational needs should be helped to develop self-awareness skills and to recognise potential roles for themselves in the community. Students with special educational needs should document their future vocational plans and how to develop them through personal vocational portfolios providing evidence of their achievement (Lundine & Smith, 2006).

However, the nature of occupations is changing dramatically. New job creation has been concentrated on knowledge and technology jobs rather than production or extraction jobs. The demand for specific vocational skills has been augmented with a growing need for general skills, including reasoning abilities, general problem-solving skills, and behavioural skills (Carnevale & Desrochers, 2002). As Carnevale & Desrochers (2002) stated, cognitive styles, such as how workers handle success and failure on the job, are also positively related to job success. Occupational and professional skills are also needed. Sitlington, Neubert, & Clark (2010) indicate a number of studies that have found that the transition to employment can be positively affected by the work-based learning programs covered in schools. The authors have found that one of the most effective methods of approaching the knowledge and skills needed by youth with special educational needs in preparation for employment is to focus on three major areas: 1) occupational awareness, 2) employment-related knowledge and skills, and 3) specific occupational knowledge and skills.

#### **Object of the research:**

Prevocational training of SEN pupils in Germany: analysis of legal system in the context of education practice

#### **The goal of the research:**

To analyze prevocational training of SEN pupils in Germany: in the context of legal system.

**Methods of the research:** Article is presented by using Method of Public Ethnography. It is a method usually used by researcher who is interested and presents problems of present time in various social areas (human rights, public health, culture, education, etc.) (Borofsky, 2000). Researcher as a qualified and intellectual observer, describe and analyze own experience in the context of public problems. Researcher tries to present report in a way that could be understandable for society. The results of such kind of the research (which hardly could be named as research according to the ordinary criteria that are accepted for social science) often looks like text of publicist genre. This kind of research appears at the end of XX century when social sciences were forced to unclothe to the non-professional audience (Tedlock, 2005).

#### **The possibilities of support for pupils with special educational needs in Germany**

Many European countries are implementing inclusive education, but in some countries, such as Germany and Slovakia, learners with special educational needs and the majority of people with learning disabilities are placed into segregated settings (Pohl & Walther, 2007). There is some suggestion that these institutions are an alternative for learners who do not have the opportunity to find a job in the open labour market or find a place in a supported occupation programme. The aim of these programmes is mainly focused on developing vocational skills

(Lifshitz & Klein, 2007). In Germany the Federal States have their own cultural sovereignty. As a cause of this, in Germany "... the support of pupils with SEN excels through a variety of organisations and methods ..." – a fact that was stated and published by the cultural minister's conference (Kultusminister konferenz, 2012). In detail it is stated: "the plurality of the support facilities, experiences with combined classes of pupils with and without disabilities, educational scientific thinking and school political fundamentals in the different Federal States of Germany made clear, that a personal related, individualized point of view of special educational support and integrative education has priority to institutional orientated support. ... In conclusion, pupils with special educational needs can be integrated in grammar schools or learn in special schools" (Kultusminister konferenz, 2012).

"In addition, these goals and developments in the Federal States should be accordant to the implementation of the UN Convention of the Rights of People with Disabilities (UN-BRK) which are mandatory in Germany since 26 March 2009" (Kultusminister konferenz, 2012).

It starts before school-beginning: If the children cannot get the necessary support in other extracurricular institutions (e.g. kindergarten), "... In this case the special schools perform the special educational support, by training and education according to the individual character of the children. The support focus and programs correspond to the particular special school (Bayerisches Gesetz über das Erziehungs- und Unterrichtswesen, 2000).

Grade 1 and 2, primary level, in schools for special educational needs are called DFK.

"Those are especially for children who start school and cannot participate in the lessons of the regular classes with sufficient performance and could not be supported enough by placing back" (Bayerisches Gesetz über das Erziehungs- und Unterrichtswesen, 2000). If necessary, those classes can be extended by a form 1A. The basis of those lessons is the curriculum of the elementary schools.

"By taking children in a DFK it should be prevented, that the children are even more impaired in their personal development through constant failure" (Heide-Schule zur Lernförderung)<sup>1</sup>.

The main goal is getting qualified pupils back to a public elementary school by targeted measures.

If the pupil is not able to change to regular school, she/he has to visit a remediation schools, which can be formed for special support focus vision, special support focus hearing, special support focus physical and motor development, special support focus intellectual development, special support focus language, special support focus learning, special support focus social and emotional development (according to Para. Art. 20 Bayerisches Gesetz über das Erziehungs- und Unterrichtswesen, 2000).

For those SEN-pupils, who can visit the regular, local school, a Mobile Special Educational Service (MSD) is possible (accord. to Para. Art. 21 Bayerisches Gesetz über das Erziehungs- und Unterrichtswesen, 2000). The MSD offers individual counselling and support for children and young people with different support focus in public schools and also for teachers, parents and legal guardians. This service guarantees that pupils with special educational needs can attend their local public school, by bringing the special pedagogues directly to place where the services are needed.

Para. 30a Bayerisches Gesetz über das Erziehungs- und Unterrichtswesen (2000) regulates the cooperation of schools by the creation of cooperation- and external school classes. With approval from the participating school authorities external classes can be held at general schools, at a remedial school or in remedial classes in a general school. This enables especially intense forms of mutual lessons and joint school life.

<sup>1</sup> Heide-Schule zur Lernförderung. Retrieved from <http://www.heideschuleschwebheim.de/Diagnose-FoerderklassenInfo.html>.

A cooperation class is a class of a general school which admits a group of pupils with special educational needs. In that case the special educational needs should neither qualitatively nor quantitatively be so high that only an education in a remedial school should come into consideration. The purpose of cooperation classes is to lead a group of pupils from a remedial school back to a general school.

