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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 December. 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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## Preface by Editors-in-Chief

We are glad to present the academic community the 8<sup>th</sup> issue of our international 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” in Ukraine (by Social Technologies Institute). We publish results of international interdisciplinary scientific researches in various aspects of social sphere in our traditional chapters: “Social Challenges”, “The Development of Professional Competences”, “Disability Studies” and “Psychosocial Rehabilitation”. Our publication features the researches of 26 authors that represent different schools and areas of social sciences of Europe (Czech Republic, Poland, Lithuania, Ukraine) and United States of America.

Observing all the chapters of our Journal we can see that a lot of social problems are similar and important for different countries. In the chapter *Social Challenges* Lithuanian and Ukrainian researches from Universities and the Academy of Science are presented. *Albina Kepalaitė* considered changes in feeling of connectedness among senior adolescents applying the play therapy in a senior adolescents' group. Group of authors from 3 different Universities of Lithuania *Gediminas Navaitis*, *Gintaras Labutis* and *Neringa Povilaitienė* found out the level of happiness of Lithuanian population, their opinion about the share of state funds, which they would allocate for state defence. *Natalia Volodarskaya* from Ukraine determined the most pressing problems in self-creation of the individual in adolescence and revealed the features of influence of ideological orientations on building a picture of the world and a self-image.

In the chapter *The Development of Professional Competences* you can see manuscripts of scientists from Poland, USA, Lithuania and Ukraine. Ethical aspects of the profession of social worker are considered by *Witold Jedynek* from Rzeszów University. The results of factor analysis of teacher ratings for the Lithuanian translated Behavioral and Emotional Rating Scale were presented by international team: *Matthew C. Lambert*, *Philip D. Nordness*, *Michael H. Epstein* and *Renata Geležinienė*. A young researcher *Anastasiya K. Bazilenko* investigated the features of operational component of social activity of student youth during the Maidan Events in Ukraine.

Different approaches for *Disability Studies* are presented by researches from USA, Lithuania and Czech Republic. The impacts on mathematical reasoning for students with and without learning disabilities were considered by *Jacqueline Huscroft-D'Angelo*, *Kristina Higgins* and *Lindy Crawford*. You can learn more about expression of social skills of a child with autism spectrum disorder from the paper of *Margarita Jurevičienė* and *Nijolė Šostakienė*. The research of *Pavel Kučera* and *Eva Souralová* aimed at ascertaining the subjective perception of sign language in family and school environments and the language cognizance of primary school pupils. *Kateřina Vitásková* and *Alena Říhová* analysed oral motor abilities of children with autism spectrum disorder.

The last chapter of our Journal *Psychosocial Rehabilitation* contains two articles from Lithuania and USA. Attitude of progymnasiums students towards health and physical activeness was researched by *Daiva Mockevičienė, Lina Miliūnienė, Renata Žukauskaitė* and *Ilona Dobrovolskytė*. A group of researchers from university and public school *Alexandra L. Trout, Matthew C. Lambert, Michael H. Epstein* and *Marybell Avery* evaluated and described health literacy of adolescents. Specifically they sought to evaluate youth health literacy skills, perceptions of preparedness to address health related care, and youth health-related status.

The articles included in the Journal are indexed/abstracted in EBSCO: SocINDEX with Full Text (<http://search.ebscohost.com>), and Copernicus database.

The Editors-in-Chief acknowledge everyone who has contributed to publishing the Journal “SOCIAL WELFARE *INTERDISCIPLINARY APPROACH*”, to all Editorial Board members, to our editors and staff of the publishing office. Ukrainian editorial team would like to express our gratitude to Lithuanian colleagues for their efforts and help during such a complicated time in Ukraine.

Special thanks are for our future readers. We invite you for collaboration and believe that the ideas discussed in all published articles will be accepted in the community of practitioners and researchers and will be developed and complemented in other scientific works.

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



# CHANGES IN FEELING OF CONNECTEDNESS AMONG SENIOR ADOLESCENTS

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## **Abstract**

Adolescents who have low level of social connectedness more often distinguish themselves by nonadaptive, inappropriate behaviour. This study aims to disclose changes in connectedness due to application of play therapy in the senior adolescents' group. Research results disclosed that application of play therapy method "Game of Life", grounded on psychodrama principles, adjusted the feeling of social connectedness among senior adolescents: changes were observed in connectedness to self, at the social level and to the close friend. Application of play therapy resulted in more significant changes in social connectedness in the girls' group than in the boys' group. Social connectedness did not change comparing fifteen — eighteen-year-old adolescent's groups.

*Key words:* senior adolescent, social connectedness, play therapy

## **Introduction**

Analyzing various aspects of adolescence, scientists seek to disclose and predict how various environmental aspects influence the adolescent, his/her family and how interaction of various factors influencing the adolescent will affect the adolescent's further development. The research on psychological aspects of adolescence period is particularly important because it can help to identify difficulties encountered by the adolescent and ways of support in order to ensure formation of the personality that is adaptive and beneficial to the society.

At the same time, the adolescent is solving personality dilemmas related to his/her age. During adolescence particular changes take place in the structure of the personality: the adolescent is trying to find himself/herself looking for the self, experiencing the crisis of identity and identifying himself/herself with significant family members and friends. Trying to find himself/herself, the adolescent must cope with one more especially important task: to maintain emotional balance with parents: to achieve identity but emotionally not to distance from parents too much and maintain close emotional link (to be related to parents) (Noack & Puschner, 1999; Piquart & Silbereisen 2002). The feeling of social connectedness experienced by the adolescent forms the adolescent's main personality constructs: the self, self-respect, self-worth, identity, which influence further personality development of the individual (Ackard, Neumark-Sztainer, Story, & Perry, 2006), directly or indirectly influence the adolescent's academic achievements (Demaray, Malecki, Davidson, Hodgson, & Rebus, 2005; Gregory & Weinstein, 2004; Karcher, Holcomb, & Zembrano, 2006; Lezin, Rolleri, Bean, & Taylor, 2004; Taylor & Lopez, 2005). The adolescent's connectedness directly affects the adolescent's prosocial and challenging behaviour. It was found that adolescents who do not



feel connectedness smoke more, are more violent and are more likely to engage in delinquent behaviour (often damage assets, tend to commit crimes, get into fights) and are more engaged in dangerous sexual behaviour (Goldstein & Heaven, 2000; Henrich, Brookmeyer, & Shahar, 2005; Parker & Benson, 2004). Thus, researches into adolescents' feeling of connectedness, identifying its dynamics in adolescence both due to general maturity and due to applied psychological impact could be particularly relevant and productive. However, there is a lack of such studies, although their results would help to provide psychological support more effectively.

The feeling of social connectedness is the ability to interact, cooperate, feel that you belong to the group, that you adjust to it and that you are its member (Kottman, 1999). Barber (2004) and Karcher et al. (2006) present social connectedness as an emotional/cognitive condition, sensuous expression or dynamic process. In the first case it describes that the individual belongs to certain social environment; experiences closeness to other individuals (Barber, 2004; Karcher, 2003; Karcher et al., 2006). In the second case social connectedness can be understood as a dynamic process: active action (communication), seeking to engage oneself in social environment and feel closeness with it or with people in it (the family and family members, school and teachers, classmates) (Barber, 2004; Karcher, 2003; Karcher et al., 2006). In this study, social connectedness is understood both as a state and as a dynamic process, since the aim is to explore changes in connectedness due to applied psychological impact.

The aim of this study is to disclose changes in connectedness due to application of play therapy in the senior adolescents' group.

**Research objectives:**

1. To disclose changes in social connectedness due to applied play therapy.
2. To compare peculiarities of changes in social connectedness among boys and girls.
3. To identify differences of social connectedness between junior and senior adolescents.

**Research subject:**

Changes in social connectedness among senior class pupils due to applied psychological impact.

**Methodology**

**Research participants.** The research was started with 38 senior adolescents whose age was between 15 and 18 (average age — 15,62, standard deviation — 0,91). The target group was chosen randomly, main criteria were age and voluntary consent to take part in the research.

**Ways of Evaluation**

**Adolescents' feeling of social connectedness.** Assessing the feeling of social connectedness among senior adolescents, Karcher's (2002) social connectedness scale Hemingway Measure of Adolescent Connectedness was applied. The total scale of social connectedness consists of 78 questions. Every question is assessed by points: "0", "1", "2", "3", "4", "5". The higher the point, the bigger is the feeling of social connectedness. The scale was evaluated in fifteen domains of human interest such as: neighbours, friends, the close friend, parents, siblings, the mother, the father, the school, teachers, reading, peers, culturally different children, religion, self-perception in the present and future. The overall scale measuring social connectedness can be divided into three levels of connectedness according to Karcher (2001): connectedness to self, to others and connectedness to society. Further Karcher et al. (2002) also distinguish other three levels of connectedness: academic, social, and familial. Research data will be analysed according to the said connectedness scales and levels. Examples of

questions in the connectedness scale are: “I like to visit people”, “My friends are really close for me and I completely trust them”, “I like spending time with my parents”, “I like to know people who differ from me by their culture, nationality”, “Religion is important for me”.

Reliability of scales is demonstrated by Cronbach’s alpha coefficient, the value of which is from 0 to 1. The closer to 1, the higher internal reliability of the scale is. Cronbach’s alpha coefficient of all four scales shows high internal reliability, enabling their application for individual diagnostics (Vaitkevičius & Saudargienė, 2006).

Cronbach’s alpha coefficients of scales of connectedness are given in Table 1:

**Table 1.** Internal reliability of scales measuring social connectedness

Scales of social connectedness	Cronbach’s alpha		Scales of social connectedness	Cronbach’s alpha	
	Before therapy	After therapy		Before therapy	After therapy
Overall scale	0,94	0,94	Culturally different children	0,86	0,87
Neighbours	0,87	0,85	Religion	0,82	0,82
Friends	0,83	0,81	Close friend	0,67	0,82
The self-in-the- present	0,68	0,83	Mother	0,82	0,76
Parents	0,79	0,90	Father	0,82	0,83
Siblings	0,86	0,85	Self	0,82	0,87
School	0,72	0,79	Others	0,85	0,95
Peers	0,61	0,79	Social level	0,84	0,88
Teachers	0,52	0,67	Academic level	0,87	0,95
The self-in-the-future	0,71	0,75	Social level	0,85	0,90
Reading	0,84	0,93	Familial level	0,88	0,89

Cronbach’s alpha values given in the table vary from 0,7 to 0,9 indicating high reliability of scales, values of several scales fluctuate between 0,6 and 0,7; values are sufficient and scales will be used for statistical calculations.

Research data were calculated employing 18.0 SPSS software. Analysing research data, the following *statistical analysis methods* were used:

- Comparison of means of two dependent samples: *the paired-samples t-test*;
- Comparison of means of two dependent samples (sensitive to small samples): *the Wilcoxon signed-rank test*.

**The process of the research.** There was the play therapy method, based on psychodrama principles, used (Raimundo, 2002; Raimundo, 2014; Barton, 2004).

Each adolescent visited 5 hours sessions of individual work, the duration of each session was 45 minutes. They attended play therapy sessions at the time convenient for them once per week. Adolescents were introduced with the instruments of the game (stage, puppets) the procedure of session.

Every session had the different theme of game and the following themes were used (Raimundo, 2002; Raimundo, 2014):

1. “*The pillow method*” (adolescent needs to show on the stage four positive memories of his/her childhood and connect the issues with the present moment) (Raimundo, cited by Barton, 2004).
2. “*Social atom*” (the adolescent shows on the stage interrelations with others during three periods of his/her age and discovers that positive changes are possible) (Barton, 2004).

3. “*The first step method*” (adolescent creates on the stage with puppets difficult relations and develop a new stage of positive relationships) (Raimundo, cited by Barton, 2004).

4. “*The social atom of friends*” (the adolescent creates on the stage the circle of his/her friends in the three periods of his/her development and discovers positive findings about himself/herself and relationships with his/her friends) (Barton, 2004).

5. “*The social atom of the family*” (the adolescent creates on the stage the relations with family members and using change of the role with them have positive feedback from every member of the family) (Barton, 2004).

Before first session and after the last session they filled the questionnaire.

### Research Results

Further senior adolescents’ feeling of social connectedness in general and at separate levels will be analysed. The analysis of adolescents’ connectedness was conducted applying *the paired-samples t-test* and *the Wilcoxon signed-rank test for small samples* because connectedness scale distributions are close to normal distribution. Values of means, standard deviations and p-values are given in Table 2.

**Table 2.** Mean and standard deviation of social connectedness due to application of play therapy

Connectedness		Mean	Standard deviation	p (Wilcoxon criterion)	p (Paired t-criterion)
Overall scale	Before therapy	274,25	37,97	0,07	0,09
	After therapy	279,46	38,81		
Self	Before therapy	43,38	7,59	0,05*	0,05*
	After therapy	45,50	7,59		
Others	Before therapy	157,96	22,44	0,41	0,17
	After therapy	160,50	23,34		
Society	Before therapy	79,92	12,84	0,78	0,68
	After therapy	73,46	12,39		
Academic level	Before therapy	98,42	14,78	0,97	0,77
	After therapy	98,00	16,14		
Social level	Before therapy	80,25	13,60	0,007*	0,01*
	After therapy	84,54	14,17		
Familial level	Before therapy	74,88	15,22	0,95	0,39
	After therapy	75,92	15,08		

\* significance level  $p < 0,05$

The results given in Table 2 show that means of social connectedness before and after play therapy differ. After play therapy there were statistically significant changes in children’s social connectedness to self and at the social level ( $p < 0,005$  and  $p < 0,005$ ;  $p < 0,01$ ).

The analysis of means demonstrates that in general adolescent’s feeling of social connectedness increased in various domains. Analysing separate scales, it can be observed that the feeling of connectedness to others, to the family and at the social level increased but connectedness to society decreased; it slightly decreased at the academic level.

Further social connectedness in separate domains will be analysed. See Table 3.

**Table 3.** Mean and standard deviation of social connectedness to application of play therapy

Connectedness		Mean	Standard deviation	p
Neighbours	Before therapy	18,00	6,19	0,36
	After therapy	18,71	6,22	
Friends	Before therapy	22,00	4,85	0,45
	After therapy	22,50	4,50	
Self-in-the-present	Before therapy	20,25	4,17	<b>0,00*</b>
	After therapy	22,38	4,50	
Parents	Before therapy	22,58	4,36	0,73
	After therapy	22,42	4,93	
Siblings	Before therapy	19,15	3,71	0,84
	After therapy	19,25	3,40	
School	Before therapy	20,88	4,14	0,90
	After therapy	20,83	4,52	
Peers	Before therapy	20,50	3,83	0,73
	After therapy	20,25	4,41	
Teachers	Before therapy	20,58	3,51	0,65
	After therapy	20,88	4,00	
Self-in-the-future	Before therapy	23,13	4,23	1,00
	After therapy	23,13	4,27	
Reading	Before therapy	13,33	4,31	0,32
	After therapy	12,92	4,26	
Culturally different others	Before therapy	12,00	2,88	0,46
	After therapy	12,29	2,63	
Religion	Before therapy	8,71	3,10	1,00
	After therapy	8,71	2,97	
Close friend	Before therapy	20,00	3,24	<b>0,029*</b>
	After therapy	20,96	3,45	
Mother	Before therapy	20,08	4,23	0,36
	After therapy	20,42	3,74	
Father	Before therapy	16,25	5,50	0,29
	After therapy	17,04	5,17	

\* significance level  $p < 0,05$  (paired t-criterion)

The more detailed scale analysis disclosed that after application of play therapy adolescents' feeling of social connectedness to self ( $p < 0,000$ ) and to the close friend ( $p < 0,029$ ) increased.

Slight increase of the feeling of social connectedness in other domains is also observed but the change is statistically insignificant. Social connectedness strengthened in relationships with neighbours, friends, siblings, teachers, culturally different children, mother and father. Connectedness decreased in reading and did not change with regard to religion.

**Table 4.** Comparison of means of social connectedness scales in boys' and girls' groups

Connectedness		Boys (6)			Girls (18)		
		Mean	Standard deviation	p	Mean	Standard deviation	p
Overall scale	Before therapy	242,33	37,77	1,00	284,89	32,43	0,07
	After therapy	242,33	31,43		291,83	33,15	
Self	Before therapy	39,50	8,34	1,00	44,67	7,10	0,001*
	After therapy	39,50	4,59		47,50	7,40	
Others	Before therapy	138,33	24,48	0,54	164,50	17,99	0,26
	Before therapy	140,50	21,29		167,17	20,39	
Society	After therapy	64,50	9,42	0,23	75,72	12,79	0,29
	Before therapy	62,33	7,29		77,17	11,57	
Academic level	After therapy	86,00	12,65	0,16	102,56	13,26	0,85
	Before therapy	83,33	11,61		102,89	14,54	
Social level	Before therapy	78,50	15,39	0,61	80,83	13,39	0,011*
	After therapy	79,67	12,56		86,17	14,63	
Familial level	Before therapy	60,83	14,73	0,73	79,56	12,52	0,39
	After therapy	62,17	13,36		80,50	12,90	

\* significance level  $p < 0,05$  (paired t-criterion)

After application of play therapy, senior class pupils' social connectedness changed only in the *girls'* group: connectedness to self ( $p < 0,001$ ) and at the social level ( $p < 0,011$ ) increased. In the boys' group statistically significant change is not observed. Analysis of changes in means shows strengthening of the feeling of social connectedness to others, the family and society in the girls' group. In the *boys'* group the feeling of social connectedness increased in relationships with others, the family and at the social level but connectedness to society and at the academic level decreased.

Analysing remaining fifteen connectedness scales by sex, the statistically significant change is observed only in a few scales. Data of these scales will not be given in the table but they will be discussed in the brief review of significant changes.

*In the girls'* group the feeling of social connectedness strengthened to: self ( $p < 0,001$ ) and to the close friend ( $p < 0,05$ ). Girls' social interest increased in other domains too: interacting with neighbours, at school, with teachers, with culturally different people and with the father but decreased with peers and did not change with regard to religion (analysis of means).

*In the boys'* group social connectedness significantly decreased with regard to school ( $p < 0,05$ ). Boys' feeling of connectedness strengthened interacting with friends, culturally different children, with the close friend, the mother, particularly with the father but decreased communicating with neighbours, with peers and did not change with regard to reading and religion.

After application of play therapy the feeling of social connectedness intensified in fifteen-year-old children's group, compared with sixteen — eighteen-year-old adolescents.

**Table 5.** Comparison of means of social connectedness scales in fifteen-year-old and senior age adolescents' groups

Connectedness	Age	Fifteen-year-olds (15)			From 16 to 18 years old (9)		
		Mean	Standard deviation	p	Mean	Standard deviation	p
Overall scale	Before therapy	274,80	40,02	0,25	273,33	36,62	0,14
	After therapy	280,13	42,31		278,33	34,59	
Self	Before therapy	43,27	7,61	0,007*	43,56	8,02	0,22
	After therapy	45,53	7,87		45,44	7,57	
Others	Before therapy	159,00	22,51	0,57	156,22	23,56	0,08
	Before therapy	160,00	25,42		160,33	20,89	
Society	After therapy	72,53	13,66	0,34	73,56	12,11	0,54
	Before therapy	74,00	13,43		72,56	11,16	
Academic level	After therapy	97,80	15,29	0,49	99,44	14,72	0,57
	Before therapy	96,47	16,09		100,56	16,85	
Social level	Before therapy	78,80	13,87	0,022*	82,67	13,60	0,19
	After therapy	84,60	14,71		84,44	14,09	
Familial level	Before therapy	77,27	14,78	0,63	70,89	15,96	0,51
	After therapy	77,80	17,00		72,78	11,41	

\* significance level  $p < 0,05$  (paired t-criterion)

*Junior adolescents'* feeling of social connectedness strengthened to self ( $p < 0,05$ ) and at the social level ( $p < 0,05$ ). The analysis of means disclosed that the general feeling of connectedness strengthened as well as connectedness to others, society and family but it decreased at the academic level.

The analysis of means in the *senior age* adolescent's group demonstrates strengthening of the general feeling of social connectedness like of the feeling of social connectedness to others, the family, at the academic and social level but social connectedness to society decreased.

A more detailed analysis of social connectedness scales disclosed that in *fifteen-year-old children's group* connectedness strengthened to self ( $p < 0,001$ ), slightly less strengthened to neighbours, friends, school, culturally different children, the close friend, the mother, siblings and decreased to peers, parents, teachers and religion.

In *sixteen-eighteen-year-old children's group* the feeling of connectedness to self, friends, the close friend, the teacher, the mother and the father, religion strengthened but connectedness to neighbours, siblings, the school, peers decreased; social connectedness to parents, culturally different children did not change.

### Discussion of Results

The adolescents' changing attitude to themselves encourages to go deep into existing relationships with parents and friends and to try out different ways of social communication (Karcher et al., 2006; Ackard et al., 2006). Application of play therapy among senior adolescents helps them to slightly enhance the feeling of social connectedness to self and at the social level.

The age of adolescence is characterized by seeking independence from the family and other adults. Often the adolescent's social relationships with parents and teachers distance.

These relationships become important for them in another sense: they want their support, understanding and freedom in communication with peers (Ackard et al., 2006; Demaray et al., 2005). In general, due to application of play therapy the feeling of social connectedness with self and at the social level strengthened. Researchers' opinion that adolescents slightly distance from parents is confirmed: research results showed that the feeling of social connectedness at the family level did not change. A more detailed scale analysis demonstrates particularly strengthened feeling of connectedness to the close friend.

In the girls' group more significant changes in connectedness are observed than in the boys' group. Among girls the feeling of connectedness strengthened with self, the close friend and in general at the social level. In the boys' group strengthening of the feeling of connectedness is very small and statistically insignificant. The opposite change is observed with regard to the school: the feeling of social connectedness decreased.

In the junior age children's group the feeling of connectedness increased to self and at the social level but no changes took place in senior age children's group. It could be assumed that social relationships, the feeling of connectedness are much more significant for junior age children than for senior class pupils.

Summarizing the obtained research results, it can be confirmed that Raimundo's play therapy method "Game of Life" can be effectively applied to senior age pupils because it is short and effective.

This research can be important for further researches that will analyse effectiveness of play therapy and its applicability for senior age pupils. It would be purposeful in further researches to compare the impact of this play therapy method in case of more serious emotional disorders, such as depressiveness, anxiety and fear disorders; assess its applicability adjusting children's emotional and behavioural disorders as well as communication, adaptation difficulties. Researches would help to better understand what methods are most appropriate for solving certain problems.

According to scientific literature, both group and individual play therapy are effectively applied to help children dealing with the various problems and difficulties (Homeyer, 2000). It would be purposeful to apply this play therapy method in a small group of two-three children, in which the children could help each other.

Raimundo's play therapy method could be applied at school and at children's homes for adjustment of emotional and behavioural difficulties. Further researches that would more extensively evaluate effectiveness of Raimundo's play therapy method "Game of Life" in senior class pupils' therapy would enable to apply this short-term and effective play therapy in children's consulting.

## Conclusions

Generalisation of research findings resulted in the following conclusions:

1. Application of play therapy among senior adolescents helps to slightly strengthen the feeling of social connectedness. Application of play therapy among senior adolescents resulted in strengthening of the feeling of social connectedness to self and at the social level. A more detailed scale analysis demonstrates particular strengthening of the feeling of connectedness to the close friend.

2. In the girls' group more significant changes in connectedness are observed, compared with the boys' group. Among girls the feeling of social connectedness to self, to the close friend and in general at the social level strengthened. In the boys' group the increase of the feeling of social connectedness is very small and statistically insignificant but the feeling of connectedness with regard to school decreased.

3. Changes in the feeling of connectedness also depend on age: in the junior age adolescent's group the feeling of connectedness to self and at the social level enhanced while in the senior age adolescent's group changes did not take place.

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## CHANGES IN FEELING OF CONNECTEDNESS AMONG SENIOR ADOLESCENTS

### Summary

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Analyzing various aspects of adolescence, scientists seek to disclose and predict how various environmental aspects influence the adolescent, his/her family and how interaction of various factors influencing the adolescent will affect the adolescent's further development. The research on psychological aspects of adolescence period is particularly important because it can help to identify difficulties encountered by the adolescent and ways of support in order to ensure formation of the personality that is adaptive and beneficial to the society. During adolescence particular changes take place in the structure of the personality: the adolescent is trying to find himself/herself looking for the self, experiencing the crisis of identity and identifying himself/herself with significant family members and friends. Trying to find himself/herself, the adolescent must cope with one more especially important task: to maintain emotional balance with parents: to achieve identity but emotionally not to distance from parents too much and maintain close emotional link (to be related to parents) (Noack & Puschner, 1999; Piquart & Silbereisen, 2002). The feeling of social connectedness experienced by the adolescent forms the adolescent's main personality constructs: the self, self-respect, self-worth, identity, which influence further personality development of the individual (Ackard, Neumark-Sztainer, Story & Perry, 2006), directly or indirectly influence the adolescent's academic achievements (Demaray, Malecki, Davidson, Hodgson & Rebus, 2005; Gregory & Weinstein, 2004). Thus, researches into adolescents' feeling of connectedness, identifying its dynamics in adolescence both due to general maturity and due to applied psychological impact could be particularly relevant and productive. However, there is a lack of such studies, although their results would help to provide psychological support more effectively.

The feeling of social connectedness is the ability to interact, cooperate, feel that you belong to the group, that you adjust to it and that you are its member (Kottman, 1999). Barber (2004) and Karcher et al. (2006) present social connectedness as an emotional/cognitive condition, sensuous expression or dynamic process. In this study, social connectedness is understood both as a state and as a dynamic process, since the aim is to explore changes in connectedness due to applied psychological impact.

The aim of this study is to disclose changes in connectedness due to application of play therapy in the senior adolescents' group. Assessing the feeling of social connectedness among senior adolescents, M. J. Karcher's (2002) social connectedness scale Hemingway Measure of Adolescent Connectedness was applied. There was the play therapy method, based on psychodrama principles, used (Raimundo, 2002, 2014; Barton, 2004).

It was found that:

Application of play therapy among senior adolescents helps to slightly strengthen the feeling of social connectedness. Application of play therapy among senior adolescents resulted in strengthening of the feeling of social connectedness to self and at the social level. A more detailed scale analysis demonstrates particular strengthening of the feeling of connectedness to the close friend.

In the girls' group more significant changes in connectedness are observed, compared with the boys' group. Among girls the feeling of social connectedness to self, to the close friend and in general at the social level strengthened. In the boys' group the increase of the feeling of social connectedness is very small and statistically insignificant but the feeling of connectedness with regard to school decreased.

Changes in the feeling of connectedness also depend on age: in the junior age adolescent's group the feeling of connectedness to self and at the social level enhanced while in the senior age adolescent's group changes did not take place.

# CIVIC SELF-DETERMINATION: THE APPROACH TO DEFENCE FUNDING

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## **Abstract**

Researches on levels of happiness enable to comprehensively analyse information about the society, political culture and public spirit. One of the fields of such researches can be the research on the relation between the level of happiness of the society and governance of the state. Responding to this field, the public opinion research centre “Vilmorus” conducted a representative survey of Lithuanian population, aiming to find out respondents’ opinions about the level of happiness last year and during next five years’ period as well as their attitude to that part of public expenditure which, seeking the increase of residents’ level of happiness, should be allocated for defence of the state. In total, 1005 respondents were surveyed (people over 18 years old from 19 towns and 31 villages). The research also revealed that the level of happiness determined respondents’ opinions about distribution of state budget and funding of defence of the state. It was found that in the opinion of respondents with lower level of happiness there was no need to allocate funds for defence of the state at all.

***Key words:** level of happiness of the Lithuanian society, public spirit, approach to funding of defence of the state*

## **Introduction**

Civic education is one of the key aims stated in Lithuania’s progress strategy “Lithuania 2030” (Lithuania’s Progress Strategy “Lithuania 2030”, 2012). This aim promotes comprehensive studies on public spirit and examination of different aspects of public spirit.

Creating content of the civic education system, the idea of civil spirit is highlighted as one of the priorities of the system of education. Zaleskienė (1998) emphasises that all school life must create conditions to practically learn democratic way of life (e.g. organise self-governance of schools, pupils’ councils) and provides the following description of civic education: it is efficient socialization when human relations are governed by human rights and multicultural approaches; effective political socialization, when the principles of open and civic society are strongly advocated; fruitful management of young people’s vital energy; replacement of symbolic violence inherent to reproductive concept of education with relationships which are no longer based on power, dominance but are grounded on cooperation; and (self-)development of abilities and skills to live in the conditions of constant change.

Public spirit can be discussed as manifestation of political culture, which is acquired in the socialization process. Usually, the term “socialization” describes the process of becoming a member of the society, acceptance of its characteristic values. For instance, Matsumoto & Juang (2008) indicate that the essence of socialization consists of processes and mechanisms due to which social norms and cultural peculiarities are mastered.

Therefore, it is particularly important to analyse (un)consciously declared approaches, values and norms of social, cultural and educational environment, in which the personality is educated.

This process of mastering of norms and values involves both political and civic values, the totality of which can be named political culture. Clarifying the concept of political culture, Almond & Verba (1963) described it as specific orientation towards certain political actions. They performed the analysis of political culture of the United States, Great Britain and German Federal Republic and used it as a basis for grouping political culture into parochial, dependent and participative.

In the first case (parochial political culture) people are indifferent to national political aims and the system, are little interested in actions of central authorities and avoid participation in actions initiated by them. People are interested in local matters. Dependent political culture is characterized by considerable interest in activities and decisions of authorities. On the other hand, when the latter political culture is prevailing, citizens do not expect that their personal involvement can change the political system and affect political actions. They remain passive observers, although often they are sufficiently politically informed. Participative political culture is characterised by civic activeness and involvement. Representatives of this political culture believe that they can influence authorities and participate in civic campaigns, elections and activities of political parties. Almond & Verba (1963) treat the latter political culture as the pursued ideal and emphasise that it creates preconditions for democratic governance and higher wellbeing of the society.

Heunks & Hikspoors (1995) developed the discussed classification of political culture and supplemented it with new empirically established indicators: the overall assessment of the political system (in favour of the system or against it), trust in authorities, acknowledgement or denial of its legitimacy, assessment of personal involvement in politics. This approach enables to distinguish several types of political culture, which can be divided into two big groups: the active participation group and the passive participation group. Representatives of the first type perceive themselves as participants of the political process, while representatives of the second type do not think and feel that they can influence politics and do not want to take part in political activities. According to Heunks & Hikspoors (1995), their proposed conception of political culture helps both to assess culture and give a more precise definition of subcultures of various social groups.

Links of political culture with civic self-determination enable to assess political culture both formally and according to peculiarity of manifestation. Gerhards (2010) indicates that presence of democratic institutions and assurance of human rights are although necessary but insufficient prerequisites for democratic performance. When there is a lack of traditions of democratic political culture, norms and traditions expressing that culture, civic self-determination, active participation, solving problems of the society can be insufficient. Namely this kind of self-determination, perception of responsibility for the society and the state, according to Schyns & Koop (2010), reduces spread of anomic states, promotes dissemination of democratic values and creates prerequisites for material and spiritual progress.

Based on the standpoint of the above-mentioned scholars and many other researchers, it can be stated that civic self-determination, civic involvement and quality of life are interrelated. Existence of such links is also proved by researches. For example, Diener, Lucas, Schimmack,

& Helliwel (2009) indicate that political involvement, positive assessment of state institutions are statistically significantly related to the level of happiness of the society. Lithuanian population also supports development of democratic performance, more active participation of citizens, making decisions that are important for the society, treated as a trend of increasing the level of happiness of the society. According to the data of the study conducted in 2011–2012, three-quarters of Lithuanians are for wider participation of citizens in governance (Navaitis, 2013).

One of the most important aspects of governance is redistribution of funds, passing of funds and possibilities granted by them from one social group to another, from one region to another, from one generation to another, etc. Popkin (2003) indicates that such redistribution is based on values prevailing in the society, which are constantly changing and may contradict each other. Therefore, although assessment of financial policy is usually associated only with the effectiveness and rarely with such concepts as public spirit, happiness, subjective wellbeing, etc., anyway, assessment remains to be based on aims and norms of the society (Popkin, 2003).

Discussing links of such aims and norms with the level of happiness of the society, it is convenient to analyse the approach to state defence and its funding. This is determined by several circumstances. First, security of the state is not that type of value which could be directly consumed. Besides, current developments in international relations have affected the mission of the military, its relations with the society and value orientations. According to Moscos, Williams, & Seagal (2000), modern states live in the period when “societies, preventing war” are replacing “societies that are ready for war”. Respectively, the attitude of the society to the role of the military is changing (Moscos, Williams, & Seagal, 2000). These developments are also witnessed by data of sociological studies. In 2014, the public opinion and market research company “Sprinter tyrimai” conducted the public opinion poll which disclosed changing attitudes of Lithuanian people towards state defence and its funding. A few years ago, the vast majority of Lithuanian population expressed negative attitude to the increase of defence funding. In 2014, the increase of defence funding was supported by 64,3 percent of population (Visuomenės nuomonės tyrimas šalies saugumo ir gynybos klausimais (Eng. public opinion survey of the country’s security and defence issues, 2014).

The overview of theoretical approaches and facts enable to formulate the following problem questions: What is the level of happiness of Lithuanian population? Is the level of happiness related to public spirit? Is the attitude to financing of state defence the indicator of civic self-determination of Lithuanian population?

Responding to these problem questions, **the research aim** was formulated: to find out the level of happiness of Lithuanian population, their opinion about distribution of state budget, which is most favourable for their happiness and for happiness of the society, and the share of state funds, which they would allocate for state defence.

**Object of the research:** level of happiness of Lithuanian population, warranting their happiness associated state funds, which they would allocate for state defence.

**The research method:** a questionnaire survey at the respondent’s home.

The statistical analysis was performed using SPSS 13 software. Analyzing the results of the survey, mathematical-statistical analysis methods were applied: descriptive statistics (percentage frequencies) and analytical statistics. In order to assess significance of differences in socio-demographic groups, the Chi-square criterion was applied. The research employed standard 95% confidence level ( $p < 0.05$ ).

**The sample of the survey:** selecting the research sample, it was sought to have a representative sample, representing all population. Reliability of the sample is determined by the number of participants. Representativeness of the sample is determined by proportional

representation of all monitored units, in these case groups of population (Bitinas, 2006). The respondent selection method is a multi-stage random sampling. Selection of respondents was organized so that every Lithuanian citizen would have equal chance to be interviewed.

In total, 1005 people over 18 years old from 19 towns and 31 villages were interviewed. The survey took place in the cities of Vilnius, Kaunas, Klaipėda, Šiauliai, Panevėžys, Druskininkai, Kretinga, in the districts of Kaunas, Alytus, Šakiai, Pakruojis, Utena, Tauragė, Švenčionys, Raseiniai, Kupiškis, Akmenė, Šilutė, Telšiai, Mažeikiai, Marijampolė, Trakai, Ukmergė.

The study was conducted in February 14-23, 2014. The survey was conducted by interviewers of the public opinion research centre “Vilmorus”.

Research ethics: the research was conducted in accordance with the Code of Ethics of ESOMAR (ESOMAR, 2008).

Quality control of the research was based on the following principles: a) the internal performance verification test; this means that 100% control was applied (the number of interviews, completeness of filling in of the questionnaire, consistency of the survey); b) external performance verification test; this means that at least 10% of interviewers were additionally controlled in order to determine whether the survey was carried out in accordance with methodological requirements, whether the principle of selection was not breached, whether there were no violations of procedures set out in the survey; c) data input control: at least 10% of input data were checked.

### Main results of the research

Assessment of the last year and the perspective of next five years in order to access the level of happiness have been conducted. The respondents' mood, which according to Ahmed (2010), can be influenced even by such accidental factors as weather changes or game scores, can influence the assessment of happiness. This situational impact can be minimized if respondents are asked to assess longer periods and foresee possible perspectives of changes in their personal lives and in the situation of the society. For this reason, the respondents were asked to evaluate the last year and the perspective of next five years. Data about their answers are presented in Table 1.

**Table 1.** The attitudes to happiness, based on evaluations of the last year and the perspective of next five-years

Opinions of respondents	Number of respondents	Percentage of respondents, %
The last year was full of happiness and in the future the happiness will strengthen	68	6,8
The last year was full of happiness but in the future we will have to put additional efforts in order to sustain happiness	243	24,2
The last year was not happy, however, I expect positive changes in the next five years	414	41,2
The last year was not happy, and I do not expect any positive changes in the next five years	258	25,7

**Comments.** 22 respondents (out of 100) did not answer this question. Chi-square is = 24,872,  $p < 0,001$  ( $df = 3$ ,  $n = 983$ ). The tool used for calculations for the chi-square test is: an interactive calculation tool for chi-square tests for happiness [Computer software] (Preacher, 2001).

Discussing the data presented in Table 1, it is purposeful to group respondents into three groups differing in their happiness and perception of future prospects. The first group would be made up of one-third of respondents who think that they are happy and have stronger or weaker hope of successful future. The second group would consist of people who are not happy about the current situation but hope that there will be positive changes. This group would consist of two out of five respondents. The third group can be named “the group of the most unhappy people”; it consists of every fourth respondent. The representatives of this group are disappointed about the present and do not expect any positive changes in the future. More detailed analysis of distinguished groups shows that the level of happiness is most significantly influenced by age, education, social status, income and the place of residence.

*The approach to funding of state defence.* Modern democratic states follow the provision that civil authorities control military authorities. According to Feaver (1997), despite of the fact that the opinion of the military is more professional, the opinion of representatives of civil authorities always has to be decisive. Reviewing funding of defence, civil authorities can be identified with political authorities and the latter must express the opinions of citizens who elect them.

The opinion of Lithuanian population about funding of state defence is presented in the Table 2.

**Table 2.** Public opinion about funding for state defence in Lithuania

Respondents' opinion	Number of respondents	Percentage of respondents, %
The numbers of happy people in Lithuania will grow if 0 percent of state budget are allocated for state defence	155	16,8
The numbers of happy people in Lithuania will grow if from 1 to 5 percent of state budget are allocated for state defence.	365	39,7
The numbers of happy people in Lithuania will grow if from 6 to 10 percent of state budget are allocated for state defence.	335	36,4
The numbers of happy people in Lithuania will grow if from 11 to 15 percent of state budget are allocated for state defence.	40	4,3
The numbers of happy people in Lithuania will grow if from 16 to 20 percent of state budget are allocated for state defence.	21	2,3
The numbers of happy people in Lithuania will grow if more than 21 percent of state budget are allocated for state defence.	4	0,4

**Comments.** 85 respondents (out of 1005) did not answer this question. Chi-square is = 24,872,  $p < 0,001$  ( $df = 3$ ,  $n = 920$ ).

Discussing data presented in Table 1, like in case of generalisation of the level of happiness, it is purposeful to group all respondents into three groups of people, who have different approaches to funding for state defence. The first group of respondents would allocate more than 6 percent of budget funds for state defence. The second group consisted of respondents proposing to allocate from 1 to 5 percent of budget funds for state defence. The third the group of respondents would consist of nearly one-sixth of respondents. They thought that there was no need to allocate funds for state defence at all.

