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TYPES OF OVEREXCITABILITY IN INTELLECTUALLY GIFTED ADOLESCENT STUDENTS IN SLOVAKIA

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The aim of the study was the comparison of intellectually gifted secondary grammar school students with students from the average population of secondary grammar school students, in the level of overexcitability and prediction of intellectual giftedness through the various types of overexcitability. The research sample consisted of 88 secondary grammar school students aged 16-17 years. The target group, who were identified as intellectually gifted students, consisted of 44 students, whereas the control group consisted of 44 students from an average population of secondary grammar school students. We used tests of intellectual ability, Raven's Advanced Progressive Matrices Test, Intelligence Structure Analysis, and Urban's Figural Test of Creative Thinking to identify intellectually gifted secondary grammar school students. Types of overexcitability were assessed by means of the Overexcitability Questionnaire. Statistical analysis showed significant differences in the level of overexcitabilities between intellectually gifted secondary grammar school students and students from the average population of secondary grammar school students. Significant predictive power of intellectual and emotional overexcitability was found in relation to intellectual giftedness.

Keywords: giftedness, intellectually gifted student, overexcitability, types of overexcitability



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LITERATURE REVIEW

Giftedness is a multidimensional construct consisting of several items and each author dealing with this construct presents different definitions and different components of giftedness which interact with one another. The authors (Baldwin & Vialle, 1999; Jarvis, 2009) suggest that there was a gradual divergence of conceptions of talent as a construct, which describes talent as inherent, stable, and indivisible, measurable by IQ tests and reflecting academic performance. Tannenbaum's star model (2003) defines giftedness as the ability to produce thoughts, creations, artistic performance, or services, in a way which is creative or skillful. In Renzulli's case, talent may be defined as the intersection of three key variables, which are task commitment or motivation, exceptional ability, and creativity, and which mutually affect one another and allow the individual to develop his/her talent (Reis & Renzulli, 2009). In the 1970s Dabrowski presented the term overexcitability, which he considered an inevitable mental reaction of a gifted individual. Dabrowski used the term overexcitability for the rise of mental activity, as well as different forms of answers, experiences, and actions, which are above the standards, compared to the typical forms of expression (in Piechowski, 1986; Piechowski & Colangelo, 1984).

Types of overexcitability

Dabrowski states that intense mental reactions (overexcitability) are very effective for achieving a higher level of emotional and moral development. Overall, the developmental potential of an individual is based on five overexcitabilities, as well as a specific talent, abilities, and intelligence (Wirthwein & Rost, 2011). In his work, Dabrowski (1970, 1996) defines overexcitability (excessive mental excitability) as a higher than average capacity for using internal and external impulses, which is based on higher than average sensitivity of the nervous system. Based on his observations of creative and gifted individuals, Laycraft (2009) points out the factors which are the condition for the development of an individual. These are mental overexcitabilities: psychomotor, sensual, imaginal, emotional, and intellectual.

Laycraft (2009) states that gifted children or youth have an exceptional perception of both the external and internal world. This sensitivity (excitability) attracts them to new experiences, which create a wide range of emotions, internal tension and conflicts with oneself, as well as the environment. De Bondt et al. (2019) emphasize developmental process and overexcitability, which are connected to higher-level emotions. Intelligence and higher-level emotions cooperate closely at

high levels of psychic functioning, which are the basis for the types of overexcitabilities. Lewis et al. (1992) present Dabrowski's theory, which postulates the ability of gifted individuals to handle overexcitability, which makes them more prone to mental instability. They describe overexcitability as high sensitivity and intensity in five areas.