“By pooling pupils with (yet present) special educational needs in a general school class the social ties of the pupils from the remedial school stay preserved and furthermore a more efficient usage of mobile special educational services is enabled. Through this close cooperation of the general school and the remedial school especially with the mobile special educational services it is a much targeted special promotion of the appropriate pupils. The basis of the lesson plan in the cooperation classes is the curriculum of the general primary and secondary schools. The pupils with special educational needs attend those lessons too, but they receive additional – or in single cases as an alternative – special educational group promotion” (Bayerisches Staatsministerium für Unterricht und Kultus, 2006).

During the last two school-years counselling by an adviser of Federal Labour Agency, which belongs to “Federal Institute of Agency”, starts. This agency is a governmental organisation, which is responsible for fulfilling the tasks which the established law provides them with. The main tasks for the labour agency are: mediation apprenticeship and jobs, job counselling, support of vocational training, support of further job training, support of job integration of people with disabilities, payment to preserve and create jobs, compensations, for example, unemployment benefit or insolvency benefit.

In context of job counselling, the legal requirements for the agencies to sponsoring a vocational training and support the job integration of a person with disabilities are:

- Sozialgesetzbuch Drittes Buch Arbeitsförderung (2004) III: §§ 1 – 3 und 7 SGB III ff - § 19 SGB III/§ 2 SGB IX – Basis for all decisions and –
- Sozialgesetzbuch Drittes Buch Arbeitsförderung (2004) SGB X: Part I > governing the rehabilitation (for example, the special educational needs), Part II > governing the particularities with people with severe disabilities.

In the sense of § 2 Paragraph 1 SGB IX people are considered “having disabilities”, “if their physical constitution, intellectual ability or mental health are, with high probability, longer than 6 months different from the typical condition for their age and as a cause of this, their participation in society life is impaired. They are considered having disabilities if this impairment is to be expected.”

If a young person has special educational needs or a disability, special help is needed to take part in the working life. The counselling and support is done by the “Rehabilitations-counsellor” (= Job counsellor for people with severe disabilities and pupils with special educational needs). The counselling and support starts in the penultimate class: vocational orientation proposals – additional to the teacher – are supported by school social workers and job entry tutors, school counselling is on behalf of the education plan of the teachers, together with the parents and, if there is consent, there are further helpers; parent-teacher-meetings, school conference and visits to a job information centre. Before entering a measure, aptitude tests, medical assessment and short measures in institutions to assess vocational qualification are performed.

### **Possibilities for young people with SEN after school**

Helping youth with disabilities in transition from school to a quality adult life is a complex task involving the coordination of multiple personnel, agencies, programs, and services. Kochhar-Bryant & Greene (2009) mention The Individuals with Disabilities Education Act 2004, in which it is stated that transition services must be a “coordinated set of activities for a

child with a disability that is designed to be within a results-oriented process, that is focused on improving the academic and functional achievement of the child with a disability to facilitate the child's movement from school to post school activities including postsecondary education, vocational education, integrated employment (including supported living), continuing and adult education, adult services, independent living, or community participation". However, the authors note that no single agency is capable of offering the vast array of transition services and programs needed by the full range of students with special educational needs and they offer interagency collaboration which could involve the formation of interagency transition teams and the writing of interagency agreements.

In Germany the promotion, as already mentioned, depends on the severity of the disability. Students who require little care are able to start a vocational training in a company. Therefore the companies could get a subsidy from agency of labour or the students may, upon application, receive a care in the form of flanking training assistance. This support includes additional tutoring as well as a social and educational support.

SEN-students, which would be able to start a vocational training, but do not have enough theoretical knowledge at that time, can visit a prevocational year in a Vocational school, where they get good preparation for the following vocational training.

For those SEN-students who need more practical training (for example: they have to improve their motor skills) or develop their personal/social abilities, the visit to a Prevocational Training is adequate.

Which Prevocational Training (with very few, normal or a lot of support) is appropriate for the SEN-students, depends on their abilities/disabilities and will be decided by the adviser of agency of labour after different tests.

In the following, one example of a vocational institute for SEN-students, who need a lot of support, is shown:

#### **Vocational counselling for young people with SEN at the Vocational Training Institute Kirchseeon/Berufsbildungswerk Kirchseeon (BBW Kirchseeon)**

Vocational training institutes enable students with severe disabilities like learning difficulties, psychic problems, visual impairment, hearing impairment, speech impediment, autism, physical disabilities, epilepsy to start a vocational education. These students do not have the opportunity to get a vocational training in a regular company, because their disability is too extensive and they need a lot of support and advancement.

In Germany there are 52 such Institutions, which capacitate young persons with disabilities to finish a vocational training with a diploma like a vocational training<sup>2</sup> in a regular company.

All measures and vocational trainings have to be financed by the Federal Labour Agency or other sponsors like welfare agencies or insurances.

The Vocational Training Institute Kirchseeon offers a variety of measures:

##### *Vocational training*

The vocational training is performed in own workshops, according to the guidelines for vocational education: §5 BBiG (Sozialgesetzbuch Drittes Buch Arbeitsförderung vom III, 2004) /§25 HWO (Handwerksordnung (HandwO) in der Fassung der Bekanntmachung, 1998) "Complete vocational training" and §66 BBiG/42m HWO "Assistant's training". Vocational

<sup>2</sup> Vocational training normally takes place in companies according to the "Dual System", that means: working in a company, learning professional-practical contents of the occupation and visiting a vocational school for about 10 hours a week. After 2-3,5 years (depending on the occupation) there is an examination by a chamber or agency. There are nearly 380 different occupations in Germany. After the successful examination the apprentices are skilled workers.

training in 24 different occupations in the fields is offered: metal, wood, colour and interior design, printing and paper processing, nutrition, horticulture, car care and store. Participants attend own vocational school with specified curriculum (for SEN-students). Intermediate and final examinations take place at various chambers.