It is worth noting that it would be reasonable to call opinions of the largest share of respondents (the second group) “realistic”, as they correspond to the current budget for state defence of Lithuania (2014), according to which in 2014, 3.1 percent of state funds were allocated for state defence (The Law on approval of financial indicators of state budget and municipal budgets of the Republic of Lithuania in 2014).

It is likely that representatives of the first group feel bigger threat to the state and, wishing to reduce it, propose to allocate more state funds for state defence. It should also be noticed that the largest share of respondents of this group (36.4 percent of all respondents) would allocate 6-10 percent of state funds for state defence. It would be appropriate to treat the latter value as quite “realistic” because it is close to today’s declared political aspiration, which is approved by all Lithuanian parliamentary parties: to ensure that state funding would make up 2 percent of the GDP (gross domestic product). Those who propose to allocate still larger funds for state defence make up a quite inconsiderable share of the first group of respondents (7.0 percent of all respondents).

The first group of respondents should be treated as the most problematic group. It consists of respondents who think that the Lithuanian society will become happier if the state does not fund state defence at all.

Statistical analysis of respondents’ features related to attribution of respondents to one or another group enables with high confidence ( $p < 0.05$ ) to distinguish several features.

Firstly, it should be stated that respondents’ gender does not determine opinions about funding of state defence. (Significant difference was found only between male and female respondents, who chose the answer “it is necessary to allocate 11–15 percent of state budget for state defence”. This answer was chosen by 6.7 percent of male and 2.1 percent of female respondents).

Respondents’ age quite clearly influenced their opinion. Those “allocating” the largest share of the budget for state defence were dominated by young respondents. Among those who indicated that 0 percent must be allocated for state defence young people (under 29 years old) made up 11.3 percent, whilst old people (70 years old and older) made up 25.5 percent. Respondents who “allocated” the maximum share of the budget; i.e., 16 percent or more, are distributed accordingly: among young people (under 29 years) there were 4.8 percent of such respondents and among people aged 70 and over there were 2.4 percent of such respondents. Besides, in this group no older respondent proposed to allocate more than 21 percent of the budget, while 1.8 percent of younger respondents proposed this maximum allocation.

Opinions about funding of state defence determined by age are to be related to opinions about pensions. The younger respondents’ group allocated a clearly smaller share of budget for pensions than the older respondents’ group. Because respondents had to “distribute” one hundred percent of state budget, reduction or increase of one part of the budget presupposed corresponding changes in other parts of the budget.

The perceptions of state defence funding were notably influenced by respondents’ education. Among those who had unfinished secondary education even 21.5 percent indicated that they would allocate 0 percent of budget funds for defence matters.

Similar links between the place of residence of respondents and their opinion on defence funding were found. Among respondents who thought that there was no need to finance state defence 13.2 per cent were from Vilnius, 17.7 percent, from bigger cities (Kaunas, Klaipeda, Šiauliai, and Panevėžys), and 22.8 percent, from other (smaller) towns.

The analysis of the respondents’ level of happiness and their approach to funding of state defence demonstrates the statistically significant ( $p < 0.05$ ) relationship between belonging to the third group with regard to happiness and belonging to the third group according to attitude to funding of state defence. That is, respondents who stated that the year was unhappy for them

and who did not expect any positive changes in the future often “proposed” not to allocate any funding for defence.

### Discussion

Research data show that a significant share of respondents is disappointed about the present status and does not expect anything better in the future. In countries with the highest level of public happiness (Denmark, Norway, Sweden, Canada, New Zealand, Switzerland, etc.) the share of such respondents usually does not exceed 1-3 percent. It can be assumed that persons who are dissatisfied with their present situation and who do not expect any possibilities of positive changes have negative opinion about themselves, the society and the state. Therefore, such researches are important both in order to disclose the wider approach to the state and to find out to what extent the society supports solution of state defence issues, the importance of comprehensive understanding of which increases together with possibilities of unconventional impacts on security of the state.

The opinion about funding of state defence also indirectly reflects general assessment of the state. It is evident that defence of the state, like other areas of activities of the state, must be properly funded. Survey data showed that a significant share of Lithuanian population (over 80 percent) quite realistically assessed state defence funding and prospects of its increase. In addition, it should be also noted that 16.8 per cent of respondents do not realize the importance of this type of funding. In their opinion, there is no need to allocate funding for state defence at all. This group is characterized by lower level of education. Part of older respondents and respondents living in small towns also belong to this group. These social demographic characteristics of the said group coincide with social demographic characteristics of representatives of the group, whose level of happiness is the lowest.

To sum up research data, it can be stated that they coincide with the statement of Frey and Frey Marti (2010) that happier population are more civic oriented.

This is worth considering developing public spirit, forming attitudes, norms and values and seeking social welfare in the state.

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## CIVIC SELF-DETERMINATION: THE APPROACH TO DEFENCE FUNDING

### Summary

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Studies on the level of happiness of the society provide grounding for the economy of happiness and for felicitary (*felicitas* from Latin means happiness) policies, implementing its principles. One of such research fields can be disclosure of relation between the level of happiness of the society and state governance. Responding to this field, the public opinion research centre “Vilmorus” conducted a representative survey of Lithuanian population, aiming to find out respondents’ opinions about the level of happiness of the last year and next five years’ period as well as their attitude to that part of public expenditure which, seeking the increase of residents’ level of happiness, should be allocated for defence of the state.

**Problem questions of the research:** What is the level of happiness of Lithuanian population? Is the level of happiness related to public spirit? Is the attitude to financing of state defence the indicator of civic self-determination of Lithuanian population?

Based on these problem questions **the research aim** was formulated: to find out the level of happiness of Lithuanian population and their opinion about allocation of state budget funds for state defence.

**The research method:** a questionnaire survey at the respondent’s home.

The respondent selection method is a multi-stage random sampling. Selection of respondents was organized so that every Lithuanian citizen would have equal chance of being interviewed. In total, 1005 people over 18 years old from 19 towns and 31 villages were interviewed. The survey took place in the cities of Vilnius, Kaunas, Klaipėda, Šiauliai, Panevėžys, Druskininkai, Kretinga, and in the districts of Kaunas, Alytus, Šakiai, Pakruojis, Utena, Tauragė, Švenčionys, Raseiniai, Kupiškis, Akmenė, Šilutė, Telšiai, Mažeikiai, Marijampolė, Trakai, Ukmergė.

The study was conducted in February 14-23, 2014. The survey was conducted by interviewers of the public opinion research centre “Vilmorus”.

The study showed that respondents could be grouped into three groups of persons who differed in terms of their happiness and perception of future prospects. The first group consisted of 31.0 percent of respondents. They said they were happy and hoped that the future would be successful to a greater or lesser degree. The second group consisted of 41.2 per cent of respondents, who indicated that they

were dissatisfied with the current situation but were waiting for changes for the better. The third group consisted of 25.7 percent of respondents who indicated that they were disappointed with the present and did not expect any positive changes in their situation in the future. 2.2 per cent of respondents did not answer the question.

The research disclosed that happiness determines respondents' opinions about distribution of state budget and funding of state defence.

It is worth noting that it would be justifiable to call opinions of the most significant share of the respondents "realistic" because they correspond to current state defence budget, according to which in 2014, 3.1 percent of state expenses are allocated for state defence. This group consisted of 39.7 percent of respondents (365 persons). Respondents who think that the Lithuanian society will become happier if the state does not fund defence are to be treated as the most problematic.

The statistical analysis of the approach to funding of state defence enables to distinguish several features of respondents associated with this approach with confidence ( $p < 0.05$ ). Firstly, it should be stated that respondents' gender does not determine opinions about funding of state defence. Respondents' age quite clearly influenced the discussed opinion. The share of population "allocating" the largest share of the budget for state defence was dominated by young people. Opinions about funding of state defence were considerably influenced by respondents' education. Among those who had unfinished secondary education even 21.5 percent indicated that they would allocate 0 percent of budget funds for defence matters. Similar links between the place of residence of respondents and their opinion on defence funding were found. Among respondents who thought that there was no need to finance state defence 13.2 per cent were from Vilnius, 17.7 percent, from bigger cities (Kaunas, Klaipėda, Šiauliai, and Panevėžys), and 22.8 percent, from other (smaller) towns.

# ROLE OF PERSON'S IDEOLOGICAL ORIENTATIONS IN THE WORLD VIEW FORMATION AND THE SELF-IMAGE

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## **Abstract**

The article describes features of the influence of ideological orientations of personality on building a picture of the world and the self-image. It defines specificity of self-cognition, self-realization and self-identity process in adolescence. Determinants of ideological orientations formation are mentioned. The features of synergistic approach to the study of world view formation, the self-image, the hierarchy of personal values in a contemporary environment are considered. Differences were defined of life values, senses, perceptions about the meaning of life between creative and talented high school students and other high school students from regular schools. The influence of social and cultural factors on these differences (social status of parents of high school students, the prestige of school) is analyzed.

*Key words:* synergy, self-cognition, self-image, meaning of life

## **Introduction**

Very actual problem of socialization in adolescence is a process of self-identification, self-realization and self-creation. Thus, making a life choice a person realizes through the self-image their personal opinion on the system of values offered by society. Person's own world view is constructed based on the existing system of ideological orientations. The psychological, psychotherapeutic methodologies, diagnostic and practice require further development of differential characteristics, classification criteria, and symptomatic and terminology correction. In our opinion, the phenomenon of ideological self-determination is closely linked with person's self-creation. The most developed area of study of this problem is systematic and synergetic approach. The systematic and synergetic approach to the person's self-creation is tested in humanitarian education today (Радчук, 2009). The synergetics as a cooperative science explores developing complex, open systems. When a person realizes their inner world, they begin to look at the external environment in a different way. Then in the perception of the outside world there are no static categories and shapes, the world is perceived in all its diversity.

The thinking is in constant motion, consciousness gives rise to various opinions and forms, that will never be complete and dogmatic. Discovering their inner world, a person opens the outside world in a constant state of change and they are always on the way of self-creation. In the process of self-creation the semantic category is formed — the self-image, which bears the imprints of its being.

So the self-image becomes the main thing for defining person's behavioral strategies. The very idea of our selves becomes the foundation for development of flexible adaptive capabilities of our individuality. The world is in constant change, and the self-image strives for stability, even for conservatism to preserve its integrity. Therefore, the structures formed on the background image of the environment dynamics become a destructive element that slows further self-development of the self-image. Each component that took shape of clear categories and its place in the self-structure of person's individuality is committed for continuous existence. And it changes or transforms very painfully. With the deepening into process of self-identification the self-image is detailed, each component gets its clear structure and subjects to reflective activities, if needed. All of this continues until there are new barriers in social adaptation and new changes in person's features, abilities.

**Research subject:** ideological orientation of high school students.

**Research goal:** to determine the most pressing problems in self-creation of the individual in adolescence, to reveal the features of influence of ideological orientations on building a picture of the world and the self-image.

**Research methods:** theoretical analysis methods, experimental methods (questionnaires, tests).

**The research was attended** by 72 adolescents — 30 students of Children Academy of Arts in Kyiv and 42 students of secondary school.

#### **Results and their analysis**

Personality is a mobile, self-organizing and self-developing open system. Its different elements mutually provoke, enrich, neutralize or suppress each other, generate new ideas and understanding. The result of self-affirmation of the individual in different approaches is quite illusory and significant only for the subject. And the result is a real and socially significant. According to the first illusory type a person produces feeling (superiority complex), which may be one of ways to escape his problems. From the position of Erikson (Эриксон, 1996) the individual identity resistance appears as firmly assimilated self-image, which is taken by a person and prevents changes in self-creation.

Self-creation is a complex set of cognitive, emotional and behavioral reactions. Self-creation is determined by the value of its own self-affirmation, its strength and significance. The self-creation of personality is carried out by externalizing its values in order to be supported by others. The essential in its direct meaning of the term is not a life of its own, it's possibility of existence, individual, private. Life appears as the personification of particle of being like individuation — differentiation — separation — disconnection. In Latin "existence" means "the selection of things" from the whole. Separation of own self, feeling of loneliness, inner unique integrity creates conditions for self-creation, ability for self-awareness and reflection, ability to feel and think, take the character and inclinations, own opinion and relation to the world. Even unconscious part of self becomes the condition for self-awareness formation for selfhood, separateness, "otherness", the ability to live according to its own needs and life scripts.

One of the lines of research of person's ideological orientations in adolescence is the definition of meaning of life. The problem of mastering the meaning of life by human, building a world view, was illustrated by such leading authors as Frankl (Франкл, 1990), Sartre (Сартр, 1991), Yalom (Ялом, 2005), Buber (Бубер, 1993). In the Russian psychological science, this problematic is developed and attended in the works of Vasiliuk (Василюк, 1997), Vygotskiy (Выготский, 2002), Ivannikov (Иванников, 1985), Leontiev (Леонтьев, 2002), Rubinstein (Рубинштейн, 1976). Among Ukrainian psychologists who explore the question of ideological orientations, the meaning of life in branch of humanistic-existential orientation, spiritual development paradigm we can mention Boryshevsky (Боришевский, 1994), Bondarenko

(Бондаренко, 2006), Romenets (Роменец, 1993), Savchyn (Савчин, 2001), Tytarenko (Титаренко, 1998). It is believed that semantic field subjugates all other vital signs, determines the direction of knowledge vector of personality. And indexes of personal self-determination are the choice where higher level values are preferred.

Therefore, humanistic psychology recognizes the possibility of harmonious human existence only if it has a “high” meaning in life. In an effort to find out the genesis of a person’s ability to obtain such experience, it is necessary to distinguish:

- a) highly developed form of existence (combined with reflection), which encourages people to act consciously, relevant to high spirituality criteria;
- b) less developed forms of existence;
- c) internal premises of becoming forms stated above.

Based on the definition by Leontiev (Леонтьев, 2002) of categories of sense as “Meaning (in particular, the meaning of texts, fragments of the world, images of consciousness, psychic phenomena or actions) is determined, firstly, because of the wider context and, secondly, through intention or entelechy (target orientation, purpose or direction of motion)” (Боришевський, 1994, p. 26), and conceptual concretization of this category, which can be considered “personal meaning” by Leontiev (Леонтьев, 1971) and others. In modern culture to high meanings belong: love, goodness, truth, beauty, harmony, activity, excellence, responsibility, justice, honor, conscience, freedom, etc. Research manifestations of each of these meanings can be performed by different types and different methods of determination: causal (mechanistic, linear) determinism of classical psychology in its behavioral or biogenetically conditioned variant, the leading methods — objective observation and experiment; probabilistic (stochastic) non-classical determinism of humanitarian-oriented psychology (first of all — numerous psychodynamic theory), the leading method — hermeneutics; teleological determinism of phenomenological and existential theories of personality, etc., the leading method — phenomenological.

These types of methods and determination, which make it possible to investigate person’s patterns of meaning of life formation, are represented by the laws of life (the answer to the questions why?, how? and where?), mechanisms of meaning functioning (the answer to the question how?), and experience as a personal phenomenon (the answer to the question what is the meaning of life? what is this for me?). Existing implicit theories of personality of ordinary people, which do not depend on their educational background, irrational guidelines, prejudice, spirituality subconscious, the collective unconscious, can complement other theories of personality for sufficient integrity of representation of a person’s world. Formation of meaning of life activates integration and becomes the most important determinant of person’s changes. Through the dialogue of conflicting sides of personality, individuals take responsibility for their own choice of ideological orientations and formation of life strategies. Understanding that nothing happens by itself, only “we are the authors of everything: every gesture, action, all reflections and senses”.

Formation of ideological orientations occurs in the process of social inheritance in the family, surrounding of peers, educational and other social institutions. Person’s ideology creates a social and psychological world that builds up a hierarchy of values, goals, meaning of life. Formation of ideological orientations of personality is mediated by the influence of others’ life styles, their life scenarios, systems of relationships, attitudes and values.

In the theory of Gestalt approach the main underlying ideas of Perls (Перлз, 2005), related to a specific mode of contact of an individual with the environment, are directed to consideration of creative adaptation, the ability to find constructive ways to adapt to a particular situation in life. This constructive search enables an individual to find optimal strategy of interaction with the environment. In situation of uncertainty an individual has

a need for constructive search for interoperability. In this case a creative adjustment, in contrast to an adaptation, represents the process of constant search for balance between the needs of both contact phenomena and possibilities of the environment that provides the possibility and the need for free choice. If the choice is made depending on the circumstances and judgments of other people, the personality adapts rather than create its own strategy of interaction. The criterion for creative interaction with the environment is the ability to assimilate new experience of contact, the ability to choose adequate method of communication. In the theory of paradoxical changes of Bateson (Bateson, 1972) the ability of individual to change is considered not as a result of what they want to be, but as a result of their formation as they are. Creative adjustment unlike adaptation is the process of searching the needs as the phenomena of contact with possibilities of the environment in the course of this contact implementation.

Contradictions that are associated with change in the life position, lifestyle, are the most difficult for individuals, especially in formation of their worldview. Vitally important, influential are those contradictions that mediate changes in attitude, habits and relations of individuals to society and themselves. The ability to adjust their way of life is the basis of life strategies formation. The sense of embarrassment on a subconscious level, caused by alienation, loneliness and horror, exacerbates the perception of the surrounding world. These experiences, along with associations arising from books, the information field surrounding individuals, their childhood introjections become such stimulants that accelerate and mediate the development of behavioral strategies. Problems, which arise every day, push individuals to changes in behavior, seeking new goals and means of their achievements. This overcoming of certain problems, that have not been solved since childhood and can convert into the sense of inferiority, increase the persistence of an individual in finding new ways, developing the ability and desire to generate ideas that are new, unique and creative. This overcoming of problems that seem insuperable and fatal, forms the will of an individual, awareness of the need of independence and responsibility in the struggle for survival.

Representatives of psychoanalytic approach believe that each person adapts to the world due to certain defense mechanisms. The findings of American and Western psychologists demonstrate that transpersonal feelings can lead to significant and persistent improvements: increasing of own feelings perception, relief of existential crisis (Ялом, 2005; Ленгле, 2004), awakening of altruism, compassion, acceptance of oneself, others and the surrounding world (Allport, 1935), expanding the range of understanding and awareness of the importance of life. Spirituality is a core entity, which runs through all aspects of the structure of personality and affects creation of life strategy of an individual.

The discussion of searching the meaning of life, own attitudes to life, achievements, goals in life becomes an important basis of an individual and individual's self-acceptance. Harry Stuck Sullivan considered self-system weak, if individuals manifest contempt for themselves, self-deprecation, inability "to be like others". This leads to disruption of self-estimation, attitude to own capabilities, limitations, which violate relationships with others. Reproduction of different ways of contact: manipulation, adaptation to other people, relationships "to be equal to theirs" helps an individual to be flexible in the choice of behavioral strategies. To become part of an individual model of the world, both internal and external motivations shall be displayed in the intersubjective space, become the subject of psychological dialogue and semantic exchange. The interaction of an individual with other people becomes the reality that can be interpreted by subjects, "read" by them, as some "text" and therefore disclose as discourse.

In domestic psychology the problem of a human survival in severe, extreme life situations is considered in terms of coping strategy, the strategy of survival in complicated situations, post-traumatic states, stresses and other disorders. These directions of consideration

of different strategies of a human survival in complicated conditions are directed mainly to the possibility of mental disorders prevention, which arise as the result of extreme factors influence.

The search for the meaning of life forms adaptive capability of an individual, which is revealed due to psychological characteristics, important for regulation of mental activity and adaption process. The higher is the level of these characteristics, the higher is probability of successful adaptation of individuals and more significant is the range of environmental factors to which they can adapt. These features form personal adaptive potential: neuropsychological stability, which development level provides tolerance to stress, self-identity of an individual, which mediates self-regulation and the level of perception adequacy of operating conditions and own capabilities, the feeling of social support, which determines the feeling of personal significance to others, the level of conflict of an individual experience of social communication. All properties are important in assessing and forecasting a successful adaptation in difficult and extreme situations, as well as in evaluating the rate of mental equilibrium recovery. It was studied by Vasiluk (Василюк, 1997), Orban (Орбан, 1992) and others. Factors and conditions of psychological and educational support to an individual in the meaning of life search in close interaction with the value-orientation context of modern educational process in schools and universities were investigated. It revealed the importance of interpersonal relationship humanization in the educational process as a condition of lack of spirituality prevention as well as conflict prevention, provoking crisis situations of loss of meaning in life. While agreeing with Levin's theory of field behavior of an individual (Левин, 2000), human features should be considered in the system of interrelations with surroundings, with the environment of their life activity. Based on this approach, it is appropriate to examine the determinants of search for individual's search of life meaning under different conditions and situations in life that mediates formation of ideology.

To determine the relations between formation of life goals and ideological orientations of personality, we used the methodology of researching the meaning of life by Kotlyakov (Котляков, 2003), method of Rokich (Рокич, 2000) (determination of value orientations), LPO method (life-purposes orientations) by Leontiev and Must-test (determination of person's life values) by Ivanov and Kolobova (Иванов & Колобова, 1998). Experimental researches have shown urgent condition of meaningfulness of life and the dominant values of this age period. 72 adolescents took part in the research, 30 of them were students of the Kyiv Children Academy of Arts, and 42 — students of secondary school in Kyiv. The survey was carried to find out the features of the value-sense sphere, and to find the differences between the life values and understanding among different groups — namely, the creatively gifted boys (Kyiv Children Academy of Arts) and boys enrolled in regular school.

In order to verify the connection between the value of general life meaningfulness (LM) of Leontiev's LPO method and other values of our chosen methodology correlation analysis was used, the calculation of the Spearman's correlation coefficient in particular. The obtained results showed the presence of significant correlation between general life meaningfulness (LM) with categories of life meanings by Kotlyakov's research methodology of life meaning and categories of terminal and instrumental values by methodology of value's orientations detection. The general value of life meaningfulness (LM) of students of the Academy correlates with a status ( $r = -0.435$  at  $p \leq 0.01$ ), communication ( $r = -0.416$  at  $p \leq 0.01$ ), and cognitive ( $r = 0.655$  at  $p \leq 0.05$ ) categories of the life meaning (by Kotlyakov's research methodology of the life meaning).

Those students focused on claims of success, career achievements and taking their rightful position in society (status), as well as those aimed at building relationships, have a higher rate of LM: to feel someone needs you, be with the loved one, enjoy communication

with other people (communication). In addition, the higher the values for LM scale, the less importance youths give to understanding themselves, the knowledge of God and life understanding (cognitive). The last regards also to students of 10th grade of secondary school, the higher the rate of LM the less importance is attached to cognitive categories of life meaning ( $r = 0.460$  at  $p \leq 0.01$ ), and existential (to live, to be free, etc.) ( $r = 0.484$  at  $p \leq 0.01$ ).

Test results of the 11<sup>th</sup> grade secondary school students discovered the following LM correlations with “family” and “hedonistic” categories: those students who see the life meaning is to in living for the sake of family, giving all the best to their children, helping their relatives and friends ( $r = -0.439$  at  $p \leq 0.05$ ) have higher LM rate. Also, the higher rate of LM, the smaller value students give to pleasure, happiness, getting sensations and emotions as much as possible ( $r = 0.462$  at  $p \leq 0.05$ ). The low LM rate indicates the presence of existential vacuum that person is trying to fill with entertainments that give quick satisfaction. No significant correlations for boys and girls separately were found. It means that correlations between various categories of common life senses and life meaningfulness (LM) do not depend on gender but the status and age of the persons tested.

Significant correlation of LM with the categories of terminal and instrumental values by the method of value orientations detection are as follows: the total correlation for students of the Academy, and secondary school students detected significant correlations between such terminal values as “development” ( $r = 0.266$  at  $p \leq 0.05$ ), “active pragmatic life” ( $r = -0.284$  at  $p \leq 0.05$ ); and the instrumental “cheerfulness” ( $r = 0.268$  at  $p \leq 0.05$ ), “responsibility” ( $r = -0.399$  at  $p \leq 0.01$ ), “tolerance” ( $r = -0.297$  at  $p \leq 0.05$ ).

So:

- the higher LM value, the less significant is development (work on themselves, the constant physical and spiritual perfection) and more significant is freedom (autonomy, independence in judgment and actions);
- the higher LM value, the more significant is responsibility (a sense of duty, ability to keep one’s word) and tolerance (to views and opinions of others, ability to forgive their mistakes), but vivacity (sense of humor) is less important.

When considering separate indicators of students of the Academy, students of the 10<sup>th</sup> and 11<sup>th</sup> grades of secondary school, the following data were obtained. Significant for students of the Academy were the following correlation of general life meaningfulness (LM) with terminal values: LM — “interesting work” ( $r = -0.536$  at  $p \leq 0.05$ ), LM — “development” ( $r = 0.430$  at  $p \leq 0.05$ ), LM — “fun” ( $r = -0.467$  at  $p \leq 0.05$ ), LM — “freedom” ( $r = 0.473$  at  $p \leq 0.05$ ); and with instrumental values: LM — “self-control” ( $r = 0.459$  at  $p \leq 0.01$ ), LM — “integrity” ( $r = 0.466$  at  $p \leq 0.01$ ):

- students who have a high rate of LM value in interesting work and fun also pay less attention to development and freedom;
- the higher the general life meaningfulness (LM) of students of the Academy, the less self-control and honesty is valued in achieving the goals (the opposite is true: the more youth appreciates honesty and self-control, the lower is the rate of general life meaningfulness).

The higher LM rate of students of the 10<sup>th</sup> grade of secondary school, the more significant to them is health (physical and mental) ( $r = -0.477$  at  $p \leq 0.01$ ), and less important — happy family life ( $r = 0.563$  at  $p \leq 0.01$ ).

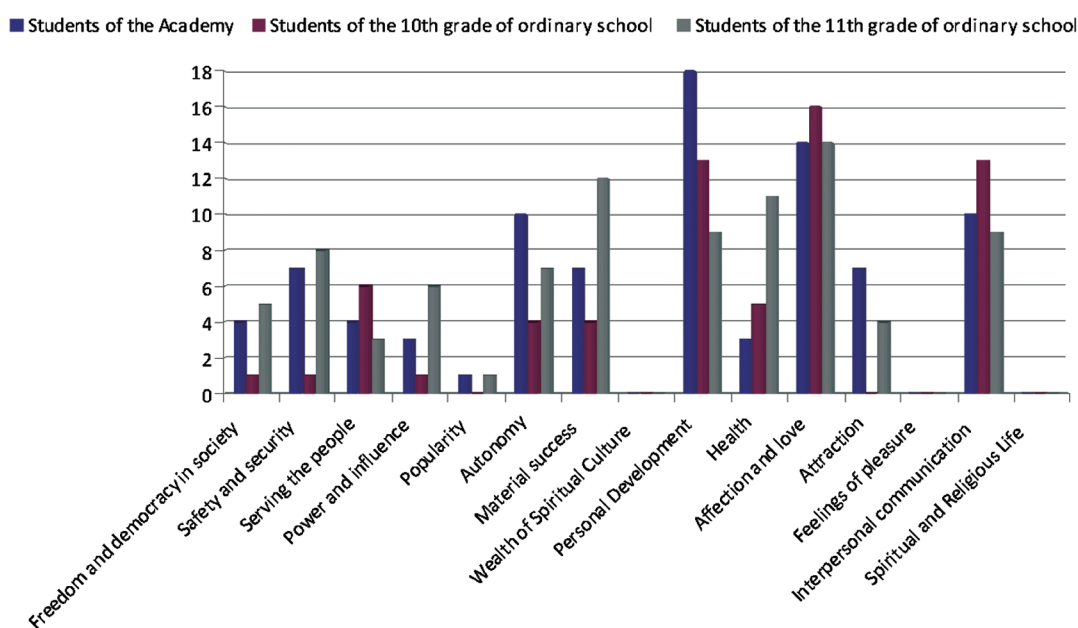
Students of the 11<sup>th</sup> grade of secondary school revealed the feedback of general life meaningfulness (LM) with their development (work on themselves, constant physical and spiritual improvement) ( $r = 0.536$  at  $p \leq 0.01$ ), which is common for them and Academy students.



Students of 11<sup>th</sup> grade of secondary school with a high rate of LM in achieving the goals valued accuracy (ability to comply with order of things and affairs) ( $r = -0.475$  at  $p \leq 0.01$ ), responsibility (sense of duty, ability to keep one's word) ( $r = -0.451$  at  $p \leq 0.01$ ) and tolerance (for views and opinions of others, ability to forgive their mistakes) more ( $r = -0.438$  at  $p \leq 0.01$ ), and the least attention is given to cheerfulness ( $r = 0.439$  at  $p \leq 0.01$ ) and uncompromising to defects in themselves and others ( $r = 0.489$  at  $p \leq 0.01$ ).

All young men examined, regardless of age and social status, identified “love”, “having good and trusted friends” and “happy family life” among the most important values. Students of ordinary school put health (physical and mental) first in contrast to Academy students, but Academy girls ranked it third and guys — the sixth. Also, students of 11<sup>th</sup> grade of school defined “financial supply” as one of the primary values (the guys — at the 2<sup>nd</sup> place and the girls — at the 5<sup>th</sup>), as Figure 1 shows.

The obtained results show students' orientation mostly on specific values (financial supply, active life, physical and mental health and happy family life), that promote to self-satisfaction and self-actualization needs. The dominant instrumental values appeared to be those that are closely related to learning activity (interpersonal communication). The most pronounced terminal values are financial position, active social contacts, the need for achievements, spiritual satisfaction and their own prestige.



**Figure 1.** Results for the “Person’s life values determination” test (Must-test Иванов & Колобова, 1998)

Both Academy and ordinary school students chose “autonomy”, “material success”, “affection and love”, “interpersonal communication” among important values. However Academy students are oriented towards personal development and autonomy more than of ordinary school, but at the same time students of ordinary school give greater importance to value of interpersonal communication, affection and love.

Students of the 11<sup>th</sup> grade identified material success, health, love and affection. By analyzing features of formation of person’s ideological orientations, we primarily directed an interest in features of integration, its life meanings development, changing attitudes to

stressful situations, taking responsibility for own life. Following the principle of person's integrated subjectivity, according to which a person's ability to self-actualization is shown in rising teleological perspective in the continuum of: 1) relative subject (biological individual psychosomatic organism) endowed with ability to reflexive configuration (subjective ability of "premonition") for favorable living conditions and based on the first key value — "vitality" (health); 2) mono subject (actually subject of relatively individual activities), which operates with specific subject content (knowledge, communication, labor) produced in accordance with social norms and cultural standards, dominated by pragmatic values, we defined determinants of person's value-sense sphere in adolescence.

Development of person's value-sense sphere is explained by person's adaptive activity, ability to moral and psychological self-regulation (through awareness of duty, responsibility, and manifestation of conscience "have to", "should be"). Subjective ability of level is implemented by targeting "I will", "I dare" and provides person's new experience construction. Building a picture of the world is a result of understanding the meaning of being of a specific person in the world order (subjective ability to "accept"). Person understands their own hierarchy of values, identifies existential ideas, values accentuations, activates individual integration, in terms of awareness, acceptance and integration of its own desires, needs and opportunities.

### Conclusion

Person's self-creation occurs in the process of understanding their own resource capabilities, changes of transferential characteristics, methods of defense, attack, stable behavioral patterns.

This process requires a good structuring: self-image, life goals, future perspectives; presence of positive strategies of psycho-emotional self-regulation experiences: the presence of responsible choice, adequate anxiety, emotional satisfaction from reality; existential position: basic trust in the world, freedom and responsibility in life choices, developed reflection, infernal type of locus-control, a sense of dignity; sociality: a conscious choice of a distance in interpersonal contacts, effective communications strategies; self-realization: personal and professional fulfillment has effective strategies that do not harm the self-image, the presence of behavioral competence.

The process of self-creation must be based on the will of person, their ability to move forward and develop, the ability to be themselves, to understand their own needs. It is related to the ability of person to contact with others and the world as a whole.

The ability of communication, interaction and empathy is both a reflection and a condition of that person's existence.

The analysis gives reason to believe that for deeper processing and successful application of research methods of ideological orientations, for their role in formation of the world view, person's self-image we should be: a) relying on the concept of a person as an individual mode of culture and as integrative character of a person; b) using a systematic approach in identifying trends in the change of person's life meanings.

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## ROLE OF PERSON'S IDEOLOGICAL ORIENTATIONS IN WORLD VIEW FORMATION AND THE SEFL-IMAGE

### Summary

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**Problem:** very actual problem of socialization in adolescence is a process of self-identification, self-realization and self-creation.

**Research subject:** — ideological orientation of high school students.

**Research goal:** — to determine the most pressing problems in self-creation of the individual in adolescence, to reveal the features of influence of ideological orientations on building a picture of the world and the self-image.

**Content:** a pilot study of axiological sphere of schoolchildren in early adolescence was performed, which showed the current state of life meaningfulness and the dominant values at this age. The study was performed in order to determine the features of axiological sphere, and to find differences between values and life meaningfulness of different groups: creative talented children (Kyiv Children Academy of Arts) and children from regular school.

The obtained result demonstrated availability of significant links of the indicator of overall meaningfulness of life with categories of meaning of life by the research procedure of Kotlyakov of the system of meaning of life and categories of terminal and instrumental values (by the procedure of M. Rokich of value orientations detection). Those schoolchildren, who are focused on success, achievement of career and dignified position in society, as well as those, who are aimed at building relationships, feeling needed by someone, being close with someone, enjoying communication with others, have higher indicator of meaningfulness of life. In addition, the higher indicators on the scale of meaningfulness of life, the less important understanding of themselves and life is for children. Low indicator of life meaningfulness indicates availability of existent vacuum, which person is trying to fill in with entertainments that provide quick satisfaction.

The test results of schoolchildren from regular secondary school demonstrated following links of meaningfulness of life with “family” and “hedonistic” categories: those schoolchildren, who see the meaning of life in living for the sake of their families, transferring all the best to their children, helping their relatives and friends, have higher rate of meaningfulness of life.

**Conclusions:** person’s self-creation occurs in the process of understanding their own resource capabilities, changes of transference characteristics, methods of defense, attack, stable behavioral patterns.

This process requires a good structuring: self-image, life goals, future perspectives; presence of positive strategies of psycho-emotional self-regulation experiences: the presence of responsible choice, adequate anxiety, emotional satisfaction from reality; existential position: basic trust in the world, freedom and responsibility in life choices, developed reflection, internal type of locus-control, a sense of dignity; sociality: a conscious choice of a distance in interpersonal contacts, effective communication strategies; self-realization: personal and professional fulfillment has effective strategies that do not harm the self-image, the presence of behavioral competence.

The process of self-creation must be based on the will of person, their ability to move forward and develop, the ability to be themselves, to understand their own needs. It is related to the ability of person to contact with others and the world as a whole.

The ability of communication, interaction and empathy is both a reflection and a condition of that person’s existence.

The analysis gives reason to believe that for deeper processing and successful application of research methods of ideological orientations, for their role in formation of the world view, person’s self-image we should be: a) relying on the concept of a person as an individual mode of culture and as integrative character of a person; b) using a systematic approach in identifying trends in the change of person’s life meanings.



# ETHICAL ASPECTS OF THE PROFESSION OF SOCIAL WORKER

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## **Abstract**

A set of moral standards plays an important role in social life, as it forms the basis for assessing the attitudes and behaviors of individuals. Ethics attempts to determine and resolve normative issues relating to the specific social situations. Thus provides a basis for establishing the rules of human functioning in the situation arising from a particular social or professional role. The purpose of this paper is to present some aspects of professional ethics of social workers affecting the standards of the profession. Secondary sources were used in preparation of this text, especially code of ethics of social workers and other axiological contents on the issues discussed. A social worker, whose activities are essentially social, performs many professional roles. Therefore, they should be guided by values and moral principles, arising from general ethics and specific standards contained in the code of ethics of the profession. Codified professional ethics helps a social worker in the proper performance of duties and is a reference point for resolving ethical dilemmas. Standards contained in the code of ethics uphold the dignity of the profession and at the same time indicate how the representatives of the profession should behave, and how they should not. The provisions of the code of ethics relate to the profession, relationships with coworkers, beneficiaries, employers and society. They include specific objectives and tasks of social work, understood as a practical human activity for people who need support and assistance in the fulfillment of basic needs and solving problems arising as a result of deprivation of those needs.

*Key words:* social work, social worker, ethics, moral standards in social work

## **Introduction**

In the time of increased specialisation of occupation which is enhanced by a dynamic development of science and technology, many communities aim to create a universal canon of professional ethics, especially the written code of ethics applicable to a particular occupational category. The number of proponents of codified professional ethics is increasing. They believe that norms and values specified by the general ethics are too vague. They are not capable of resolving conflicts or dilemmas arising from the exercise of a particular profession. Moreover, they do not specify behaviour characteristic for a given profession. Such an opportunity is created only by a set of moral principles relating to a particular occupation.

One of the professions that require special multifaceted professional ethics is a profession of social worker. Their professional activity is essentially of a social character, which results from the aims of social work relating to the activities of individuals, groups and social environment. Therefore, a social worker undertaking numerous professional challenges should be guided by a particular respect for values and moral principles.

The **aim of this paper** is to present some aspects of professional ethics of social workers affecting the standards of the profession. **Secondary sources** were used in preparation of this text, especially code of ethics of social workers and other axiological contents on the issues discussed.

### **The value of professional ethics**

Every society, class or social group needs assessments and moral standards. They are an essential element of the proper and orderly functioning of society. The lack of moral principles in society usually leads to a state of social anomie. An individual functioning in society that does not have a coherent system of norms and values — setting out a clear course of action — feels the uncertainty and confusion. Such a condition may imply the emergence of deviant behavior. The decomposition of moral values disorganizing social life makes many people feel the need to base human behavior on a universal, humanistic system of values. That is why they refer to ethics, which is primarily concerned with human action in terms of its moral value. To determine the moral value of an act, and therefore assess whether it is good or bad, it is necessary to refer it to a certain moral standard, which is the source and criterion of human conduct. Therefore, a set of moral standards plays an important role in social life as it forms the basis for assessing the attitudes and behaviors of individuals. Ethics helps individuals to achieve the supreme good in human life, understood as the purpose of the action. It also helps to improve the society in which the individual lives. Ethics, by attempting to identify and resolve regulatory issues relating to specific, models social situations, provides a basis for establishing the rules of human functioning in the situation arising from a particular social or professional role. In terms of individuals, values motivate and influence the choices they make. In the social dimension they are a factor regulating the conduct of individuals and rules of living in a group (Rybczyńska & Olszak-Krzyżanowska, 1995; Olech, 2006).

On the basis of the general ethical assessments, guidelines and standards of professional ethics are designed. It is understood as a set of standards and guidelines that results from the tradition of the profession, the spirit of national culture, as well as basic ethical guidelines adopted in society and applied to the profession. Rules of professional ethics relate primarily to internal human skills and determine their conduct in professional matters based on the criteria of good and evil, justice and injustice (Szczepański, 1963; Kantowicz, 2009).