Piechowski and Miller (1995) present Dabrowski's finding that increased overexcitability in gifted and creative people points to the intense daily experience of life experiences. Psychomotor overexcitability is defined as an energy level; it is a certain capacity for human activity and energy. Sensual overexcitability points to an expanded and enriched sensual experience. Imaginational overexcitability refers to fantasyland, dreams and resourcefulness, suggestive imagery, the richness of associations and a liking of the unusual. Some authors (Dabrowski, 1996; Mendaglio & Tillier, 2006; Piechowski, 1986, 2006) state that intellectual overexcitability is most often linked to intense mental activities, theoretical thinking, a desire to understand and testing of the unknown. Emotional overexcitability is manifested with a strong attachment to a person, things, or places. Dabrowski (1996) states that intellectual, imaginational, and emotional overexcitabilities are decisive for the development of a personality. Sensual and psychomotor overexcitabilities play a support role in the development of a personality. The highest level of development is possible when all forms of overexcitability are present with emotional overexcitability being the strongest of them. Since gifted and talented individuals have a higher developmental potential, Piechowski and Colangelo (1984) assume that gifted people are more prone to overexcitabilities and therefore they have a higher level of overexcitabilities compared to the average population. Furthermore, it is proven that the tool to measure overexcitabilities can be used to identify gifted individuals (Ackerman, 1997; Bouchard, 2004).

Prediction of giftedness through overexcitabilities

Chang and Kuo (2013) present some research studies, which point to emotional overexcitability, which was significantly higher in gifted students than in students from the average population (Bouchet & Falk, 2001). Using open questions of the Overexcitability Questionnaire, Piechowski (1986) argues that intellectually gifted adults have higher scores of sensual, intellectual, imaginational, and emotional overexcitability than a heterogeneous group. Gallagher (1985) and Schiever (1985) have proven a mutual relation between the score of the Overexcitability Questionnaire and measuring creativity in children. Chang and Kuo (2013) present the finding that gifted

students had higher scores of sensual overexcitability than students from the average population. In general, these studies point out the fact that intellectual overexcitability is the most important feature of gifted and talented students. The relation between intellectual overexcitability and cognitive abilities can be tight. Based on this knowledge, we can contemplate why a large number of studies attempt to develop scales of overexcitability which are capable of identifying gifted and talented students. Older academically gifted students have demonstrated more intellectual and emotional overexcitabilities, while younger gifted students have demonstrated a significantly higher level of imaginal overexcitability than their older peers (Gross et al., 2007; Piirto et al., 2008; Tieso, 2007). The identification of overexcitabilities allows choosing an appropriate approach to gifted students. Al-Hroub and Krayem (2020) point to different types of overexcitabilities that allow teachers and parents to identify individual overexcitability and as a result, minimize conflicts between gifted students and their peers, teachers and parents.

The aim of the study is to compare individual overexcitability levels of intellectually gifted secondary grammar school students and high school students from the average population, as well as a prediction of intellectual giftedness using individual types of overexcitability given similar research implemented abroad (Ackerman, 1997; Bouchard, 2004).

Based on the theoretical framework, we have set the following research goals:

a) determine whether intellectually gifted secondary grammar school students have a higher level of intellectual, imaginal and emotional overexcitabilities than high school students from the average population in terms of intellectual giftedness;

b) determine whether intellectual, imaginal, and emotional overexcitabilities highly predict intellectual giftedness.

METHOD

Research sample

The basic research sample consisted of high school students aged 14 to 18 (first through fourth high school grade), while the average age of the respondents was 16.32 with a standard deviation of 1.17. The research sample consisted of 300 respondents, 193 girls and 107 boys, who are high school students in the Prešov and Košice County in Slovakia. The respondents were selected for the research sample in two rounds, based on selection and subsequent identification from the total number of 300 respondents. The nomination of gifted indi-

viduals by the teacher reduced the research sample to 180 respondents, 80 girls and 100 boys. After the actual identification of intellectually gifted students (by administering intellectual abilities and creativity tests), the research sample was narrowed down to 88 high school students aged 16 to 17 (second and third high school grade) with an average age of 16.42 and a standard deviation of 0.50. The target group of identified intellectually gifted students consisted of 44 students and the comparison/control sample consisted of 44 students from the average population. The selection criterion of the control groups was the balance of both groups given the age and gender. The respondents in individual groups achieved different results on Raven's Progressive Matrices, Intelligence Structure Analysis and Urban's Figural Test of Creative Thinking. Based on gender, the boys were dominating, specifically 26 boys and 18 girls in each group.