*Testing the abilities in one profession (20 days)*

By operating appropriate exercises and tests, the skills and necessary requirements for a special vocational education or occupation are checked.

*Testing the abilities in different professions (up to 60 days)*

The students have to accomplish several tests to get to know the manual, academic, personal and social skills and resources. Practical tests in different professions are performed. The students visit one school class in the nurture vocational school.

*Internship/Practical course (during the regular school time on request)*

Pupils from special schools are offered to test different workshops, to experience the vocational workaday-life and to collect impressions of their own vocational interests and skills.

For students who cannot commute to the Vocational training institute daily or who wish to obtain additive support in learning for school, for their personal development or in their transition into independence, different forms of living and supervision in boarding houses are offered.

Each student is accompanied by a coordinator, a social pedagogue. Students can attend Special Services like Medical Service and Psychological Service on demand, additionally.

The disabilities of the students are not limited only to the deficient school achievements; most of the pupils are restricted in many cognitive skills, too.

As a result the support has to be all-embracing and on a broad level (e.g. support of social competences, communication skills, life skills, etc.).

With the help of an Individual Training Plan it is possible to record every small development step of the students and work together with him/her on a realistic vocational goal.

### **Vocational Preparatory Training (VPT)**

The Concept of the “Prevocational Training” has been renewed in 2004. The training is funded by Federal Agency of labour for those students, who need a very intensive support in vocational counselling.

Which training is appropriate for SEN-students, depends on their abilities/disabilities. If the restraints are too severe it means: for companies it would be too much effort to deal with SEN-students, there are VTI in Germany with own workshops.

The objectives, tasks and contents of VTT are regulated in the Conception-Paper “Prevocational training activities: “The goal of VPT: Vocational Preparatory Training should prepare for subsequent studies or serve for vocational integration. Preparation and integration to a vocational training is to prefer. If it is not possible to achieve this goal during the preparatory training, the training changes into a preparation for a job” § 61 / § 61 a Sozialgesetzbuch Drittes Buch Arbeitsförderung vom III, 2004.

The main tasks include:

- to give a vocational orientation
- the opportunity of getting tested for suitable jobs according to one’s skills
- guiding while making a career choice
- to impart the students with the necessary knowledge and skills for the initial vocational training (and maybe even graduate) or – if this is (still) not possible –
- to prepare (as sustainable as possible) and integrate the participants for inclusion in the regular labour market.

VPT is a support program for young persons from special schools and secondary schools with learning difficulties, with permanent learning disabilities, with behavioural problems or psychological disorders and for those, who are not able to work at that time or the first attempt of the preparatory training was not successful.

The respective qualification level and the duration of the VPT depends on the individual needs, the integration prospects and possibilities of the participant; it is normally 11 months. For participants exclusively with the aim of starting an employment, a maximum of 18, in exceptional cases to 24 months

The starting of the VPT can be made all over the year.

### **Procedure of the VPT**

The VPT starts with the Analysis of abilities. It is the basis for an individual training plan, covering the technical, methodological, social and personal skills of participants. The students are assigned to different groups. Several tests (Hamet 2, school capacity test) and various cooperation tasks are performed and the individual training plan will be created. This phase lasts 3 weeks.

Next stage is the Elementary Stage. The core element is the Vocational orientation and the choice of vocation. Therefore, the students check different vocational areas according to their interests and abilities in strict accordance to the individual training plan. The advancement of their abilities and skills is organised by appropriate measures. At the end of every checkout there is a statement by the instructor concerning the practical aptitude for a vocational training or activity in this vocational area.

The elementary stage is concluded as soon as the participant has made a vocational decision and if he/she has the necessary personal abilities and skills for starting the vocational training or professional activity.

The institute offers 13 practical test-areas/occupations for students. These are: metal works, industrial bookbinding, carpeting, painting, interior decoration, horticulture, landscaping, car care, baker, sales assistant/bakery, cook, housekeeping, specialist for hotel and restaurant.

Including the Analysis of abilities this phase lasts up to 6 months.

If the aptitude to begin a vocational training or a professional activity could not be achieved after Elementary Stage, this further pre-professional stage, Support Stage, will take place.

Core element is the advancement of professional basic skills of the SEN-student. The student is introduced in one vocational area which is apt to her/his skills. Specific exercises are conducted in order to increase the practical and technical-motor skills. It is an intensively practically preparation for the evident vocational training or professional activity. During this phase, 60% of participants led by an internship in a company to learn about the reality of professional work of the chosen profession.

For the sake of inclusion, it is important that these participants learn to act self-confident in the companies and apply the knowledge they have acquired in the institution, in the companies. With the help of several internships, including during training, the participants gradually lose that fear.

Additionally reflective discussions to develop a positive working and social behaviour of participants are carried out.

This stage ends when the student is able to start a vocational training or start working in a company (without a vocational training).

The duration is up to 5 months.

For participants, who cannot achieve their aim after 11 months, in special cases, the VPT can be extended for 7 months more by the Transition qualification stage. By further advancement

the chances to start a vocational training or for finding an activity on the employment market have to be improved. In the prospective workshop it will be an introduction and practical preparation respectively at the prospective job according to the individual training plan. The duration acts on the individual qualification needs of the participant.

Vocational preparatory training starts with elementary stage, which stages the participant will pass through is a result from the analysis of abilities or the elementary stage. It results from the work order of the benefactor and is obvious from the incorporation proposal (= enrolment).