Ethics of a particular profession includes universal values relating to the whole society and the resulting standards, as well as moral contents specific to a particular profession. If ethical conflicts or dilemmas cannot be solved with the help of general ethics, it is necessary to refer to provisions of the code of professional ethics. Its contents uphold the dignity of a profession and at the same time indicate how representatives of the profession should behave and how should they not (Lazari-Pawłowska, 1971).

The formation of a code of professional ethics stems from the specificity of a particular profession and is usually dictated by concern for the ethos, which is a set of clearly defined values and norms specific to a certain profession. Professional ethics helps to make moral choices inseparably associated with work in a particular profession. It sets guidelines for conduct that is considered to be socially desirable and also protects workers against immoral behaviour in their professional work. Furthermore, when an occupational category has its own code of ethics, its prestige, social recognition and public confidence is increased.

It also provides some kind of protection against the pressures of the environment and at the same time clearly defines what society may require from representatives of a profession. The code of ethics helps the representatives of a particular profession in the proper performance of their duties and is their reference point for resolving common ethical dilemmas at work (Bragiel, 2002; Łuczyńska, 1998).

Professional codes of ethics have also their opponents, who question the necessity of the formation of such documents. According to them, codes of ethics limit the autonomy and initiative of workers who may assume that code's provisions are exhaustive. Thus, if there is not a specific ethical behest or prohibition in the code, then the conduct in this regard is arbitrary. Therefore, all kinds of loopholes in the code may cause that representatives of a profession will feel exempt from the need to conduct an independent evaluation in situations not specified by the provisions of the code, which in their view reduces personal responsibility for specific acts. In addition, codified professional ethics depersonalizes human beings, by reducing them to the level of the role they play in the structure of their professional life. Situational ethics imposes on individuals or forces them to follow certain behaviours that do not necessarily arise from personal values specific to a particular person. Strict adherence to the established rules of the code reduces workers' personal responsibility for specific acts. It may also reduce their personal vulnerability and autonomy of action and, consequently, lead to moral indifference. Another problem that may arise is anti-educational dimension of codes, which are limited to moral sanctions only, which causes that a failure to comply with the principles in the code does not result in any other penalties. The way in which the codes are formed is also questionable. In the name of freedom of individuals to self-determination, the opponents of those regulations question the right of people creating the codes to impose specific conducts and systems of values on others. Professions creating their own codes of ethics are supposed to face a crisis of morality and therefore are searching for excuses for their behaviour, which they want to formalise by imposing a certain rigid normative framework upon themselves (Lazari-Pawłowska, 1971; Brągiel, 2002; Łuczyńska, 1998).

According to the opponents of professional ethics, it changes the hierarchy of particular standards of general ethics. Specific ways of conduct characteristic to a given occupation are moved from one deontological position (more primitive), which belongs to them within the general morality to another position allocated to them within professional morality (detailed). Therefore, the introduction of rights resulting from belonging to a specific professional category is — according to the opponents — not only unjustified but even harmful. Legalising rights on the ethical level becomes a corruption of a profession by politicians who use social engineering of bind various social environments to political elites (Woleński, 1994; Galewicz, 2010).

Critical opinions relating to the specific standards of professional ethics do not undermine the importance and the need for codified rules of conduct. In the rapidly developing civil societies, professional ethics is growing in popularity, and codes of ethics are created for further professions. The profession of social worker is one of them. Ethics of the profession of social worker refers to specific objectives and tasks of social work, understood as practical human activity for people who need support and assistance in the fulfilment of basic needs and solving problems arising as a result of deprivation of those needs (Chraściciel, 2009).

A sphere, which specifically highlights the professional ethics of a social worker, is working with a client. It requires knowledge essential to diagnose the current condition of their clients, and the ability to make right decisions, which is necessary to establish the causes of the situation. Permanent contact with the beneficiary also requires the selection of an effective strategy and then implementing the developed strategy. Numerous decisions made in the course of work with clients are of ethical nature as they relate to moral values. A social worker undertaking specific social actions enters the system of values recognised by the beneficiary, and thus they interfere with client's independence and autonomy. Then it is necessary to maintain the interference ethical (Brągiel, 2002).



### **The specificity of social work**

In every society there are people who are unable to provide for a dignified life for themselves and their families. Therefore, the actions of the state, local governments and non-governmental organizations, whose aim is to meet basic social needs on the available level, become necessary. It is important to improve the financial situation and equalize life chances of the economically and socially most vulnerable social groups in these endeavors. The practical implementation of social policy is one of the tasks of social work aimed at improving the social functioning of individuals (both individually and in groups) through actions directed at their social relationships, which affect the interaction between a person and their environment. Social welfare institutions try to restore (revive) lost or impaired abilities of social functioning, to ensure individual and collective resources and prevent social dysfunction (Wódz, 1996).

Frequently, the concept of 'social welfare' and 'social work' are used interchangeably, however, that in terms of content is not correct because welfare is a term of a broader spectrum of meanings. It covers social work, as well as many other activities aimed at achieving common prosperity. Welfare is understood as an institution of the social policy of the State, designed to enable individuals and families to overcome difficult life situations which they are not able to overcome by means of their own powers, resources and opportunities (Ustawa o pomocy społecznej, 2004, art. 2).

However, social work is aimed at improving the functioning of individuals and their families and is undertaken in an environment where the clients live. Benefits of social work are aimed at individuals and families to increase their activity and independence, as well as to support organisations and institutions that are important for meeting the needs of community members (Ustawa o pomocy społecznej, 2004, art. 45). Social work is hence a professional activity, which aims to help individuals and families in strengthening or regaining skills necessary to function in society by performing appropriate social roles and creating conditions conducive to this goal (Skidmore & Thackeray, 1996).

Different notions and concepts of social work indicate that it may be understood in a broader and narrow sense. The first approach involves both working directly with people who need support as well as institutional and administrative measures that will enable the provision of such direct assistance. Whereas in the narrower sense it means professional and intentional interpersonal assistance with the application of special methods. An essential feature of social work as a profession is performing duties associated with the public good and the control of exercising those responsible and socially desirable tasks. The main idea of social work is to improve human interactions with the surrounding environment (Kantowicz, 2010).

As mentioned above the professional activity of social workers should aim at greater subjectification of a beneficiary in order to transform them from a client receiving benefits to a partner, who, together with a social worker, should set goals and forms of aid. Such cooperation envisages an increase in the empowerment of a client, who in the future will be able to make active efforts to overcome difficult life situations, using advice and financial means available to them. A social worker cannot reduce their mission only to satisfy the general needs of a beneficiary as it would reinforce their passivity and helplessness. Being client's representative, a social worker should act on their behalf to help them remove different types of barriers, solve personal problems and inspire a particular activity so the recipient will be able to gradually become independent in overcoming their difficulties (Grotowska-Leder, 2002).

Challenges facing social workers require great competence as the profession is focused on other people, their life situation and environment. Social workers are usually referred to as caseworkers, working with people in order to elicit their abilities and increase options for action. Moreover, they provide social assistance and resources as well as they organise humanitarian social services and create social structures (DuBois & Krogsrud Miley, 1996).

The objectives of social work determine directions of professional activity of social workers. These primarily include providing clients with basic living conditions, which is associated with assisting individuals and families in the process of strengthening or restoring possibly full life skills and participation in social life. The activities of social workers should aim at strengthening the abilities of local groups and communities necessary for personal development and solving their problems themselves. This is due to the efficient organisation of effective and diversified forms of assistance while managing them and improving the quality of the infrastructure. It should be adapted to the changing needs of society. Another important task is to shape appropriate local social policy through active participation in the planning, the implementation and the development of services and programmes necessary to meet the social needs (Olubiński, 2004; Rybczyńska & Olszak-Krzyżanowska, 1995).

Social workers have to handle ethical dilemmas which emerge in the course of social work. They occur in the situation when a social worker wonders which act or omission is morally right. Sources of ethical dilemmas can be traced to the so-called conflict of values. Frequently, in order to achieve one value one must sacrifice the other. Therefore, the activities of a social worker are inseparably accompanied by choices. Ethical issues are most likely to arise from the characteristics of a helping relationship. Basically, there are four areas of ethical issues, which include: direct support for individuals and families, social policy and social welfare programmes, the relationship between co-workers in the workplace, the conflict of personal and professional values of a social worker (Kamiński, 2006).

A serious professional issue for a worker may be the so-called professional burnout syndrome. It manifests itself in cynicism, excessive irritability, stress, fatigue, the feeling of powerlessness, exhaustion, which may lead to symptoms of depression or loss of life energy. Social workers struggling with the problem of burnout have a negative attitude towards work, limit their contact with clients, begin to treat clients instrumentally and caregiving begins to change into monitoring (Szmagalski, 2009; Trawkowska, 2007).

#### **Characteristics of the Code of Ethics of a social worker**

Social work as a specific field of science with its practical references is directed at socially useful activities undertaken for the good of society and individuals. A social worker who wants to carry out their duties professionally, should base on their knowledge, recognised values and acquired skills. In applying the principles of professional ethics they avoid simulated and ineffective work, and, moreover, try to be polite, kind, reliable, honest and they are guided by objectivity and treat their clients subjectively. By preserving certain values and standards, a social worker creates an appropriate attitude towards people and helps them solve problems and difficult life situations. To make their actions effective and morally correct, social workers should be guided by the Code of Ethics, which helps in the moral assessment of behaviour and in the resolution of ethical dilemmas (Rybczyńska & Olszak-Krzyżanowska, 1995; Kurecz, 2002).

A major achievement in determining standards of professional ethics for social workers in Poland was the adoption of the code of ethics in 1998. It is a kind of catalogue of duties, regulating social workers' behaviour as well as classifying the behaviour as acceptable and unacceptable. It clearly defines what is allowed and what is not allowed with regard to professional activities, as well as to the subject of the actions (Rybczyńska & Olszak-Krzyżanowska, 1995).

The code includes a preamble and six sections. The preamble states that the profession of social worker is not only a specific occupation, but also a vocation intended to meet the specific needs of society and ensure high quality of services. To achieve common objectives social workers unite in professional associations. They also have their own code of ethics,

which is a set of guidelines for everyday professional conduct. It is not only a set of instructions and prohibitions for people who have decided to pursue the profession of social worker but it also conveys important social values. These include i.a. actions for the common good of society, improvement of the living conditions of individuals and groups, activity for social justice. Code of ethics by specifying the standards of behavior of a social worker, tries to take control of possibly the most important spheres of their activity with the use of ethical regulations. Therefore, it is a basis for resolving ethical dilemmas or conflicts if a social worker's conduct is questionable, because it does not meet the conditions contained within or resulting from the code. The provisions of the code refer to the profession, relationship with co-workers, beneficiaries, employers and society. While preparing the document Association of Social Workers was guided by a concern for high standards of the profession they represent, which should inspire public confidence. A society that uses the services of social workers has the right to know the ethical standards and principles, which ensure exercising the profession in a reliable, professional and responsible way (Kodeks Etyczny Polskiego Towarzystwa Pracowników Socjalnych, 1998, Preamble; Siwek, 2009; Kozak, 2012).

The code of ethics applies to different aspects of the social workers' activity. In the section on the general attitude and social workers' conduct, their duties are determined, which clearly show that such an occupation is to be exercised by people of high professional and personal morale. In addition, possessing and continuous improvement of professional qualifications is necessary. A social worker should combine intellectual preparation, practical experience and contents resulting from the axionormative system in their professional work. Therefore, their actions require simultaneous use of professional knowledge, acquired skills and values underlying social work. While performing their duties, a social worker has to remember that they bear the ultimate responsibility for the quality and range of services to which they committed, which they delegate to someone else or personally perform. A key principle of their professional activities should always be the wellbeing of clients, and their primary responsibility to help solve their clients' problems in life. Inhumane or discriminatory practices against individuals or groups are unacceptable. Using professional contacts to pursue personal benefits is also unethical (Kodeks Etyczny Polskiego Towarzystwa Pracowników Socjalnych, 1998, Section I; Rybczyńska & Olszak-Krzyżanowska, 1995).

A social worker must remember that a beneficiary is free from coercion and external interference and thereby, they have the right to act in accordance with their autonomous will. An important condition for proper contacts with clients is the recognition and application of the principle of 'acquiescent protectiveness', which means that a social worker should have a sympathetic attitude towards their clients. This approach is associated with sensitivity towards others' needs and a tendency to help people in need. It is essential to demonstrate commitment to assist a beneficiary in solving their difficulties of life and to use knowledge, skills and qualifications for this purpose. If it is in the interest of a person under care, a social worker should consult with their colleagues and superiors. An effective way to restore clients' full life skills is to reinforce their efforts to become independent. It becomes possible due to giving a beneficiary all the information on available benefits, resulting commitments as well as ways and means for overcoming difficulties of life. A social worker has the right to cease to provide assistance if the benefits provided for by the law have been exhausted or when they are no longer needed. However, in the case of misuse of the benefits, a social worker has the right to change the form of assistance (Kodeks Etyczny Polskiego Towarzystwa Pracowników Socjalnych, 1998, Section II; Rybczyńska & Olszak-Krzyżanowska, 1995).

It is the responsibility of the person representing the social welfare institutions to treat clients equally, regardless of personal preferences and characteristics (i.e. age, gender, marital status, sexual orientation, nationality, religion, political beliefs, race, skin color, health, etc.).

An important obligation is also to keep secret information that has been obtained in the course of professional activities. Confidential information may be disclosed by a social worker only if it is justified by important professional considerations and the common good of society (Kodeks Etyczny Polskiego Towarzystwa Pracowników Socjalnych 1998, section II).

An attitude towards co-workers and maintaining relationships with representatives of their profession is important for the effectiveness of action taken by a social worker. They should take care of professional integrity and proper status of their profession, and honestly perform the duties as well as increase their professional knowledge. In order to increase the efficiency of their work a social worker has to cooperate with representatives of their profession to perform professional duties. In their contacts with co-workers, a social worker should respect the knowledge and experience of others, should be guided by objectivity and respect the principle of professional loyalty. Professional solidarity cannot affect their critical assessment of negative behaviours. In the case of co-workers breaking the code of ethics, they should take a critical stance while maintaining adequate standards, as to the place and time (Kodeks Etyczny Polskiego Towarzystwa Pracowników Socjalnych, 1998, Section III, V).

A social worker has a commitment to the institution in which they are employed. They should aim to improve the functioning of the institution and ensure the quality of the offered services. It is their duty to rationally and sensibly administer material and financial resources allocated for social services. In addition, they have to take care of the common good of the community in which they live and work. Therefore, they should support activities and self-help efforts provided by local communities, promote activity aimed at helping those in need and encourage participation in the development of social institutions and social policy making. Social workers have a duty to ensure the access to essential benefits and life opportunities for people entitled to them. Simultaneously, they are to advocate legislative changes that contribute to improving the living conditions of society and promoting social justice (Kodeks Etyczny Polskiego Towarzystwa Pracowników Socjalnych, 1998, Section IV, VI).

Undoubtedly, the social worker code of ethics presented above is a major achievement in the field of professional ethics as passing it is certainly progress towards the professionalisation of social work and raising the prestige of the profession of social worker. Codified professional ethics forms stable and solid foundation of functioning in the role of a social worker for all members of the profession (Rybczyńska & Olszak-Krzyżanowska, 1995).

### **Conclusion**

The actions of social workers are essentially of social character, which results from the aims of social work relating to the activities of individuals, groups and social environment.

Such activity is inseparably accompanied by choices most often arising from the characteristics of a helping relationship. Therefore, social workers should be able to refer to professional ethics, which sets certain standards and constitutes a reference point necessary for solving moral dilemmas. It helps to make moral choices inextricably associated with work for the good of society. It outlines courses of action considered to be desirable and simultaneously it warns against conduct contrary to professional ethics. Code of ethics for social workers helps to preserve the moral ethos of the profession and the interests of the worker and their client. The indications contained in the code for obvious reasons cannot cover all situations. Therefore, a social worker must resolve many issues themselves primarily guided by their professional training, resulting from the knowledge, experience and skills. However, while performing professional duties, a social worker should always refer to the assimilated values, norms, and especially to the conscience.

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## ETHICAL ASPECTS OF THE PROFESSION OF SOCIAL WORKER

### Summary

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A set of moral standards plays an important role in social life, as it forms the basis for assessing the attitudes and behaviors of individuals. Ethics attempts to determine and resolve normative issues relating to the specific, model social situations. Thus provides a basis for establishing the rules of human functioning in the situation arising from a particular social or professional role. A social worker, whose activities are essentially social, performs many professional roles. Therefore, they should be guided by values and moral principles, arising from general ethics and specific standards contained in the code of ethics of the profession. Codified professional ethics helps a social worker in the proper performance of duties and is a reference point for resolving ethical dilemmas. Standards contained in the code of ethics uphold the dignity of the profession and at the same time indicate how the representatives of the profession should behave, and how they should not. The provisions of the code of ethics relate to the profession, relationships with co-workers, beneficiaries, employers and society. They include specific objectives and tasks of social work, understood as a practical human activity for people who need support and assistance in the fulfilment of basic needs and solving problems arising as a result of deprivation of those needs.

The actions of social workers are essentially of social character, which results from the aims of social work relating to the activities of individuals, groups and social environment. Such activity is inseparably accompanied by choices most often arising from the characteristics of a helping relationship. Therefore, social workers should be able to refer to professional ethics, which sets certain standards and constitutes a reference point necessary for solving moral dilemmas. It helps to make moral choices inextricably associated with work for the good of society. It outlines courses of action considered to be desirable and simultaneously it warns against conduct contrary to professional ethics. Code of ethics for social workers helps to preserve the moral ethos of the profession and the interests of the worker and their client. The indications contained in the code for obvious reasons cannot cover all situations. Therefore, a social worker must resolve many issues themselves primarily guided by their professional training, resulting from the knowledge, experience and skills. However, while performing professional duties, a social worker should always refer to the assimilated values, norms, and especially to the conscience.

# FACTOR ANALYSIS OF TEACHER RATINGS FOR THE LITHUANIAN TRANSLATED BEHAVIORAL AND EMOTIONAL RATING SCALE

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## **Abstract**

Internationally there has been increased recognition of the value of strength based assessment in educational and mental health service delivery. While there are a number of informal methods for determining a child's strengths and assets, there are few standardized strength based assessments available for international use. In this study the teacher version of the Behavioral and Emotional Rating Scale-Second Edition (BERS-2) was translated into Lithuanian to determine its factor structure for use in Lithuania. The results suggest that the Lithuanian BERS-2 can be a useful strength based assessment for teachers and schools in Lithuania.

*Key words: strength-based assessment, assessment, Lithuania, education, behavior*

When the purpose of an evaluation or assessment is to make decisions regarding eligibility for special services or to design educational or therapeutic intervention plans, it is essential to consider the behavioral and emotional strengths, assets, and resources a child possesses so that decisions can be made accurately and interventions can be designed accordingly. However, according to a recent study on the assessment practices of children with special needs in Europe, assessment and evaluation of children's strengths is clearly lacking in traditional psychometric tests (Lebeer et al., 2011). While the assessment of behavioral and academic deficits is an essential part of the assessment process for children who may require special education or mental health services, there is a potential problem that an over emphasis on deficits may ignore potential strengths, competencies, and skills that an individual may possess.

In a strength-based approach to assessment, practitioners measure a range of behavioral and emotional skills, competencies, and characteristics that contribute to a child's potential for success in school, peer, and family relationships (Epstein, 2004). Identifying the particular set of skills, competencies, and resources that a child possesses may be more important to recognize than the amount of deficits or lack of ability (Meisels, 1994) as a child's strengths are the foundation upon which interventions should be developed. Furthermore, approaches to identifying a child's strengths and assets is significant as they can influence a child's interactions with parents, peers, and teachers, which can in turn impact the child's social and emotional development (Brofenbrenner, 1979).

Assessing and evaluating the strengths and assets within an individual is an important part of the assessment process for designing, implementing, and evaluating interventions for children. For instance, strength-based measures can be used to assist in intervention planning by identifying skills and resources a child may possess so that they can identify areas for potential growth and improve deficit areas. In addition, strength-based assessments can be used to monitor individual student progress on interventions to determine their effectiveness over time and to evaluate school-wide program outcomes (Buckley & Epstein, 2004; Epstein et al., 2003; Trout et al., 2003). Furthermore, an increased emphasis on the strengths and areas of potential growth for an individual can lead to increased rapport and improved communication between students, parents, and school personnel (Buckley & Epstein, 2004; Cox, 2006; Epstein, 2004). These improved relationships can lead to increased motivation to provide services to the child (Rhee et al., 2001), and improve the well-being of family members (Epstein et al., 2002).

The value of strength-based assessment has been increasingly recognized internationally as an essential part of the assessment process (e.g., Lappalainen et al., 2009; Obel et al., 2004; Rothenberger & Woerner, 2004). In Europe special education programs have been moving away from deficit-based assessments to more positive, interactive approaches that considers student strengths and potential areas for growth. In addition, European communities have recognized that strength based assessments can be useful for academic and behavioral intervention planning, and enhance the potential for students with disabilities to be educated in general education settings (Watkins, 2007). In Finland, strength-based assessment has been emphasized to such a degree that the Finnish Ministry of Education (2007), the Law of Basic Education (Finnish Law 642/2010), and National Curriculum Guidelines (Finnish National Board of Education 2010) have mandated that decisions regarding student placement in special education or other support services recognize the strengths of individual students as well as their difficulties. Similarly in Lithuania, the Ministry of Education and Science approved a policy entitled, *The Concept of Assessment of Pupils' Achievement and Progress* (approved by the Minister of Education and Science in 2004-02-25, the Law No 256), which was developed to outline strategies for assessment and to identify key elements in the assessment process. Among the key elements of this policy was that assessments should encourage student motivation by emphasizing strengths and achievement rather than failure. This increasing trend towards a more strength-based approach to educational and therapeutic service delivery in Scandinavia and Europe has led to the need for standardized, psychometrically sound assessments that measure individual strengths in their native language.

While there are a number of informal methods for assessing the strengths and abilities of individual students, there are few standardized strength based measures for individual and school-wide assessment. A standardized strength based assessment is useful because it can be completed in a timely manner, allows for comparison across individuals and groups, and it can be used as part of a comprehensive assessment package to determine eligibility for special programming. In addition, standardized strength based assessments can be used to identify areas of limited strength so that interventions can be designed to improve those social and emotional areas of concern.

One of the most widely used strength-based assessment instruments in education and mental health service delivery in the United States is the Behavioral and Emotional Rating Scale-2 (BERS-2; Epstein, 2004; Epstein & Sharma, 1998). The BERS-2 is a standardized, norm-referenced assessment that measures the strengths of children 5 to 18 years of age and includes separate rating scales for youth, parent, and teacher (Epstein, 2004). The three rating scales are similar but contain minor wording alternations in some items to reflect the perspective of the respondent. The BERS-2 contains 52-items which factor into five subscales



of emotional and behavioral strengths and an overall strength index. The interpersonal strength subscale consists of 14 items that measure a child's ability to interact with others in social situations (e.g., Uses anger management skills). The family involvement subscale includes 10 items that assess a child's relationship with their family (e.g., Maintains positive family relationships). The intrapersonal strength subscale includes 11 items that focus on how a child perceives his or her own functioning (e.g., Demonstrates sense of humor). The school functioning subscale includes 9 items that assess a child's performance and competence in school (e.g., Completes school tasks on time). The affective strength subscale includes 7 items that measure a child's ability to give affection to and receive affection from others (e.g., Accepts a hug). The scale can be completed in approximately 10 minutes and also includes eight open-ended questions that allow respondents to note the individual's specific academic, social, athletic, family, and community strengths. Numerous studies have been conducted to demonstrate the factor structure, reliability and validity of the BERS-2 (Epstein, 2004).

To address the need for standardized strength-based assessments in Europe, the BERS-2 has been translated into other languages. In previous research the BERS-2 was translated into Finnish and its psychometric properties investigated. In those studies the BERS-2 demonstrated adequate factor structure, convergent validity and reliability (Sointu et al., 2012a; Savolainen et al., 2013). In Lithuania there has been increasing recognition of the value of strength-based assessment to assist in teaching and learning and to identify potential areas of growth for students. In the present study the BERS-2 was translated into Lithuanian and its psychometric properties were investigated. In spite of the research on the psychometric properties of the BERS-2, when assessments are translated from one language to another language or used in another country or culture, the psychometric properties must be re-established for that particular country or language (American Psychological Association & National Council on Measurement in Education, 1999; International Test Commission, 2010). The purpose of this study was to provide initial evidence of the internal structure of the Lithuanian-translated BERS-2. To this end, we fit three confirmatory factor analysis models to test the internal structure of the assessment and computed the reliability of each subscale and total score.

## **Method**

### *Participants*

Participants included 79 teachers who rated 334 students from 19 schools throughout Lithuania. Students ranged in age from 11 to 17 years with a mean age of 13.74 ( $sd = 1.45$ ). The sample was roughly split on gender with 53% female participants ( $n = 181$ ). All of the students identified as being ethnically Lithuanian. Nearly one-quarter of the students ( $n = 76$ ) were identified by their teacher as receiving extra support services for learning or behavioral difficulties. All of the teachers were considered general education teachers, most having at least 20 years of teaching experience ( $m = 20.8$ ,  $sd = 8.62$ ).

### *Procedure*

Permission for translating the BERS-2 was obtained from the publisher PRO-ED and the author of the instrument. The BERS-2 teacher rating scales was translated into Lithuanian using the back-forward translation in the following manner. First, an expert in Lithuanian language and culture translated the rating scales. Second, the expert shared the translated rating scales with colleagues and bilingual experts in Lithuanian language to assess reliability. At this stage a few edits were made and consensus was reached. Third, we asked a second expert in Lithuanian language to translate the rating scales back into English to confirm the translation. Finally, we sent the translated rating scales to colleagues in Lithuania for their review. This resulted in a few additional minor edits that became the finalized versions of the BERS-2 Lithuanian rating scales.

Data were collected in the Spring of 2014. Schools that collaborate with Siauliai University were contacted in person and by e-mail asking if they would be willing to participate in a study to examine the psychometrics of a standardized strength based assessment instrument that had been translated into Lithuanian. Once a school administrator agreed to participate, a letter describing the project, what was required of the teachers, and what the value of the research was to the schools and Lithuanian community was placed in the mailbox of the teachers. Teachers were then contacted in person and via e-mail to determine their willingness to participate in the study.

For data collection, one of the researchers delivered the translated BERS-2 teacher rating scale to the schools as well as the instructions for completing the scales. Teachers who had volunteered to participate in the study were provided with the number of questionnaires that they had volunteered to complete. The teachers completed the BERS-2 on students they had been familiar with for at least 3 months. To select which students they would rate, the teachers randomly chose the students from their class list. However, there were a few teachers who chose to complete the BERS-2 on their whole class, in which case there was no random selection. Included in the instructions was the requirement that the teachers not include any student names or personal information that could be used to identify the students. The teachers were given two weeks to complete the questionnaires. At the conclusion of two weeks, representatives from Siauliai University picked up the completed questionnaires, which had been placed in a marked envelope. This resulted in 334 completed BERS-2 teacher rating scales.

#### *Measure*

The *Behavioral and Emotional Rating Scale* (BERS-2) is a 52-item assessment used to evaluate the behavioral and emotional strengths of youth. Each item is measured on a four-point Likert-type scale (0 = not at all like the student; 1 = not much like the student; 2 = somewhat like the student; 3 = very much like the student). Some example items include: 'completes a task on first request', 'shares with others', and 'pays attention in class'. The items form five subscales: (1) interpersonal strengths, (2) intrapersonal strengths, (3) affective strengths, (4) family involvement, and (5) school functioning. The subscale scores are combined to form the overall Strength Index. Teacher ratings were evaluated in this study.

#### *Data Analysis Plan*

SPSS v21 and Mplus v7.11 (Muthén & Muthén, 1998-2014) were used to compute descriptive statistics and fit confirmatory factor analysis (CFA) models, respectively. The focus of the factor analysis was to examine the fit of the theoretical five-factor model. As a basis for comparison, two alternative models were also fit: (1) single-factor model, and (2) second-order model<sup>1</sup>. Both models were specified without correlated residual variances between items. Because items were measured on a 4-point Likert-type scale, we treated the ratings as ordinal rather than continuous indicators of the latent factors. Accordingly, we used weighted least squares with mean and variance adjustments (WLSMV; robust WLS) to estimate each model and the factors were scaled using a fixed mean and variance approach. Missing data for the CFA models were minimal (< 1%) and excluded from the analysis by using a pairwise-present method as is default in Mplus when using the WLSMV estimator.

The indicators used to assess goodness-of-fit were the comparative fit index (CFI; Bentler 1990), Tucker-Lewis index (TLI), and the root mean square error of approximation (RMSEA; Steiger & Lind, 1980) at its 90% confidence interval. CFI and TLI are comparative fit indexes representing the degree of improvement over the worst fitting model (Boomsma, 2000). Both indexes are scaled from 0 to 1 with values closer to 1 indicating better fit.

A *close* fitting model has CFI and TLI values  $\geq 0.95$  while an *acceptable* fitting model has a CFI/TLI  $\geq 0.90$  (Browne and Cudeck 1993). RMSEA represents the degree of model misfit and is reported on a scale of 0 to 1; values closer to zero indicate better fit with values  $\leq .05$  considered to represent close fit and values  $\leq .08$  considered acceptable (Hu & Bentler, 1999); in addition to examining the point estimate, the 90% confidence interval was also used to evaluate misfit with the upper limit less than .05 representing close fit and .08 representing acceptable fit. The chi-square difference test ( $\Delta\chi^2$ ) and CFI differences ( $\Delta\text{CFI}$ ) were computed to evaluate the fit of nested models (e.g., the one-factor versus the two-factor model). A non-significant  $\Delta\chi^2$  test or a difference in CFI less than .01 indicates that the fit of the two models being compared are statistically equivalent (Cheung & Rensvold, 2002).

To aid in the interpretation of the second-order factor model, a Schmid-Leiman transformation (Schmid & Leiman, 1957) was conducted to yield estimates of *loadings between items and the second-order factor* and the *residualized loadings* between items and the primary factors (i.e., factor loadings when controlling for the influence of the second-order factor). This transformation provides a method to disentangle the effects that the first and second-order factors exert on the item responses (Brown, 2006). Schmid-Leiman transformed factor loadings are interpreted according to the same magnitude guidelines as primary first-order factor loadings where loadings  $> .30$  are considered of substantive importance. Residualized primary factor loadings smaller than .30 indicate that the majority of variance of the item responses is associated with the more general second-order factor, and that the primary factor contributes limited influence on the item responses (Campbell-Sills et al., 2004).

### Results

Table 1 reports the goodness-of-fit indicators for the three CFA models. All models converged on admissible solutions and exhibited large ( $> .40$ ), positive factor loadings. The single factor model did not exhibit acceptable fit. The hypothetical five-factor model demonstrated acceptable albeit not close fit (CFI  $\geq .90$ , TLI  $\geq .90$ , RMSEA  $\leq .08$ ) and a significant improvement over the single-factor model ( $\Delta\chi^2_{(10)} = 407.87$ ,  $p < .001$ ;  $\Delta\text{CFI} = .051$ ). The five latent factors were highly correlated, ranging from .65 (school functioning with affective strengths) to .90 (intrapersonal strengths with affective strengths).

**Table 1.** CFA Model Fit Indexes

	<i>df</i>	CFI	TLI	RMSEA [90% CI]	$\Delta\chi^2$ ( <i>df</i> )
Single-factor model	1274	.880	.875	0.077 [.074, .079]	–
Five-factor model	1264	.931	.928	0.058 [.055, .061]	407.87 (10)*
Second-order model	1269	.929	.925	0.059 [.056, .062]	49.29 (5)*

See Table 2 for correlations between latent factors. These correlations, which ranged from .82 to .95, are largely in line with previous research on the BERS-2 in North America (Buckley, Ryser et al., 2006; Epstein, 2004) and Europe (Lappilainen et al., 2009; Sointu et al., 2014). The factor solution of the current study was nearly identical to the factor solutions presented in the literature for samples drawn from the US (Epstein, Ryser et al., 1998) ( $r_c = 0.987^2$ ) and Europe (Sointu et al., 2014) ( $r_c = 0.996$ ) as indicated by the large ( $> .95$ ; Jensen, 1999) coefficients of congruence.

**Table 2.** Correlations between Latent Factors

	1	2	3	4	5
Interpersonal Strengths	–				
Intrapersonal Strengths	.85	–			
Affective Strengths	.87	.90	–		
Family Involvement	.84	.80	.75	–	
School Functioning	.79	.78	.65	.72	–

Using the correlations between the five factors to fit a second-order factor resulted in slight, but statistically significant worse fit than the five-factor model ( $\Delta\chi^2_{(5)} = 49.29, p < .001$ ;  $\Delta CFI = .002$ ); however, these two models can be considered roughly equivalent based on the negligible change in CFI. The second-order (i.e., Strength Index) factor's loadings were combined with the primary factor's (e.g., interpersonal strengths, school functioning, etc.) loadings to calculate the Schmid-Leiman transformed solution for the model. The residualized primary factor loadings revealed that responses to items on the interpersonal strengths and intrapersonal strengths subscales were largely explained by the general strength index (*Mdn* residualized primary loading = .25; range = .17–.32) suggesting that the subscales may not be well differentiated from the general strength factor. The other three subscales demonstrated adequate uniqueness as indicated by the majority of  $>.30$  residualized primary factor loadings (*Mdn* = .37; range = .16–.51). The small residualized primary factor loadings for the interpersonal and intrapersonal strength factors mean that between 4% and 10% of the variation in item responses is accounted for by the two factors (*Mdn* residualized  $R^2 = .06$ ) while the general strength index factor accounts for between 29% and 67% of the variation in item responses. Contrast that with the comparatively large residualized primary factor loadings for the affective strengths, family involvement and school function factors mean that between 3% and 26% of the variation in item responses is accounted for by the three primary factors (*Mdn* residualized  $R^2 = .14$ ) while the general strength index factor accounts for between 8% and 56% of the variation in item responses. It should be noted that the items on the school function factor provide the most uniqueness after accounting of the general factor.

Since the five-factor and second-order structures were supported by the CFA models, coefficient alpha was computed for each subscale and the overall strength index. Estimates of internal consistency were acceptable ( $>.80$ ; Nunnally, 1978) for each score: interpersonal strengths ( $\alpha = .94$ ), intrapersonal strengths (.89), affective strengths (.84), family involvement (.84), school functioning (.93), and strength index (.97).

### Discussion

Overall, there was moderately strong evidence in support of the hypothesized five-factor structure with a general strength index factor. CFA model fit was acceptable for the five-factor and second-order models; however, neither model fit the data *closely*. In addition, the factor solution was nearly identical to the factor solutions identified for samples of US and European students. Internal consistency estimates also support the reliability of the subscale and overall scores. These findings, in consideration with other research on the reliability and validity of the Lithuanian-translated BERS-2 (Sointu et al., 2014), support the use of the BERS-2, when rated by teachers, to assess the behavioral and emotional strengths of students in Lithuania.

The near equivalence in fit between the five factor and second-order models is an interesting and unique finding of this study given that higher-order factor models have been largely absent from the literature on the BERS. The present study provides moderate empirical

evidence of a single overarching strength factor. The small difference in CFI suggests that the practical difference in fit between the two models is marginal. On the other hand, this small difference in fit seems to suggest that the correlational structure between subscales is not quite unidimensional — while four of the five factors are highly intercorrelated, school functioning was less intercorrelated with the other factors and contains more unique information as indicated by the Schmid-Leiman transformation. Future research on the BERS-2 should test alternative higher-order models such as bi-factor models which could not only provide empirical support for an overall index, but also help inform teachers, school psychologists and administrators as to when to use the subscales scores and when it is better to use just the overall strength index.

#### *Limitations*

This study is not without limitations. The first major limitation was that the sample was drawn at convenience and therefore it is possible that the findings may not generalize to the broader population. Future research should continue to investigate the psychometric properties of the Lithuanian BERS-2 scores with samples selected at random. Furthermore, the sample was homogeneous in terms of race and ethnicity within Lithuania which may also limit the generalizability of the findings to the larger Lithuanian population. Future research should incorporate more diverse samples in Lithuania, which might represent the population of students and teachers more closely. Third, the teachers who participated in this study were volunteers. Ratings by volunteer teachers may differ in specific and meaningful ways from ratings of those who did not volunteer leading to bias in the estimates of psychometric properties. Finally, despite some encouraging findings on the factor structure of the Lithuanian BERS-2, additional research on the psychometric properties of the Lithuanian BERS-2 scores should be conducted to examine convergent and discriminant validity as well as test-retest reliability. Such studies may provide additional support for the use of the BERS-2 within educational and mental health settings throughout Lithuania.

#### **Conclusion**

There is a growing body of evidence supporting the psychometric quality of the BERS-2 scores across a diverse range of youth populations in North America, Northern Europe and now Eastern Europe. The findings from this study support the use of the Lithuanian translated BERS-2 for use by schools and teachers in Lithuania. Given the increasing calls for a strength-based approach to assessment and education in Scandinavian and European countries, there is an obvious need for instruments with demonstrably valid and reliable scores that can be translated and applied on an international scale.

The Lithuanian BERS-2 has a number of individual and school-wide uses. First, it can be used as part of a comprehensive evaluation process for identifying students who have areas of limited strengths that may put them at-risk for school failure. Such students might benefit from additional academic or behavioral support to improve such areas. Second, many parents are frustrated with the deficit based approach and negative outlook from typical assessments (Leeber et al., 2011). Using a strength based assessment such as the BERS-2 as a starting point for parent-teacher discussions may be more attractive to parents as they focus on the child's strengths and potential for growth rather than their failures. As a result, parents might be more likely to engage with school personnel and mental health professionals in planning meetings. Third, to determine the effectiveness of an individual or school-wide intervention over time, the teachers could complete the BERS-2 on all of their students at the beginning of the school year and again at the end of the intervention to determine if scores improve. For example, a school may have all of the teachers complete the BERS-2 and find that high proportion of their students score low on the Family Involvement subscale. To improve family

involvement the school administrators may try to increase parent participation in the school by having an open house for parents twice a year, sending more positive notes home about student successes in school, and increasing volunteer opportunities for parents within the school. At the conclusion of the school year, teachers could complete the BERS-2 on all of their students again to determine if the activities had a positive effect by comparing the scores on the Family Involvement subscale again. Finally, the BERS-2 can be used in Lithuania as a measure in research and evaluation efforts across schools to help determine policies and procedures that may improve outcomes for all students from a strength-based perspective. Such policies might include strategies that focus on enhancing family involvement and interpersonal skills that lead to positive outcomes for students.

### Footnotes

<sup>1</sup> The second-order model has the same item-to-factor structure of the five-factor model with an additional latent factor measured by the five ‘first-order’ latent factors. This general factor (called the *strength index*) ‘causes’ the interrelationships between the five factors and thus between the set of individual items.

<sup>2</sup> The factor solution reported by Epstein, Ryser and Pearson (1998) was an explorative model identified using principal axis factoring with an oblique rotation. The authors only reported predominate factor loadings which were used to estimate the coefficient of congruence.