Identification criteria of intellectually gifted secondary grammar school students

The identification of intellectually gifted secondary grammar school students was done through implementing the research in the gifted classes and in the mathematical classes, while the students were selected for these classes based on a psychological examination. The research was also implemented in standard high school classes, from which students were selected for the control group.

The first step was the actual nomination by the teacher (the teacher was to mark students, who achieve high performance in mathematics and where intellectual giftedness is assumed), which reduced the selection to 180 students, who were administered intellectual abilities and creativity tests. Two groups were generated from the sample of 180 high school students, the target group and the control group. Specific differences between the individual groups were determined through differential statistics and they are presented in the research results of this study.

Based on the results of individual intellectual abilities and creativity tests, intellectually gifted students were those who achieved the highest score in individual tests – in the subtests of intellectual abilities and in the creativity test, specifically as mentioned by Vendel and Michňo (2000), with a performance of at least two standard deviations above the average gross score of individual subtests administered to the students. Intellectually gifted students achieved a high gross score in the intellectual abilities tests, which was subsequently converted to percentile given their age. Index of intellectual giftedness included the following:

- a) gross score in Raven's Advanced Progressive Matrices transferred into percentile 95 and above (40% of index);
- b) gross score in Intelligence Structure Analysis transferred into percentile 95 and above (40% of index);
- c) gross score of Urban's Figural Test of Creative Thinking was higher than 2 standard deviations from the norm (20% of index).

This identification criterion was confirmed also by Lovett and Lewandowski (2006) and Vendel and Michňo (2000).

Given the specific nature of the research sample, the identification of intellectual giftedness was necessary at the very beginning, which consisted of two steps. In the first step the classes were selected, designated as classes for the gifted or classes with a mathematical focus, which was followed by a nomination by the teacher. Dočkal (1999), Mesárošová (1998) and Clark (1992) recommend multi-round selection, which allows for better and simpler selection of gifted students from the average population of high school students. The used methodologies, consisting of general rational abilities tests, subtests measuring special mathematical abilities and a creativity test, were selected with respect to the intellectual giftedness as well as the multidimensional construct, which cannot be measured using only intelligence tests focused on intellectual tasks. Aiken (1973) discovered in his research that creativity is the key variable of intellectual abilities.

The control group, which consisted of 44 students, was based on the intellectual giftedness of the average population of high school students, and it was identified based on the achieved gross score of Raven's Advanced Progressive Matrices, subtests of the Intelligence Structure Analysis and Urban's Figural Test of Creative Thinking, whereby the students who were assigned to the control group achieved in the tests a gross score which transferred into percentile was lower than 90.

The identified intellectually gifted secondary grammar school students were compared in their levels of intellectual abilities and creativity with students who achieved average values in Raven's Advanced Progressive Matrices, Intelligence Structure Analysis and in Urban's Figural Test of Creative Thinking, and who were a control group to the group of intellectually gifted students given their gender and age.

Measures

Three research methods were used for the actual identification of intellectual giftedness: Raven's Advanced Progressive Matrices, Subtests of the Intelligence Structure Analysis and Urban's Figural Test of Creative Thinking. Overexcitability and its types were determined based on the Overexcitability Questionnaire.

Raven's Advanced Progressive Matrices. Raven's Advanced Progressive Matrices (set II) by Raven et al. (1991) measure non-verbal intelligence. The students were administered 40 tasks of subset I, which served as practice tasks (without time limit). Subsequently subset II was administered, which consisted of 36 tasks with a 40-minute time limit. The internal reliability of the test was Cronbach's $\alpha = 0.79$. Based on the results of the individual tasks, a gross score was calculated for each student and they were assigned the corresponding percentile given their age.

Intelligence Structure Analysis ISA. We used the subtests of the intelligence test – Intelligence Structure Analysis ISA (T-309) by Fay et al. (1998) (as modified by Kováč) to capture mathematical and verbal abilities. Specifically, we have used two subtests of mathematical thinking: completing a series of numbers and practical calculations. We have administered two subtests of verbal thinking to the students: searching for common features and the creation of terms. The reliability of the used subtests was Cronbach's $\alpha = 0.86$. Subsequently, the gross score for each subtest of the Intelligence Structure Analysis was calculated, and then an overall gross score, which was assigned the corresponding percentile given the age of the student.