#### *School attendance*

All participants are attending the vocational school for students with special needs. The average size of class is located at around 10 participants. Core themes are the subjects of mathematics, German, technical drawing and social studies. The goals are: to bridge gaps at theory, to reduce existent deficiencies, to create a basic knowledge for the planned subsequent vocational training or professional activity. Participants with adequate abilities do have the opportunity to prepare themselves for a graduation which is on the same level like the secondary school qualification.

#### *Education-attendant*

All participants are coached by socio-pedagogical education-attendants. Their tasks are:

- counselling, attendance, crisis intervention, group work, developing the qualification plan in consultation with the participants including updates; they have to organize and supervise the process of vocational decision. The Education-attendant is responsible for the determination of vocational aptitude of the participants; she/he receives important data and information about the participant and gives them to the concerned staff, parents and the authorized specialist counsellor (of the labour agency) and initiates further activities and summarises the results of the different qualification stages to a report.

### **Advancement and qualification sequences**

#### *Vocational orientation, vocational choice and vocational basic skills*

The participants get theoretical and practical insights in different professional areas by pedagogically trained instructor/trainer, special pedagogues and education-attendants. They are introduced into requirements of several occupational fields and appropriate practical know-how. Practical assignments and theoretical knowledge is mediated during the different qualification stages, it is figured in the subject-specific technical qualification modules, which are created for the vocational preparatory training.

#### *Working/Fabric Qualification*

SEN-students have the opportunity to check their competences at real conditions in the context of practical training in companies, to learn new aspects and get to know the professional daily routines. For participants, who are mature for professional activity, but not able to start a vocational training: initial training at employment (important assistance to be efficient at the subsequent employment).

#### *Application Assistance*

The goal is the advancement of the participant's ability to develop a successful, proactive and marketable application activity. It is offered by education-attendants.

#### *Language Training*

It is offered for participants with a migrant biography and is advancement in German language. General linguistic as well as professional contents are mediated.

**Staff**

Participants will be supported by trained and experienced educational professionals:

In the Workshop Area – VPT-Instructors (in the areas of colour and wood, housekeeping, horticulture and metal) and in all other professional areas there are professional trainers who are teaching the students together with trainees in their work shops (the trainers are masters in additional pedagogical training).

In the School – special education school teachers teach the participants in small classes, impart subject matter and give them special courses (advancement in basics like mathematics and German).

In Boarding house – educators and graduate social workers take care of students in different groups.

Medical service – a specialist in occupational medicine and a nurse perform medical analysis for students to check out which occupation they are able to do or to sustain the students when they got ill.

Education-attendants are certified social pedagogues (MA, GSW and MSW) who coach the participants.

Psychologists attend the participants if they need therapeutic care.

**Cooperation with the Federal Labour Agency**

The expert adviser of rehabilitation of the Federal Labour Agency has to be informed about all important happenings and difficulties during the training. She/he wants to know about long absences and essential changes of planning and is studying the report of the results of education and further planning (written by the Education-attendant at the end of the different phases: Elementary stage, Support stage and Transition qualification stage). Further planning has to be discussed with the expert adviser.

**Conclusions**

SEN-students need, explained above, a step by step, well structured guidance, a lot of support and continual repetitions in the practical and educational area plus an intensive social pedagogic in some cases additional psychological care and accompaniment.

Whether they can do a vocational training in a company with additional support or visit a Vocational Preparatory Training depends on their disabilities. Inclusion as much as possible is self-evident. For SEN-students with a severe disability, an institution with internal workshops and a close collaboration with the teachers of the special vocational school are necessary. For those SEN-students it is important to enjoy a pleasant learning atmosphere in which they can learn without fear and have the courage to ask questions if there are any uncertainties and have the support of assistants at anytime, so that they never feel helpless.

Of course, the whole topicality of “inclusion” has to be very important for all pedagogues who are working in the field of education.

On the basis of Paragraph 24 of the UN-Convention of the Rights of Persons with Disabilities (2006), the right to education, equal opportunities are guaranteed.

Among other things, the following goals were established, that “people with disabilities have to develop their personality, their talents and creativity, and their intellectual and physical abilities to a complete elaboration” and that “people with disabilities should not be excluded from general education system as a cause of their disabilities”.

The Contract States assure that appropriate arrangements for the needs of the individual are complied.

In Germany this is guaranteed by:

In spite of a divided education system no pupils are excluded from the general education system. A school change is only done with approval of the young people and their parents.

The admission in a vocational training in an institution like VTI/BBW Kirchseeon is only possible by application of the young people with SEN and their parents. During the measure an important context is to facilitate the student a realistic sight of the working reality. This is done by working and producing goods in the workshops of the institutions, internships in and a close cooperation with companies.

According to “inclusion-efforts” VTI Kirchseeon provides a special measure: an “inter-locked vocational training with Vocational Training Institutes” in which the trainee works in a company for 6 months continuously.

Ultimately the most important aim independently of the membership to a country the supreme maxim of every school, every measure centre and every institution should be:

Finding an individually suitable employment on the regular labour market for every participant with SEN. Common concepts and best practices should be created in the community of the European Union.

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## PREVOCATIONAL TRAINING SITUATION OF YOUNG PEOPLE WITH SPECIAL EDUCATIONAL NEEDS (SEN) IN GERMANY

### *Summary*

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The nature of occupations is changing dramatically. The demand for specific vocational skills has been augmented with a growing need for general skills, including reasoning abilities, general problem-solving skills, and behavioural skills. The integration of vocational education and training is important for giving students with special educational needs the opportunity to access mainstream provision during their education and in their future working life. All young people should have the possibility to absolve a vocational training successfully or to take up gainful employment. Even young people with special educational needs should achieve this goal. Due to these special educational demands, proposals are offered to those in need for the permanent integration in the working life and society.

The article presents the analysis of educational situation of young people with Special Educational Needs (SEN) in Germany based on the example of Prevocational Training in a Vocational Training Institute. The aim of the article is to analyze prevocational training of SEN pupils in Germany: in the context of legal system.