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## FACTOR ANALYSIS OF TEACHER RATINGS FOR THE LITHUANIAN TRANSLATED BEHAVIORAL AND EMOTIONAL RATING SCALE

### Summary

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When the purpose of an evaluation or assessment is to make decisions regarding eligibility for special services or to design educational or therapeutic intervention plans, it is essential to consider the behavioral and emotional strengths, assets, and resources a child possesses so that decisions can be made accurately and interventions can be designed accordingly. However, according to a recent study on the assessment practices of children with special needs in Europe, assessment and evaluation of children's strengths is clearly lacking in traditional psychometric tests (Lebeer et al., 2011). Approaches to identifying a child's strengths and assets is significant as they can influence a child's interactions with parents, peers, and teachers, which can in turn impact the child's social and emotional development (Brofenbrenner, 1979). In Lithuania, the Ministry of Education and Science approved a policy entitled, *The Concept of Assessment of Pupils' Achievement and Progress*, which was developed to outline strategies for assessment and to identify key elements in the assessment process. Among the key elements of this policy was that assessments should encourage student motivation by emphasizing strengths and achievement rather than failure.

Internationally there has been increased recognition of the value of strength based assessment in educational and mental health service delivery. In this study the teacher version of BERS-2 was translated into Lithuanian to determine its factor structure for use in Lithuania. The BERS-2 is a 52-item standardized norm-referenced assessment that measures the strengths of children 5 to 18 years of age and includes separate rating scales for youth, parent, and teacher (Epstein, 2004). Each item is measured on a four-point Likert-type scale. The items form five subscales: (1) interpersonal strengths, (2) intrapersonal strengths, (3) affective strengths, (4) family involvement, and (5) school functioning. The subscale scores are combined to form the overall Strength Index. Teacher ratings were evaluated in this study.

The results suggest that the Lithuanian BERS-2 can be a useful strength based assessment for teachers and schools in Lithuania. Strength-based measures can be used to assist in intervention planning by identifying skills and resources a child may possess so that they can identify areas for potential growth and improve deficit areas.

Overall, there was moderately strong evidence in support of the hypothesized five-factor structure with a general strength index factor. CFA model fit was acceptable for the five-factor and second-order models; however, neither model fit the data *closely*. In addition, the factor solution was nearly identical to the factor solutions identified for samples of US and European students. Internal consistency estimates also support the reliability of the subscale and overall scores. These findings in consideration with other research on the reliability and validity of the Lithuanian-translated BERS-2 (Sointu et al., 2014), support the use of the BERS-2, when rated by teachers, to assess the behavioral and emotional strengths of students in Lithuania.

The near equivalence in fit between the five factor and second-order models is an interesting and unique finding of this study given that higher-order factor models have been largely absent from the literature on the BERS. The present study provides moderate empirical evidence of a single overarching strength factor. The small difference in CFI suggests that the practical difference in fit between the two models is marginal. On the other hand, this small difference in fit seems to suggest that the correlation structure between subscales is not quite unidimensional — while four of the five factors are highly intercorrelated, school functioning was less intercorrelated with the other factors and contains more unique information as indicated by the Schmid-Leiman transformation. Future research on the BERS-2 should test alternative higher-order models such as bi-factor models which could not only provide empirical support for an overall index, but also help inform teachers, school psychologists and administrators as to when to use the subscales scores and when it is better to use just the overall strength index.



# THE FEATURES OF OPERATIONAL COMPONENT OF SOCIAL ACTIVITY OF STUDENT YOUTH

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## **Abstract**

In this article the operational component of students' social activity research methodology has been grounded. The features of operational component of social activity of student youth have been analyzed, and levels of operational component have been characterized. As a result the levels of operational component of students' social activity have been found out and described. The factors of operational component of social activity have been analyzed.

*Key words: social activity, operational component, student youth*

## **Introduction**

The current social and political situation in Ukraine requires the active people participation in its social, political, economic, cultural and spiritual spheres of life. The activity of young people in public life is an important aspect of this problem. Therefore, research of features of the operational component of social activity of student youth is actual since exactly operational component is an implementation of social activity. The level of operational component of social activity describes the specifics of motivational, volitional, emotional and cognitive characteristics of social activity, at the same time volitional component affects the nature and continuity of operational implementation of social activity. For a high level of operational component of social activity a coordinated combination of all these activity criteria is needed.

Operational component of social activity was thoroughly studied by Leontiev (Леонтьев, 2004), Panok (Панок & Привалов, 1999), Shashenko (Шашенко, 2004) and others.

Sapriyanchuk was studying the relationship between social initiative and public activity of the individual. Thus, the ability to take the initiative in activity she defined as one of the essential criteria of human activity (Сапріянчук, 2010).

Galperin considered the problem of activity from positions of activity by means of that it is possible to change qualities of personality. Due to his opinion to bring up student as socially active personality it is necessary to create for them such activity and environment that will support their development (Гальперин, 2002).

At the same time, integrally and systematically an operational component of social activity of student youth has not been investigated, there is no methodology of research. Analysis of theoretical sources by this issue, the selection of its insufficiently known aspects allowed to ground the purpose and basic objectives of research.

**Object of the research:** the operational component of social activity of student youth.

**Aim of the research:** to study the characteristics, factors of operational component of social activity of student youth, selection of levels to the operational component of social activity.

The achievement of this aim stipulated the necessity of the formulation and solution of the following tasks:

1. To ground the methodology of research of the operational component of social activity of student youth.
2. To explore the features and factors of operational component of social activity of student youth.
3. To distinguish and describe levels of operational component of social activity.

### **Participants of the research**

715 students of different years of studying from public and private Ukrainian HEI have participated in research. Respondents were divided into the following groups:

- by age: 1) up to 18 years (19% of respondents), 2) from 19 to 20 years (35%), 3) from 20 to 25 years (9%), 4) over 25 years (7%);
  - by gender: 58% of women and 42% of men;
  - by areas of study: Social and Humanities (56% of polled), Natural Sciences and Technology (44%);
  - by form of study: full-time (77% polled), part-time (23%);
  - by year of studying: 1<sup>st</sup> year (17%), 2<sup>nd</sup> year (16,5%), 3<sup>rd</sup> year (22%), 4<sup>th</sup> year (22%), 5<sup>th</sup> year (15%), 6<sup>th</sup> year (7,5%);
  - by success of training on a ECTS scale: “A” (17%), “B” (40,5%), “C” (31%), “D” (9%), “E” (2,5%);
  - by form of HEI ownership: public HEI (66% of polled), private HEI (34%);
  - by combination of work and studying: 12% polled work due to the qualification received, 32% polled work due to other qualification; 56% polled do not work;
  - by place of residence while studying: at home with parents (51% of students), at home alone (9.5%), in rented apartments (16%), in campus (23.5%);
  - by place of residence: capital (88.5% of polled), regions (11.5%).
- It was taken into account that 6% of the investigated students are disabled people.

### **Methods of the research**

The following main indicators of the operational component of social activity were distinguished as a basic: aspiring to independence in execution of socially meaningful activities; ability and skills in doing of socially important activities that lead to the acquisition of their own vital experiences.

For research of the operational component of social activity of student youth we have developed the author’s questionnaire that consists of 21 questions. A questionnaire contains: a) questions-dichotomies (variants of answers — yes, no, it is hard to say); b) unalternative questions (possible choice of a few variants); c) open questions (personal variant of answer); d) verification questions (answers to which correlated with the previous questionnaire responses and also some methodologies of research).

Questions concern the fact and level of participation in activity of the student self-government, the nature of social activity, participation in social and public activities within the HEI, quantity of projects organized.

The level of social activity in different areas (scientific, creative, public) is possible to educe from questioning results; however we put an accent on participating in student self-government. In fact, on our opinion the most important direction in social activity

implementation is activity in the organizational area, that is most brightly shown in activity of student self-government and unites the various displays of social activity in itself. The passive attitude of students to the activity of student self-government testifies their personal adaptive position that becomes a substantial barrier to social activity of personality. At the same time scientific and creative activities are the components of social activity only in case if they are accompanied by high social motivation.

Data processing was carried out using the software SPSS, version 16.0.

### Results and Discussion

A high level of operational component was established in case of positive answer of respondent to a question: “Do you take part in the activity of self-government?” and if the amount of points in the responses to the questionnaire concerning the level of participation in student self-government, the nature of social activity, fact of participation in social, scientific, public, creative activities within the HEI and quantity of projects organized was 15 points and higher. A low level of operational activity component of students was established, when the student did not participate in student self-government activity and collected 0–15 points for these questions or if they participated in the activities of student self-government and their responses scored 0–7 points. In all other cases we refer respondents to the middle level of the operational component of social activity.

At the core of our research there is an understanding of social activity as a sustainable personal formation, which is internally determined by the individual features of a person, that is based on subjective individual’s activity, high level of social motivation, shows up in qualitative transformation of social reality within the ethical standards dominating in the society, and leads to the achievement of individual development peak, self-determination and self-assertion.

It was educed from the research results that the share of respondents who participate in the activities of the student self-government is very low (28.1%) (Table 1).

**Table 1.** Amount of students who participate in the activities of the student self-government

Do you take part in the activities of student self-government?	Amount of polled (in %)	Frequencies
no	71.9	470
yes	28.1	184

By level of student participation in social activity of different structures within the HEI more than a half of students (56.1%) do not participate at all, almost a quarter of students (27.2%) are likely involved in social activity as volunteers, and only 16.7% polled usually participate in such activity within the HEI as organizers (Table 2).

Additionally, we received an answer to the question “Do you take part in the activities of amateur groups?” Only 23.8% of respondents answered the question in the affirmative, even 76.2% of respondents marked that do not participate in the activity of groups performances.

A small share of respondents (19.8%) marks thus that their participation in social activity within the HEI has permanent character, social activity of majority of polled (79.9%) within the HEI is of temporal or situational character.

As to our opinion, social activity is a generic term for such types of activities as: communicative, public, political, cognitive, educational, labor, volitional, spiritual, creative etc., in case of their constructive, socially desirable orientation, we investigated the features of display of the operational component of social activity of students in different areas of their lives.

**Table 2.** Distribution of students by level of participation in self-government or other student structures within the HEI (scientific society, amateur groups, clubs on interests, etc.)

<b>In what role do you usually participate in social activity of self-government or other student structures within the HEI?</b>	<b>Amount of polled (in %)</b>	<b>Frequencies</b>
as an organizer	16.7	367
as a volunteer	27.2	178
do not take part	56.1	109

Thus by the level of participation in social activities within the HEI respondents were divided into 3 groups: high level (11.8%) inherent to students who use every possibility to participate in this activity; middle level (47.4%) — to those who participate in social activity, if there is no alternative, more important occupations; low level (40.8%) — to those students who do not participate in social activity within the HEI.

Following a similar algorithm by level of participation in public activity within the HEI (which is a separate form of social activity and contains the activity of individual aimed at problem solution of the relationship between the community and the state), a high level was found for 13.8% of investigated, the middle level — for 39.4% of respondents, and low level of participation in public activity of the HEI — for 46.9% of students.

Similarly the distribution of students by level of participation in scientific and creative activities within the HEI was determined, taking into account that these indices are the constituents of social activity only in case if they are accompanied by high social motivation. Thus high level of participation in scientific activity is inherent for 16.4% of respondents, middle level — for 38.7%, and low level of participation in scientific activity of the HEI — for 44.9% of students.

By degree of participation in creative activity within the HEI high level is inherent for 18.3% of investigated, middle level — for 33.2% of respondents, and low level of participation in creative activity within the HEI — for 48.5% of polled.

An important indicator of the operational component of social activity of student youth is, in our opinion, a presence and a quantity of social projects in organization of which students were involved in.

On this basis we refer students who staying in University have not organized any social project (20.0%) to low level of operational component, those who participated in organization up to 5 projects for the whole period of studying (65.6%) — to middle level, and investigated who during the studying have participated in organizing 5 projects and more (14.4%) — to high level of operational component of social activity of students (Table 3).

**Table 3.** Distribution of students by the amount of organized social projects

<b>Have you been the organizer of any social project during your training at University? If yes, how many?</b>	<b>Amount of polled (in %)</b>	<b>Frequencies</b>
no, I have not been	20.0	129
yes, up to 5 projects	65.6	424
yes, 5 projects and more	14.4	93

The special role of student self-government in the process of forming of students' social activity highlights the fact that according to the research results the majority of students (65.9%) believe that social activity of students appears exactly through activity in student self-government.

Ideas of students about their own social activity has a direct correlation with the real participation in activity of student self-government structures (0.319;  $p < 0.01$ ) (Table 4).

**Table 4.** Correlations between the students' perception of their social activity and their actual participation in activity of student self-government

Do you consider yourself a socially active personality?	Do you take part in activity of the student self-government? (amount of polled in %)	
	no	yes
no	86.9	13.1
it's hard to say	80.2	19.8
yes	50.7*	49.3*

\* — differences are statistically significant at the level  $p < 0.01$

Thus, among investigated who consider themselves socially active nearly a half (49.3%) have participated in activity of student self-government structures, while among students who do not consider themselves socially active this index is 13.1%. It also confirms a close relationship between the social activity of students and their participation in the activity of self-government structures.

On the basis of summarizing the survey results we found 3 levels of the operational component of social activity of student youth (Table 5).

**Table 5.** Levels of operational component of students' social activity

Levels of operational component	Amount of polled (in %)	Frequencies
low	26.1	171
medium	64.4	421
high	9.5	62

Thus a low level of operational component of social activity (26.1% of respondents) is characterized by situational, unstable, not necessarily independent nature of social activity, that is predefined mostly by external (requirement, evaluation, reward, fear of punishment), random situational factors. Students who are at this level of operational component of activity are not the organizers of social work, have no desire to fulfill tasks of the team, and do not often bring them to completion.

Middle level of operational component of social activity is inherent to the largest group of respondents (64.4%). It envisages mostly independent social activity, with high frequency of the amateur actions caused mainly by rational (to occupy a high status in family, group, educational institution) and pragmatic reasons. These students do not always participate in public, social and labour activities, are not quite conscious in attitude toward studies, and only sometimes become the organizers of public work.

The least group of respondents (9.5%) is characterized by high level of the operational component of social activity that envisages continuous nature of social activity, creativity in all major areas of life, organizational abilities and skills (Киричук, 1983).

Dependence of the operational component of students' social activity on educational and professional (qualification) and organizational ((HEI ownership) factors has been studied on the next stage of empirical research. In order to determine the dependence of these characteristics on the levels of operational component of students' social activity, the other educational and professional factors with  $\chi^2$  criterion were analyzed and correlation analysis with Pearson's rank correlation coefficient was performed. The results showed absence of statistically significant correlations between the level of operational component of social activity and some educational and professional factors (year of studying, form of study, combination of work and studying).

In relation to educational and professional features of operational component of social activity of students meaningful statistics differences (0.104;  $p < 0.05$ ) by criterion  $\chi^2$  and correlation analysis with Pearson's rank correlation coefficient was performed between the levels of operational component and future students' qualifications (Table 6).

**Table 6.** Correlations between the level of operational component of social activity of students and their qualification

Qualification	Levels of the operational component (amount of polled in %)		
	low	medium	high
Humanities	29.4*	63.2	7.5
Natural Sciences and Technology	22.1	65.6	12.3*

\* — differences are statistically significant at the level  $p < 0.05$

Thus, the humanitarian sciences students have a low level of operational component of social activity (29.4%), whereas only 22.1% of the natural and technical sciences students are at this level. A high level of operational component of social activity is inherent for 12.3% of natural and technical sciences students, while the students of humanitarian profile meet this level rarer — in 7.5% of cases.

Being oriented towards the socio-political situation in the country during research we conducted a questioning of 102 students from different public and private HEIs in order to verify the assumption of a higher level of social activity of students who have participated in Euromaidan. The survey was conducted on-line as well as right at Euromaidan in February, 2014. The questionnaire included the following questions: 'Why did you come to Euromaidan for the first time?', 'What does Euromaidan means for you now?', 'How often do you go to Euromaidan?', 'Are you getting financial benefits from participation in Euromaidan?', 'Can you say, that you go to Euromaidan looking for interesting events, can't you?', 'What is important for you at Euromaidan?', 'How do you react on crowding out' from Euromaidan?'. In our opinion such a selection of questions gave a chance to see the actual level of operational component of the social activity of students (taking into the account their attitudes and level of participation in Euromaidan).

A high level of the operational component was determined in case if the student's first arrival to Euromaidan was caused by personal active position that was transformed into a sense of national spirit and movement to positive social changes during the events of Euromaidan. Students who are at the Euromaidan's participants level of operational component often or almost always present and desire to play an active role in the events of Euromaidan without any financial benefits. On the question: 'How do you react on crowding out' from Euromaidan?' they mostly marked an opposite activating effect. The low level of operational component is peculiar to the participants of Euromaidan, who first arrived to Euromaidan eventually

and consider Euromaidan as meaningless or visited Euromaidan 1-2 times by chance, or possibly extract a material benefit from participating in Euromaidan. Among all the events of Euromaidan they interested only in entertainments, do not want to participate in organization and development of events. In most cases of 'forcing out' from Euromaidan they considered as faithful action, or this group of students felt fear. Other investigated who gave other possible answers to the questionnaire were classified as a medium level of the operational component of Euromaidan participants (Table 7).

**Table 7.** Levels of the operational component of social activity of participants of Euromaidan

Levels of operational component	Amount of polled (in %)	Frequencies	Means	S <sub>x</sub>	Sums
low	7.8	8	1.00	0.00	8
medium	74.5	76	1.00	0.00	76
high	17.6	18	1.00	0.00	18

Note: S<sub>x</sub> — standard deviation

Thus the largest group of respondents (74.5%) is at a middle level of the operational component of social activity. The high level of operational component of social activity was detected in 17.6% of polled against 9.5% of investigated students who did not participate in Euromaidan. The low level of operational component of social activity is reduced only in 7.8% of polled compared to 26.1% of investigated students who did not participate in Euromaidan.

Negative relationship observed by the motivation of the first arrival to Euromaidan and type of ownership of HEI (-0.364;  $p < 0.05$ ) (Table 8).

**Table 8.** Correlations between the motivation of students' participation in Euromaidan and HEI ownership

Why did you come to the Euromaidan for the first time?	Form of HEI ownership (amount of polled in %)	
	public	private
was offered money	3.7	23.1
was invited by friends	29.6	53.8*
could not stay at home when such events are taking place in the country	25.9	0.0
eventually	40.7*	23.1

\* — differences are statistically significant at the level  $p < 0.05$

Thus the largest share of the polled students who followed pragmatic motivation for the first arrival to Euromaidan (23.1%) presents private universities, students from public universities have this index much lower (3.7% of investigated). 25.9% students of public universities could not stay at home, when such events have taken place in the country, while no students from private universities chose this option. It is interesting that the first arrival to Euromaidan was casual for 40.7% of students from public HEIs and 23.1% of students from private HEIs.

Statistically significant differences were found between the level of activity of students on Euromaidan and type of HEI ownership (Table 9).

**Table 9.** Correlations between the levels of activity of students on Euromaidan and type of HEI ownership

The levels of activity	Form of HEI ownership (amount of polled in %)	
	public	private
just to be on Euromaidan	14.3	63.6*
actively participate in organizational activities	85.7*	36.4

\* — differences are statistically significant at the level  $p < 0.01$

Thus students of public HEI in most cases (85.7%) have aimed to participate actively in organizational activities of Euromaidan, while this index is only 36.4% for students of private universities. Negative relationship observed by the levels of activity of students on Euromaidan and type of ownership of HEI ( $-0.494$ ;  $p < 0.01$ ).

Negative relationship observed by the levels of operational component of social activity of students participating in Euromaidan and the fact of organization in HEI special events on its support ( $0.382$ ;  $p = 0.012$ ) (Table 10).

**Table 10.** Correlations between the levels of operational component of social activity of students participating in Euromaidan and the organization in HEI activities to support Euromaidan

Does your HEI organize any events to support Euromaidan?	The levels of operational component (amount of polled in %)		
	low	medium	high
no	33.3	57.1	9.5*
yes	0.0	81.8	18.2*

\* — differences are statistically significant at the level  $p = 0.012$

Table 10 shows that the level of operational component of social activity of student youth from HEIs which organized some events in support of Euromaidan is higher.

In general the assumption about the increase of level of social activity of student youth under influence of social & political events was confirmed. At the same time, it needs further checking for bigger selection that can come forward as a prospect of further researches.

### Conclusion

The empiric research results showed an insufficient level of social activity operational component of a substantial share of students, while only 10% of investigated demonstrated it at a high level.

The differences of operational characteristics of social activity of student youth due to the different educational and professional factors (qualification) and institutional factors (form of HEI ownership) were established.

In order to determine the dependence of these characteristics on the levels of operational component of students' social activity, the other educational and professional factors 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 level of operational component of social activity and some educational and professional factors (year of studying, form of study, combination of work and studying).



The levels of operational component of social activity of students who participated in Euromaidan have been investigated. In general the assumption about the increase of level of social activity of student youth under influence of social & political events was confirmed. At the same time, further checking is needed for bigger selection that can come forward as a prospect of further researches.

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## THE FEATURES OF OPERATIONAL COMPONENT OF SOCIAL ACTIVITY OF STUDENT YOUTH

### Summary

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The *actuality* of the study on features of operational component of social activity of student youth has been revealed. *Object of the research* is the operational component of social activity of student youth. *Aim of the research* is to study the characteristics, factors of operational component of social activity of student youth, selection of levels to the operational component of social activity.

The current social and political situation in Ukraine requires the active people participation in its social, political, economic, cultural and spiritual spheres of life. The activity of young people in public life is an important aspect of this problem. Therefore research of features of the operational component of social activity of student's youth is very actual since exactly operational component is an implementation of social activity.

In this article the operational component of students' social activity research methodology has been grounded.

*Fragment of the research.* The study involved 715 students of different years of studying from public and private Ukrainian HEI. Respondents were divided into the following groups: by age; by gender; by areas of study; by form of study; by year of studying; by success of training on a ECTS scale; by form of HEI ownership; by combination of work and studying; by place of residence while studying; by place of residence; by health status.

The following main indicators of the operational component of social activity were distinguished as a basic: aspiring to independence in execution of socially meaningful activities; ability and skills in doing socially important activities that lead to the acquisition of their own vital experiences.

To research the operational component of social activity of student youth we have developed an author's questionnaire that consists of different kinds of questions.

Questions concern: the fact and level of participation in activity of the student self-government, the nature of social activity, and participation in social and public activities within the HEI, quantity of projects organized.

According to the questioning results the level of social activity in different areas (scientific, creative, public) has been educed. We put the accent on participating in student self-government. In fact, on our opinion, the most important direction in social activity implementation is activity in the organizational area that is most brightly shown in activity of student self-government and unites the various displays of social activity in them. The passive attitude of students to the activity of student self-government testifies their personal adaptive position that becomes a substantial barrier to social activity of personality. At the same time scientific and creative activity are the components of social activity only in case if they are accompanied by high social motivation.

According to the results of empiric research there is an insufficient level of operational component of social activity of substantial share of students, while its high level was founded only at 10% of investigated.

The differences of operational characteristics of social activity of student youth due to the different educational & professional factors (qualification, combination of work and studying) and institutional factors (form of HEI ownership) were established.

The levels of operational component of social activity of students who participated in Euromaidan have been investigated. In general the assumption about the increase of level of social activity of student youth under influence of social & political events was confirmed. At the same time it needs the further checking for bigger selection that can come forward as a prospect of further researches.



# COMMUNICATING MATHEMATICAL IDEAS IN A DIGITAL WRITING ENVIRONMENT: THE IMPACTS ON MATHEMATICAL REASONING FOR STUDENTS WITH AND WITHOUT LEARNING DISABILITIES

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## **Abstract**

Mathematical reasoning is often underdeveloped in students with learning disabilities (LD). Problem solving and reasoning represent one of the most important aspects of a mathematics curriculum. The purpose of the present study *was to examine how communication through writing in mathematics via a digital environment impacts the mathematical reasoning of students with and without LD*. Specifically, the research was guided by research questions: (1) *What differences exist between the mathematical reasoning of students with and without LD prior to and after using a digital writing environment?* (2) *How does use of the digital writing environment differ between students with and without LD?* (3) *To what extent does student reasoning change overtime when emphasis is placed on communication via writing in mathematics?* Oral reading and math fact fluency as well as participants' working memory were used as academic variables. The Math Reasoning Inventory (MRI; Burns, 2012) is a formative assessment designed to evaluate mathematical reasoning through a face-to-face interview. The primary focus is on core numerical reasoning strategies and understanding. Subjects participated in an intervention focused on communication in mathematics through the use of digital writing tools in a computer-based mathematics program. Results reveal that communication through writing or peer-based discussions around mathematics can impact students' reasoning skills. Reasoning is a fundamental skill in mathematics and remains an area in which students with LD continuously struggle; therefore, interventions focused on advancing student reasoning will be increasingly pivotal to mathematics education. Students in this study showed improvement in different areas of reasoning over the course of the intervention and responded differently to the types of writing environments that were offered. Regardless of which digital environment was preferred by students with and without LD, results demonstrated that incorporating writing into mathematics to communicate mathematical information benefited all students in this study and has the potential to impact mathematics education.

**Key words:** *mathematical reasoning, students with or without LD, digital environment*

Internationally there is an increasing emphasis in the development of a numerate population that can use mathematics effectively in everyday life, at home, work and in the community (Diezmann, Lowrie, & Kozak, 2007). These initiatives focus on directly targeting instruction as well as centering on educating those who have difficulty with essential mathematics (Hanushek, Peterson, & Woessmann, 2010; Jitendra, 2005). Recent

reports demonstrate that the mathematics performance of elementary and secondary students is rapidly progressing in some countries; however, in most countries student progress has been slow, with little or no gains (Hanushek et al., 2010; National Assessment of Educational [NAEP], 2013). Many countries may not be adequately preparing students with the levels of mathematic knowledge necessary to enter a competitive 21<sup>st</sup> century workplace (Hanushek, et al., 2010). For example, eighth grade students in the United States showed no significant improvement in mathematical proficiency on a national achievement test from 2011 to 2013 (National Assessment of Educational Progress [NAEP], 2013). Approximately two-thirds of students demonstrated only partial mastery of prerequisite mathematical knowledge and skills (NAEP, 2013). Furthermore, the progress of eighth grade students with disabilities is particularly troubling as there was a slight decrease in the average scores from 2011-2013 (NAEP, 2013). Although there have been initiatives focused on improving or enhancing mathematical education, particular attention has been placed on problem solving and reasoning within mathematics (Martin & Kasper, 2010; National Council for Teachers of Mathematics [NCTM], 2000; CCSS; National Governors Association et al., 2010).

Problem solving and reasoning represent one of the most important aspects of a mathematics curriculum. Knowing how to solve mathematical problems enhances an individual's ability to function in the context of everyday situations and work settings (Bottge & Hasselbring, 1993), and assessments conducted at all levels (state, national, and international) over past 30 years indicate students are notably deficient in their ability to solve mathematical problems (Kilpatrick et al., 2001). Although many students have difficulty problem solving, research indicates that children at-risk for mathematics difficulty (MD) or those identified with a learning disability (LD) evidence significant challenges in even solving one-step problems (Berch & Mazocco, 2007; Jitendra et al., 2005).

To be successful in mathematics, students must have adequate short-term memory, good organization skills, and use strategies to facilitate learning (McLoughlin & Lewis, 2007). Unfortunately, students with learning disabilities often have problems with short-term memory, language reasoning, and metacognition (Hallahan, Kauffman, & Pullen, 2009). As one might expect, these difficulties can have a negative impact on overall mathematical performance. For example, weak abstract reasoning skills directly impact mathematical understanding and problem-solving, and students often require support to navigate the curriculum and demonstrate proficiency (Steele & Steele, 2003). Furthermore, working memory and language are associated to fact retrieval, calculation, word problem solving, and strategy use; therefore, difficulty in memory or language deficiency contributes to the lack of development in strong mathematics skills in these areas (Compton, Fuchs, Fuchs, Lambert, & Hamlett, 2012; Fuchs, Fuchs, & Compton, 2011; Fuchs, et al., 2008; Gersten, Jordan, & Flojo, 2005; Hitch & McAuley, 1991; Passolunghi & Siegel, 2004; Raghubar, Barnes, & Hetch, 2010; Wilson & Swanson, 2001). Thus, these students often have lower than expected scores on mathematics achievement tests (Geary, Nugent, Hoard, & Byrd-Craven, 2007; Judge & Watson, 2011), plateau in their math achievement at grade 5 or 6 (Cawley, Baker-Kroczyński, & Urban, 1992), and reports show a decline in mathematics scores overtime (Allsopp, McHatton, & Farmer, 2010; NAEP, 2010).

Reasoning plays a crucial role in mathematics and has been emphasized in many standards or practices in recent years. Mathematical reasoning has been defined as the ability to understand and make sense of mathematical concepts in a logical way in order to form a conclusion or judgment (Merriam-Webster, 2014; CCSSM, 2010). NCTM (2009) suggests that, "being able to reason is essential to understanding mathematics. By developing ideas, exploring phenomena, justifying results, and using mathematical conjectures in all content areas and at all grade levels, students should recognize and expect that mathematics makes sense" (p 2-3). Unfortunately, studies have shown that students with LD have weaker reasoning skills

in comparison to typically developing peers (Bressette, 2011; Layton & Lock, 2003). Given that many national and international standards emphasize mathematical problem solving and reasoning across all grade levels, students with LD must establish a proficient ability to reason in mathematics to comprehend the foundational mathematical skills.

Communication and mathematical reasoning are closely intertwined as reasoning requires an individual to formulate and represent a given mathematics problem, explain, and justify the solution or argument about the problem (Aleven, Koedinger, & Popescu, 2003; Aleven, McLaren, Roll, & Koedinger, 2006; Kilpatrick, Swafford & Findell, 2001). However, this becomes problematic when students do not or cannot communicate their mathematical reasoning in a coherent manner. Writing in mathematics is one mode in which students can communicate their reasoning, expand understanding beyond calculations, build on partial knowledge, and improve problem-solving (Aleven et al., 2003; Cooper, 2012; Trafton & Trickett, 2001). Research has demonstrated that writing can develop thought processes, assist in identifying errors, encourage problem solving and reinforce the ability to define, classify, or summarize, which are useful for engaging in mathematics (Connolly, 1989; King, 1982). Moreover, writing incorporates the use of drawing represented through pictures, which may benefit students who lack the necessary language to express their mathematical ideas (Baxter, Woodward, & Olson, 2005). Although writing in mathematics can be supported using various methods, the rapid development of technological innovations has become a widely used tool in education (Cooper, 2012; Zemelman, Daniels, & Hyde, 2012).

Technology offers many benefits to assist instructional practices and meet the educational needs of all children (Kramarski & Mizrachi, 2006; Cemal Nat, Walker, Bacon, Dastbaz, & Flynn, 2011; Noeth & Volkov, 2004; U.S. Department of Education, 2010a). Studies examining the use of technology in mathematics have reported an increase in student engagement, the promotion of higher-order thinking skills, drill and practice opportunities, improved motivation, and positive impacts on achievement (Ke, 2008; Li & Ma, 2010; Lim, 2008; Cemal Nat et al., 2011; Ota & DuPaul, 2002). Specific studies have examined the use of technology in mathematics for students with LD and reported gains in achievement as well as increased motivation and engagement in learning (Allsopp et al., 2010; Nordness, Haverkost, & Volberding, 2011; Okolo, 1992). Although many types of technology tools have been studied, few have looked specifically at the use of technology to support writing. Zemelman et al. (2012) identified the use of technology such as blogs, chats, or forums as authentic writing environments that can facilitate communication about mathematics; however, little empirical evidence exists on the impacts of writing in mathematics through the use of technology and more specifically how this communication impacts mathematical reasoning.

**The purpose** of the present study *was to examine how communication through writing in mathematics via a digital environment impacts the mathematical reasoning of students with and without LD*. Specifically, the research was guided by two primary **research questions**: (1) *What differences exist between the mathematical reasoning of students with and without LD prior to and after using a digital writing environment?* (2) *How does use of the digital writing environment differ between students with and without LD?* (3) *To what extent does student reasoning change overtime when emphasis is placed on communication via writing in mathematics?*

## Methods

### Participants

Participants included 31 elementary students in grades 3, 4, and 5 and the majority of participants were male (61.3%). Well over three-fourths of the sample was Caucasian (83.9%) and the rest of the sample consisted of African American (9.7%), Asian (3.2%), and multiracial

(3.2%) participants. Slightly more than one third of the sample (41.9%) was verified with a primary or secondary eligibility category of learning disability (LD). Of those participants identified as primary or secondary LD, 31% were verified in reading, 23% in math, 23% in writing, and 15% were general LD. Only one participant qualified for free/reduced lunch, and all of the students had English as a native language.

### Setting

**School Overview.** The study was conducted at two private schools located in North Texas. One school serves students in Pre-kindergarten through 5<sup>th</sup> grade and the other school is comprised of students in grades 2-12 with learning disabilities or differences. Participants engaged in the intervention using either a computer lab or computers in their classroom for 45 minutes, two times per week, in addition to regular mathematics instruction.

**Online Learning Environment.** The Math Learning Companion (MLC) program is a computer-based instructional program designed as a supplemental curriculum for students with learning differences in grades 3-8. MLC has 73 lessons grouped into one of seven modules: Math Foundations 1, 2, and 3; Number Sense; Algebra; Geometry; and Data Analysis. Each lesson entails six components: (1) Real World (instructional set), (2) Vocabulary (introduction of new mathematical terms), (3) Instruction (explicitly delivered), (4) Try It (guided practice), (5) Game (independent practice), and (6) Quiz (10-items randomly selected that align with lesson content). The curriculum framework for MLC is based on *HELPMath*®, which has demonstrated statistically significant effects on an ELL population (Tran, 2005), and in 2012, this study met the What Works Clearinghouse evidence standards without reservations. The classroom teachers were given an overview of the program, lesson components, and asked to assign their class a curriculum sequence of eight lessons based on what the students were learning in the classroom.

### Measures

Several measures were included to assess differences between groups across multiple variables, including demographics, academics, writing environment behavior, and mathematical reasoning. Each measure is described below in detail.

**Demographic variables.** A demographic checklist containing 10 items was completed by the homeroom teacher of each participant. These items included information on the participant's gender, grade, free/reduced lunch status, primary language spoken, and special education status (e.g., primary and secondary eligibility categories). Because our settings consisted of private schools that may or may not serve students with learning differences, the federal definition for learning disability was provided to the teachers to ensure that students primary or secondary eligibility of LD aligned. All data reported on the checklist were teacher report via a file review of each student.

**Academic variables.** Oral reading and math fact fluency as well as participants' working memory were used as academic variables. The DIBELS-DORF (Good & Kaminski, 2002) was used as the measure of oral reading fluency. DIBELS-DORF has demonstrated adequate reliability with test-retest reliability scores ranging from .92-.97. Three grade-level reading passages were administered to each participant. Each passage was timed at one minute and the median score of correct words per minute represents their oral reading. Mathematical content knowledge was assessed using a curriculum aligned test that consisted of 30 items and was administered on the computer in MLC prior to and upon completion of the intervention. Math fact fluency was assessed using brief timed curriculum based measurement (CBM) math fact probes (Fox, Howell, Morehead, & Zucker, 1993; addition; subtraction; and multiplication facts). Probes were given to participants as a paper/pencil task and they were instructed when

to start and stop. Correct digits per minute for the addition, subtraction, multiplication, and division timings in mathematics were calculated and recorded for analysis.

**Math Reasoning Inventory.** The Math Reasoning Inventory (MRI; Burns, 2012) is a formative assessment designed to evaluate mathematical reasoning through a face-to-face interview. The primary focus is on core numerical reasoning strategies and understanding. Because students respond to questions by explaining their thought processes, the interviewer can record both the students' accuracy and the strategies they used to solve problems. Participants were administered the 10 items from the Whole Numbers (Cronbach's Alpha = .81; Bernbaum-Wilmont, 2012) subtest of the MRI during this study. Participants were provided a visual representation of the problem via a notecard, followed by a scripted question, and then asked to answer the problem without the use of pencil and paper. Once participant responses were noted, they were asked, "How did you figure this out?" Researchers then recorded verbatim what participants were saying in an open documentation section of the MRI. Interventionists viewed all instructional videos related to administration, as well as practiced delivering and scoring of the MRI prior to administering it in the study.

**Use of digital writing environment.** Participant behavior was represented by the frequency of digital writing tool use within MLC as well as minutes engaged in the online mathematics program. Data were collected from the online mathematics program through a daily download of students' "click" behavior. Each time a participant clicked on the notepad or the wall, that behavior was recorded and downloaded. In conjunction with the click data, the number of participant notes and wall posts were also tabulated to give both a frequency of times the participant opened each tool and a frequency of actual notes/posts taken.