Urban's Figural Test of Creative Thinking. In the test it was necessary to complete unfinished shapes, while the test was not time-limited. Overall, 11 items were assessed based on the six test figures processed. Cronbach's α was 0.82. Subsequently, a gross score for each student was calculated, given his or her unusual and creative solution of given tasks. The higher the score, the higher level of creativity the student has.

The Overexcitability Questionnaire. The questionnaire of excessive mental excitability was created by Lysy and Piechowski (1983). It determines five types of overexcitability (psychomotor, sensual, imaginal, emotional and intellectual). The questionnaire consists of 20 items in the form of open questions. It is necessary to quantify the answers of the students and numbers from zero to three are assigned to individual answers. The level of overexcitability depends on the level of intensity and the extent of processing the given answer. If the respondent does not answer a question, his or her answer is rated zero. A weak answer is rated one, an answer with a clear expression of overexcitability is rated 2 and an answer marked with a richness and intensity of experiences is rate 3 (Gallagher, 1985). The second most important part of the assessment key is the identification of individual overexcitabilities in the answers of the respondents, which is the identification of the form and expression of individual mental overexcitabilities. An answer to a single question can contain several types of overexcitability. Based on the assigned numeric values, it is possible to calculate the gross score for

each type of overexcitability (psychomotor, sensual, intellectual, imaginal and emotional). The higher the gross score of the respondent, the higher the level of intensity and expression of overexcitabilities. Ackerman (1997) used the Overexcitability Questionnaire by Lysy and Piechowski (1983) to identify gifted adolescents. The analyses indicate three of the five overexcitabilities (psychomotor, intellectual and emotional), which in combination are capable to correctly differentiate between gifted and non-gifted groups in 70.9% of all participants. The internal reliability of the questionnaire on the entire research sample was calculated for the 300 respondents, and Cronbach's α was 0.78.

RESULTS

In individual research stages, specifically in the identification and comparative stage, the acquired and collected statistical data were evaluated using the standards of individually used methodologies, and subsequently statistically processed using the IBM SPSS 20.00 Statistics, i.e. differential statistical methods, specifically t-tests for two independent samples and multiple linear regression.

The significance of the differences in the level of intellectual abilities and the level of creativity in identified high school students

Table 1 shows the comparison of intellectually gifted students and their level of intellectual giftedness and creativity with the students from the average population.

↪ TABLE 1
Statistically significant differences in the level of intellectual abilities and in the level of creativity of the identified high school students

Dependent variable	Level of giftedness	<i>n</i>	<i>Mean</i>	<i>SD</i>	<i>t</i>	<i>Df</i>	<i>p</i>
GS Raven	Gifted	44	26.00	1.94	10.53	10.53	< 0.001
	average	44	21.70	1.88			
GS ISA	Gifted	44	39.41	4.69	18.27	18.27	< 0.001
	average	44	17.34	6.49			
GS URBAN	Gifted	44	33.27	4.12	21.15	21.15	< 0.001
	average	44	16.09	3.47			

Note. GS RAVEN – GS of Raven's Advanced Progressive Matrices, GS ISA – Overall GS of selected subtests of the Intelligence Structure Analysis, GS URBAN – GS of Urban's Figural Test of Creative Thinking.

Table 1 shows that intellectually gifted students exhibit a higher level of intellectual abilities in Raven's Advanced Progressive Matrices, and in the subtests of the Intelligence Structure Analysis, and also a higher level of creativity in Urban's Figural Test of Creative Thinking than high school students from the average population. Based on the tests of sta-

tistical significance as presented in Table 1, it can be concluded that statistically significant differences have been proven.

Statistically significant differences within individual types of overexcitability (psychomotor, sensual, intellectual, imaginal and emotional) have been found among intellectually gifted secondary grammar school students and high school students from the average population. Table 2 shows the statistically significant differences.