On the basis of Paragraph 24 of the UN-Convention of the Rights of Persons with Disabilities, the right to education, equal opportunities are guaranteed. Among other things, following goals were established, that “people with disabilities have to develop their personality, their talents and creativity, and their intellectual and physical abilities to a complete elaboration” and that “people with disabilities should not be excluded from general education system as a cause of their disabilities”.

In spite of a divided education system in Germany no pupils are excluded from the general education system. A school change is only done with approval of the young people and their parents. The admission in a vocational training institution is only possible by application of the young people with (SEN) and their parents too.

Prevocational education in a vocational training institution consists of vocational counselling, vocational preparatory training, advancement and qualification sequences and cooperation with the Federal Labour Agency in Germany. Students with SEN also need well structured guidance, a lot of support and continual repetitions in the practical and educational area and an intensive social pedagogic in some cases additional psychological care and accompaniment.

The vocational training institution in Germany offers a variety of measures: vocational training, testing the abilities in one profession, testing the abilities in different professions, internship/practical course (during the regular school time on request). During the measure an important context is to facilitate the student a realistic sight of the working reality. This is done by: testing the students who have to accomplish several tests to get to know the manual, academic, personal and social skills and resources, and working and producing goods in the workshops of the institutions, internships in and a close cooperation with companies.

The most important and ultimate aim of vocational training has to be finding an individually suitable employment on the regular labour market for every participant with SEN. Common concepts and best practices should be created in the community of the European Union.

# EVALUATION OF WORK CAPACITY OF VOCATIONAL SCHOOL STUDENTS OF DECORATOR'S SPECIALITY WITH ERGOS II WORK SIMULATOR

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## **Abstract**

The aim of the research – to evaluate the change in work capacity in students of the speciality of decorator applying vocational rehabilitation programmes. The students of the vocational training study programme of the decorator in the vocational training centre (N=10) participated in the research. In performing the present research the method of linear experiment has been chosen. The respondents were evaluated with ERGOSII Work Simulator. Individual rehabilitation programme for training work capacity was created for every respondent and performed for three month time period. After three months the re-evaluation was performed.

**Key words:** *decorator's speciality, work capacity, psychomotor reactions, fine motor skills, static and dynamic muscle strength.*

## **Relevance of the topic**

People in choosing a job should be ready to appropriately physically participate in work activity, to have personal abilities to perform a certain chosen job. Therefore, it is very important to pay attention to people's physiological, psychological and social preparedness for work so that people's health is not damaged during work (Čyras, Girnius, Kaminskas, Nainys, Šukys, & Tartilas, 2003; Kaminskas, 2005; Krikščiūnas, Mingaila, Petruševičienė, Rapolienė, & Bikutė, 2009; Zaikauskienė, 2009). It has been noticed that working even under adjusted and well equipped conditions it is not possible to avoid professional illnesses or at least to decrease the scope of their spread. According to the Hygiene Institute of Lithuania, the data of the spread of professional illnesses caused by physical or ergonomic factors: 2011 – 95,02 per cent out of 402 people evaluated, 2012 – 94,15 per cent out of 393 people evaluated, in January-March 2013 – 97,22 per cent out of 108 people evaluated (Lietuvos higienos institutas (2013). It is the highest per cent of morbidity in comparison with other groups of professional illnesses.

In the system of ergonomics a human being is the most sensitive part of the system. Human work in this system is influenced not only by machinery and physical environment but also by many social and psychological factors. The parameters of physical features of a person in this system are also important (Čyras et al., 2003; Muckus, 2006; Kaminskas,

2005; Zaikauskienė, 2009). In Lithuania only the evaluation of ergonomic risk factors is performed, however, the importance of physical abilities in work activity, i.e. whether a person is physically capable to ergonomically perform a certain job, is not taken into account. The evaluation of ergonomic risk factors is based on the order of the Minister of Healthcare of the Republic of Lithuania and the Minister of Social Security and Labour of the Republic of Lithuania (LR Sveikatos apsaugos ministro ir LR Socialinės apsaugos ir darbo ministro Įsakymas “Dėl ergonominių rizikos veiksnių tyrimo metodinių nurodymų patvirtinimo”, 2005) on the approval of methodical regulations of the investigation of ergonomic risk factors. In the regulations the order of the evaluation of ergonomic risk factors (ergonomic factors) is set and general preventive measures for workers’ security from risk for their health and safety that is caused or may be caused by ergonomic factors are indicated. In the supplements of the order the methodologies of evaluation that cover the classification of ergonomic risk factors and methodology of measuring are presented. It is the methodology that is referred to in Lithuania in order to identify ergonomic risk factors, however, this methodology does not help to reveal the level of human work (physical) capacity and it is not measured. Namely ERGOSII Work Simulator is created to evaluate functional and physical human abilities and compares them to work requirements (Baker, 2012). The evaluation of human physical abilities before choosing a job is a very important factor that may have positive influence on the decreasing of professional illnesses because of physical and ergonomic factors.

**Aim** is to evaluate the change in work capacity in students of the speciality of decorator applying vocational rehabilitation programmes.

**Object** - Change in work capacity.

#### **Research methods**

1. Testing and evaluation by standard tests:
  - Evaluation of static and dynamic strength
  - Evaluation of the speed of psychomotor reactions
  - Evaluation of the strength of fine motor skills
2. Linear experiment.
3. Analysis of statistical mathematical data (SPSS 19.0; Microsoft Excel 2007)

#### **Sample of the research**

The students of the vocational training study programme of the decorator (builder) in the vocational training centre (N=10) participated in the research. The sample group consisted of 9 boys and 1 girl. The average age of the respondents – 19,6 years.