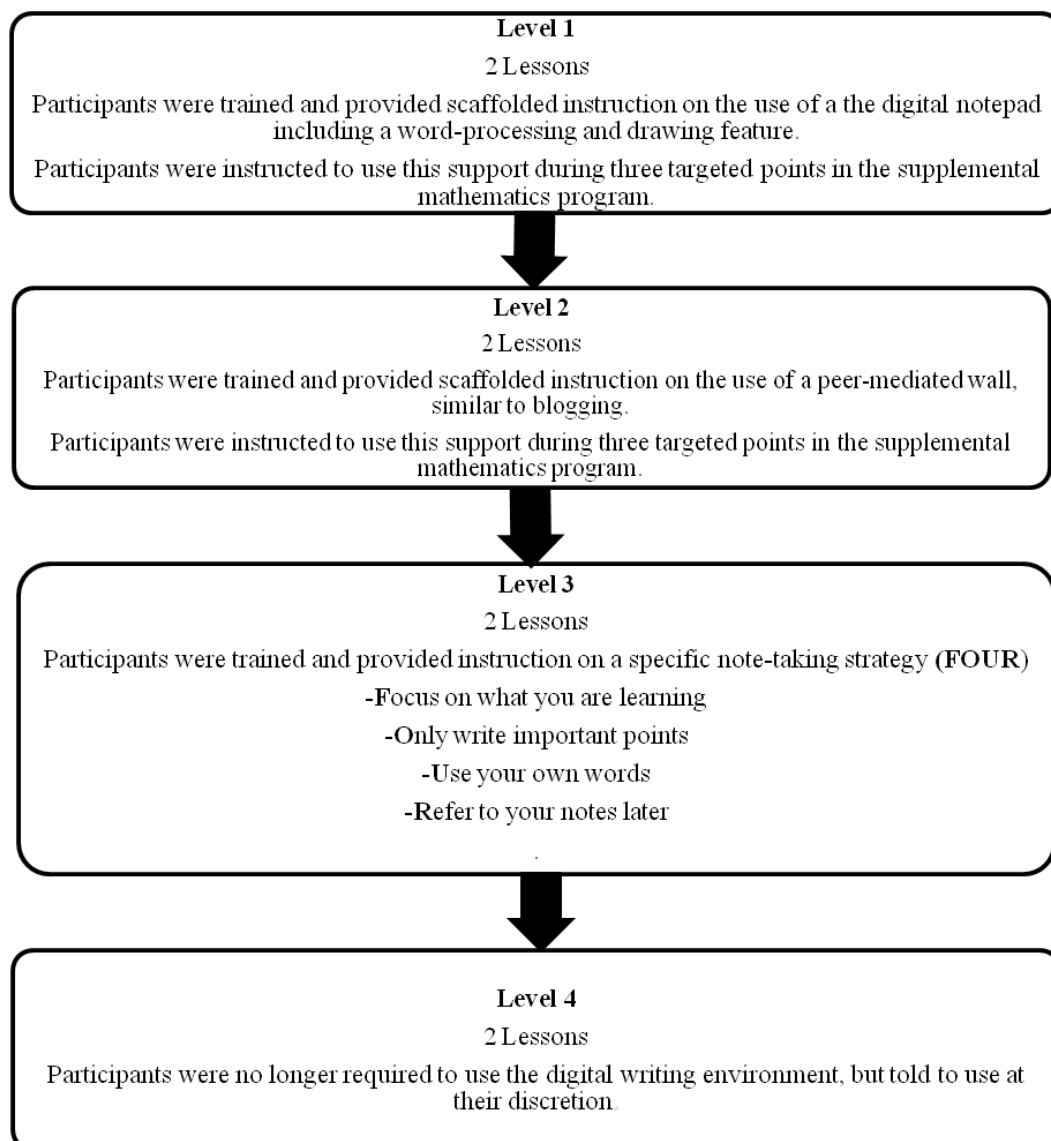
#### **Procedures**

Subjects participated in an intervention focused on communication in mathematics through the use of digital writing tools (i.e., a notepad and peer-mediated wall) in a computer-based mathematics program. Participants worked in the MLC program twice weekly for 45 minutes, completing a total of 8 lessons. These lessons were assigned by the grade-level teacher and participants completed them in the same order. Over the eight lessons participants were trained on using the digital writing tools embedded in MLC to communicate information. Participants completed four levels of intervention, consisting of two lessons each. Participants were provided a scripted training on use of the digital notepad including a word-processing and drawing feature, use of a peer-mediated wall (similar to blogging), and a note-taking strategy. They were provided the opportunity to practice using each tool and were granted the opportunity to ask questions. Different requirements were given to participants that included: taking notes in the digital notepad, posting comments to peers, responding to the questions or comments of peers, and using a note-taking strategy. New demands were placed on participants every two lessons of the intervention. Figure 1 provides additional details of the intervention levels.

#### **Data Analysis**

Data were analyzed using several distinct steps. First, data were entered, cleaned, and descriptive statistics were generated to provide an overview of the sample. Second, specific non-parametric statistical analyses were conducted to address each research question. A Mann-Whitney U test was used to examine group differences on the MLC-based pre- and posttest, and the frequency of notepad and wall clicks and notes/posts. A Wilcoxon signed ranks test was conducted to determine the gains over the course of the program on the MLC pre- and posttest. Finally, effect sizes for both the Mann Whitney U and the Wilcoxon signed rank test were computed by dividing the standardized test statistic by the square root of the sample size, providing an indicator of the probability that an observation from one group will be higher





**Figure 1.** Intervention Levels for Writing in Mathematics

than an observation from another (Conroy, 2014). Criteria for interpreting the magnitude of the effect sizes were based on Hopkins (1997) recommendations ( $ES = .10-.30 =$  small;  $.30-.50 =$  medium;  $.50-.70 =$  large;  $.70-.90 =$  very large;  $.90-1.00 =$  nearly perfect).

Prior to analysis of the MRI, a systematic process was used to code participant data. A coding dictionary was generated for each of the three components of the MRI (student answer, student explanation, and student reasoning). *Student answer* pertained to the correctness of the answer and was comprised of four categories (correct, incorrect, self-corrected, or did not answer). *Student explanation* assessed student's methods for solving a problem (used the standard algorithm, used another method specific to the problem, gave other reasonable explanation, or guessed). Finally, *Student reasoning* was represented by seven categories (no attempt at reasoning, guess attempt but incorrect answer, guess attempt and correct answer, partial attempt but had a reasoning breakdown, complete reasoning with a calculation error, complete reasoning and correct answer, or entirely wrong process). See Table 1 for examples of participant responses for each MRI category.

**Table 1.** Examples of MRI responses in each category

Type of Reasoning	Question	Student Answer	Student Explanation	Student Reasoning
No attempt at reasoning	7000/70	Did not answer	N/A	I don't know how to answer this
Guess attempt, incorrect	7000/70	Incorrect (7)	Guessed, did not explain, or gave faulty explanation	Well, um I think if you line up the 7's and bring it down the 0's cross out and then you have 7 left.
Guess attempt, correct	7000/70	Correct	Gave other reasonable explanation	I just divided them in my head
Partial attempt, reasoning breakdown	7000/70	Incorrect (0)	Guessed, did not explain, or gave faulty explanation	Well, I begin by setting up the problem and then crossing out the 0's to divide and then subtract the 7's so you get 0
Complete reasoning, calculation error	7000/70	Incorrect (10)	Used standard algorithm	I know that you add 0's to anything multiplied by 100 so it is 10.
Complete reasoning, correct	7000/70	Correct	Used other method specific to problem	Because I know 70 x 100 is 7000
Entirely wrong process	7000/70	Incorrect (81)	Guessed, did not explain, or gave faulty explanation	When you think about it, it can't be in the 90s because 18 is more than 10, but it can't be in the 100s because you are taking away the 0's, so it has to be in the 80s

Next, training and reliability was established between coders. Reliability was completed by two researchers on 11% of the sample, averaging 95.8% reliability. All disagreements were discussed until unanimity was reached. Finally, researchers independently coded the remaining MRI interviews. If the participant did not answer the question under the first category, the remaining categories were not coded. Therefore, a maximum of 180 responses could have been coded under the first category for participants without LD and 130 responses for participants with LD. Once the data were coded into these categories, chi-square tests were performed on the MRI pre- and posttest to determine differences in reasoning related to *student answer* (i.e., correctness of problems), *student explanation* (i.e., type of explanation) and *student reasoning* between participants with LD and without LD from pre to posttest. Cramer's (Phi) effect sizes were computed to determine the magnitude of difference between groups. Criteria for interpreting the magnitude of the effect sizes were based on Rea & Parker (1992) recommendations ( $V < .10$  = negligible associate;  $V = .10 - .20$  = weak association;  $V = .2 - .4$  = moderate association;  $V = .40 - .60$  = relatively strong association;  $V = .60 - .80$  strong association;  $V = 0.8 - 1.0$  = very strong association).

## Results

### Academic Variables

Descriptive statistics were analyzed and Mann-Whitney U statistics were conducted to determine the differences between participants with and without LD on academic variables (see Table 2). As expected, participants without LD scored significantly higher than those with LD on oral reading fluency and math fact fluency — multiplication, and marginally higher on math fact fluency — addition. Participants without LD also scored significantly higher than those with LD on the MLC pretest and posttest. Wilcoxon signed ranks tests were conducted to determine the change from MLC pretest to posttest for both groups of participants. The gains made from pre to posttest for participants both without and with LD approached statistical significance over the course of the intervention ( $z = 1.699$ ,  $p < .10$ ,  $ES = 0.40$  and  $z = -1.648$ ,  $p < .10$ ,  $ES = 0.34$ , respectively).

### Reasoning Prior to Intervention

Prior to the intervention, chi-square analyses revealed significant differences between participants with and without LD in the MRI categories *student answer*, *student explanation*, and *student reasoning*. For *student answer*, results showed significant differences with medium effects for those problems that were answered ( $\chi^2 = 18.210$ ,  $df = 1$ ,  $p < .001$ ,  $ES = .26$ ) as participants without LD answered problems correctly more often than individuals with LD. In the *student explanation* category, significant differences with medium effects were also present ( $\chi^2 = 8.670$ ,  $df = 2$ ,  $p < .05$ ,  $ES = .23$ ) as participants without LD used a standard algorithm, gave a reasonable explanation, or used a method specific to the problem more often than participants with LD. For *student reasoning*, significant differences with large effects were found ( $\chi^2 = 29.517$ ,  $df = 6$ ,  $p < .001$ ,  $ES = .33$ ) with the biggest difference in participants without LD communicating complete reasoning and providing the correct answer more often than individuals with LD (see Table 2).

**Table 2.** Descriptive statistics and independent sample t-tests for academic variables

Variable	Without LD		With LD		Mann-Whitney U	ES
	(n = 18)		(n = 13)			
	Mean	SD	Mean	SD		
Math Fact Fluency						
Addition	27.03	12.48	19.31	10.5	-1.926 <sup>+</sup>	-0.35
Subtraction	14.78	7.99	10.73	5.5	-1.403	--
Multiplication	22.14	12.06	12	8.24	-2.223*	-0.40
Division (N = 8, 7)	9	6.2	5.57	4.14	-1.043	--
Oral Reading Fluency	138.778	49.66	84.39	45.55	-2.682**	-0.48
MLC Pretest	20.33	5.35	14.46	3.86	-3.077**	-0.55
MLC Posttest	21.83	5.53	16.69	5.45	-2.328*	-0.42

<sup>+</sup> $p < .10$ , \* $p < .05$ , \*\* $p < .01$

### Reasoning Following Intervention

After the use of a digital writing intervention, chi-square analyses identified significant in the MRI categories *student answer*, *student explanation*, and *student reasoning*. For *student answer*, results showed significant differences with medium effects ( $\chi^2 = 12.709$ ,  $df = 1$ ,  $p < .01$ ,  $ES = .21$ ) as participants without LD continued to answer more problems correctly than participants with LD. In the *student explanation* category, significant differences with medium effects were noted ( $\chi^2 = 9.949$ ,  $df = 2$ ,  $p < .01$ ;  $ES = .26$ ) with the biggest differences present in the categories of using a method specific to the problem and providing other reasonable explanations. For *student reasoning*, significant differences with large effects were found ( $\chi^2 = 38.680$ ,  $df = 6$ ,  $p < .001$ ,  $ES = .37$ ) with the biggest difference continuing to be that participants without LD communicated complete reasoning and provided the correct answer more often than participants with LD (see Table 3).

**Table 3.** Student Explanations of Reasoning Pre and Post test

		Pretest		Posttest	
		Students with LD	Students without LD	Students with LD	Students without LD
Category	n (%)	(n = 115) <sup>a</sup>	(n = 162) <sup>a</sup>	(n = 114) <sup>a</sup>	(n = 172) <sup>a</sup>
No attempt at reasoning		2 (1.7%)	4 (2.5%)	14 (12.2%)	2 (1.2%)
Guess attempt at communicating reasoning, but incorrect answer		24 (20.9%)	22 (13.6%)	12 (10.5%)	23 (13.4%)
Guess attempt at communicating reasoning, correct answer		3 (2.6%)	2 (1.2%)	2 (1.6%)	4 (2.3%)
Partial attempt at communicating reasoning, breakdown in mathematical process		28 (24.3%)	23 (14.2%)	21 (18.4%)	25 (14.5%)
Complete reasoning communicated, but had calculation error		20 (17.4%)	32 (19.6%)	18 (15.8%)	27 (15.7%)
Complete reasoning communicated, correct answer provided**		20 (17.4%)	71 (43.8%)	30 (26.3%)	86 (50.0%)
Entirely wrong process, therefore reasoning communication was off base		18 (15.7%)	8 (4.9%)	17 (14.9%)	5 (2.9%)

*Note.*  $p < .001$  a Data are reflective of recorded student responses, some students may not have answered the question and these were coded as missing, thus not included in analyses

### Change in Reasoning Skills

Individuals with LD demonstrated significant changes over the course of the intervention in all three MRI categories. In the category *student answer*, participants were more likely to either answer correctly or not answer the question at all ( $\chi^2 = 29.794$ ,  $df = 3$ ,  $p < .001$ ;  $ES = .28$ ,  $p < .001$ ). For *student explanation*, participants were less likely to guess on the posttest or use the standard algorithm ( $\chi^2 = 32.058$ ,  $df = 3$ ,  $p < .001$ ,  $ES = .32$ ,  $p < .001$ ). Under the category *student reasoning*, participants were more likely to show no attempt at reasoning or use complete reasoning and get the answer correct and had fewer instances where they guessed

and got the answer incorrect ( $\chi^2 = 77.109$ ,  $df = 6$ ,  $p < .001$ ,  $ES = .35$ ,  $p < .001$ ). Results across all three categories indicate a shift in the reasoning from guessing and answering incorrectly to either answering questions correctly or refusing to answer if they do not understand the problem at hand.

For participants without LD, chi-square analyses for all three MRI categories showed a significant difference from pretest to posttest as well. For the category *student answer* ( $\chi^2 = 63.297$ ,  $df = 3$ ,  $p < .001$ ;  $ES = .34$ ,  $p < .001$ ), participants were more likely to answer correctly or not answer at all on the posttest than on the pretest. Participants were also less likely to use the standard algorithm on the posttest than on the pretest in the category *student explanation* ( $\chi^2 = 47.698$ ,  $df = 3$ ,  $p < .001$ ,  $ES = .31$ ,  $p < .001$ ). Under *student reasoning* ( $\chi^2 = 100.575$ ,  $df = 6$ ,  $p < .001$ ,  $ES = .33$ ,  $p < .001$ ), participants were significantly more likely to provide complete reasoning and a correct answer on the posttest than on the pretest.

### Use of Digital Writing Environment

Descriptive statistics were examined for the use of MLC, including the mean and standard deviation of the number of minutes spent in each intervention level of the program (i.e. Levels 1-4) for participants with and without LD. The mean amount of time for students with LD was higher for each level than the mean amount of time for students without LD. However, Mann-Whitney U statistics were not significant at each level, indicating that students with and without LD spent comparable time in the program.

The weighted frequencies of notes taken on the notepad and the wall for students with and without LD were also examined. Overall, students with LD used the wall more often than students without LD, and students without LD used the notepad more often than students with LD. Use of the notepad was similar between groups at Level 1 (i.e., students with LD took an average of 10.31 notes and students without LD took an average of 11.22 notes); however, by Level 4, students without LD took approximately twice as many notes as students with LD. The wall was only required at Level 2 students with LD ( $M = 6.77$ ) had more wall entries at this level than those without LD ( $M = 5.06$ ) and this pattern continued despite wall entries no longer being required (see Table 4).

**Table 4.** Weighted frequency of notepad and wall use at each level of the intervention

	Students with LD (n = 13)	Students without LD (n = 18)
Intervention Level		
Level 1		
Notepad	10.31	11.22
Wall	N/A	N/A
Level 2		
Notepad	2.77	3.44
Wall	6.77	5.06
Level 3		
Notepad	3	5.22
Wall	2.31	0.61
Level 4		
Notepad	0.85	1.61
Wall	0.54	0.11

### Discussion

Proficiency in mathematics is problematic when students do not or cannot communicate their mathematical reasoning in a coherent manner. Globally, as new demands are present in mathematics, an emphasis has been placed on students' ability to articulate reasoning. Writing in mathematics can be used to foster communication related to mathematical ideas and provide students an opportunity to demonstrate reasoning. Unfortunately, limited research has been conducted on the impacts of communication through writing in technology-based environments. Furthermore, relatively no evidence is present on how this may impact the mathematical reasoning skills of students, and in particular students with LD. Therefore, the objectives of this study were to identify differences in mathematical reasoning of students with and without LD, understand how mathematical reasoning differs after using a digital environment for writing in mathematics, and explore differences in how students use a digital writing environment.

Results indicate that both before and after being trained on writing in mathematics within a digital environment, individuals with and without LD differed significantly in all three MRI categories (i.e., *student answer*, *student explanation*, *student reasoning*). Prior to and after receiving training on communicating mathematical information in the digital writing environment, participants with LD answered fewer questions correctly, were more likely to guess on answers, use an entirely wrong mathematical process, and provide complete reasoning less often than individuals without LD. Although these findings are not surprising given the difficulty that students with LD have with reasoning (Bressette, 2010; Layton & Lock, 2003), it does shed light on how differences in specific reasoning skills manifest themselves across students with and without LD. Specifically, for this sample, participants with LD had a breakdown in mathematical processes, calculation errors, and used an entirely wrong mathematical process to answer a problem.

Despite the significant differences in mathematical reasoning between groups prior to and following the intervention, both groups made significant gains in their quality of reasoning. For example, participants with LD answered correctly more often or chose not to answer, used the standard algorithm, or guessed at the answer less often. They were also less likely to guess and get the problem incorrect, more likely to either reason completely through a problem and obtain a correct answer, or not attempt the problem at all than prior to the intervention. The ability for these students to select when to answer the problem based on knowing whether or not they can solve the problem shows a possible awareness of a lack of understanding a problem that was not present prior to the intervention. For participants without LD, results indicated that they were more likely to get a correct answer and less likely to refuse to answer the problem, they were less likely to use the standard algorithm, and they were more likely to show complete reasoning and get a correct answer on the posttest than on the pretest. This indicates a general improvement in understanding the problems and using successful methods to reason through them.

These findings are similar to other studies that have examined how writing in mathematics can impact the mathematical reasoning skills of students (Baxter et al., 2005; Burns, 2005). However, unlike previous research, this study incorporated the use of a digital writing environment to facilitate writing in mathematics. Participants were provided with explicit instruction on how and when to record their thoughts on a digital notepad and a peer-mediated wall or blogging tool, and were required to incorporate new writing demands every two lessons. As the assimilation of students' reasoning into written assignments and discussions has become an integral part of mathematics teaching (Burns, 2005); these findings suggest that a digital writing environment that includes both a traditional writing environment (e.g. the notepad) and use of social interaction (e.g., peer-mediated wall) are useful tools to foster

communication through writing and impact the mathematical reasoning of students with and without LD. These results reflect findings from previous studies which have reported positive academic outcomes student engaged in interventions that explicitly teach communication or self-explanation strategies in the area of mathematics (Aleven et al., 2003; Bielaczyc, Pirolli, & Brown, 1995).

Finally, the differences between use of the notepad and wall for participants with and without LD were clear and become more pronounced over the course of the intervention. Notepad entries were only required at Levels 1 and 3, so use of the notepad on Levels 2 and 4 is substantially lower for both groups. Yet, interestingly, individuals without LD continued to choose this as a preferred method for taking notes versus the peer-mediated wall, which is the opposite of what we anticipated. The wall was only required to be used on Level 2 and use of the wall dropped drastically for students without LD in Levels 3 and 4 after it was no longer required. However, individuals with LD continued to use the wall outside of the requirement and had four times as many entries as students without LD on Level 3 and five times as much as students without LD on Level 4. Although incorporating the use of technology such as blogs, chats, or forums as authentic writing environments to facilitate communication about mathematics has been encouraged (Zemelman et al., 2012), some studies have noted that students with LD have difficulty with social communication (Mitchell, Franklin, Greco, & Bell, 2009). Therefore, it was of particular interest that individuals with LD continued to use the wall for communication about mathematics even though it was not required.

### **Limitations**

Limitations of this study should be acknowledged and addressed in future research. First, the small sample was from two private schools. Because private and public school programs offer various approaches towards mathematics education and online learning, the results and generalizability from this study should be cautiously interpreted as they may not be representative of all elementary students. Replication of this study in other settings and with larger samples is needed to determine how communication in writing through the use of technology impacts mathematical reasoning skills. Furthermore, future researchers should look at including a larger and more diverse sample of youth receiving special education services to explore if there are additional differences among specific categories of youth with disabilities. This may help to better understand how to improve mathematical reasoning in students with disabilities. Next, although the MRI is a validated measure, it does not provide a comprehensive overview of mathematical reasoning due to the subjective nature of some response categories. All responses are communicated verbally; therefore it does not allow for any process to be recorded by the students in writing. Thus, future studies assessing both the process and product of student's mathematical reasoning might incorporate a modified version of the MRI, an additional measure of reasoning which allows the opportunity to articulate reasoning through various modes. Third, because the online curriculum is individualized and self-paced, students reached intervention levels at various times which made it difficult to control for confounding variables (i.e., maturation and teacher instruction). Therefore, it is difficult to say with complete confidence that gains in reasoning were strictly related to the intervention and not because of content teachers chose to focus on in class or length of time in the online program.

### **Implications**

Results reveal that communication through writing or peer-based discussions around mathematics can impact students' reasoning skills. Although additional research is needed,

these findings suggest important implications for practitioners and researchers working to improve communication through writing in mathematics as well as the reasoning skills of students, particularly students with LD. First, incorporating training on the use of note-taking, recording thoughts, or processes positively impacts the reasoning skills of students with and without LD. Therefore, teachers should consider this when planning mathematics lessons around reasoning. Second, access to embedded support tools such as a digital notepad or peer-mediated wall are beneficial for students and should be considered as an option for students to communicate mathematical reasoning. Third, students with LD preferred to engage in discussions with peers versus taking notes individually around mathematical concepts; therefore, finding ways to facilitate this dialogue between students is essential. Finally, given that The Common Core State Standards (CCSS, 2010) has placed emphasis on problem solving and reasoning across the eight strands, using measures of reasoning, such as the MRI, to better understand the reasoning skills of students with LD. Moreover, the information from this type of assessment could be used to develop specific goals within the student's Individualized Education Plan (IEP) that pertain to mathematical reasoning.

Enhancing the problem-solving and reasoning skills of students is integral to mathematics instruction as it continues to be a focus of educational systems worldwide. Reasoning is a fundamental skill in mathematics and remains an area in which students with LD continuously struggle; therefore, interventions focused on advancing student reasoning will be increasingly pivotal to mathematics education. Students in this study showed improvement in different areas of reasoning over the course of the intervention and responded differently to the types of writing environments that were offered. Regardless of which digital environment was preferred by students with and without LD, results demonstrated that incorporating writing into mathematics to communicate mathematical information benefited all students in this study and has the potential to impact mathematics education.

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### **COMMUNICATING MATHEMATICAL IDEAS IN A DIGITAL WRITING ENVIRONMENT: THE IMPACTS ON MATHEMATICAL REASONING FOR STUDENTS WITH AND WITHOUT LEARNING DISABILITIES**

#### **Summary**

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Mathematical reasoning is often underdeveloped in students with learning disabilities (LD). Technology-based environments have quickly become a strategy to enhance students' reasoning in mathematics. Unfortunately, little research has examined the impact of technology on the reasoning skills of students with LD. This study sought to address this research gap by examining the impacts of a multi-modal writing environment intervention on the mathematical reasoning of students with LD. Recent reports demonstrate that the mathematics performance of elementary and secondary students is rapidly progressing in some countries; however, in most countries student progress has been slow, with little or no gains. To be successful in mathematics, students must have adequate short-term memory, good organization skills, and use strategies to facilitate learning. Unfortunately, students with LD often have problems with short-term memory, language reasoning, and metacognition (Hallahan, Kauffman, & Pullen, 2009). Reasoning plays a crucial role in mathematics and has been emphasized in many standards or practices in recent years. Technology offers many benefits to assist instructional practices and meet the educational needs of all children. The objectives of this study were to identify differences in mathematical reasoning of students with and without LD, understand how mathematical reasoning differs after using a digital environment for writing in mathematics, and explore differences in how students use a digital writing environment. The research was guided by research questions: (1) What differences exist between the mathematical reasoning of students with and without LD prior to and after using a digital writing environment? (2) How does use of the digital writing environment differ between students with and without LD? (3) To what extent does student reasoning change overtime when emphasis is placed on communication via writing in mathematics?

Subjects participated in an intervention focused on communication in mathematics through the use of digital writing tools in a computer-based mathematics program. Writing in mathematics can

be used to foster communication related to mathematical ideas and provide students an opportunity to demonstrate reasoning. Unfortunately, limited research has been conducted on the impacts of communication through writing in technology-based environments. Despite the significant differences in mathematical reasoning between groups prior to and following the intervention, both groups made significant gains in their quality of reasoning. They were also less likely to guess and get the problem incorrect, more likely to either reason completely through a problem and obtain a correct answer, or not attempt the problem at all than prior to the intervention. The ability for these students to select when to answer the problem based on knowing whether or not they can solve the problem shows a possible awareness of a lack of understanding a problem that was not present prior to the intervention. For participants without LD, results indicated that they were more likely to get a correct answer and less likely to refuse to answer the problem, they were less likely to use the standard algorithm, and they were more likely to show complete reasoning and get a correct answer on the posttest than on the pretest. This indicates a general improvement in understanding the problems and using successful methods to reason through them.

# EXPRESSION OF SOCIAL SKILLS OF A CHILD WITH AUTISM SPECTRUM DISORDER. CASE ANALYSIS

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## **Abstract**

Profound deficit in social reciprocity skills is the core, underlying feature of the autism spectrum disorders (ASD). It is not doubted that social skills condition the quality of person's social functioning and management of social situations and has enormous impact on individual's personal and social life. Thus, social skills are behaviors that must be taught, learned, however, in planning the development of social skills at first it is important to identify individual powers of a child with autism spectrum disorder and problematic fields in the system *child-family-school*. In the present research the expression of social skills of a child with autism spectrum disorder is revealed through the following structural components: 1) interaction skills; 2) communication skills 3) participation skills 4) emotional skills 5) social cognition skills with the method of *case analysis*, combining *content analysis of interview* and *observation* data. The research data have been collected with the method of *observation* and purposeful *semi-structured interview*; methods of data analysis: *interpretative content analysis of the texts* of observation and interview.

**Key words:** *autism (ASD), social skills, systems theory (systems approach), system child-family-school*

**Research problem and relevance.** In modern research on inclusive and special education the importance of the development of social skills is emphasized. It is not doubted that social skills condition the quality of person's social functioning and management of social situations and has enormous impact on individual's personal and social life.

The scientists emphasize that the development of these skills, their presence *empowers* individuals to effectively communicate, satisfy their needs, get on with others, protect themselves and be able to interact with people in various situations (Kaffemanienė & Jurevičienė, 2012). It should be noted (Gresham, Sugai, & Homer, 2001) that social skills are the best understood *through the interaction of an individual and environment*, they reveal themselves in particular activity, situations, social interactions. Hochwarter, Witt, Treadway and Ferris (2006) point out that these skills most likely cover twofold knowledge — *what should be done and how it should be done and when chosen behaviour should be demonstrated*. Referring to the insights of Ferris (2001, cit. Jurevičienė & Geležinienė, 2013), it is possible to state that in order to show an effective social behaviour an individual must present oneself using socially acceptable manners, i. e. *socially present oneself, observe changing social environment* and be *flexible* to adjust one's behaviour in a changing social situation.

Profound deficit in social reciprocity skills is the core, underlying feature of the autism spectrum disorders (ASD)<sup>1</sup>. ASD identified problem areas include impairments in social pragmatics (e.g., turn-taking in conversation and the ability to take the listener's perspective), have difficulty *initiating interactions* (Rotheram-Fuller & Kasari, 2010), poor speech prosody (e.g., typical rising and falling of voice pitch and inflection that aids verbal communication), a tendency to dwell on certain topics (Tager-Flusberg, 2003), difficulty understanding and expressing emotions (Shaked & Yirmiya, 2003) diverse and involve speech, linguistic conventions and interpersonal interaction; difficulty interpreting nonliteral language such as sarcasm and metaphor (Krasny, Williams, Provencal, & Ozonoff, 2003), sharing enjoyment, maintaining eye contact, reciprocating conversation, taking another's perspective, joint attention inferring interests of others (American Psychiatric Association, 2013; Grindle, Hastings, Saville Hughes, & Huxley, 2012; Mazurik-Charles & Stefanou, 2010; Reichow, Barton, Boyd, & Hume, 2012). ASD having better social skills are more likely to be accepted in integrated settings, live more independently, and work in integrated settings (Wang & Spillane, 2009).

Thus, social skills are behaviors that must be taught, learned, and performed while social competence is the perception of these behaviors within and across situations (Gresham, Sungai, & Horner, 2001; Morrison, Kamps, Garcia, & Parker, 2001; DeMatteo, Arter, Sworen-Parise, Faseiana, & Panihamus, 2012), however, it is emphasized (Gresham, Sungai, & Horner, 2001; Lane, Menzies, Barton-Arwood, Doukas, & Munton, 2005; Warnes, Sheridan, & Geske, 2005, etc.) that in modelling/planning the development of social skills at first it is important to identify individual powers of a child with autism spectrum disorder and problematic fields in the social system *child-family-school*.

**Scientific research problem can be defined by the questions:**

- *what expression of social skills can be observed by family members and pedagogues of a child with autism spectrum disorder?*
- *how do they evaluate child's social skills?*
- *what are parents'/pedagogues' responses to child's social behaviour?*

**Research object:** expression of social skills of a child with autism spectrum disorder.

**Research aim:** referring to the data of the case analysis to reveal social skills of a child with autism spectrum disorder.

**Research methodology and techniques.** The chosen methodology of qualitative social research has determined the necessity to define the essential concepts. To be more precise — the essential concept used in the present research — **social skills** — is a component of person's social competence, a complicated multidimensional construct made up of overlapping structural components that complement each other: 1) *interaction skills*; 2) *communication skills* 3) *participation skills* 4) *emotional skills* 5) *social cognition skills* (Jurevičienė, Kaffemanienė, & Ruškus, 2012). According to the authors, it is emphasized that in the structure of social skills, communication skills and abilities they comprise (abilities of maintaining verbal and nonverbal contact, interpersonal relations, expressiveness, flexibility, adaptivity and solving conflicts) are among the most important ones. Interaction skills consist of the abilities of managing and controlling the interactions that cover both person's management of his/her behaviour and the abilities to manage and control another person's interaction with him/her (e.g., the ability to resist negative impact, etc.). The skills of *participation in action* have been distinguished, they reveal the social aspect of participation and the expression of the skills to participate in action:

<sup>1</sup> Autism spectrum disorder (ASD) is a neurobiological disorder that significantly impairs reciprocal social relations, verbal and nonverbal communication, and behavior (American Psychiatric Association (2013) Diagnostic and Statistical Manual of Mental Disorders (5th edn). Washington, DC: American Psychiatric Association.)

initiiveness; acknowledgement of individual and group differences and similarities; abilities to get involved in the activity of the group; give suggestions; let others express their opinion; consult with others; be interested in how others succeed in performing the activity; suggest help; share possessed means, etc. Components of *emotional skills*: abilities of self-understanding, self-evaluation, abilities of emotional expressiveness, sensitiveness and abilities of self-control. The aforementioned scientists emphasize the twofold character of these skills — on the one hand, they help a person to understand himself/herself and cope with his/her emotions, manage oneself in communication and participation in common activity with other people; on the other hand, emotional skills help to understand the partners of communication or common activity. Social cognition skills reflect person's orientation in social life, understanding of the logic of interpersonal relations, expectations towards surrounding people and control of the behaviour that meets expectations.

Each of these structural components of social skills is made up of the complexes of the respective social skills that are related by close systemic relations.

In the article identifying the expression of social skills of a child with autism spectrum disorder a child and his/her environment is analysed from the *position of social systems theory*; it is focused on the resources of a child himself/herself and his/her educational environment (participation of family, pedagogues).

*Systems theory* analyses the interrelations of complex phenomena and processes. The relations between different components of the system and the quality of the interaction between systems evolve in the course of time and maintain their functioning (Bertalanffy, 2001; Capra, 1997). Every part of the system is important; when the parts of the system undergo change, the whole system itself changes as well (Capra, 1997). A child at the same time is an active participant of several systems (*family, school, peers*), in each of the systems he/she performs various roles; and the participants of the system are related by common aims of activity (individual's socialization, *development of social skills*) It should be noted that a social system consists of several or more people (a child with autism spectrum disorder, his/her family members, pedagogues), who communicate in the system related by common aims of activity. Consequently, in the context of the development of social skills the common *aim* of the components of the system is the *identification of social skills* and common synergetic interaction. It is acknowledged that an individual (a child with autism spectrum disorder) as a part of the system is impacted by external systems such as family, school, society. Therefore, an individual and environment are interdependent and influence each other by their activity/behaviour, and according to Bronfenbrenner (1999), the interaction (communication) between a child and environment influences person's present and future social functioning. Consequently, in planning changes, making decisions or solving problems inside the system the impact of the environment on the system and the impact of the system on its parts and the environment must be taken into account (Dettmer, Dyck, & Thurson, 1999), because the people from the child's close environment (family members, pedagogues) can represent child's interests the best, they are the best sources of the information about a child.

Therefore, identifying social skills of a child with autism spectrum disorder at first the character of strengths (possessed skills) (Early & GlenMaye, 2000) and problems in the system *child-educational environment* must be defined and grouped: to analyse behaviour in in the context of the system (family, school).

In the present research the expression of person's social skills is revealed with the *method of case analysis*, combining content analysis of *interview* and *observation* data. The research data have been collected with the method of *observation* and purposeful *semi-structured interview*; methods of data analysis: *interpretative content analysis of the texts* of observation and interview.

*Place, time and duration of observation.*

In the observation protocols of the research the data have been recorded in chronological order, recording the sequence of events in 5 minute interval and the manifestations of social skills of a child with autism spectrum disorder in various situations in structured and unstructured environment. Five observation sessions two hours each were conducted. The observation was conducted in September-November, 2014.

Purposeful *semi-structured interview* is when the interview questions are foreseen in advance and the opportunity is retained to freely interchange them, ask additional questions (Bitinas, Rupšienė, & Žydžiūnaitė, 2008).

*Formulation of interview questions.* Taking the aim of the research and the results of the analysis of scientific literature (Bloom & Bhargava, 2004; Freeman & Dake, 1997; Sacks & Silberman, 2000; Wolffe, Sacks, & Thomas, 2000, etc.) into account the following most general question has been formulated: *what social skills of a child with autism spectrum disorder are noticed by the participants of the research?* The order of questions depended on the process of the conversation, the contents of the speech of a research participant.

*Place, time and duration of interview.* Individual interviews were conducted in unstructured (home) and structured (school) environment. The average duration of an individual interview — up to 1 hour/3 times per week. The interview was conducted in September-November 2014.

*Research sample.* The aim of the research has conditioned the selection of the sample. It has been aimed to reveal the powers of social functioning of a child with autism spectrum disorder and the skills to be developed, therefore, in selecting a student for case analysis the principle of targeted sampling — typical case sampling — indicated in the methodology of qualitative research (Patton, 2002) has been applied. Following the principle of targeted typical sampling, referring to the data of school documents a student *with autism spectrum disorder* of the special education centre X<sup>2</sup> form Y (8 years of age) whose peculiarities of psychosocial development correspond to the majority of the features characteristic to such people has been selected. The student himself, the student's pedagogues and family members have agreed to participate in the research: student<sup>3</sup>, mother, father, sister, brother, grandmother, grandfather and class teacher.

*Research process and data processing.* The research data have been collected filling in the observation protocol and informally talking and asking questions individually to each participant of the research, following the plan of a semi-structured interview. The participants of the research before the observation and conversation were informed about the essence of the research that was being conducted and the main questions of the research. All the interviews with the consent of the participants of the research were recorded on Dictaphone, later precisely uploaded to electronic storage media.

For the processing and analysis of the research data qualitative interpretative content analysis has been used.

**Analysis of social skills of a child with autism spectrum disorder.**

Characteristics of the student's psychosocial development — the conclusions of the pedagogical psychological service (PPS).

<sup>2</sup> The principle of anonymity has been followed, therefore, parent's, pedagogues', children's names and the name of school have not been mentioned, only abbreviations that have nothing in common with real names have been indicated, sometimes only gender has been mentioned.

<sup>3</sup> Here and hereinafter the speeches of the research participants have been cited, language style has not been edited. In brackets (*K*) — student, (*M*) — mother, (*F*) — father, (*S*) — sister, (*B*) — brother, (*GM*) — grandmother, (*GF*) — grandfather, (*CT*) — class teacher.



*Conclusions of PPS (October 2014). Conclusion of psychological evaluation:* the skills of social adaptation in new situations are improving — he is available to verbal contact, can answer the questions about his familiar environment, fragmentarily tell about his favourite activities or the events that impressed him, the priority when playing is given to various constructive activities, he is motivated to complete favourite activities. He perceives more complicated verbal information with difficulty, the boy has difficulty in explaining the relations of cause-consequence. During free play he chooses simpler activities, the elements of aggressive activity in the topics of the game are noticed, however with the help from an adult he is able to change the character of activity. *Conclusions of speech therapy evaluation:* the speech is understandable, well-articulated and intoned. He speaks in separate short sentences. Speech difficulties arise when narrating — he is not able to maintain the topic of the conversation, does not perceive the sequence of the narration, there are few adjectives in speech. The perception of speech is satisfactory, rather situational. *Conclusion of pedagogical evaluation:* he answers simple questions, he answers briefly, with delay, in 1-2 word sentences, eye contact is short-term, avoids eye contact, imitation is disordered, concentration on the activity is short-term, he is interfered by extrinsic irritants, cognitive skills are insufficient, emotions are unstable, he is interested in the surroundings, the sphere of interests is limited, he is interested in computer, communication is disordered, he plays alone, is awkward, picky with food and its form, autonomy skills are not sufficiently formed. Applying the principles of structured education the boy follows visual schedule, then he completes the assigned tasks, tells the sequence of events and text with the help of visual symbols.

**Interaction skills. Abilities of interaction management and control.** Individuals with ASD suffer direct and indirect consequences related to social interaction deficits. Child with ASD often report a desire for more peer social interaction, and may also express poor social support and more loneliness than their typically developing peers (Bauminger & Kasari, 2000; White, Keonig, & Scahill, 2007). Children with ASD may be at increased risk for peer rejection and social isolation (Nelson, Johnston, Crompton, Nelson, & McDonnell, 2007). According to the research data the boy experiences difficulties in his coping with peers' negative impact:

*[It is difficult for K. to recognize when he is mocked at. In the group of peers when children mock at him, it often seems to him that they laugh together with him but not at him (M) / It happens so that he himself starts making faces children then laugh at him and it seems to him that he has made a joke (S)].*

**Communication skills. Abilities of verbal contact and communication.** The boy initiates communication when he is not concentrated on his favourite activity:

*[If you don't give him a computer, if he doesn't play with his magnets, doesn't read his favourite book he comes over himself. His phrase "I want to communicate with you" or "Let's talk" (M)]*

Personal space is very important for the boy, he does not like when other people sit next to him, especially children who are unpredictable. He likes to get away when angry. The research has revealed and confirmed the following conclusions characteristic to selective communication:

*[If he doesn't like a person he will try to get away or concentrate on the activity he likes and will not see what is going on around him anymore (F)]*

In the child's story certain regularities can be noticed: the sequence of events is not retained (without a visual aid it is hard to him to track the regularity of events), the narration has fragmentary character (one "picture" is described, then he proceeds to another one, although there is no logical link between them):

*[It happens so when some excerpts from the past return to him e.g.: I remember when I was little and was eating beetroot soup Asked why don't you eat it now he answers men don't eat beetroot soup (F)].*

**Nonverbal contact and communication** [usually fragmentary, short-term (GM)] is characteristic — [He takes a look, takes a record, then turns his look away (CT)]. Monotropism, according to Murray, Lesser and Lawson (2005) is one of the main features of autism, to which limited interests are attributed, in other words, a person with autism is interested in the information of certain narrow field because of the difficulties in retaining or receiving the information unrelated to the field he/she is interested in. The theory of monotropism is also called the theory of “tunnel attention and interest”. This theory could be explained by the inability of a person with autism to distribute attention, i.e., at the same time it is possible to concentrate on one object, a person dissociates from all other information, therefore, there are difficulties in perceiving the whole (Murray, Lesser, & Lawson, 2005). The interview has revealed the boy’s attentiveness towards detail and signs:

*[A person is not the object that attracts his attention, he rather notices things, visual signs (e.g., road signs, symbols), especially attention is focused on detail (M)]*

**Abilities of maintaining interpersonal relations.** For children with autism spectrum disorder it is not only difficult to transfer the desired information but also to receive and adequately understand it (Bellini, Peters, Benner, & Hopf, 2007). It results in ineffective communication. The research data have shown that the boy strives for communication, however, lack of maintaining relationships and difficulties in social interaction manifest themselves, he wants to communicate with peers but he does not know how:

*[He wants friends, but he doesn’t know what to do with them. There is a 9-year-old boy who lives on the fourth floor and when he comes to visit us the only request is “Switch on the TV”. And they do not say a word to each other (M)].*

According to Paul (2008) communicative level is disordered and it makes personal life more complicated, makes a person dependant on other people. The research has revealed that in the context of maintaining interpersonal relations sometimes the assistance of an adult (mediator) is necessary.