☞ TABLE 2
Statistically significant differences in the level of overexcitabilities between the intellectually gifted secondary grammar school students and high school students from the average population

Types of overexcitability	Level of giftedness	<i>n</i>	<i>Mean</i>	<i>SD</i>	<i>t</i>	<i>Df</i>	<i>p</i>
Psychomotor	Gifted	44	9.05	3.67	4.37	78.02	< 0.001
	average	44	6.07	2.64			
Sensual	Gifted	44	7.23	6.57	3.77	56.40	< 0.001
	average	44	3.23	2.61			
Intellectual	Gifted	44	11.89	4.94	6.10	86	< 0.001
	average	44	5.23	3.93			
Imaginational	Gifted	44	10.57	4.12	5.04	86	< 0.001
	average	44	6.27	3.87			
Emotional	Gifted	44	17.12	7.31	6.60	73.29	< 0.001
	average	44	8.48	4.69			

Differences between intellectually gifted secondary grammar school students and high school students from the average population have been found in the levels of psychomotor, sensual, intellectual, imaginal, and emotional overexcitability in favor of the intellectually gifted secondary grammar school students.

Prediction of intellectual giftedness using factors of overexcitabilities

Given the confirmed differences in the levels of overexcitabilities between the intellectually gifted secondary grammar school students and students from the average population, the predictive power of individual overexcitabilities (specifically intellectual, imaginal and emotional overexcitability) was subsequently examined in relation to intellectual giftedness (intellectual giftedness is a set of intellectual abilities and creativity examined in intellectually gifted secondary grammar school students). The following conditions had been met before the actual use of multiple linear regressions: standard distribution of variables was tested, the dependent variable was the interval, there was low co-linearity between the independent variables and the number of respondents was greater than 25. Normality and linearity of variables were determined without extreme cases, $F < 0.001$ and the Durbin-Watson statistics was 0.880. The research analysis determined the accuracy of

TABLE 3
Prediction of
intellectual giftedness
using individual
overexcitabilities

individual overexcitabilities to predict intellectual giftedness (levels of intellectual abilities and creativity) in intellectually gifted secondary grammar school students. Individual overexcitabilities explain 45.5% of the prediction of intellectual giftedness, where $R^2 = 0.455$.

Predictors of giftedness	<i>B</i>	β	<i>t</i>	<i>p</i>	Collinearity statistics	
					Tolerance	VIF
Psychomotor overexcitability	0.55	0.08	1.34	0.18	0.634	1.578
Sensual overexcitability	0.40	0.07	1.10	0.28	0.597	1.674
Intellectual overexcitability	1.09	0.24	3.45	< 0.001	0.484	2.064
Imaginational overexcitability	-0.01	-0.01	-0.03	0.98	0.563	1.776
Emotional overexcitability	0.60	0.20	2.75	< 0.001	0.519	1.927

Intellectual and emotional overexcitability significantly contribute to intellectual giftedness. Intellectual overexcitability contributes the most to the prediction of intellectual giftedness in intellectually gifted secondary grammar school students.

DISCUSSION

This section is focused on explaining the research results and is divided into three areas: nomination of the intellectually gifted students, the differences in the types of overexcitability and characteristics of the tool of overexcitability and predictive power of overexcitabilities.

The first identification criterion for the selection of gifted students was the evaluation of giftedness from the teachers' perspective (nomination by the class teacher). Class teachers had evaluated the students especially based on their academic performance, approach to their studies and regarding their effort and popularity in the school environment. Stereotyping on the part of the teacher may be considered in this context, which is emphasized by the authors Al-Hroub and Whitebread (2008), who stated that teachers tend to stereotype giftedness, focusing only on academic giftedness. Hardworking students with a high level of academic performance were selected based on the nomination of the teachers, and also other talent criteria had to be taken into consideration. The class teachers correctly nominated 25 intellectually gifted students, which represents (56.8%) of the intellectually gifted students identified by us. The evaluation of the students may be subjective to a significant extent and linked to the positive evaluation of the behavior of the students by the teacher and his/her subsequent nomination. Authors (Al-Hroub & Whitebread, 2008; Al-Hroub & Krayem, 2018) emphasize that the teachers' nomination was correlated with positive social characteristics of students (such as independence, responsibility,

and social sensibility). Nomination by the teacher was the primary criterion for the selection of intellectually gifted students, however, the intellectual abilities tests were administered to whole classes, not only to the nominated students.