#### **Organization and methods of the research**

In performing the present research the *method of linear experiment* has been chosen. The specifics of this kind of experiment is that only one experimental group of the respondents or several groups but identical from the viewpoint of the factor of experimental impact participate in the research. Linear experiment permits to measure changes in a certain time, gives more possibilities to investigate changes than other researches. The verification of the research hypothesis refers to the comparison of two states of the object in a different time, i.e. “from” and “until” (Kardelis, 2002; Tidikis, 2003). Following the specifics of this method the organization of the research is divided into three stages:

*Stage 1 – creation of the sample group and its evaluation with ERGOSII Work Simulator.*

The respondents (N=10) were evaluated with ERGOSII Work Simulator. This instrument is used to measure physical work capacity and its level defining whether the respondent meets physical requirements necessary for work. Computer programme helps to identify it according to the analysis of work and general work (physical) features of the respondent. The system is fully related to work (physical) activity (Baker, 2012).

During the evaluation the general block of 22 tests has been chosen, that was identical for all the respondents. The set of tests consisted of: evaluation of static and dynamic strength (6 tests); evaluation of the speed of psychomotor reactions (4 tests); evaluation of the strength of fine motor skills (12 tests).

*Stage 2 – creation and realization of individual vocational rehabilitation programme for training work (physical) capacity.* In creating vocational rehabilitation programme for the development of work capacity the following main principles of rehabilitation have been referred to: gradation, individuality, accessibility, versatility, consciousness, activeness (Dadelienė, 2006; Krikščiūnas, 2009).

The aims of the created programme for the development of work (physical) capacity:

- To apply physical exercises meant to increase static and dynamic muscle strength and endurance.
- To develop observation, attentiveness, coordinated actions and positive responsive reactions with physical exercises, working in a team and individually.
- To develop coordinated work of both hands using various manipulations with hands.
- To teach ergonomics: correct sitting, standing, lying; choice of correct posture for work, safe ways of lifting and carrying weights.
- To teach to perform exercises consciously and correctly.
- To encourage applying the combinations of ergonomic movements in everyday work activity.
- To encourage following safety requirements when performing physical exercises.
- To help to perceive the importance of physical fitness for general self-feeling and overall health of the organism.

The programme of vocational rehabilitation for training of work capacity (physical abilities) has been created referring to the following literature: Baublienė (2000), Skurvydas, & Gedvilas (2000), Poteliūnienė, Sližauskienė, & Bendoraitienė (2007). The classes of training work physical activities lasted for 3 months, 2 academic hours twice a week.

*Stage 3 – re-evaluation of work (physical) capacity with ERGOSII Work Simulator.*

At the end of the research the re-evaluation of work capacity has been performed according to the same tests: evaluation of static and dynamic strength (6 tests); evaluation of the speed of psychomotor reactions (4 tests); evaluation of the strength of fine motor skills (12 tests).

### **Results of the research**

In order to reveal the changes in decorators' work capacity the means of the tests of static and dynamic strength, the speed of psychomotor reactions and the strength of fine motor skills performed by the respondents have been compared. The means of strength and speed of performing tests have been compared to the obtained results before and after rehabilitation. The respondents' results of the strength and speed have also been compared to the set criterion of the requirements for the decorators' profession, standard deviation (SD) and statistical significance according to Wilcoxon rank criterion have been taken into account.

**Table 1.** Changes in static and dynamic strength among decorators (N=25)

Tests	Before rehabilitation, kg, (SD)	Criterion, kg	After rehabilitation kg, (SD)	Positive change	Negative change	p
1-T (dynamic lifting bench height)	14,9 (1,9)	11,3	14,9 (3,0)	N=7	N=3	Statistically insignificant change
3-T (static lifting ankle height)	20,6 (7,4)	7,6	25,4 (12,3)	N=5	N=5	
4-T (static lifting bench height)	23,4 (6,5)	7,6	23,0 (7,8)	N=5	N=5	
5-T (static pushing cart height)	12,8 (2,6)	6,0	13,0 (5,6)	N=4	N=6	
6-T (static pulling cart height)	11,5 (2,8)	5,0	9,8 (4,4)	N=4	N=6	

Note. <sup>1</sup> SD – standard deviation

In Table 1 the changes of the decorators' static and dynamic strength have been presented. Having analyzed the presented data it has been noticed that the strength results of the tests of static lifting ankle height (3-T), static pushing cart height (5-T) (25,4 kg; 13,0 kg) have increased, i.e. the respondents' static and dynamic strength performing these tests after rehabilitation (3-T; 5-T) was bigger than before rehabilitation. The strength of static lifting ankle height (3-T) has changed the most, i.e. increased from 20,6 kg to 25,4 kg. The mean of the respondents' strength in static lifting bench height (4-T) has decreased by 0,4 kg, the mean of the respondents' strength in static pulling cart height (6-T) has decreased by 1,7 kg. The standard deviation (SD) of all tests has revealed that before rehabilitation the respondents' strength distinguished less than after rehabilitation. It is shown by the increase of standard deviation. It is possible to make a precondition that the results of the changes of the respondents' static and dynamic strength are very individual. Wilcoxon rank criterion shows that the changes of static and dynamic strength were statistically insignificant ( $p > 0,05$ ). However, analyzing the results of the means performing all the tests it has been revealed that static and dynamic strength has increased, except 4-T and 6-T after rehabilitation and corresponds to and is bigger than physical requirements for actions necessary for work.