*[I ask the child to initiate communication, I say: “Ask”, “Tell”, “Call”, etc. Then he follows my verbal instructions (M)].* The scientists (Barry et al., 2003) emphasize that it is the role of a mediator to encourage the interaction.

Communicating with others K. sometimes considers only his wishes, often concentrates on his favourite activity not noticing the events that take place around him:

*[We are talking, and he, let us say, starts thumbing through the book, or he can go away, he can’t even feel when you leave or when you come back (M) / If he is into his favourite activity, so there is no contact at all (GF)].* These factors are confirmed by the works of the scientists (Bailey, 2001), where it is stated that if children are engrossed into their favourite activity they are able to dissociate from the surroundings. However, if he is not dissociated, concentrated on one thing, the surplus of information appears that easily puts him off his stride:

*[The child doesn’t perform complex indications, i.e., when three actions in a row are indicated only one is performed, the remaining two were either not understood or forgotten while the first action was being performed, the attention is concentrated on one action, is not divided, the action plan is not foreseen, the other actions remain not performed <...> That is why it is necessary to present information in fragments, to wait until it is understood and the first action is performed, only then we can proceed with the following one (F)].*

**Abilities of social expressiveness.** Often it happens to notice that, according to Grela and McLaughlin (2006); Mandell and Salzer (2007); Rutherford, Clements and Sekuler (2007) complicated sentence structures are used in the conversation with a child with autism spectrum disorder that are not perceived by a child, thus much information is omitted:

*[He sometimes just repeats the phrases that he has read or heard somewhere. He unexpectedly says: he disturbs my balance or Saturn is a gaseous planet made of gas and the Moon is made of rock, etc. (M)]*

According to Smith (2009), it should be emphasized that not only people with autism lack empathy in communication with surrounding people. The environment does not perceive the situation of a person with autism either. What is found normal by someone can be contrary to another person. Baron-Cohen and Wheelwright (2004) emphasize that people with autism facing difficulties with empathy are considered rude, disrespectful, it is complicated for them to perceive the rules of social context that are followed by society. The research data have confirmed the aforementioned conducted research that lack of social and emotional communication manifests itself in weak response to another person's emotions. The difficulties in expressing affection, care, saying compliments (e.g. He tells his mum always: "you are the most beautiful mummy; he likes to say: "you smell pleasantly" or "you are my queen") and expressing needs manifest themselves:

*[He doesn't care about his brother and sister, if they feel pain most often he even laughs. He feels fun (GF)/ He completely disregards another person's feelings and emotions that others experience when he disappears. You must constantly observe him. Usually when he goes outside with the classmates he separates himself from the group and likes to spend time alone. And when he decides to go somewhere he doesn't bother to say that he is leaving. He disappears silently and calmly. When walking he forgets where he is going but he doesn't panic, and we all do. K finds himself an interesting occupation and forgets everything and dissociates. And when he is found he doesn't understand what he has done wrong (GM).*

**Abilities of flexibility, adaptivity.** The interview data show that a student is able to understand both his own and others' emotions when they are evidently expressed, he reacts adequately, however, primitively, e.g., he says "I am sad", "I am bored", "I am glad" (M)].

*[Expresses sympathy in a specific way (M)]: [Kind of rudely but he cares. So, take it and eat it, don't cry! (M)].*

There are difficulties in adjustment, self-confidence being with new people and in new situations, the boy constantly asks: [*"Am I still smart?", "Do you love me? (F)"*]. Lesinskienė, Vilūnaitė and Paškevičiūtė (2001) have investigated the responses of the children with autism spectrum disorder towards the change of routine and environment and child's ability to get adjusted in new environment. The research has revealed that children very sensitively reacted to the changes of environment: the majority of children because of changes or because of fear of changes constantly experienced difficulties. The research has shown that the boy sometimes experiences difficulties in adjustment:

*[We were walking in the shopping centre, probably the crowds of people affected him and he started to cry without stopping. And it is not the lack of attention, he just felt awkward in this environment (F)].*

**Conflict solving skills.** Most often he observes conflict situations, tries to avoid them, he takes disagreements between his close people much to heart:

*[When we start quarrelling with the little ones sometimes we say "Ok, we are leaving, we can't stand such a storm at home" or something like that, then he starts crying so much and he cries so painfully from the bottom of his heart. He doesn't calm down himself, the adult is needed to help him calm down (MJ)].*

The boy needs structured activity and process. When he knows the sequence of events he can take decisions himself, then conflict situations are avoided:

*[The classmate took his magnets without asking and the conflict occurred, they both are sitting with scratched faces crying. It is like this with him, ask, get permission, then he*

*shares without problems and without anger. Otherwise he gets angry and takes back his things without ceremonies (F)]*

According to the scientists (Hanley, Iwata, & Thompson, 2001) the tendency is noticed to accumulate negative emotions and pour them out at once, usually this behaviour is expressed through aggression:

*[When there is an event at school he watches in control of himself, behaves well but back home he bursts out, slams everything, he has stress because at school it was difficult for him to stay in the event, therefore, at home he bursts out (GM).]*

**Participation skills. Abilities of acting in a group.** It has been noticed that K. unwillingly participates in games with peers, he usually observes the players:

*[Brother and sister are playing, K is sitting aside, thumbing through the book, is constantly observing them playing].* However, with the participation of the adult (mediator) who encourages, motivates for action, the boy at least for a short time gets involved into the activity of the group:

*[But every other step he must be encouraged if you don't control the activity he will play alone again (M)],* according to Boddaert, Chabane and Belin (2004) children with autism spectrum disorder do not like noise/sound, therefore, it is complicated to be in a big group, they do not like much action around them, it puts them off their stride, then it is difficult to control themselves, to get engaged in their not favourite activity. The research participant especially avoids big streams of people, guests:

*[If the guests come he always goes away (F)],* then he most often gets embarrassed or worried. In this state most often, according to Dounavi (2011) repetitive stereotypical behaviour dominates or appears, sometimes, according to Shriberg et al. (2001) even the speech prosody changes:

*[When he is agitated many side movements with hands and laryngeal "threatening" sounds appear, he takes uncomfortable body postures, makes faces, even the manner of speech changes (CT)].*

Inflexible for the changes in regime:

*[Usually when we get up in the morning we plan the day. You must very carefully create the plans because if they are not fulfilled the child gets worried, "finds no place", repeats himself for a long time, keeps asking the same questions, cries. It most often happens when it had been spoken about spending a night at the grandmother's. When the plans change the child worries a lot and says "I will be good", "when I cough, I will turn away not to infect grandma", "I will curl up in a ball, I won't take much place, grandma will get enough sleep", he does not like grandfather much but in the last case he suggests "I can sleep with grandpa as well, just take me there" (M)]*

The boy occasionally tries to initiate contact with peers but inadequacy in behaviour is noticed:

*[When he came up to his classmate, he did not try to talk to her, but started behaving like a three-year-old, pushed and pulled her, and then shows: you catch me. He was initiating nonverbal contact as if he was in a group of younger children where pointless running is the favourite occupation (GM)].*

The child chooses either much younger children for contact (*[Where it is not necessary to maintain the conversation, be interested in another person. Then gets involved in group activity (M)*), or adults (*[Because an adult tends to get adjusted more to the topic and pace of the child's conversation and leads the conversation itself to greater extent, then the son willingly communicates (F)]*).

Although the difficulties in participating in common activities with peers arise (*[usually he either goes away from the company completely or ignores the others when they talk to him or shows off (GM)]*), however, the boy has hobbies, and passive occupations dominate:

*[He reads very much (S)/He likes dinosaurs (B)/ He likes watching Crippy (i.e. instructions on how to pass the game). I don't play games, I just watch instructions I like building a house and a car that goes around the world (M) /He likes construction structures — his favourite toys are magnets, he makes various forms out of them, he can do this activity for a long time (GM)].*

**Emotional skills. Self-evaluation abilities.** The interview and observation data have revealed that the boy has difficulties in self-confidence:

*[Having performed some task constantly asks for confirmation with the question “Am I good? Am I smart?” (GM)].*

In scientific literature the difficulty understanding and expressing emotions (Krasny, Williams, Provencal, & Ozonoff, 2003; Shaked & Yirmiya, 2003; Tager-Flusberg, 2003) is emphasized. The research participants emphasize that the cognition of emotional expression is long structured development that has positive changes. At the same time they reveal the following examples of emotional self-perception skills:

*[At first we learned: to recognize in the picture, then we named his emotions now and here, then I asked him to tell how he feels, now he manages to do it quite well (M)]*

The ability to verbally express sympathy when others are sad has become distinct, especially expressing care for his mother:

*[I am constructing the robot T-Rex for Mummy that will catch all bad guys and this robot will also help Mummy to tidy up rooms (K)].*

The difficulties in self-regulation have manifested themselves:

*[You are going, going and he all of a sudden bursts into tears and it is not striving for attention. He is kind of asking for help, he cannot say it himself or it is difficult for him (F) / If you don't calm him he doesn't stop crying, it is very difficult for him to control stress, help is needed, and his favourite activity helps him calm down (GF)/He gets in unceasing fits of laughter. At first he laughs at something actually funny (often it seems funny to him when someone injures themselves but later he can't stop, it is necessary to take up strictly and calm him down (F)].*

**Skills of social cognition. Abilities of social sensitivity.** The boy applies social customs and norms in particular situations, he distinguishes what is right or wrong. Consequently, the difficulties arise when people of his close environment do not behave according norms or rules:

*[The children messed up their toys. Dad told them to tidy up. K. stood up and went to tidy up, but brother and sister don't react and they continue their favourite activity. The boy starts crying / He is the only one who is the first to obey the orders and if the others don't obey it is emotionally painful to him and usually we even spoil the rest of the day or evening. Then we have to look for the occupation he likes to make him forget it. Otherwise we will weep forever (M)].*

Because of the difficulties in perceiving the context and the whole the boy faces problems in remembering his past. Sometimes he remembers the fragments and snippets from his past, it is complicated for him to remember the sequence of facts:

*[Having asked to tell about his day he usually tells the events from several days from the past or names what he remembers in general, so for a person who has not spend the day with him it is complicated to understand what has really happened and what has not (M)]*

When the boy encounters a new thing, at first tries to find out what it is made of, if he does not get bored until he analyses it, he does not tend to apply it according to its purpose:

*[He used to tear up most of the toys because it is interesting to him what is inside (M)] / He doesn't play with toys, because his only wish is to turn the car upside down and turning its wheels with his hand to watch how they are turning (F)]*

**Abilities of taking decisions.** The observation and interview data have revealed the lack of the ability to analyse more complicated information and experience analysing the alternative ways of solution in problem situations. It has been noticed that the boy rarely expresses his wishes and contradictions in verbal form:

*[I must constantly ask him: "Is everything ok? Aren't you bored?" (M) / He was playing in the room with the computer, and I was knitting in another room. After some time I am going to see what he is doing, and I got really scared, he is lying pressed by the sofa, crying, but silently crying, and he is not calling me (GM) / It is possible to say another phrase characteristic to him: I was afraid to tell that I was afraid. When he wakes up at night and it is difficult for him to fall asleep, he doesn't wake anyone, he is afraid alone. It happened for me several times, to find him crying at night but not asking for help (M).*

The difficulties arise in understanding how his behaviour impacts on others:

*[Being outside he often dissociates, invents something and goes away, even elementarily being outside he comes home, without telling others he is sitting at home calmly, and everyone is looking for him. As he doesn't notice the others, so he wants the others not to notice him. Although his "wants" as if is "I don't care". He is a "lone wolf", there is no responsibility towards another person (M)].*

The wish to engage in the same activity, perform the same actions and their sequence is predominant:

*[When he comes home, he gets undressed and at first asks, "Can I switch on TV?", "Can I go to the little computer (i.e. tablet)?", he doesn't pay attention to another person who visits us (not a family member), tries to go away /If we go for a walk together usually we have to go around our big circle, he doesn't want to go anywhere else that much because he doesn't know what distance we will have to cover, how much time it will take, because he tends to get tired quickly, such "uncertainty" irritates him, K starts whimpering, asking to go home (GF) / He goes willingly only to the swimming pool with me, I tried to take him to the sports hall where we had not been before, we could not manage to come in (GF)].*

The case analysis has revealed social skills and potential powers of a child with autism spectrum disorder, referring to which the development of social skills in the social interaction system *child-family-school* should be projected/modelled.

### Conclusions

- The variety of the concepts of *social skills* reveals the *complex* structure of this construct that from the qualitative viewpoint is one of the most important indicators of person's social functioning and is best perceived through the *interactions between an individual and environment*. It should be emphasized that a "set" of social abilities that make up social skills of every child with autism spectrum disorder is individual, which determines different level of social adaptivity and social functioning.
- Social skills of a child with autism spectrum disorder and the ways of the expression of abilities in the system *child-family-school* have been identified:
- In *interaction skills* the difficulties related to interaction management and control skills arise, especially for negative impact. The boy records rude and aggressive components of behaviour, then tries to apply them in real life.
- *Communication skills* are also characterized with complex structure. The abilities of various complicacy that are their components are becoming distinct. It should be emphasized that the research participant K. is able to give his attention to another person, to listen to him/her, to sympathize, partially participate in other's experiences, etc. It has been revealed that these abilities overstep the limits of elementary

communicative actions. The need for communication stimulated by emotional skills such as understanding one's own and other's emotions, finally the rise of new motives of communication has manifested itself; the role of a mediator who helps to initiate interaction has been emphasized. However, communication skills manifest themselves not only by initiating contact but also by more complex abilities of maintaining interpersonal relations, in which the boy experiences difficulties in creating and maintaining interpersonal relations, controlling interactions and choosing adequate behaviour for the situation, he usually chooses observer's role.

- The limitations in *participation in action* have been revealed emphasizing the social aspect of participation and the expression of the skills of participation in action: initiativeness, making suggestions, interest in how others succeed in performing the activity, suggesting help. The following abilities have been revealed: sharing possessed means, letting others express their opinion, initiating another person to get involved in the activity of the group, working together with others, inviting to react.
- *Emotional skills* are among the most complicated ones. The boy experiences difficulties in trying to understand himself and cope with his emotions, manage himself in communicating and participating in common activity with other people in unstructured environment. The problems of self-regulation (discharges of aggression/self-aggression) in unstructured environment after he experiences stress in structured environment are especially distinct. Most often the manifestations of aggressive behaviour are expressed towards his brother, sister and grandparents. However, the abilities of emotional control in structured (school) environment — to control and regulate his emotional states and their (non)verbal expression, also to mask emotional state, avoid spontaneous outburst of emotions — should be admitted.
- *Social cognition* skills reflect student's orientation in social life. The following abilities have been revealed: to understand and memorize the requirements for uncomplicated actions and behaviour, especially to understand and decode familiar visual signals, to understand and follow learned rules. The difficulties covering the abilities to recognize and evaluate his own emotional state and communication and preparation to solve problems and difficulties have been noticed. However, structured (home) environment and visualization (i.e., stable schedule, rules, symbols, activity zones) help to effectively solve problems.

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## EXPRESSION OF SOCIAL SKILLS OF A CHILD WITH AUTISM SPECTRUM DISORDER. CASE ANALYSIS

### Summary

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In the article identifying the expression of social skills of a child with autism spectrum disorder a child and his/her environment is analysed from the *position of social systems theory*; it is focused on the resources of a child himself/herself and his/her educational environment (participation of family, pedagogues).

In the present research the expression of person's social skills is revealed with the **method of case analysis**, combining content analysis of *interview* and *observation* data. The research data have been collected with the method of *observation* and purposeful *semi-structured interview*; methods of data analysis: *interpretative content analysis of the texts* of observation and interview.

The case analysis has revealed social skills and potential powers of a child with autism spectrum disorder, referring to which the development of social skills in the social interaction system *child-family-school* should be projected/modelled.

Generalizing the finding, it could be stated that, the variety of the concepts of *social skills* reveals the *complex* structure of this construct that from the qualitative viewpoint is one of the most important indicators of person's social functioning and is best perceived through the *interactions between an individual and environment*. It should be emphasized that a "set" of social abilities that make up social skills of every child with autism spectrum disorder is *individual*, which determines different level of social adaptivity and social functioning. Also, social skills of a child with autism spectrum disorder and the ways of the expression of abilities in the system *child-family-school* have been identified:

- In *interaction skills* the difficulties related to interaction management and control skills arise, especially for negative impact. The boy records rude and aggressive components of behaviour, then tries to apply them in real life.

- *Communication* skills are also characterized with complex structure. The abilities of various complicity that are their components are becoming distinct. It should be emphasized that the research participant K. is able to give his attention to another person, to listen to him/her, to sympathize, partially participate in other's experiences, etc. It has been revealed that these abilities overstep the limits of elementary communicative actions. The need for communication stimulated by emotional skills such as understanding one's own and other's emotions, finally the rise of new motives of communication has manifested itself; the role of a mediator who helps to initiate interaction has been emphasized. However, communication skills manifest themselves not only by initiating contact but also by more complex abilities of maintaining interpersonal relations, in which the boy experiences difficulties in creating and maintaining interpersonal relations, controlling interactions and choosing adequate behaviour for the situation, he usually chooses observer's role.

▪ The limitations in *participation in action* have been revealed emphasizing the social aspect of participation and the expression of the skills of participation in action: initiativeness, making suggestions, interest in how others succeed in performing the activity, suggesting help. The following abilities have been revealed: sharing possessed means, letting others express their opinion, initiating another person to get involved in the activity of the group, working together with others, inviting to react.

▪ *Emotional skills* are among the most complicated ones. The boy experiences difficulties in trying to understand himself and cope with his emotions, manage himself in communicating and participating in common activity with other people in unstructured environment. The problems of self-regulation (discharges of aggression/self-aggression) in unstructured environment after he experiences stress in structured environment are especially distinct. Most often the manifestations of aggressive behaviour are expressed towards his brother, sister and grandparents. However, the abilities of emotional control in structured (school) environment — to control and regulate his emotional states and their (non) verbal expression, also to mask emotional state, avoid spontaneous outburst of emotions — should be admitted.

▪ *Social cognition* skills reflect student's orientation in social life. The following abilities have been revealed: to understand and memorize the requirements for uncomplicated actions and behaviour, especially to understand and decode familiar visual signals, to understand and follow learned rules. The difficulties covering the abilities to recognize and evaluate his own emotional state and communication and preparation to solve problems and difficulties have been noticed. However, structured (home) environment and visualization (i.e., stable schedule, rules, symbols, activity zones) help to effectively solve problems.

# LANGUAGE COGNIZANCE AND SIGN LANGUAGE AWARENESS ON THE PART OF DEAF INDIVIDUALS AT 2<sup>nd</sup> LEVEL PRIMARY SCHOOLS FOR HEARING IMPAIRED INDIVIDUALS IN THE CZECH REPUBLIC

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## **Abstract**

A deaf individual's language cognizance is one of the main factors leading to his/her inclusion in the community of the deaf. Sign language has a major influence on the development and creation of deaf individuals' identity. The conscious use of sign language as a communication tool is closely related to the different perception of the world and, thus, culture dissimilarities. At present, the subject 'Sign Language', contributing to the overall development of language cognizance of deaf individuals — sign language users —, is being introduced at primary schools for hearing impaired individuals within the framework education programme. The following text presents the conclusions of the research focused on ascertaining the perception of sign language, the level of knowledge relating to the theory of sign language, and the position of sign language in the society (culture of the deaf) on the part of sign language users themselves — pupils at 2<sup>nd</sup> level primary schools for hearing impaired individuals — through the qualitative approach method.

***Key words:** deaf individuals, sign language, identity, language identification, community of the deaf*

## **Introduction to the Issue**

There are no exact statistics in the Czech Republic, which would describe the current number of hearing impaired individuals. Hrubý (2008) states that there are approximately 1,000,000 hearing impaired individuals in the Czech Republic, the decisive part of whom are old people (predominantly over 65 years of age) whose hearing has deteriorated due to senility. Of this total number of hearing impaired individuals in the Czech Republic, there are approximately 7,600 whose hearing impairment has lasted since birth or set in before the development of spoken language. These individuals usually use the Czech sign language.

The term 'hearing impaired individual' is an identification in the broader sense of the word, including hard of hearing individuals, deaf individuals, deafened individuals, individuals

with the cochlear implant, individuals suffering from ringing in the ears, or individuals with presbycusis. This contribution is focused, in particular, on hearing impaired individuals whose hearing loss does not allow them to naturally and spontaneously acquire the spoken form of a language. **Deaf** individuals cannot perceive sound, even at the highest volume, but only possible vibrations. Pre-lingual deaf individuals are individuals who were born deaf or lost their hearing before the development of speech. In **hard of hearing** individuals, the hearing impairment may range from minimal hearing loss up to severe hearing impairment affecting quality communication. Hearing impairment can be substituted, to a significant extent, by hearing aids (Horáková, 2012).

Sign language is officially recognized as a natural and full-fledged language code of the deaf. The specificity of the family and school environments where deaf children are predominantly surrounded by adult non-deaf individuals makes them to get to know, in certain form, the spoken language — language of the non-deaf — at early age. Thus, these children become the children of two worlds, two languages. Sign language is a natural communication means for the deaf, which allows them to get to know the world around them, acquire its concepts and elaborate these concepts further. Spoken language (in its written form) then allows deaf individuals to function in the world of the non-deaf on full-fledged basis.

**Czech sign language** is a communication system of visual motor nature. *“Czech sign language is a natural and full-fledged communication system formed by specific visual, movement-based means, that is, by the shapes of the hands, the positions and the movements of the hands, mimics, the positions of the head and the upper part of the body. Czech sign language has the basic attributes of a language, that is, sign-based communication, double structure, productivity, distinctiveness, and historical dimension, and is stable from both lexical and grammatical perspectives”* (Act No. 384/2008 Coll., as amended by Act No. 423/2008 Coll., on Communication Systems of Deaf and Deaf-blind Individuals (Zákon 384/2008 Sb).

One of the conditions of inclusion of hearing impaired individuals in the major hearing society is to learn the Czech language. It is necessary to understand the contents and grammar of the Czech language and the meaning of the sentences that are read since the Czech sign language has a particular sentence structure and does not decline nouns or conjugate verbs. A deaf child gets familiar with the Czech language through writing. Many deaf individuals find it difficult to understand the read or written text (Petráňová, 2005). Additionally, many people think that the deaf can communicate without problems by reading and writing and that they can read all necessary information in the literature or on the Internet.

The method of handling both languages becomes a substantial part of an individual’s personality. The language cognizance of the deaf has considerable influence on the development and creation of his/her identity. The achievement of the final form of a deaf individual as a conscious, full-fledged part of the society, who knows his/her place in the world and lives a full and satisfied life, is an indispensable prerequisite for a mature and complete personality perceiving his/her own identity, language and culture. Deaf individuals, being a language and cultural minority, share with one another not only the sign language but also culture, education, rich history, beliefs, values and habits (Kosinová, 2008).

*“Pre-lingual deaf children do not realize their ‘handicap’ because they do not know what hearing is. Only when they are required to look and behave as hearing children do they start to realize the deficiency* (Wilbur, cited in Wilcox, 1989, p. 103).”

The **communication systems used in the education process** of pupils at schools for hearing impaired individuals differ from institution to institution. It is possible to simplify that two basic communication streams were developed during the education of hearing impaired individuals: audio-oral and visual-motor (Horáková, 2012).

The communication systems stemming from these two streams are then used by specific schools, depending on the preferred approach to hearing impaired pupils. They concern the oral approach, total communication approach, and the bilingual approach. Thus, children get to know the sign language through a deaf teacher and deaf classmates — deaf parents' children.

### Language Acquisition

Every child has the innate ability to perceive and acquire language. The well-known linguist Noam Chomsky declared that people are bearers of an innate module of language development (Sternberg, 2009). This means that we are biologically prepared to acquire language. Developmental psychology professionals presume the existence of the so-called critical periods, that is, decisive lifetime periods, in which the given function must be acquired for its development to be normal (Atkinson et al, 2003). If the given function is not acquired in the critical period, its full potential need not develop anytime later. Children with insufficient language stimulation until the age of six up to seven years do not feel the need to learn to speak to the fullest extent (Goldin-Meadow, 2003).

In relation to the acquisition of sign languages, Hronová (2010) states that according to the research in the sphere of neurolinguistics and psycholinguistics of sign languages, it was proved that the acquisition of a language is not related to the acoustic-oral channel since every language is an amodal functional system. She also states that the ontogenesis of a language takes place as a series of development phases that are nearly identical in all children in the whole world and the richness in the language expression does not differ depending on the nature of the language in which a child communicates.

The development of thinking and the development of language take place independent of each other, but are strongly interrelated. Language is often characterized as a thinking tool: *“If we do not know the words for colours, we will be able to differentiate them by sight, but will not be able to ‘mentally’ work with the concept of colour. If we do not know the words for numbers, we will not be able to carry out mathematical operations with them. If we do not acquire the abstract concepts expressing sadness, anger, regret or shame, our own perception will be reduced to the most fundamental physical feelings. If we do not have an expression describing the past and the future, it is difficult to think within these categories* (Jungwirthová, 2014, p. 10)”.

If a child cannot communicate with understanding, he/she is frustrated all the time due to his/her emotional deprivation and does not obtain sufficient experience in the sphere of social and communication competencies. Thus, the resulting incorrect development of an individual may be exhibited through inadequate reaction to a particular situation, by compromised self-control, lack of empathy, or disorientation in social relationships and situations (Krejčířová & Říčan, 2006).

### Language and Cultural Context of Hearing Impairment

The specificity of hearing impairment lies in language and cultural dissimilarity. The deaf then become a minority, the members of which differentiate themselves from the hearing majority by their different language and cultural cognizance. At present, deaf individuals are a proud and self-confident community everywhere in the world, which knows, fights for, and asserts, its rights.

The term **culture of the deaf** was introduced in the 70s of the 20<sup>th</sup> century; however, this culture existed much earlier. The culture of the deaf is maintained inside the community of the deaf. Its contribution is specific due to the fact that this transmission from generation to generation directly in a deaf family is possible only in 5–10% of these individuals since 90–95% of deaf children are born to deaf parents. The transmission and the sharing of common

culture then take place at schools for the deaf, at boarding schools or in the organizations of the deaf (Kosinová, 2008).

We can understand a deaf individual's identity as the creation of consistent self-perception, 'the finding of oneself', the realization of 'where I belong' as the social aspect of identity and of 'who I am' as the personality aspect of the identity. The aforesaid shows that it concerns a development process and that an individual's identity develops gradually and depends on many factors, such as the approach of the people around to a hearing impaired child, the communication at home and, later, at school, the relationships with classmates and peers and whether there is any adult deaf individual's identification model during the individual's development. Padden (2005) considers an individual's primary language as the basic identification factor. The language determines a deaf individual's identity and his/her affiliation with particular culture. Thus, the individual's identity expresses his/her attitude to his/her own hearing impairment.

### **Subject: Sign Language**

The Framework Education Programme (FEP) is a curricular document defining binding frameworks for educating pupils from 3 to 9 years of age. The objective of the education is to equip pupils with a set of key competencies. "*The key competencies constitute a summary of knowledge, skills, abilities, attitudes and values important for personal development and application of each member in the society* (Belz & Siegrist, 2001, p. 167)". The school level then represents school education programmes according to which the teaching takes place at individual schools. To achieve this objective, the FEP enables the consideration of pupils' education needs and possibilities and the application of a more variable organization and individualization of the teaching based on pupils' needs. The FEP regulates education of pupils with special education needs. For these pupils, special subjects, including **Sign Language**, are incorporated into the school education programmes (stemming from the FEP).

At present, the contents of the subject 'Sign Language' are not firmly defined and rather depend on the individual approach of the given school. Most schools stem from the experience from abroad where this subject has been a mandatory part of bilingual education programmes for several years. The subject is usually taught one hour a week in sign language and the teacher is a sign language user. The teacher is often deaf and so plays the identification role of an adult deaf individual. He/she serves as the communication, identification, social and cultural role for the child, in particular, for the deaf parents' deaf children for who the school may be the first place where they encounter the culture of the deaf and the sign language.

### **Principal Research Objective**

The principal objective was to ascertain the level of perception of sign language by the users themselves — pupils from schools for hearing impaired individuals. The objective of the research was neither to ascertain the level of pupils' communication competencies in this language nor to evaluate the level of sign language on the part of the parents, the teachers or the users themselves. The research aimed at ascertaining the subjective perception of sign language in family and school environments and the language cognizance of primary school pupils.

The following partial objectives were implemented within the research:

- to ascertain the level of language cognizance of pupils from primary schools for hearing impaired individuals;
- to ascertain the hearing impaired pupils' attitude to sign language (whether they feel to be sign language users), depending on the communication status in the family and school environments;

– to ascertain the popularity of the subject of Sign Language among pupils from schools for hearing impaired individuals.

### Research Theses

**Thesis 1:** The hearing impaired pupil, being a sign language user, realizes the communication value of sign language and asserts his/her right to use it.

**Thesis 2:** The hearing impaired pupil has basic cognizance of sign language and of the history and the culture of the deaf.

**Thesis 3:** The hearing impaired pupil prefers the communication code dominating in his/her family communication environment.

**Thesis 4:** The hearing impaired pupil prefers the communication code dominating in his/her school communication environment.

**Thesis 5:** The subject of Sign Language belongs among subjects popular with children who are sign language users.

### Methodology and Research Sample

The research was conducted as qualitative research. Of the research techniques, the structured interview with open questions, group discussion analysis, and group interview were used.

We addressed the primary schools for hearing impaired individuals in the Czech Republic, which use the bilingual approach or the philosophy of total communication within their education processes and the teachers of which know and use at least the fundamentals of sign language (schools using the oral approach were not addressed). There are 13 primary schools for hearing impaired individuals in the Czech Republic and only 5 of them teach the Sign Language. The research was carried out from October to December 2013 and from March to May 2014.

The respondents were pupils at a 2<sup>nd</sup> level primary school for hearing impaired individuals. The research was attended by 45 pupils in total, of whom 29 were boys and 16 were girls, between 13 and 16 years of age (see Table 1). Of these pupils, there were 9 respondents whose parents were deaf and whose sign language was their mother tongue. The other respondents (36) were children of hearing parents.

**Table 1.** Research Collection Data

	<b>2<sup>nd</sup> Level (13–16 years of age)</b>
<b>Boys</b>	29
<b>Girls</b>	16
<b>Total</b>	<b>45</b>

Twenty-one respondents stated that their hearing parents knew the fundamentals of sign language. Of the total number of 45 pupils, 31 pupils preferred sign language as the primary communication code and 2 pupils with the cochlear implant stated they used both language communication codes without preference.

### Interpretation of Research Results

*Thesis 1: The hearing impaired pupil who is a sign language user realizes its communication value and asserts the right to use it.*



**Table 2.** Thesis 1- related Questions

I prefer communicating in (Czech/sign language/sign Czech)
I use sign language in communication with (parents/teachers/friends)
I would like to know (sign language/Czech language/English language)
I would like to use sign language at school (yes/no)
I have the right to use sign language at school (yes/no)

Of the total number of 45 pupils, 14 prefer communicating in the Czech spoken language and 31 pupils communicate in sign language. Of these **31 sign language users**, 17 pupils stated that they used both the sign and Czech languages (did not state any preference for either of them) and 14 pupils stated that they preferred sign language and used it in both school and family environments (with their parents, teachers and friends), which shows that they consider sign language as their primary communication code.

All 45 pupils were aware of their right to use sign language at school, of whom 34 would like to make use of this right and use sign language at school (with their teachers and friends). Thirty-four pupils also stated that they wanted to know sign language. Thus, the pupils realized the communication value of sign language and their right to use it and most of them would like to communicate in sign language and have full command of it. Concurrently, they realized the need for having command of the Czech language and most of them would like to learn it.

***Thesis 2: The hearing impaired pupil has basic cognizance of the sign language and the history and the culture of the deaf.***

**Table 3.** Thesis 2- related Questions

Sign language has its grammar and order of signs in a sentence, similar to the Czech language having its grammar and order of words in a sentence (yes/no).
Pantomime and sign language is the same thing (yes/no).
The deaf could not use sign language at school in the past (yes/no).
Sign language is a natural and full-fledged language, similar to, for example, the Czech or English language (yes/no).
Sign language is international (yes/no).
I understand what the concept ‘culture of the Deaf’ means (yes/no).
I feel to be (Deaf/deaf — capitalized or non-capitalized N; I know the difference/don’t know the difference)

The statement describing sign language as a natural and full-fledged communication code that equals the Czech language was correctly confirmed by 37 pupils out of the total number of 45. That sign language has its own grammar was correctly confirmed by 18 pupils. Despite this, 12 pupils claimed that sign language was identical with pantomime and that sign language was international. That sign language was forbidden at school in the past was correctly acknowledged by 22 pupils.

Thirty-four pupils of the total number of 45 pupils encountered the concept ‘culture of the Deaf’.

The clear answer to the statement relating to pupils' identification within the group of the deaf and the Deaf was surprising. Thirty-three pupils did not know the difference between these terms. Three pupils identified themselves with the group of the deaf and nine pupils with the group of the Deaf. Pupils at this age do not distinguish between these two concepts and, thus, it is not possible to determine which approach to their hearing impairment is dominant for them (either medicinal or language-cultural). For this reason, we cannot speak about the conscious approach to their hearing impairment and about the perception of sign language as part of the culture of the Deaf.

***Thesis 3: The hearing impaired pupil prefers using the communication code dominating in his/her family communication environment.***

**Table 4.** Theses 3 and 4 — related Questions

I communicate with teachers in (sign language/Czech language/sign Czech).
I learn sign language at (school/home/boarding school).
My parents can use sign language (yes/no).
My friends are (non-deaf/deaf).

Of the total number of 45 pupils, 38 were sign language users, out of which 9 used both the sign and Czech languages without preference for either, and 29 preferred solely the sign language. Nine pupils' parents were deaf. All these pupils preferred sign language as the primary communication code. Of 36 hearing parents, 17 parents had command of the fundamentals of sign language. These parents' children also stated their preference for sign language as the primary means of communication. All pupils communicating through sign language in their family stated sign language as the preferred means of communication. Three pupils preferred sign language to other communication codes even though they did not encounter sign language in their family.

***Thesis 4: A hearing impaired pupil prefers communicating through the communication code dominating in their school communication environment.***

In the school environment, the use of sign language in communication with a teacher was confirmed by 38 pupils and in communication with friends (classmates) by 43 pupils. Thus, most pupils use sign language in the school environment when communicating with their classmates.

It was interesting to find out how the pupils perceived the learning of sign language. Forty-three pupils confirmed that they learnt sign language at school. Only 17 pupils confirmed that they learnt sign language at home and 9 pupils at boarding school. This may probably be explained by the fact that at school, children learn sign language purposefully. They perceive sign language as a functional means of obtaining information and their sign vocabulary develops purposefully. They are awarded marks for their knowledge of the subject Sign Language. Communication with their parents in their family environment or with friends at boarding school does not constitute purposeful learning since sign language is communicated naturally and most pupils do not realize they are learning it.

***Thesis 5: The subject of Sign Language belongs among the subjects popular with children who are sign language users.***

**Table 5.** Theses 5 — related Questions

Sign language belongs among my favourite subjects (yes/no).
I communicate with teachers in (sign language/Czech language/sign Czech)
I use sign language in communication with (parents/teachers/friends)
I prefer communicating in (sign language/Czech language/sign Czech)

As stated above, of the total number of 45 pupils, 38 were sign language users. Only 3 pupils stated that the subject of Sign Language did not belong to their favourite subjects and 42 pupils confirmed that the subject of Sign Language belonged to their favourite subjects. The subject of Sign Language is popular with all pupils who consider themselves as sign language users, and belongs among the favourite subjects of pupils that prefer communicating through other communication code.

### Research Conclusions

All pupils are aware of their right to use the sign language at school. This data shows relatively high level of realization of the communication value of the sign language. The level of theoretical knowledge relating to the facts of the sign language and the culture of the deaf is in disproportion to these findings. What was surprising was ignorance to the difference between the terms ‘the deaf’ and ‘the Deaf’. Thus, these findings refer to the fact that pupils perceive sign language as a communication tool naturally used as their primary language. However, their language cognizance in the sense of understanding language as part of the culture of the deaf and their own identity is not supported by sufficient theoretical information about the language itself.

The research shows that even when the sign language does not dominate as the means of communication in the family environment, the pupil may prefer it as a natural and full-fledged communication means encountered and learnt in his/her school environment.

The conducted research shows disproportion between the perception of sign language as a means of communication and the understanding of its function as the cultural and language identification of its users. Language cognizance is an essential part of an individual’s identity and his/her self-perception and is related to the development of his/her personality. The concept of an individual’s language cognizance is shaped in both the family and the school environments. An important role in relation to the family environment is played by timely intervention and care for the hearing impaired child’s family. Within this research, I will focus on putting together some recommendations for the school environment, that is, for the special education practice.

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## LANGUAGE COGNIZANCE AND SIGN LANGUAGE AWARENESS ON THE PART OF DEAF INDIVIDUALS AT 2<sup>ND</sup> LEVEL PRIMARY SCHOOLS FOR HEARING IMPAIRED INDIVIDUALS IN THE CZECH REPUBLIC

### Summary

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The language cognizance of pupils from schools for hearing impaired individuals is an important part of their personality and identity. At junior and senior school age, their identity and self-perception is still incomplete (Vágnerová, 2005). In this developmental process, an important role is played by the profiles of the family and school environments. The environment where deaf children are nurtured does not always provide ideal conditions for trouble-free development of their personality. Ninety-five percent of the children are born to hearing parents for whom the acceptance of communication in sign language is a very difficult decision to make. Sign language is used as a means of communication in the school environment within the bilingual approach, but is presented by hearing teachers who are not its native speakers. The specificity of the system of educating hearing impaired children, pupils and students lies in the continuous search for new, more suitable and efficient methods and techniques that would prepare the deaf for full and equal life in the society of hearing individuals and that would preserve their own uniqueness and identity. It is the support of language cognizance of pupils at schools for hearing impaired individuals that leads to this objective.