The comparison of intellectually gifted secondary grammar school students and students from the average population found differences in the levels of emotional, intellectual, imaginal, psychomotor, and sensual overexcitabilities in favor of the intellectually gifted secondary grammar school students. Our results are consistent with original research by Dabrowski (1972) and Dabrowski & Piechowski (1977), who found that higher scores of emotional, intellectual and imaginal overexcitabilities in gifted samples compared to nongifted ones are the differentiating factor of the two groups of gifted and nongifted. Based on the statistically significant differences found, it is possible to state that the Overexcitability questionnaire is suitable for identifying intellectual giftedness (Cronbach's $\alpha = 0.78$).

Intellectually gifted students achieved the highest score in emotional overexcitability, which according to Hazell (1999) is linked to supersensitivity and also to isolation on the part of the students. Emotional sensibility in the case of intellectually gifted students appears to be a significant element, which is beneficial for understanding the unique nature of the gifted, whereby from the students' perspective, giftedness may be viewed negatively, because they are different from their peers and they react sensitively to their exceptional abilities both positively and negatively. The differences in the factor of intellectual overexcitability have confirmed the assumption that intellectually gifted students have a score statistically higher than their peers from the average population. According to Wirthwein and Rost (2011), individuals with a high level of intellectual overexcitability are characterized by evaluating their own ability to solve problems and they can reflect on the area of general intellectual abilities they have. From the perspective of self-evaluation of intellectual giftedness, intellectual overexcitability is an important factor in the realization that the individual is gifted and exceptional in the field of intellectual abilities. Using the intellectual overexcitability scale, the individual can reflect on his/her intellectual abilities and develop his/her potential of general intellectual abilities. Statistically significant differences have been found in the area of psychomotor overexcitability between intellectually gifted students and students from the average population, and the difference in the average score was the lowest of all overexcitabilities. The research finding is consistent with previous research by Piechowski & Miller (1995) and Piechowski & Colangelo (1984), who state that psychomotor overexcitability was not one of the top three in the overexcitability pro-

file. Although psychomotor overexcitability is not crucial in the identification of intellectual giftedness, it plays an important role related to the energy it gives to the gifted students to remain persistent.

Given the statistically significant results and the average score of overexcitabilities, emotional and intellectual overexcitabilities differentiate best between intellectually gifted students and students from the average population. The individual steps of selection of the intellectually gifted students, as well as nomination by the teachers, the intellectual abilities tests and actual comparison of overexcitabilities, were preconditions for the precise identification of intellectual giftedness. However, only linear regression has confirmed the predictive power of intellectual and emotional overexcitabilities, which significantly contribute to the prediction of intellectual giftedness, while psychomotor, sensual and imaginal overexcitabilities do not significantly contribute to the prediction of intellectual giftedness. Our research findings are partially confirmed by previous studies (Dabrowski, 1996; Chang & Kuo, 2013; Piechowski et al., 1985), which point out the importance of the three overexcitabilities; specifically, the imaginal, intellectual and emotional overexcitabilities, which are crucial for the development of the personality and the actual potential, and through which it is possible to easily differentiate gifted individuals from the average population.

Significant predictive power has not been proven for the level of imaginal overexcitability in relation to intellectual giftedness, which some authors (Dabrowski, 1996; Chang & Kuo, 2013; Piechowski et al., 1985) consider one of the three most important in relation to giftedness. Emotional and intellectual overexcitabilities significantly contribute to the prediction of intellectual giftedness, and some authors (Dabrowski, 1996; Mendaglio & Tillier, 2006; Piechowski, 1986, 2006) state that intellectual overexcitability is most commonly linked to intense mental activities, theoretical thinking, a desire to understand and test the unknown. This indicates that the selection of intellectually gifted students is a complex and complicated process, which should be implemented by experts, and that it is necessary to take into consideration not only the actual performance in the intellectual abilities tests, but also the affective factors of the individual, which were tested through types of overexcitability.