**Table 2.** Changes in the speed of psychomotor reactions and dynamic carrying among decorators (N=25)

Tests	Before rehabilitation %, (SD)	Criterion <sup>2</sup> MTM %	After rehabilitation %, (SD)	Positive change	Negative change	p
2-T (dynamic carrying (weight 5 kg; distance – 6 m))	136,7 (29,1)	81,0	144,9 (27,1)	N=6	N=4	Statistically insignificant change ( $p > 0,05$ )
7-T (reaction to the stimulus reaching forward)	69,6 (19,3)	81,0	72,4 (12,8)	N=4	N=6	
8-T (reaction to the stimulus bending/stooping)	68,1 (17,7)	81,0	79,8 (18,4)	N=9	N=1	p=0,008
9-T (handling dexterity, left hand)	63,4 (12,1)	81,0	73,3 (16,0)	N=10	-	p=0,005
10-T (handling dexterity, right hand)	66,3 (11,1)	81,0	77,6 (14,2)	N=9	N=1	p=0,009

Note. <sup>1</sup>SD – standard deviation

<sup>2</sup>Criterion – the level of the evaluation of the speed of the reaction: below competitive – MTM - 0 % < 80 %; competitive – MTM - 81% < 100 %; above competitive – MTM - 100 % < (MTM – movement time measurement standards)

In Table 2 the changes in the strength during the tests of the speed of psychomotor reactions among decorators and dynamic carrying before and after rehabilitation have been presented. The means of the speed of psychomotor reactions and dynamic carrying have been compared to the set competitive level (competitive – MTM – 81 per cent – 100 per cent). Having analyzed the obtained data it has been noticed that the results of all the tests of the speed of psychomotor reactions have increased after rehabilitation, i.e. the change is positive. The mean of the respondents' results of the test (2-T) in dynamic carrying (weight 5 kg; distance – 6 m) before and after rehabilitation corresponds to the level above competitive MTM – 100 per cent <, i.e. the highest result of evaluation. The mean of the results of the test of the reaction to the stimulus reaching forward (7-T) has increased by 2,8 per cent, the mean of the results of the test of the reaction to the stimulus bending/stooping (8-T) has increased by 11,7 per cent, and the results of the tests of handling dexterity of left hand (9-T) and right hand (10-T) have increased respectively by 9,9 per cent and 11,3 per cent. The results of all these tests have increased, however, the means of the speed of the respondents' reactions before rehabilitation and after rehabilitation correspond to the level below competitive MTM – 0 < 80 per cent. To evaluate the difference in strength among the respondents Wilcoxon rank criterion has been applied. This criterion reveals that the strength of performing tests of the reaction to the stimulus bending/stooping (8-T –  $z = -2,67$ ,  $p = 0,008$ ,  $r = 1,19$ ), handling dexterity of left hand (9-T –  $z = -2,81$ ,  $p = 0,005$ ,  $r = 1,13$ ) and right hand (10-T –  $z = -2,60$ ,  $p = 0,009$ ,  $r = 1,21$ ) after rehabilitation has changed statistically significantly. After rehabilitation the strength of performing the tests 8-T and 10-T in 9 respondents has changed positively, in 1 respondent – negatively, the strength of performing the test 9-T in all the respondents ( $N = 10$ ) has changed positively. With regard to the standard deviation it has been noticed that before and after rehabilitation the respondents' results in performing these tests were different, especially the results of the test of dynamic carrying ( $SD = 27,1$ ).

**Table 3.** Changes in pronation and supination of left and right forearms among decorators ( $N = 25$ )

Tests	Before re-habilitation kg, (SD)	Crite- rion	After reha- bilitation kg, (SD)	Positive change	Negative change	p
11-T (grip left hand)	14,3 (3,2)	10,3	11,2 (3,6)	-	N=10	$z = -2,803$ $p = 0,005$
12-T (grip right hand)	10,3 (2,7)	10,3	9,6 (2,3)	N=3	N=7	Statistically insignificant change ( $p > 0,05$ )
13-T (pinch left hand)	8,4 (1,6)	2,7	8,1 (1,4)	N=4	N=6	
14-T (pinch right hand)	8,0 (1,9)	2,7	8,6 (1,5)	N=5	N=3, N=2- did not perform	
15-T (flexion left wrist)	10,2 (8,6)	10,2	14,6 (5,9)	N=6	N=4	
16-T (flexion right wrist)	11,5 (8,3)	10,2	12,0 (6,5)	N=4	N=6	
17-T (extension left wrist)	2,3 (2,5)	5,1	3,6 (2,5)	N=5	N=2, N=3 did not perform	
18-T (extension right wrist)	4,1 (2,9)	5,1	8,2 (5,4)	N=4	N=2, N=4 did not perform	
19-T (pronation left forearm (cm/kg))	45,6 (17,1)	23,0	47,7 (23,1)	N=7	N=3	
20-T (pronation right forearm (cm/kg))	48,0 (28,3)	23,0	58,4 (29,1)	N=7	N=3	
21-T (supination left forearm (cm/kg))	46,5 (10,9)	24,5	48,3 (18,6)	N=7	N=3	
22-T (supination right forearm (cm/kg))	50,2 (18,7)	24,5	59,5 (18,4)	N=8	N=2	$z = -1,99$ $P = 0,047$