A school institution is a place where a hearing impaired child encounters the culture and the language of the deaf. In particular, for the hearing parents' children the school is a place where they meet an adult hearing impaired individual as the identification model. The output of the education process should be an individual that is capable of being involved in the society of hearing individuals on full-

fledged basis, while preserving his/her own identity, language and culture, and that is aware of his/her rights and possibilities. A school institution creates an environment that prepares a hearing impaired individual for his/her life.

In the development of language cognizance on the part of hearing impaired pupils, an important role is played by the personality of the teachers — both the hearing and the hearing impaired teachers. A deaf teacher with pre-lingual deafness, who is a Czech sign language user and considers himself/herself as part of the community of the Deaf, is the adult identification model for the child. He/she is the bearer of the culture and the language of the deaf. A hearing teacher reveals to the pupils the world of hearing individuals and the language of the major society and teaches them mutual respect for both communities.

I consider the contextual definition of the subject of Sign Language as a current task of special education practise that should be flexible at reacting to the newly introduced curricular documents and the changing tendencies of how hearing impaired individuals are perceived by the society. Within this subject, pupils should get acquainted with the concept of language and cultural cognizance of the community of the deaf. Hearing impaired individuals should get acquainted with both the world of hearing individuals and the world of the deaf to be able to decide with which group they will identify themselves based on their own experience, attitudes and values.

On the basis of the research results, we recommend focusing, within the subject, on both the development of sign vocabulary and the acquisition of the sign language grammar and the pupils' acquaintance with the world of the deaf — their history, culture and current situation. It is necessary to create such suitable teaching materials for, and the contextual concept of, this subject that respect the development of an individual's personality and identity. The subject should be taught by a deaf teacher in sign language or, as team work, by both the hearing and the hearing impaired teachers.

# ORAL MOTOR PRAXIS IN INDIVIDUALS WITH AUTISM SPECTRUM DISORDERS IN THE CONTEXT OF MODERN SPEECH AND LANGUAGE THERAPY

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## **Abstract**

The objective of the submitted contribution is to describe the issue of oral motor praxis in individuals with autism spectrum disorders (ASD). The initial section of the contribution deals with the theoretical solutions relating to the given issue and, concurrently, provides information on the already implemented research focused on the given issue. The central domain is the analysis of oral motor ability in children with ASD through the application of the partial task activity 'Warm-up' from the software programme FONO 2. The results of the longitudinal observation are detected through the created evaluation scale and are recorded in the form of tables and graphs that are, subsequently, analysed. The results of the study constitute partial solutions of the specific research project IGA (IGA 2014/2015 PdF 2014\_016), which was implemented by the Institute of Special Education Studies of the Faculty of Education Palacký University in Olomouc (principal researchers: Kateřina Vitásková, Alena Říhová).

**Key words:** *autism spectrum disorders, oral motor praxis, speech and language therapy intervention, speech and language therapist*

## **Introduction to the Issue**

Autism spectrum disorders (ASD) belong amongst serious neurodevelopmental disorders, the deficits of which are obvious at early age (usually before the 3<sup>rd</sup> year of life) (compare Attwood, 2005; Hrdlička & Komárek, 2004; Thorová, 2006). The symptoms forming the clinical picture of ASD comprise both specific and unspecific symptoms pervasively determining the child's psychosocial development (Říhová et al., 2011). One of the distinct exhibitions of this disorder is an impairment affecting communication activity, which is obvious in pre-verbal vocalization and determines the ontogenesis of communication, the manifestation of which is noticeable in both verbal communication and, to a significant extent, in non-verbal communication. The impairment affects both the receptive and expressive components of communication and all language levels. Aberrations at the pragmatic language level (Říhová & Vitásková, 2012; Vitásková & Říhová, 2013; Vitásková & Říhová, 2014a) are primary and specific for ASD. According to Gillberg (Gillberg & Peeters, 2003), problems in the phase of canonical a vocalization at the level of the so-called instinctive babbling

appear in the period of the first year of the child's life. The given stadium is either missing or is highly monotone. Other typical symptom, in particular in the period of the so-called imitative babbling (post canonical vocalization), is the absence of the preference for pre-verbal vocalization as the incentive of communication (ibid). The given author also states that in this period, many parents often notice that their child does not react when called or they are not able to attract the child's attention. It is also usual that parents or, possibly, professionals (particularly paediatricians) speak about suspected hearing loss that is usually subsequently refuted on the basis of audio logical examination. In relation to children with ASD, Lewis and Wiener (cited in Hrdlička & Komárek, 2004) speak about crying and the period of imitating. They accentuate that a noticeable problem is, alongside the difficult detection of the cause of the child's cry, the ability to imitate both in the sphere of pre-verbal vocalization, oral motor ability and gesticulation. Teitelbaum, Teitelbaum, Nye, Fryman and Maurer (1998) refer to the video analysis of moves of children with ASD, revealing differences that are obvious already between the fourth and the sixth month of the child's age. They concern, specifically, differences in the sphere of oral motor ability and differences in achieving the development milestones of crawling, standing, sitting and walking (ibid).

In compliance with Lechta (2002), Příhoda (cited in Lechta, 2002) and Dittrichová, Papoušek and Paul (2004), we have to accentuate the role of motor activity and its narrow dialectical determination with regard to the development of speech. *“The development of motor activity is extraordinarily important not only for speech but also for the development of cognitive abilities, social behaviour, etc. If we understand the process of speaking, that is speech as a mechanical act, we can notice that it concerns precisely coordinated process of soft motor activity of the speech apparatus”*(Lechta, 2002, p. 19). An analysis of the motor activity (including oral motor activity) in children with ASD at early age was implemented by Fabbri-Destro, Gizzonio and Avanzini (2013) through video records and special testing methods. They detected differences in oral motor activity (between the 4<sup>th</sup> and the 6<sup>th</sup> months of the child's age) and, concurrently, spoke about the chronological inadequacy in crawling, standing, sitting, and walking and other motor skills, including graphomotor.

The motor abilities, which are significantly impaired, particularly, in individuals with Asperger syndrome (compare Paul, 2011), including the difficulties associated with the implementation of oral motor activities, are also accentuated by the following research. Ming, Brimacombe and Wagner (2007) carried out a retrospective clinical assessment focused on the specification and the incidence of motor ability deficits in individuals with ASD. The study, which was participated by 154 children with ASD, referred to the fact that 54 % of these individuals show symptoms of hypotonia that should partially disappear later ( $p=0.002$ ). According to the study, motor apraxia was exhibited by 34 % of the children and the so-called tiptoeing was noticed in 19 %. Even in case of motor dyspraxia and specific walking stereotypes, the authors of the research recorded gradual decrease that might be given, in their opinion, by the development aspect, the intervention techniques or, possibly, the perfusion of these two factors. However, despite the given circumstance, it still applies that the apparent motor deficits, in particular, at early age, may reflect, to a significant extent, on communication ability and oral motor praxis and may affect the development of communication and the manifestation of the symptoms specific to impaired communication ability in individuals with ASD (compare Mitchell, Brian, Zwaigenbaum, Roberts, Szatmari, Smith & Bryson, 2006). The oral and soft motor abilities (primarily the motor activity of the hand), their aberration in individuals with ASD and the predilection with regard to the ontogenesis of speech were dealt with in the video analysis carried out by Gernsbacherová, Sauer, Geye, Schweigert and Goldsmith (2007). The analysed data showed that the correlation between deficient motor activity and the ontogenesis of speech was very narrow — in the research, 115 individuals with ASD (64.5 %) showed

certain relationship between impaired motor ability and impaired speech development. The comparative study applied to children with ASD and individuals with developmental motor dyspraxia or ADHD through the Test Motor Proficiency by Bruininks-Oseretsky refers to the fact that the difficulties suffered by individuals with ASD and associated with motor coordination are determined by other circumstances ensuing from the basal characteristic of the given disorder. They concern, in particular, difficulties associated with the reception of a verbal instruction and, concurrently, with the imitation of the presented activity (Dewey, Cantell, & Crawford, 2007). Thus, the aforesaid show that the given problem is a complex issue and cannot be attributed only to deficient coordinated motor ability (or developmental coordination disorder — DCD). The imitation of motor skills is described, for example, by Mostofsky, Dubey, Jerath, Jansiewicz, Goldberg and Denckla (2006). In compliance with the stated authors (Dewey, Cantell, & Crawford, 2007), he refers to noticeable imitation aberrations in individuals with ASD, related, in his opinion, to neuroanatomical findings localized in the frontal, parietal and subcortical spheres, which are indispensable for learning and for receiving movement and sequences of the motor programme.

It can therefore be said that motor or oral motor abilities are a domain where individuals with ASD show significant insufficiencies. They are the predictors of ontogenesis of speech and, subsequently, determine communication ability. For these reasons, we consider as necessary to focus on the given issue from both research and professional speech and language therapy perspectives (compare Vitásková & Říhová, 2014b).

### **Research and Its Methodological Aspects**

The main objective of the research is to analyse oral motor abilities of children with autism spectrum disorder.

The partial objectives include:

- mapping of the oral motor abilities of children with ASD in the initial stage of the examination through the section ‘Warm-up’ from the software programme FONO 2 and through the created evaluation numerical scale;
- mapping of the oral motor abilities of children with ASD in the final stage of the examination through the section ‘Warm-up’ from the software programme FONO 2 and through the created evaluation numerical scale;
- comparison of the difference in evaluating the initial state of oral motor activity in children with ASD with its final state.

The research issues include:

- What is the state of oral motor abilities in a child with ASD in the initial stage of the research?
- What is the state of oral motor abilities in a child with ASD in the final stage of the research?
- Are there any differences in evaluating oral motor abilities in the initial and the final stages of the research?

The software, speech and language therapy programme FONO 2 applied as the principal evaluation method in individuals with ASD, is a multimedia programme intended for individuals with impaired communication ability and formed of 5 basic partial domains — warm-up, association, phonetic hearing, reading, and copying dactyl characters (*What is FONO?*, 2014). For research purposes, we selected the section ‘Warm-up’ comprising 37 activities. For analysis purposes, we selected 13 tasks:



1. *Smile without showing your teeth.*
2. *Smile with showing your teeth.*
3. *Purse your lips.*
4. *Bite your lower lip.*
5. *Bite your upper lip.*
6. *Open and close your mouth.*
7. *Move the jaw to the right and left.*
8. *Chomping.*
9. *Whistle.*
10. *Try to imitate biting.*
11. *Blow up your cheeks and make a 'puuu...'*
12. *Stick your tongue out between the upper and the lower teeth, keep it straight and tighten the tip.*
13. *Touch the middle part of your upper lip with your tongue.*

The activity pursued through the stated speech and language therapy programme is supported by visual form of the given exercise (the monitor displays a face with the correctly implemented activity), which provides the individual with ASD with visualisation and facilitation. The individual tasks are also accompanied by verbal instructions through recorded human voice. The third domain, which we consider as highly supporting, is visual feedback displaying the implemented motor activities along with the correct sample demonstration.

The principal research method is longitudinal observation that was implemented from March to June 2014. It concerns extrospective participant observation based on the set monitored domains and the designed evaluation items accompanied by graphical visualisation of the given software, which are regularly recorded and compared in each client within the given time interval. According to Ferjenčík (2000, cited in Miovský, 2006), the record of the observation is made through reductive description that is structured and focuses on the pre-set domains. The basic principal lies in the creation of a certain scheme consisting of general categories. During the observation of a specific phenomenon, it is then recorded through the given general categories.

The individual domains included in the evaluation of the thirteen Warm-up activities from FONO 2 stated above comprise:

- activity initialization;
- help with activity implementation;
- activity implementation correctness.

For the three fundamental domains stated above, we designed the following evaluation scale containing the relevant numerical values applied further within the analysis (Table 1).

### **Analysis of Research Results**

The client in whom the analysis of abilities in the sphere of oral motor activity was carried out is a girl called Valentýna. At the time of the research, Valentýna was 5 years old and was diagnosed with children's high-functioning autism. There were 11 speech and language therapy interventions implemented between 03 April 2014 and 05 June 2014. The oral motor exercises from the section 'Warm-up' from the software speech and language therapy programme FONO 2 were applied within the interventions. Speech and language interventions, which were mapped at the time of initializing (03 April 2014) and completing the research (05 June 2014), focused on a series of exercises stated in the introductory section

**Table 1.** Evaluation Scale

<p><b>Activity Initialization</b>  0 — no activity initialized  1 — activity initialized with help  2 — activity initialized upon verbal instruction  3 — activity initialized without help</p> <p><b>Help</b>  0 — complete help with activity implementation needed  1 — partial help with activity implementation needed  2 — no help with activity implementation needed</p> <p><b>Exercise Implementation Correctness</b>  0 — exercise implemented completely incorrectly  1 — exercise implemented incorrectly, but partially correctly upon correction  2 — exercise implemented incorrectly, but completely correctly upon correction  3 — exercise implemented completely correctly</p>
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of the contribution (see the 13 activities selected from the software programme FONO 2) and on other domains developing the girls' communication skills comprising, in particular, non-verbal communication (eye contact, mimics, gesticulation, posture), understanding, and pre-verbal vocalization.

The graphs below (see Figure 1 and Figure 2) represent the selected oral motor activities and visualise them based on three domains (initialization, help, and correct implementation) evaluated according to the scale designed by us (see the introductory part of the text).

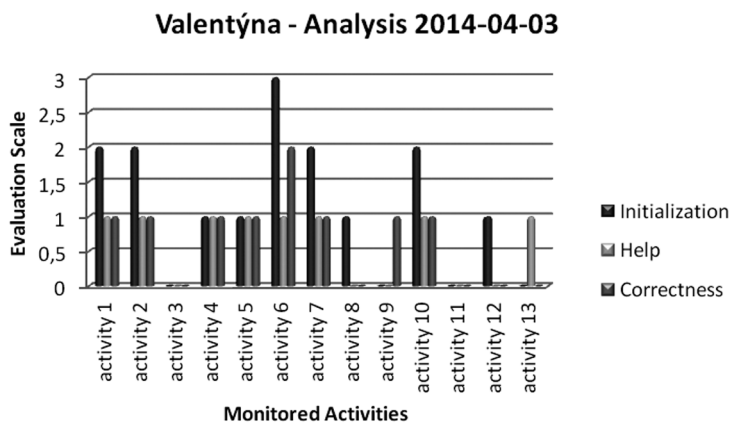
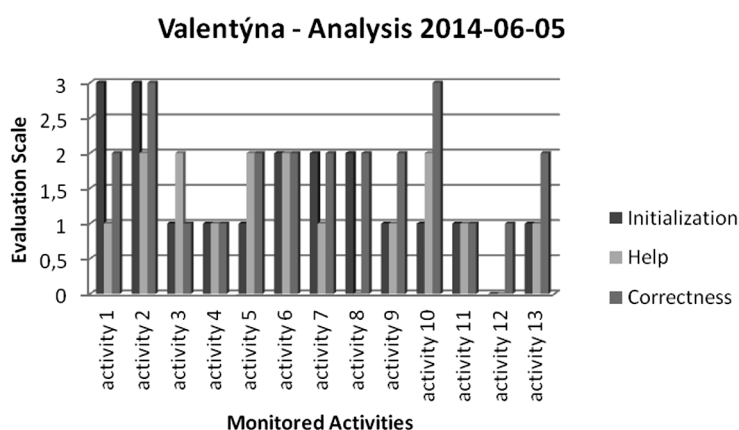
**Figure 1.** Valentyna — Analysis 2014-04-03

Figure 1 presents the evaluation of selected oral motor abilities of Valentyna as of 03 April 2014. The graph clearly shows that the girl's oral motor activities are strongly deficient, which is obvious from the high frequency position ( $N = 14$ ) [see Graph No. 1] of the lowest evaluation scale — Scale No. 0 implementing the absence of activity initialization, full help with activity implementation, and incorrect activity implementation. All of the stated lowest scores are present in activities No. 3 and No. 11. Thus, we can state that the given exercises are the most difficult for Valentyna. They concern the activities *'Purse your lips'* and *'Blow up your cheeks and make*

*a puuu...*'. Activities No. 8, 9, 12 and 13, within which the zero value dominates, can also be considered as problematic. The specific tasks include *'Purse your lips/chomping???'*, *'Stick your tongue out between the upper and the lower teeth, keep it straight and tighten the tip'*, and *'Touch the middle part of your upper lift with your tongue'*. A significantly frequent presence (N=19) is represented by value No. 1 (see the significant prevalence in activities No. 4 and 5) relating to the activity initialization with help, substituting the need for help with activity implementation, and, concurrently, comprising incorrect implementation of the given activity, which is, however, possible to implement partially upon our correction.

On the contrary, focusing on the antagonistic positions relating to positive evaluation and trouble-free implementation, we can state that the highest evaluation scale No. 3 is present only in one activity. It concerns activity No. 6 *'Open and close your mouth'*, but only in case of activity initialization. Thus, it is obvious that the submitted activities are very problematic for Valentýna. The scale including value No. 2 (activity initialization upon verbal instruction, absence of the need for help with activity initialization, and correct activity implementation with help) is recorded in 5 activities, being activities No. 1, 2, 6, 7 and 10.



**Figure 2.** Valentýna — Analysis 2014-06-05

Figure 2 shows the evaluation of partial oral motor activities as of 05 June 2014. The decline in value No. 0, which persists only within one activity, being activity No. 12 *'Stick your tongue out between the upper and the lower teeth, keep it straight and tighten the tip'*, can be considered as positive with regard to the evaluation carried out on 03 April 2014. This activity is very difficult, in particular, for individuals with ASD. The reason for this activity being so difficult is, in particular, the fact that it consists of partial, interrelated tasks of highly abstract nature. The accompanying visual demonstration presented along with verbal instruction through the computer and the software programme FONO 2 is insufficient, which is the reason why the implementation of this activity is so problematic. Persisting issues can be seen in activities No. 4 and No. 11 in which the evaluation scale No. 1, relating to significant help and representing difficulties with activity implementation, prevails. They specifically concern the activities *'Bite your lower lip'* and *'Blow up your cheeks and make a puuu...'*. Value No. 2, which could be identified as the so-called medial position (except for help for which it represents the highest value), is prevalent. It is represented by frequency 15 in activities No. 1, 2, 3, 5, 6, 7, 8, 9, 10, and 13 and has positive representation in activity No. 6 *'Open and close your mouth'* within the three main domains of evaluation (initialization, help, correctness).

We can also see an increase in scale No. 3 that is noticeable in activities No. 1, 2 and 10 and that is present, within task No. 2, in both activity initialization and activity implementation. They concern the activities 'Smile without showing your teeth', 'Smile with showing your teeth' and 'Try to imitate biting'.

The following Table 2 offers a comparative view of all the described activities and the relevant evaluation scale with regard to the dates on which the research was commenced (03 April 2014) and completed (05 June 2014).

**Table 2.** Comparison of the Observed Oral Motor Activities of Valentyna

Observed activities with the individual evaluated domains and the relevant numerical scale									
Date: 3 April 2014					Date: 5 June 2014				
activity	initiali- zation	help	correct- ness		activity	initiali- zation	help	correct- ness	
1	2	1	1		1	3	1	2	
2	2	1	1		2	3	2	3	
3	0	0	0		3	1	2	1	
4	1	1	1		4	1	1	1	
5	1	1	1		5	1	2	2	
6	3	1	2		6	2	2	2	
7	2	1	1		7	2	1	2	
8	1	0	0		8	2	0	2	
9	0	0	1		9	1	1	2	
10	2	1	1		10	1	2	3	
11	0	0	0		11	1	1	1	
12	1	0	0		12	0	0	1	
13	0	1	0		13	1	1	2	
Stagnation					N= 11 (28.21 %) [I=3, D=6, S=2]				
Positive Balance					N= 25 (64.11 %) [I=7, D=7, S=11]				
Negative Balance					N= 3 (7.69 %) [I=3, D=0, S=0]				

The compared results displayed in Table 2 show that positive change is prevalent and highly noticeable. The stated positive results are recorded in 25 partial activities and represent 64.11 %. Congruent presence is represented by activity initialization (N=7) and help (N = 7). Slight prevalence (N=11) is given by the implementation of the given activity, which we consider as positive. These changes affect, in particular, growth that includes change in one evaluation scale. However, a difference including growth of both evaluation scales was detected in case of correct activity implementation. They specifically concerned activity No. 3 'Purse your lips' (correctness shift from 1 to 3; lips protrusion), activity No. 8 'Chomping' (correctness shift from 0 to 2), activity No. 10 'Try to imitate biting' (correctness shift from 1 to 3), and activity No. 13 'Touch the middle part of your upper lip with your tongue' (correctness shift from 0 to 2). These activities (N=4) underwent significant changes. We would like to highlight, in particular, activity No. 13 that is more difficult than others since it consists of two partial tasks. In case of the remaining positive balances forming a major part of positive growth (N=21), differences are obvious in one evaluation scale. We can state, for example, activity No. 1 'Smile without showing your teeth' (initialization shift from 2 to 3), activity

No. 2 *'Smile with showing your teeth'* (initialization shift from 2 to 3), or activity No. 8 *'Chomping'* (initialization shift from 1 to 2). Positive changes are also recorded in case of help, for example, in activity No. 5 *'Bite your upper lip'* (1→2), activity No. 6 *'Open and close your mouth'* (1→2), and activity No. 9 *'Whistle'* (0→1). Last but not the least, changes within one evaluation scale also relate to correct implementation of the particular activity. They concern, for example, activity No. 5 *'Bite your upper lip'* (1→2), activity No. 11 *'Blow up your cheeks and make a puuu'* (0→1), and activity No. 12 *'Stick your tongue out between the upper and the lower teeth, keep it straight and tighten the tip'* (0→1).

The evaluated domains stagnate, that is, no change is recorded within 11 activities (28.21 %) with respect to initialization of the research. They concern 3 activities within the initialization, 6 activities within the help, and 2 activities within the correctness. Of the specific tasks, the aforesaid relates to activity No. 4 *'Bite your lower lip'* (activity 1→1), activity No. 5 *'Bite your upper lip'* (activity 1→1), activity No. 1 *'Smile without showing your teeth'* (help 1→1), activity No. 13 *'Touch the middle part of your upper lip with your tongue'* (help 1→1), activity No. 4 *'Bite your lower lip'* (correctness 1→1), and activity No. 6 *'Open and close your mouth'* (correctness 2→2).

The least frequent item is negative balance, represented in 3 activities (7.69 %) relating to activity initialization — activity No. 6 *'Open and close your mouth'* (3→2), activity No. 10 *'Try to imitate biting'* (2→1), and activity No. 12 *'Stick your tongue out between the upper and the lower teeth, keep it straight and tighten the tip'* (1→0).

Despite the frequency-based representation given to all evaluated domains — stagnation, positive balance and negative balance -, it can be stated that positive balance, which can be perceived in Valentýna as a positive result of the implemented speech and language therapy intervention, significantly prevails (64.11 %).

### Conclusions

In conclusion, it can be stated that in the analysis of oral motor abilities it is possible to achieve positive results through systematic speech and language therapy intervention focused on the development of mobility in the oral-facial sphere. Of course, it is not possible to generalize these results. For this reason, it would be appropriate to carry out other, more detailed and longitudinal research in this sphere (compare Vitásková & Říhová, 2013).

The principal objective of the submitted contribution was to describe the possibilities of an efficiently implemented speech and language therapy intervention in individuals with ASD, focused on the motor abilities in the oral and oral facial spheres, through analysis of the selected oral motor exercises. It concerned an analysis of a child diagnosed with ASD, for whom the software speech and language therapy programme FONO 2, its partial section Warm-up, was used. Through the given programme, the client was offered visual form of the given exercise, sound instruction and visual feedback (depiction of the demonstrated activity). Due to the growing difficulty level of the activities and early tiredness, we chose 13 activities from the collection of 37 activities in total. For the activities specified in the introduction of this contribution, we created three fundamental domains — activity initialization, need for help, and activity implementation -, that were recorded in tables according to the evaluation scale designed by us, visualized through graphs and, subsequently, compared with the results at the time of initializing (March 2014) and completing (June 2014) the research.

Naturally, the research was limited and influenced by factors capable of determining its course. They concerned, in particular, the child's current physical and psychological states or external environment effects, including noise from the surrounding environment or too high or low temperature of the given environment. Furthermore, with regard to the gravity of the diagnosis and the significant deficits affecting, among other things, communication

ability, the period of the research (4 months) cannot be considered as long enough to record more significant results and, in particular, speak about possible stability of the positive results. Despite the stated circumstances, we tried to create conditions favourable for the implementation of the research.

The analysis of motor activities in the oral-facial sphere in Valentýna shows that with regard to the initial evaluation, positive changes were recorded in 4.11 % of the activities. However, these differences related to one evaluation scale only and an increase by only two numerical scales was recorded in 4 activities. They concerned the activities 'Purse your lips', 'Chomping', 'Try to imitate biting' and 'Touch the middle part of your upper lip with your tongue'. Thus, it is obvious that in Valentýna, these domains underwent significant changes, which must be considered as highly positive with regard to the relatively short time interval. A lower frequency-based position, even with regard to the first client and, concurrently, the next child with ASD, is held by stagnation of the evaluated spheres, corresponding to 28.21 %. A predominant part of this category is formed by more difficult activities, such as 'Touch the middle part of your upper lip with your tongue', 'Bite your lower lip' and 'Open and close your mouth'. Negative balance affecting only 3 activities, which may be evaluated as more complicated and difficult to implement by individuals with ASD and which include activity No. 12 'Stick your mouth out between the upper and the lower teeth, keep it straight and tighten the tip', was also detected in this client.

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## ORAL MOTOR PRAXIS IN INDIVIDUALS WITH AUTISM SPECTRUM DISORDERS IN THE CONTEXT OF MODERN SPEECH AND LANGUAGE THERAPY

### Summary

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The research problem. The symptoms forming the clinical picture of autism spectrum disorders (ASD) comprise both specific and unspecific symptoms pervasively determining the child's psychosocial development. The motor abilities might be significantly impaired in individuals with ASD, including the difficulties associated with the implementation of oral motor activities. Due to the fact that they are the predictors of ontogenesis of speech and, subsequently, determine communication ability, we consider as necessary to focus on the given issue from both research and professional speech and language therapy perspectives.

Aim. The main aim of the research was to analyse oral motor abilities of children with autism spectrum disorder by mapping of the oral motor abilities of children with ASD in the initial and final stages of the examination through the section 'Warm-up' from the software programme FONO 2 and through the created evaluation numerical scale. Then we compared the difference in evaluating the initial state of oral motor activity in children with ASD with its final state. The study introduce partial solutions of the specific research project IGA (IGA 2014/2015 Pdf 2014\_016), which was implemented by the Institute of Special Education Studies of the Faculty of Education Palacký University in Olomouc (principal researchers: Kateřina Vitásková, Alena Říhová).

Content. The initial section of the contribution is dedicated to the theoretical solutions relating to the given issue and, concurrently, provides information on the already implemented research focused on the given issue. The relations to dyspraxia problems, the development of speech, and early vocalisation especially, and complex motor difficulties were mentioned. The methodological domain of the contribution was the analysis of oral motor ability in children with ASD through the application of the partial task activity 'Warm-up' from the software programme FONO 2. The speech and language therapy programme FONO 2 is a multimedia programme intended for individuals with impaired communication ability and formed of 5 basic partial domains — warm-up, association, phonetic hearing, reading, and copying dactyl characters. For research purposes, we selected the section 'Warm-up' comprising 37 activities. For analysis purposes, we selected 13 tasks. The principal research method was longitudinal observation that was implemented from March to June 2014. It concerned extrospective participant observation based on the set monitored domains and the designed evaluation items accompanied by graphical visualisation of the given software, which were regularly recorded and compared in each client within the given time interval.

Conclusions. Preliminary, based on our research data, we can state, that it is possible to achieve positive results through systematic speech and language therapy intervention focused on the development of mobility in the oral-facial sphere in children with ASD. The analysis of motor activities in the oral-facial sphere in the first client showed that with regard to the initial evaluation, positive changes were recorded in 4.11 % of the activities. However, these differences related to one evaluation scale only and an increase by only two numerical scales was recorded in 4 activities. Thus, it is obvious that in Valentýna, these domains underwent significant changes, which must be considered as highly positive with regard to the relatively short time interval. A lower frequency-based position, even with regard to the first client and, concurrently, the next child with ASD, is held by stagnation of the evaluated spheres, corresponding to 28.21 %. Nevertheless, we have to emphasize that the research was limited and influenced by factors capable of determining its course. They concerned, in particular, the child's current physical and psychological states or external environment effects, including noise from the surrounding environment or too high or low temperature of the given environment. Moreover, with regard to the gravity of the diagnosis and the significant deficits affecting, among other things, communication ability, the period of the research (4 months) cannot be considered as long enough to record more significant results and, in particular, speak about possible stability of the positive results.





## IV. PSYCHOSOCIAL REHABILITATION

# ATTITUDE OF PROGYMNASIUMS STUDENTS TOWARDS HEALTH AND PHYSICAL ACTIVENESS

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## **Abstract**

The purpose of the study is to evaluate the attitude of 8 form students of Šiauliai city progymnasiums towards health and physical activeness. The study was attended by 870 (out of 1088) 8 form students of Šiauliai city progymnasiums. Questionnaire survey was chosen as the main research instrument. The research was conducted employing quantitative research methodology. The respondents of the research were given out questionnaires, the data of which were systematised, analysed and presented in graphs.

*Key words: health, physical activeness, pupils, adolescence, leisure*

## **Introduction**

Adolescence and childhood are of utmost importance for health development as in this period the foundations of lifestyle and behaviour are formed, later determining the person's health and life quality. However, there are quite a number of risk factors that negatively affect the adolescent's or child's health: lack of movement, harmful physical and social environment, irregular nourishment, inheritance (Strukčinskienė, Griškoniš, Raistenskiš, & Strukčinskaitė, 2012). Barzda, Bartkevičiūtė, Stukas et al. (2009), Behjat Shokrvash, Majlessi, Montazeri, Nedjat, Rahimi, Djazayeri and Shojaezadeh (2013) state that physical activeness and healthy lifestyle are particularly important components of health, which have to be formed in childhood. According to Juškelienė (2007), Zumeras and Gurskas (2012), daily physical activeness, physical activity and movement are both physiologically and psychologically important in the adolescent's life; besides, they are socially beneficial. According to Lithuania scientists' research data, namely physical activeness is a particularly important component of healthy lifestyle, affecting children's and adolescents' health, because sufficient physical activeness enables growth and formation of human body and formation of regular posture (Strukčinskienė, Kurlys, Griškoniš, & Raistenis, 2011).

When pupils' health is discussed, in all age periods lack of active physical activity is emphasised. Although children and adolescents are more active than the majority of adults, the age of technologies, their advancement and social environment determine students' physical activeness, which is not necessarily positive. Good computer literacy, knowledge of foreign languages are increasingly promoted, mental workload is being increased. There is less focus on pupils' healthy lifestyle education and promotion of physical activeness (Tamošauskas,

Régalienė & Mačys, 2003; Kardelis & Vainienė, 2008). Insufficient attention to children's physical education in the family, parents' little physical activeness and discouraging to do exercises negatively influence children's health, suppresses the need of inborn physical activeness (Narbutienė, Rutkauskaitė, & Bujanauskas, 2011). Physical activeness skills formed in childhood usually remain for the whole life. Once the child starts school, physical activeness diminishes significantly and activities distance from playing. Physical activeness is one of the most important students' leisure forms: it is a condition of good health, social and emotional wellbeing. Even short daily physical activity reduces the possibility to gain weight, improves metabolism in the organism and action of the heart (Maciulevičienė & Sadzevičienė, 2009). Based on research data, Hohensee and Nies (2012) confirmed that children who are more engaged in sitting activity; e.g., watching TV and playing visual games, have a higher body mass index and are more inclined to overweight or obesity. Juan, Bengoechea, Montes and Bush (2010) explain that young people's physical inactivity became an important problem of the society's health in the whole world. Adolescence is first of all a period during which general level of physical activeness rapidly reduces; therefore, according to Valius and Jaruševičienė (2008), the adolescent's life should be inseparable from physical activation, which is necessary for the adolescent's growth and one of the most important development conditions.

It is considered that children and adolescents should be physically active every day for one hour or more. However, according to the data of the HBSC global research, conducted in almost 40 European and North America countries, less than half of adolescents between 11 and 15 years of age are physically active. Therefore, in many countries, including Lithuania, there is a growing concern about low physical activeness of adolescents (Zaborskis & Raskilas, 2011). The mean of insufficient physical activeness in other EU countries is 60% for boys and 72,6% for girls. Although physical activeness of students aged 11, 13 and 15 is higher than the mean of other EU countries, it has not been increasing since 1994 (Skurvydas, 2008). As stated by Narbutienė et al. (2011), in order to solve the problem of physical activeness, it is necessary to know its determinants, significantly affected by both biological and social factors.

#### **Aim of the research**

To reveal attitude towards health and physical activeness of progymnasiums students

#### **Subject of the research**

Attitude of pupils of progymnasiums towards health and physical activeness.

#### **Problem questions of the research**

1. What is adolescents' subjective perception of their health and physical activeness?
2. How does it relate to spending leisure and healthy lifestyle skills?

#### **Research methods**

1. Quantitative research. For data collection questionnaire survey was used.
2. Statistical data analysis processed using SPSS 19.0 programme. The research includes calculation of percentages, Chi-square ( $\chi^2$ ) and Mann-Whitney non-parametric criteria, mean and standard deviation (SD), the chosen significance level  $p \leq 0,05$ .

#### **Research participants**

The research was attended by 870 eighth form students of Šiauliai city progymnasiums (out of 1088 pupils, which made up 80 per cent) (428 girls, 438 boys and 3 did not indicate gender). The mean age of the respondents is 13,8 years (SD =  $\pm 1,2$ ).

#### **Research Organisation and Methodology**

The research was conducted in all progymnasiums of Šiauliai city (N = 14). To perform quantitative research the questionnaire survey method was chosen, which helped to reveal relevance of the analysed problem. Questionnaire consisted of blocks of questions about health, physical activeness and active and passive ways of spending leisure.

### Research Results

The research aimed to disclose the attitude of 8 form pupils of Šiauliai city progymnasiums towards health and physical activeness. Another important issue that was addressed was what ways of spending leisure students choose because this helps to reveal the degree of physical activeness of adolescents in after-school activities and during leisure time.

Analysing research data, it was sought to find out pupils' subjective attitude towards their health. Having employed non-parametric criterion Chi-square, statistically significant data were obtained ( $\chi^2=14,263$ ;  $df=4$ ;  $p=0,007$ ). 20,1 per cent of female students and 15,4 per cent of their male counterparts indicated that their health was bad or satisfactory; 79,8 per cent of female students and 84,6 per cent of their male counterparts defined it as good and very good. It is noticed that boys rate their health better than girls.

Having found out that students rated their health quite well but that one fourth of students nevertheless rated their health negatively, it was sought to find out what physical and mental difficulties could cause negative sensations for them. Having applied non-parametric Chi-square criterion, statistically significant data were obtained (Fig. 1) disclosing that almost twice as many female students, compared with male students, often complained of headaches ( $\chi^2=52,037$ ;  $df=4$ ;  $p=0,001$ ), dizziness ( $\chi^2=48,829$ ;  $df=4$ ;  $p=0,001$ ), backaches ( $\chi^2=20,547$ ;  $df=4$ ;  $p=0,001$ ), stomach-aches ( $\chi^2=28,595$ ;  $df=4$ ;  $p=0,001$ ), bellyaches ( $\chi^2=52,856$ ;  $df=4$ ;  $p=0,001$ ). Male students are more inclined to complain of these aches sometimes; boys twice as much as girls never complain of these aches.

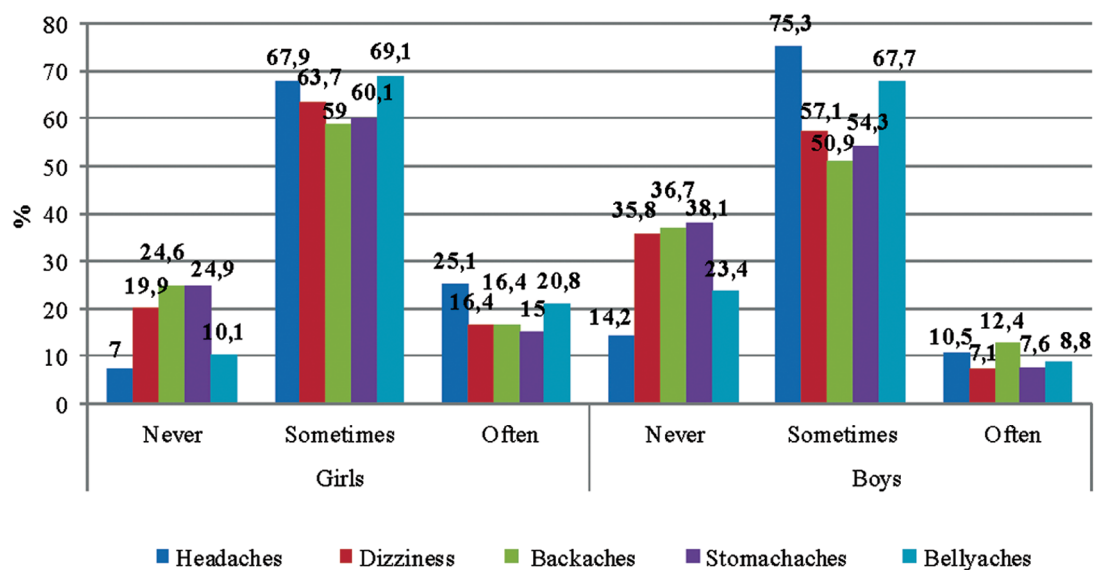


Figure 1. Physical complaints girls and boys suffer from, %

Having found out what physical difficulties pupils suffer from, it was also sought to disclose eight formers' mental complaints; therefore, they were asked to rate how often they are moody, experience tension and sleep disorders (Fig. 2). Having applied non-parametric Chi-square criterion, statistically significant data were obtained, showing that both male and female students named all psychological difficulties similarly but one and a half as many female students are often moody ( $\chi^2=40,915$ ;  $df=4$ ;  $p=0,001$ ), compared to their male counterparts, experience emotional tension ( $\chi^2=30,008$ ;  $df=4$ ;  $p=0,001$ ), sleep disorders ( $\chi^2=65,488$ ;  $df=4$ ;  $p=0,001$ ), tension caused by daily activities ( $\chi^2=13,830$ ;  $df=4$ ;  $p=0,008$ ); however, male students feel far more physically exhausted than their female counterparts.