Limitations and perspectives

Limitations of the study may include the specific nature of the research sample and the resulting low count of the research sample – intellectually gifted secondary grammar school students and gender disproportionality, through which it was not possible to determine gender differences. The limits also in-

clude the difficulty of completing the methodology used to determine overexcitability. Given the specific research sample, the research results can be used in the school environment to educate and identify gifted students. The research results related to the Overexcitability Questionnaire point to its potential use in the identification of intellectual giftedness, because statistically significant differences have been determined in the level of individual overexcitabilities between the intellectually gifted secondary grammar school students and high school students from the average population.

CONCLUSION

Intellectual giftedness, as a multidimensional construct, is significantly related to the sensible approach of the educators and parents of gifted students. Academic performance and active approach during the lesson do not have to necessarily reflect intellectual giftedness. For this reason, it is important to educate the teachers in the form of seminars focused on identifying gifted students. Before the actual nomination of the gifted students, it would be suitable to inform the teachers about what is giftedness and how it manifests. Education is also necessary in the area of evaluating affective factors of students and not assessing them based only on their academic performance, contribution in the classroom and interest in studying. Therefore, it is necessary to understand that gifted individuals are not homogenous; they differ from each other in many aspects and types of overexcitability. Individual approach and support by the educator can ignite the potential of the gifted. Communication between the educators and the parents of the gifted individual and their subsequent support is also important. Knowing the characteristics of these overexcitabilities will prepare the teachers and parents of overexcited students to minimize conflicts between the gifted students and their peers, teacher or parents (Alias et al., 2013). Al-Hroub and Krayem (2020) also emphasize behavioral interventions that are effective in managing behaviors among gifted students. For this reason, teachers, students, and parents need preparation in the area of behavior and self-management.

Before the actual administration of the Overexcitability Questionnaire, it would be suitable to evaluate also the linguistic abilities linked to a significant extent to achieving above average results in the area of overexcitabilities, which may be a precondition of further examination in the field of education. Further research should aim at figuring out whether these results can be replicated using different assessment methods for overexcitabilities. Information acquired from the Overexcitability Questionnaire is a valuable source in the creation

of programs in the field of education of intellectually gifted students because the answers yield exceptional experience and activities, which are satisfying for them, as well as a way of thinking. This provides some support to the notion that an additional method of identification is necessary and that the Overexcitability Questionnaire could be useful for this purpose.

Further research in the area of intellectual giftedness is important in terms of evaluating the linguistic abilities of the gifted and creativity, as a part of the multidimensional construct of giftedness.

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Vrste pretjerane pobudljivosti među intelektualno nadarenim učenicima adolescentske dobi u Slovačkoj

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Cilj istraživanja bio je usporediti intelektualno nadarene srednjoškolce i srednjoškolce koji postižu prosječne uspjehe s obzirom na razinu pretjerane pobudljivosti (ekscitabilnosti) i predviđanje intelektualne darovitosti različitim vrstama pretjerane pobudljivosti. Uzorak istraživanja činilo je 88 srednjoškolaca (gimnazijalaca/ki) od 16 do 17 godina. Ciljna skupina, koja je identificirana kao skupina intelektualno nadarenih učenika, brojila je 44 učenika, a u kontrolnoj skupini bilo je 44 učenika iz prosječne populacije srednjoškolaca. Rabili smo testove intelektualnih sposobnosti, Ravenov napredni matrični test (Raven's Advanced Progressive Matrices), Strukturnu analizu inteligencije (Intelligence Structure Analysis) te Urbanov figurativni test kreativnoga mišljenja (Urban's Figural Test of Creative Thinking), kako bismo identificirali intelektualno nadarene srednjoškolce. Vrste pretjerane pobudljivosti procijenjene su Uпитnikom o prekomjernoј pobudljivosti. Statistička analiza pokazala je značajne razlike u razini pretjerane pobudljivosti između intelektualno nadarenih srednjoškolaca i učenika iz prosječne populacije srednjoškolaca. Utvrđena je i značajna prediktivna moć intelektualne i emocionalne pretjerane pobudljivosti u odnosu na intelektualnu darovitost.

Ključne riječi: darovitost, intelektualno nadaren učenik, pretjerana pobudljivost, vrste pretjerane pobudljivosti



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