Note: <sup>1</sup> SD – standard deviation

Having analyzed the changes in the strength of fine motor skills among decorators (builders) presented in Table 3 it has been noticed that the mean of the results of the strength of the grip of left hand (11-T) and right hand (12-T), and the mean of the results of the strength of the pinch of left hand (13-T) after rehabilitation has decreased. To evaluate the difference in strength among the respondents Wilcoxon rank criterion has been applied. This criterion reveals that the results of the strength of performing the test of the grip of left hand (11-T) after rehabilitation has changed statistically significantly  $z = -2,80$ ,  $p = 0,005$ ,  $r = 1,13$ . After rehabilitation the strength of the grip of left hand in all the respondents ( $N = 10$ ) has changed negatively. The results of the strength of the test of supination of right forearm (22-T) after rehabilitation have changed statistically significantly  $z = -1,99$ ,  $p = 0,047$ ,  $r = 1,58$ . The strength of supination of right forearm in 8 respondents has changed positively, while in 2 respondents the strength has changed negatively. The changes in the results of other performed tests of the strength of fine motor skills were statistically insignificant ( $p > 0,05$ ). Although the change was statistically insignificant, however, it is very important to note the results of performing other tests before and after rehabilitation. The mean of the results of the strength of the grip of right hand (12-T) has decreased to 9,6 kg., i.e. has become lower than the set criterion. It has been noticed that after rehabilitation in 7 respondents the strength of performing the test 12-T has changed negatively, and only in 3 respondents it has changed positively. The strength of extension of left wrist (17-T) did not correspond to the set criterion before and after rehabilitation, although the strength of performing the test has increased. The strength of extension of left wrist (17-T) has increased by 1,3 kg and differed from the set criterion by 1,5 kg. It has been noticed that after rehabilitation in 5 respondents the strength of extension of left wrist has changed negatively, while only in 2 respondents it has changed positively, in 3 respondents the result has not been recorded, i.e. the respondents performed the test incorrectly or did not perform the test at all. This result may influence the general mean of the group. With regard to the standard deviation it has been noticed that after rehabilitation the respondents' strength in performing the tests (12-T; 13-T; 14-T) was similar. The results of all other tests of the strength of fine motor skills were very individual.

### Conclusions

1. After rehabilitation the static and dynamic strength among decorators (builders) has increased, except static lifting bench height and static pushing cart height when the strength has decreased.
2. The speed of psychomotor reactions and the results of dynamic carrying have increased, i.e. the change is positive. The reaction to the stimulus bending/stooping, handling dexterity of left and right hands have changed statistically significantly ( $p < 0,05$ ).
3. The results of the strength of fine motor skills among decorators (builders) have increased, i.e. out of 12 performed tests in 9 tests the results of the strength have improved. The strength of the grip of left hand and supination of right forearm have changed statistically significantly ( $p < 0,05$ ).
4. Static and dynamic strength and the strength of fine motor skills before and after rehabilitation met the set physical requirements, except the strength of the grip of right hand and extension of left wrist. The results in dynamic carrying before and after rehabilitation correspond to the level above competitive MTM – 100 per cent <, i.e. the highest result of physical requirements. The speed of psychomotor reactions after rehabilitation as well as before rehabilitation corresponded to the level below competitive MTM – 0<80 per cent, although the results have improved and the difference from the set competitive level has decreased. Referring to standard deviation the changes in performing tests in all evaluated areas are different, i.e. the changes in the respondents' physical capacity were individual.

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## EVALUATION OF WORK CAPACITY OF VOCATIONAL SCHOOL STUDENTS OF DECORATOR'S SPECIALITY WITH ERGOS II WORK SIMULATOR

### Summary

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People in choosing a job should be ready to appropriately physically participate in work activity, to have personal abilities to perform a certain chosen job. Therefore, it is very important to pay attention to people's *physiological, psychological and social* preparedness for work so that people's health is not damaged during work. Evaluation of human physical abilities before choosing a job is a very important factor that may have positive influence on the decrease of professional illnesses caused by physical and ergonomic factors.

The aim of the research – to evaluate the change in work capacity in students of the speciality of decorator applying vocational rehabilitation programmes. The students of the vocational training study programme of the decorator (builder) in the vocational training centre (N=10) participated in the research. In performing the present research the method of linear experiment has been chosen. The respondents were evaluated with ERGOSII Work Simulator. This instrument is used to measure physical

work capacity and its level defining whether the respondent meets physical requirements necessary for work. Computer programme helps to identify it according to the analysis of work and general work (physical) features of the respondent. During the evaluation the general block of 22 tests has been chosen, that was identical for all the respondents. The set of tests consisted of: evaluation of static and dynamic strength (6 tests); evaluation of the speed of psychomotor reactions (4 tests); evaluation of the strength of fine motor skills (12 tests). Individual rehabilitation programme for training work capacity was created for every respondent and performed for three month time period. After three months the re-evaluation was performed.

After rehabilitation the static and dynamic strength among decorators has increased, except static lifting bench height and static pushing cart height when the strength has decreased. The speed of psychomotor reactions and the results of dynamic carrying have increased, i.e. the change is positive. The results of the strength of fine motor skills among decorators have increased, i.e. out of 12 performed tests in 9 tests the results of the strength have improved. The strength of the grip of left hand and supination of right forearm have changed statistically significantly ( $p < 0,05$ ). Static and dynamic strength and the strength of fine motor skills before and after rehabilitation met the set physical requirements, except the strength of the grip of right hand and extension of left wrist. The results in dynamic carrying before and after rehabilitation correspond to the level above competitive MTM – 100 per cent  $<$ , i.e. the highest result of physical requirements. The speed of psychomotor reactions after rehabilitation as well as before rehabilitation corresponded to the level below competitive MTM – 0<80 per cent, although the results have improved and the difference from the set competitive level has decreased.

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## Information and Requirements for publications in Journal “SOCIAL WELFARE *INTERDISCIPLINARY* *APPROACH*”

Scientific and research Journal “SOCIAL WELFARE: INTERDISCIPLINARY APPROACH” covers a large range of topics associated with human social welfare and successful participation in the societal life.

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The journal is published twice a year:

- **June edition** is published in Šiauliai University (*all papers should be sent until the 30th of April*)
- **December edition** is published in Open International University of Human Development “Ukraine” (*papers should be sent until the 30th of October*)

All papers should be submitted in electronic format and sent by the e-mail address:

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Papers should be prepared in **APA Style** (see: <http://www.apastyle.org/> or <http://owl.english.purdue.edu/owl/section/2/10/>).

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