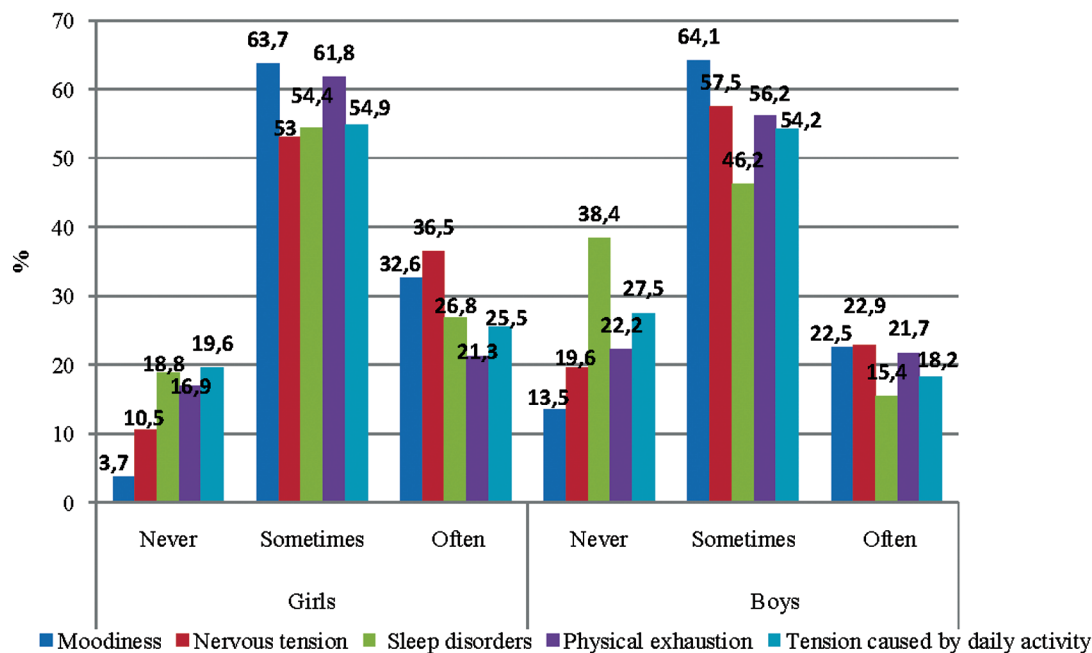


Figure 2. Psychological complaints girls and boys suffer from, %

During the research it was sought to find out whether respondents thought that physical activeness enhances health. Statistically significant differences in gender aspect were obtained ( $Z=-2,761$ ,  $p=0,017$ ), revealing that more male students than female students think that physical activeness enhances health. Such data were revealed by the rank mean, which among female students was 420,17 and among male students, 443,64. The finding that pupils approve that physical activeness is significant led to the question how the very adolescents rated their physical activeness and whether they were physically active. Application of non-parametric Mann-Whitney criterion revealed a statistically significant difference between these groups ( $Z=-3,525$ ,  $p=0,0001$ ), while the mean rank showed that male students (Mean Rank — 451,74) treated themselves as physically more active than female students (Mean Rank — 407,91). It is noticed that boys more positively rate benefit and significance of physical activeness. It was also sought to find out whether the respondents thought that physical activeness affected body weight because it is a sore problem too. Mann-Whitney non-parametric criterion revealed a statistically significant difference ( $Z=-2,997$ ,  $p=0,003$ ) between girls and boys. It was noticed that more female students (Mean Rank — 449,33) than male students (Mean Rank — 413,92) thought that physical activeness influenced body weight.

Having found out how respondents rate physical activeness (Fig. 3), it was sought to find out whether this rating is really reflected in choosing ways of spending leisure, which were grouped into active and passive but which were not emphasised as separate in the questionnaire survey in order to avoid influence on the student while choosing frequency of every activity. It was noticed that male students were far more often engaged in active leisure activities, such as going to the swimming pool ( $\chi^2=12,882$ ;  $df=4$ ;  $p=0,012$ ), jogging ( $\chi^2=26,836$ ;  $df=4$ ;  $p=0,0001$ ), going to the sports club ( $\chi^2=36,442$ ;  $df=4$ ;  $p=0,0001$ ), cycling ( $\chi^2=44,263$ ;  $df=4$ ;  $p=0,012$ ), going to workouts than female students. The results revealed that female students more often chose traveling with the family ( $\chi^2=12,015$ ;  $df=4$ ;  $p=0,017$ ), with friends ( $\chi^2=12,944$ ;  $df=4$ ;  $p=0,012$ ), more often helped in doing the chores. To sum up these results, it is noticed that anyway boys more often choose a more active way of spending their leisure than girls.

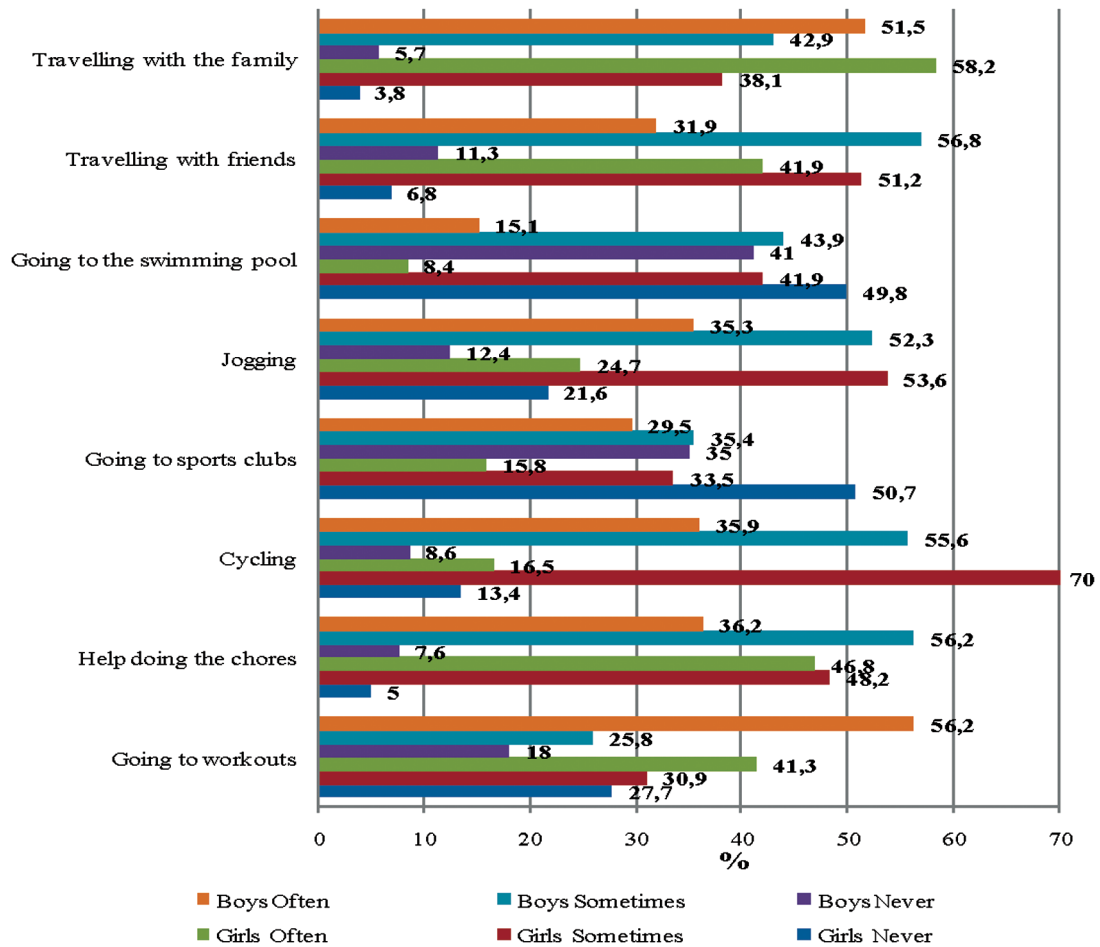


Figure 3. Girls' and boys' choice of physically active hobbies, %

Data presented in Figure 4 reveal what passive activities are chosen by 8 form students by gender. It is noticed that male students three times as much as female students play computer games. One fourth of girls and boys state that they often like to do nothing. About 40 per cent of girls and boys often spend time watching television. Male students almost three times as much as female students choose games on coin-operated gaming machines ( $\chi^2=54,653$ ;  $df=4$ ;  $p=0,0001$ ). Female students more often than male students socialise with the family, surf on the Internet, spend time with friends and almost twice as much as male students read books.

The analysis of passive and active ways of spending spare time among students enables to state that girls need more social contacts with other persons because the latter spend more time with friends, family, while boys tend to spend time surfing on the Internet, swimming, engaging themselves in active activities in the sports hall, etc.

### Conclusions and discussions

1. Subjective perception of health by eight formers of Šiauliai city progymnasiums revealed that the majority of adolescents rated their health as good and very good and about one fourth of students tended to rate their health as satisfactory; it is noticed that female students rated their health worse than male students. Female students also more often than their male counterparts tend to complain of various physical and mental ailments.

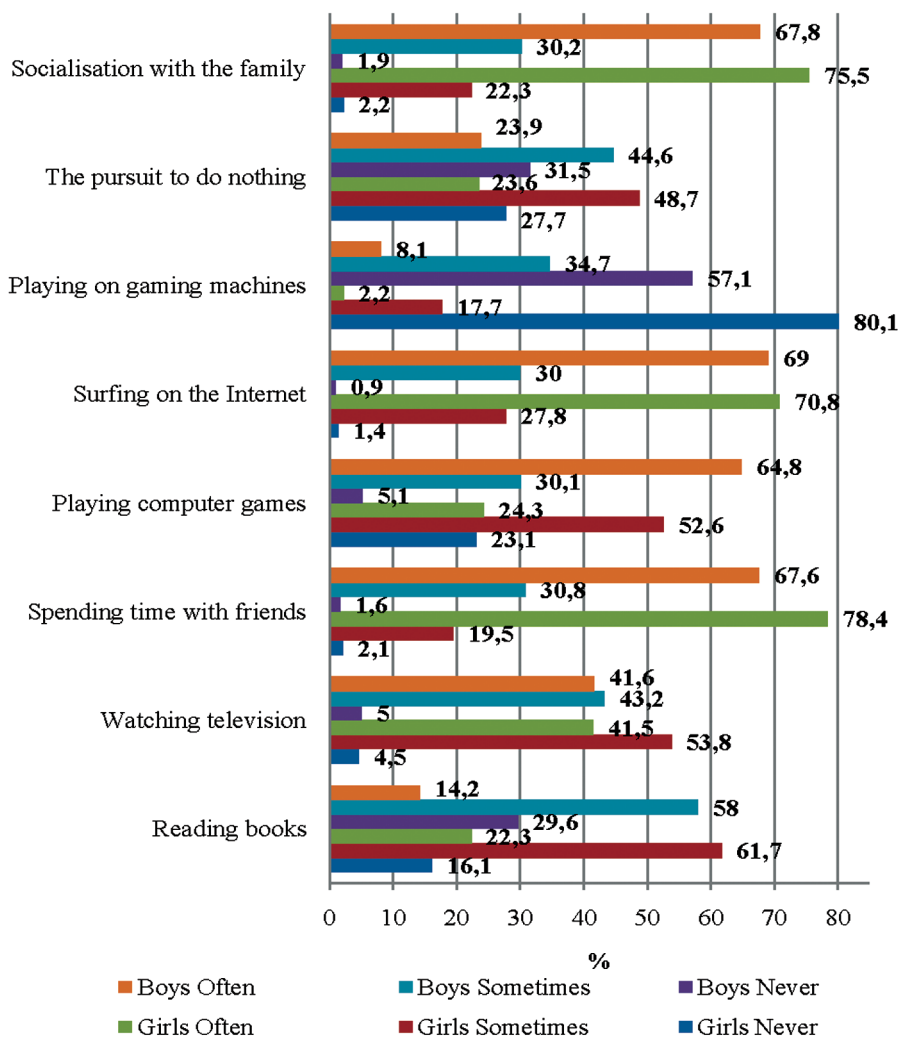


Figure 4. Girls' and boys' choice of passive activities, %

2. Evaluating students' attitude to physical activeness, it is noticed that boys treat themselves as more physically active than girls and more often approve of positive effect of physical activeness on the organism. However, girls were far more active rating the effect of physical activeness on the body weight.

3. Having analysed research data about passive and active ways of spending spare time, it was found that boys considerably more often chose active ways of spending leisure and this is in line with their own perceived positive rating of physical activeness, while girls tended to choose more passive activities.

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## **Attitude of Progymnasiums Students towards Health and Physical Activeness**

### **Summary**

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When pupils' health is discussed, in all age periods lack of active physical activity is emphasised. Although children and adolescents are more active than the majority of adults, the age of technologies, their advancement and social environment determine students' physical activeness, which is not necessarily positive. Good computer literacy, knowledge of foreign languages are increasingly promoted, mental workload is being increased. There is less focus on pupils' healthy lifestyle education and promotion



of physical activeness (Tamošauskas et al., 2003; Kardelis & Vainienė, 2008). Insufficient attention to children's physical education in the family, parents' little physical activeness and discouraging to do exercises negatively influence children's health, suppresses the need of inborn physical activeness (Narbutienė, Rutkauskaitė & Bujanauskas, 2011). Physical activeness skills formed in childhood usually remain for the whole life. Once the child starts school, physical activeness diminishes significantly and activities distance from playing. Physical activeness is one of the most important students' leisure forms: it is a condition of good health, social and emotional wellbeing. Even short daily physical activity reduces the possibility to gain weight, improves metabolism in the organism and action of the heart (Maciulevičienė & Sadzevičienė, 2009).

**Aim of the research** was to reveal attitude towards health and physical activeness of 8<sup>th</sup> form Šiauliai city progymnasiums students.

**Method and Organisation of the Research.** The research was conducted in all progymnasiums of Šiauliai city. To perform quantitative research the questionnaire survey was chosen which consisted of health, physical activeness, active and passive leisure questions blocks. The questionnaire was compiled by the authors. The analysis of research data was performed employing the SPSS programme. 870 eight form students of Šiauliai city progymnasiums (out of 1088 pupils, which made up 80 per cent) (428 girls, 438 boys and 3 did not indicate gender) participated in the research. The mean age of the respondents is 13,8 years ( $SD=\pm 1,2$ ). Research reveals physical difficulties of pupils, it was also sought to disclose eight formers' mental complaints; therefore, they were asked to rate how often they are moody, experience tension and sleep disorders. Both male and female students named psychological difficulties similarly but one and a half as many female students are often moody, compared to their male counterparts, experience emotional tension, sleep disorders, tension caused by daily activities; however, male students feel far more physically exhausted than their female counterparts. Analysing research data, it was sought to find out pupils' subjective attitude towards their health: 20,1 per cent of female students and 15,4 per cent of their male counterparts indicated that their health was bad or satisfactory; 79,8 per cent of female students and 84,6 per cent of their male counterparts defined it as good and very good. It is noticed that boys rate their health better than girls.

Having found out how respondents rate physical activeness it was sought to find out whether this rating is really reflected in choosing ways of spending leisure, which were grouped into active and passive but which were not emphasised as separate in the questionnaire survey in order to avoid influence on the student while choosing frequency of every activity. So, male students were far more often engaged in active leisure activities, such as going to the swimming pool, jogging, going to the sports club, going to workouts than female students. The results revealed that female students more often chose travelling with the family, with friends, more often helped in doing the chores. To sum up these results, it is noticed that anyway boys more often choose a more active way of spending their leisure than girls. Generalizing the research such **conclusions could be carried out:** Majority of adolescents rated their health as good and very good and about one fourth of students tended to rate their health as satisfactory; it is noticed that female students rated their health worse than male students. Female students also more often than their male counterparts tend to complain of various physical and mental ailments. Evaluating students' attitude to physical activeness, it is noticed that boys treat themselves as more physically active than girls and more often approve of positive effect of physical activeness on the organism. However, girls were far more active rating the effect of physical activeness on the body weight. Having analysed research data about passive and active ways of spending spare time, it was found that boys considerably more often chose active ways of spending leisure and this is in line with their own perceived positive rating of physical activeness, while girls tended to choose more passive activities.

# **PASSING THE LITMUS TEST: ARE WE PREPARING YOUTH TO MANAGE BASIC HEALTH CARE NEEDS? A PRELIMINARY INVESTIGATION**

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## **Abstract**

Although there has been growing awareness regarding the importance of health literacy on the social, emotional, and health related outcomes of adults, little is known about the preparedness of high school adolescents to access, navigate, and use health related information and services as they begin to enter into independence. This study evaluates the health literacy skills of 199 youth enrolled in high school health classes in a Midwestern region in the United States. Results revealed that nearly one out of three youth demonstrated some level of risk on applied measures of health literacy, and approximately half were unaware of how to access health insurance, regularly thought about what they eat and how it influences their health, knew how to make medical and dental appointments, and were aware of their family medical history. Implications, study limitations, and recommendations for practice and future research are discussed.

*Key words: health care needs, health literacy skills, health literacy, youth health-related status*

## **Passing the litmus test: Are we preparing youth to manage basic health care needs? A preliminary investigation**

Health literacy, or the ability to understand basic health information and make sound decisions regarding health is comprised of a complex set of skills including broad reading, writing, basic math, speaking, listening, and knowledge (Nielsen-Bohlman, Panzer, & Kindig, 2004; US Department of Health and Human Services [US DHHS] 2000). Although it is well understood that poor mastery of these skills significantly impacts one's ability to manage

health related decisions, there is a growing body of literature that indicates the impact of limited health literacy extends well beyond an individuals' health related decision making (e.g., Bartley, 1994; Berkman et al., 2011; Jusot, Khlat, Rochereau, & Sermet, 2008; Vernon, Trujillo, Rosenbaum, & DeBuono, 2007). For example, over the past two decades, studies have found that low health literacy is linked with a myriad of poor health outcomes including increased rates of chronic health conditions (e.g., high blood pressure, diabetes, asthma); less knowledge regarding management of chronic illness; more frequent hospitalizations; less frequent use of preventative care; lower reports of overall health status; lower rates of health insurance coverage; and increased overall healthcare costs (Baker et al., 2002; Baker, Parker, Williams, & Clark, 1997, 1998; Friedland, 1998; Howard, Gazmararian, & Parker, 2005; Kalichman & Rompa, 2000; Scott, Gazmararian, Williams, & Baker, 2002). Associations have also been found between poor health literacy and non-health related outcomes such as increased feelings of stigma and shame and higher levels of unemployment and economic instability (Baker et al., 2002; Baker et al., 1997; Howard, Gazmararian, & Parker, 2005; Parikh, Parker, Nurss, Baker, & Williams, 1996).

While often considered in terms of the negative health and economic impact on the individual with poor health literacy, the Institute of Medicine (2004) has proposed that health literacy is not solely a patient deficit; rather the consequences affect medical care quality, costs, and health disparities across the population (Parker & Ratzan, 2010). This is perhaps most apparent in studies evaluating the national economic impact of low health literacy. For example, in their report, *Low Health Literacy: Implications for National Health Policy*, Vernon et al., (2007) estimate annual costs of low health literacy to range between \$106 and \$238 billion, or between 7 and 17 percent of all personal health care expenditures in the United States. To understand the magnitude of these costs, Vernon and colleagues note that these costs are equal to the cost of insuring all of the more than 47 million people who lacked health care coverage in the United States (Almader-Douglas, 2013). Further, they estimated that when one considers the future costs of low health literacy and the lack of education directed at addressing these key skills, the real societal costs of low health literacy are more likely to be in the annual range of 1.6 to 3.6 trillion dollars (Almader-Douglas, 2013).

Given the tremendous personal and societal costs of low health literacy, it is imperative that national efforts be made to address poor health literacy through intervention as well as prevention. However, while the health literacy status of adults in the United States has received much attention over the past two decades (US DHHS Office of Disease Prevention and Health Promotion [US DHHS ODPHP], 2000), little attention has been given to the health literacy of adolescents (Brown, Teufel, & Birch, 2007; Chisolm & Buchanan, 2007; Davis et al., 2006; Manganello, 2008). Research and intervention with the adolescent population is a necessary component in combatting poor health literacy as healthy behaviors developed during adolescents have a lasting and preventative impact on future health related outcomes and decisions (Manganello, 2008). Further, more than ever, adolescents are independently managing chronic health conditions such as asthma and diabetes and are accessing health-related management information through web based resources and social media (Brown et al., 2007; Gray, Klein, Noyce, Sesselberg, & Cantrill, 2005; Manganello, 2008). These advancements have increased the mechanisms for accessing health information, however, little is known about youths' abilities to understand this health information; access preventative care, treatment, and insurance; and make sound decisions regarding personal health care needs.

Given the dearth of research on the health literacy status of school aged youth, the primary **purpose of this study** was *to begin to evaluate and describe the health literacy of adolescents*. Specifically we sought *to evaluate youth health literacy skills, perceptions of preparedness to address health related care, and youth health-related status*. Although limited

in sample size, exploratory analyses were also conducted to examine potential differences between male and female youth.

### Method

All project procedures were approved by the University's Institutional Review Board. Youth were recruited from 31 health education classrooms across 6 area high schools in the Midwest of the United States. Recruitment consisted of the following procedures. First, each health teacher was provided with (a) a brief study overview to read in class and (b) consent packets for youth to take home to their parents. Seven-hundred and thirty-three packets were distributed, each including a parental consent form and a youth information sheet. Second, for youth returning completed parental consent forms ( $n = 221$ ), youth assent was obtained prior to participation. The final sample consisted of 199 youth, with 3 youth declining participation, and 19 absent the day of assessment.

Student participants ranged in age from 15 to 19 years with a mean of 15.96 years ( $sd = 0.76$ ). A majority of participants were female (60%;  $n = 120$ ) and reported that their primary language was English (91%,  $n = 181$ ). The sample was relatively diverse in terms of their ethnic and racial background with 131 White/non-Hispanic (65.8%), 14 Black/non-Hispanic (7.0%), 15 mixed race/non-Hispanic (7.5%), 25 Hispanic (12.6%), and 14 children of other backgrounds (e.g., Native American and Asian). Slightly over 12% ( $n = 24$ ) were receiving special education support at the time of data collection.

### Measures

As there are no comprehensive instruments designed to assess the broad construct of adolescent health literacy (Davis et al., 2006; Jordan, Osborne, & Buchbinder, 2011), a battery of measures was included to assess youth's ability to access, process, understand, and use health related information. Measures included the Newest Vital Sign (NVS; Weiss et al., 2005), select items from the Casey Life Skills Assessment (CLSA; Casey Family Programs, 2011), and the Child Health and Illness Profile: Adolescent Edition (CHIP-AE; Starfield et al., 1994).

**NVS.** The NVS assesses health related reading comprehension and numeracy by providing individuals with a specially designed ice cream nutrition label which is used to answer six applied items (e.g., If you eat the entire container, how many calories will you eat?). Each of the 6 items are administered orally and individually, and on average, take less than 5 minutes to complete. The NVS has been widely used and validated to adequately assess health literacy in broad populations from young children to older adults and across racial/ethnic minority populations (Pfizer, 2011). Participant score sare calculated by adding the total number of correct responses. Scores are interpreted using three categories: high likelihood of limited health literacy (0-1 correct responses); possibility of limited health literacy (2-3 correct responses); and adequate health literacy (4-6 correct responses; Weiss et al., 2005).

**CLSA.** Eight items relevant to the research aims of this study were selected from the 2013 CLSA. The CLSA is a widely used measure developed to address youth's preparedness for transition into adulthood. Originally developed for vulnerable populations in foster care (Bressani & Downs, 2002), the CLSA has been widely adapted for use in the development of transition planning for at-risk youth with and without disabilities across broad settings (Nollan, Horn, Downs, & Pecora, 2002). Each of the eight questions were designed to capture current mastery of independent health related skills and include five response options (No; Mostly No; Somewhat; Mostly Yes; Yes; Casey Family Programs, 2011). For interpretation purposes, response options were categorized into three groups: No/Mostly No; Somewhat; and Mostly Yes/Yes.

**CHIP-AE.** The CHIP-AE is a self-administered comprehensive adolescent health status and health-related quality of life questionnaire (initial version developed by Starfield et al., 1993, revised by Starfield et al., 2000). Five domains (Satisfaction, Discomfort, Resilience, Disorder, and Achievement) consisting of 153 items were completed by youth. Items in *Satisfaction* ( $n = 12$ ) include questions regarding youth self-esteem, satisfaction with self, and overall perceptions and beliefs about one's health. Items in *Discomfort* ( $n = 45$ ) include questions regarding youth physical and emotional discomfort, and limitations of age-appropriate activity due to mobility or other barriers. *Resilience* ( $n = 37$  items) evaluates youth perceptions of family involvement (support/activities), social problem solving, physical activity, and home safety. Items in *Disorders* ( $n = 43$ ) include questions regarding specific health conditions, injuries, or impairments that may be related to long term, recurrent, or present health symptoms. Finally, items in *Achievement* ( $n = 16$ ) are divided into two sub sections, *Academic* ( $n = 10$ ) and *Work* ( $n = 6$ ). *Academic Achievement* includes questions related to specific youth educational performance, while *Work Achievement* includes questions related to work performance. Across domains, higher scores indicate better health related quality of life. The *Discomfort* domain is scored in such a way that higher scores denote an "absence of" negative symptoms (Starfield et al., 2000).

### Procedure

Youth surveys were completed in health classes during the regular school day. On average, it took students 24 minutes to complete the demographic, CLSA, and CHIP-AE items and 5 minutes to complete the NVS. Prior to survey completion, youth were given an overview of the project by research staff and were reminded of their rights to assent or decline participation. Assenting youth individually completed a packet containing the demographic, CLSA, and CHIP-AE items in the classroom. Youth were individually removed from the class to complete the NVS in separate areas of the school (e.g., library, conference room) by one of 9 trained data collectors.

Data collectors were trained by the principal investigator and University staff. Training activities included an overview of the study's purpose, an introduction to the assessment instruments, detailed instructions on working with participants, and role plays of administering the assessments. After completing training, data collectors were tested on key data collection protocol and were required to pass the test with a score of 95% or higher.

### Data Analysis

Descriptive statistics were computed for the NVS, each subscale of the CHIP-AE, and the CLSA items. Independent  $t$ -tests ( $t$ ), Wilcoxon sum-rank tests ( $W$ ), and chi-square ( $\chi^2$ ) analyses were used to assess differences between male and female students. Cohen's  $d$  effect size estimates were computed for each  $t$ -test and common language effect sizes (CL; McGraw & Wong, 1992) were computed for the significant Wilcoxon sum-rank tests using group medians rather than means. CL effect sizes represent the probability that a randomly selected member of the focal group (e.g., males) would have a higher score than a randomly selected member of the reference group (e.g., females). For both Cohen's  $d$  and CL, larger absolute values indicate larger effects. A CL of .50 is equal to a Cohen's  $d$  of 0.0 both indicating that there is no difference between groups. Cohen's  $d$  values of .2 (CL = .56), .5 (CL = .64), and .8 (CL = .71) are generically used to represent small, medium, and large effects (Cohen, 1988).

### Results

Results of the NVS health literacy measure revealed that nearly 30% of youth demonstrated some degree of risk, with 8% scoring within the high-likelihood of limited

health literacy range (see Table 1). In response to the CLSA, when asked items regarding youth perceptions of their preparedness to address important health-related management skills, overall self-report ratings revealed risk (i.e., rating of Somewhat or No/Mostly No) across items related to consideration of diet on health (item #2, 45%), ability to access medical and dental appointments (item #5, 47%), knowledge of family medical history (item #7, 54%), and accessing health insurance (item #8, 82%; see Table 2). Finally, results of the CHIP-AE indicate that almost one third of youth were dissatisfied with their health status and general feelings of self-esteem, and nearly one out of four youth shared that they presently experience symptoms of physical discomfort (emotional, physical, or a limitation in activity; see Table 3). However, most youth indicated average to above average confidence in Resilience; specifically, the ability to problem-solve, engagement in physical activity, and adequate family involvement (88%). The majority of students (79%) also self-reported average to above average ranges for Achievement in School (e.g., homework performance, on honor roll, failed a class) and in the Work Achievement domain (e.g., work attendance, compliance, quantity of work).

**Table 1.** Youth NVS Scores by Risk Category

NVS Score Category	<i>n</i>	%
High Likelihood of limited HL	16	8.0
Possibly limited HL	45	22.6
Adequate HL	138	69.4

**Table 2.** Ansell-Casey Life Skills Assessment (selected items)

	No/ Mostly No	Somewhat	Mostly Yes/ Yes
1. I think about what I eat & how it impacts my health.	24 (12.12%)	66 (33.3%)	108 (54.5%)
2. I understand how to read food product labels to see how much fat, sugar, salt, and calories the food has.	13 (6.6%)	45 (22.7%)	140 (70.7%)
3. I can take care of my own minor injuries and illnesses.	9 (4.5%)	32 (16.2%)	157 (79.3%)
4. I can get medical & dental care when I need it.	6 (3.0%)	16 (8.1%)	176 (88.9%)
5. I know how to make my own medical/dental appointments.	53 (26.8%)	40 (20.2%)	105 (53.0%)
6. I know when it is better to go to a doctor's office instead of an emergency room.	32 (16.2%)	160 (80.8%)	
7. I know my family medical history.	70 (35.4%)	92 (46.4%)	
8. I know how to get health insurance when I am older than 18.	48 (24.2%)	36 (18.2%)	

<sup>a</sup> Total respondent differs from overall total of 199 due to one uncompleted survey.

**Table 3.** Child Health and Illness Profile- Adolescent Edition

	Below (<17)	Average (17-23)	Above (>23)
Satisfaction	56 (28.1%)	100 (50.3%)	43 (21.6%)
Physical Discomfort	49 (24.6%)	105 (52.8%)	45 (22.6%)
Resilience	23 (11.8%)	64 (32.8%)	108 (55.4%)
Disorders	41 (20.8%)	58 (29.4%)	98 (49.8%)
Achievement: School	41 (20.7%)	82 (41.4%)	75 (37.9%)
Achievement: Work	11 (21.5%)	21 (41.2%)	19 (37.3%)

### Gender Differences

Male and female students had statistically equivalent NVS total scores ( $W = 11493.0$ ,  $p = .247$ ) and categorical scores ( $\chi^2(2) = 0.36$ ,  $p = .835$ ). Males and females did, however, differ significantly on ratings of overall general health on the CHIP-AE ( $W = 5779.0$ ,  $p < .01$ ,  $CL = 0.62$ ), with males reporting better overall health; total physical discomfort ( $t(196) = -5.50$ ,  $p < .001$ ,  $d = -0.80$  [-1.10, -0.50]) with males reporting lower levels of discomfort; and total health satisfaction ( $t(196) = 3.45$ ,  $p < .001$ ,  $d = 0.50$  [0.21, 0.79]) with males reporting higher satisfaction. Males also reported that they are better informed about how to get health insurance ( $W = 11098.0$ ,  $p < .05$ ,  $CL = 0.75$ ) while females reported that they are more mindful about what they eat ( $W = 6525.5$ ,  $p < .01$ ,  $CL = 0.71$ ).

### Discussion

A person's ability to navigate the healthcare system, manage chronic disease, care for personal health needs, and make decisions regarding health care plans, insurance, and providers affects health and economic outcomes of the individual as well as the economic system and provision of health care across the country (Almader-Douglas, 2013; Baker et al., 2002; Baker et al., 1997, 1998; Friedland, 1998; Howard et al., 2005; Kalichman & Rompa, 2000; Scott et al., 2002; Vernon et al., 2007). While efforts to better understand the health literacy and health-related needs of the adult population have continued to increase over the past two decades, much remains unknown about the health literacy and health literacy related needs of adolescents beginning the transition to adulthood.

As a necessary prerequisite to developing health-literacy curricula to better prepare youth to navigate the health-care system, this study examined the health literacy and health related preparedness of high-school youth. Two of the three measures included self-report which allowed youth to rate their health and health-literacy on a continuum, and one measure assessed specific applied math and comprehension health related skills (i.e., NVS). Overall, findings were mixed in regards to youth health literacy. As a group, the majority (66%) viewed their health as either "excellent" or "very good" and none reported their health as "poor". However, this leaves nearly one-out-of-three youth reporting some concern regarding their health. Findings on the measures of overall health literacy and specific health related problems reveal similar patterns. Specifically, results of the NVS were fairly encouraging showing that the majority of students possessed adequate health literacy in terms of being able to read, understand, and act upon health related information. There were, however, a considerable number of youth (31%) who scored in the "possible limited health literacy" and "high likelihood of limited health literacy" ranges. When evaluated separately, for the most

part, males and females scored more alike than different. However, across a few key variables, males and females differed in regards to ratings of overall general health, physical discomfort, and health satisfaction where males felt as though they had slightly better general health, reported far less physical discomfort, and had higher health satisfaction. Males also reported that they are better prepared to obtain health insurance.

### **Implications**

These findings offer insights into the health literacy, self-reported health, and health-related quality of life amongst a sample of school aged adolescents in the Midwest of the United States. In general, the results reveal that while youth feel very prepared in some areas of health care management, continued education and support towards mastery of their personal health needs may be needed for youth to more fully prepare them for independence and self-management of health upon graduation. While additional research is needed, these findings suggest important implications for curriculum developers and health educators in secondary school settings.

For example, youth may benefit from a targeted curriculum that addresses health care management skills such as accessing health related information and insurance, identifying and preparing for doctor visits, setting medical appointments, reading and interpreting medical information, interpreting food labels, family planning, identifying community assistance and resources, and basic injury care. A structured curriculum designed to address these and other personal health-care needs may help to better prepare youth to successfully navigate the health-care system and make sound health-related decisions upon independence.

As individual youth health risks and information may not be appropriate to discuss in the classroom setting, parental involvement may also play an important role in helping the schools prepare youth for independent management of their health care needs post-graduation. Specifically, parents can assist youth with developing and completing a personal health portfolio that documents important family risk factors, prior health care providers, immunization and other health records, and insurance information. This portfolio can be updated as the adolescent reaches independence and can be beneficial as youth begin to independently access health-care providers and make important decisions that impact their short and long-term health and general well-being.

### **Limitations and Future Studies**

Several study limitations are important to note. First, all participants attended high schools across the same school district in the Midwest. Replication of this study is needed with samples across the US and should include youth who are representative of rural and urban populations as curriculum, access, and exposure to health related information may vary across geographic areas and settings. Second, replication of this study with a larger sample would also allow for more sophisticated analysis including the examination of subgroups of students. For example, previous studies have found that persons with disabilities demonstrate elevated health and mental health related needs and are more likely to require life-long medical supports than their peers without disabilities (Office of Disability Employment Policy, 2013; Smith, 2009). Future research with specific subgroups such as with youth with learning disabilities, behavioral disorders, developmental disabilities, or mental health disorders would allow for more specific, targeted interventions to better prepare youth to manage health related needs after transitioning into independence. Third, given the limitations with existing measures of health literacy for the adolescent population (Davis et al., 2006; Jordan et al., 2011), these findings are limited to youth self-report and do not address all areas of health literacy. Continued research is needed for scale development and validation to better assess the broad domain of



youth health literacy and to allow for ratings across multiple respondents (e.g., parent, teacher, medical staff provider).

### Conclusions

Health well-being has been identified as an important factor in youth independence, participation in continued education, stable employment, and community engagement (Berry, 2000; Hall, Kurth, & Hunt, 2013; Kruse, 1997; Ries & Brown, 1993). When adolescents enter young adulthood ill-prepared to manage their personal health related needs, all other areas of success are significantly and negatively impacted. Moreover, the consequences of poor-health literacy extend well beyond the individual, and affect health care and economic systems across the nation. Results from this exploratory pilot study demonstrate that although some youth feel prepared to manage their personal health care needs, anywhere from one third to one half of the sample demonstrated risk for poor health literacy limitations with their ability to access and manage health related needs. Continued research is needed to replicate these findings and identify areas of need not currently addressed in high-school health curricula to better prepare youth as they transition into independence and are required to navigate the health care system, access insurance and supports, and advocate for their own health care needs.

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## **PASSING THE LITMUS TEST: ARE WE PREPARING YOUTH TO MANAGE BASIC HEALTH CARE NEEDS? A PRELIMINARY INVESTIGATION**

### **Summary**

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This study evaluates the health literacy skills of 199 youth enrolled in high school health classes in a Midwestern region in the United States. Given the tremendous personal and societal costs of low health literacy, it is imperative that national efforts be made to address poor health literacy through intervention as well as prevention. However, while the health literacy status of adults in the United States has received much attention over the past two decades, little attention has been given to the health literacy of adolescents.

All project procedures were approved by the University's Institutional Review Board. Youth were recruited from 31 health education classrooms across 6 area high schools in the Midwest of the United States. Student participants ranged in age from 15 to 19 years with a mean of 15.96 years ( $sd = 0.76$ ).

As there are no comprehensive instruments designed to assess the broad construct of adolescent health literacy (Davis et al., 2006; Jordan, Osborne, & Buchbinder, 2011), a battery of measures was included to assess youth's ability to access, process, understand, and use health related information. Measures included the Newest Vital Sign (NVS; Weiss et al., 2005), select items from the Casey Life Skills Assessment (CLSA; Casey Family Programs, 2011), and the Child Health and Illness Profile: Adolescent Edition (CHIP-AE; Starfield et al., 1994).

Results of the NVS health literacy measure revealed that nearly 30% of youth demonstrated some degree of risk, with 8% scoring within the high-likelihood of limited health literacy range. In response to the CLSA, when asked items regarding youth perceptions of their preparedness to address important health-related management skills, overall self-report ratings revealed risk across items related

to consideration of diet on health, ability to access medical and dental appointments, knowledge of family medical history, and accessing health insurance. Results of the CHIP-AE indicate that almost one third of youth were dissatisfied with their health status and general feelings of self-esteem, and nearly one out of four youth shared that they presently experience symptoms of physical discomfort. However, most youth indicated average to above average confidence in Resilience; specifically, the ability to problem-solve, engagement in physical activity, and adequate family involvement. The majority of students also self-reported average to above average ranges for Achievement in School and in the Work Achievement domain.

As a necessary prerequisite to developing health-literacy curricula to better prepare youth to navigate the health-care system, this study examined the health literacy and health related preparedness of high-school youth. When evaluated separately, for the most part, males and females scored more alike than different. However, across a few key variables, males and females differed in regards to ratings of overall general health, physical discomfort, and health satisfaction where males felt as though they had slightly better general health, reported far less physical discomfort, and had higher health satisfaction. Males also reported that they are better prepared to obtain health insurance.

Results from this exploratory pilot study demonstrate that although some youth feel prepared to manage their personal health care needs, anywhere from one third to one half of the sample demonstrated risk for poor health literacy limitations with their ability to access and manage health related needs. Continued research is needed to replicate these findings and identify areas of need not currently addressed in high-school health curricula to better prepare youth as they transition into independence and are required to navigate the health care system, access insurance and supports, and advocate for their own health care needs.

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## Information and Requirements for publications in Journal “SOCIAL WELFARE INTERDISCIPLINARY APPROACH”

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