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The level of situational educational sensitivity of students with hearing impairment at the time of the educational start

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Situational educational sensitivity is one of the components of the educational sensitivity model, which is the child's vulnerability to the implementation of tasks related to the role of the student. There are situational sensitivity of instrumental processes and situational educational sensitivity of directional processes. The study involved 74 children with hearing impairment in a profound and significant degree, beginning their studies in the first grade in primary school. The research was carried out in the first semester, in central Poland, in integration and special schools. The aim of the research was to determine the situational level of sensitivity of deaf pupils starting school education. The conducted research allows to determine which of the ranges are the best and the least developed, which enables orientation towards the rehabilitation and therapeutic interactions of this group of students.

KEY WORDS: school maturity, child with hearing impairment, educational sensitivity, preparing the child to start school

Introduction

The concept of educational sensitivity is a theoretical model that explains certain behaviors and activities of the child. It is a cognitive construct, but also a prognostic, defining the potential of a child to undertake school tasks. Therefore, educational sensitivity is expressed in the effectiveness of learning, which is strengthened by the willingness to participate in these activities. Based on the concept of hierarchical structure of abilities, Joanna Głodkowska developed a model of educational sensitivity in which she identified: task-oriented educational sensitivity, situational educational sensitivity and general educational sensitivity. As the author of the model emphasizes, the above ranges of educational sensitivity occur in mutual relationships, which allows to define the overall picture of the child's school functioning¹. The subject of consideration in this article is situational educational sensitivity of students with hearing impairment².

Situational educational sensitivity refers to didactic and educational situations that are encountered and in which the student participates. A collective work has been separated in it – that it is an organizational form, movement fun (a frequent method of working with a student in an early school age), as well as two individual organizational forms: independent mental work and manual work. The individual categories of methods and organizational forms allow to determine the level of student participation, including the student with hearing impairments in these forms and methods of work (instrumental processes) and determine the level of motiva-

¹ J. Głodkowska (1998), *Wrażliwość edukacyjna w kształtowaniu doświadczeń matematycznych u dzieci upośledzonych umysłowo w stopniu lekkim*, Wyższa Szkoła Pedagogiki Specjalnej, Warszawa.

² This article is part of a study on the educational sensitivity of students with hearing impairment. The tests were carried out in the school year 2006/2007 and 2007/2008 and there are part of the research carried out as part of the doctoral thesis. In Poland, since then, no research has been undertaken to address the educational sensitivity of people with auditory disabilities.

tion and willingness (directional processes) to take action in collective work, physical play, independent mental work and independent manual work³. According to the author's concept, situational educational sensitivity has been divided into two ranges:

- Situational sensitivity of instrumental processes – refers to psychophysical abilities of the student during participation in didactic and educational situations such as collective work, movement fun, independent mental work and independent manual work.
- Situational sensitivity of directional processes – defining the student's motivation to participate in collective work, physical activity, independent mental work and independent manual work.

As Anna Brzezińska and co. emphasized⁴, changing the environment from pre-school to school sets for the child new requirements, related not only to the acquisition of new knowledge but also to the need of entering into various interactions both in the classroom and at school with peers and adults as well as with oneself as a learner. This is why it is very important to provide during the implementation of new tasks support to the children and prepare them well in advance. The situation of a hearing-impaired child who starts school seems to be particularly difficult. As it is shown in own research⁵, the lowest results in terms of educational sensitivity cover the scope of speech development, memorization and reproduction are two of the five most important areas of school readiness, which were identified by Sharon Kagan, Evelin Moore and Sue Bredekamp⁶.

³ J. Głodkowska, *Poznanie ucznia szkoły specjalnej*, WSiP, Warszawa 1999.

⁴ A. Brzezińska, A. Matejczuk J., Nowotnik, *Wspomaganie rozwoju dzieci z wieku od 5 do 7 lat a ich gotowość do radzenia sobie z wyzwaniami szkoły*, Edukacja 1(117), 2012, s. 7–22.

⁵ M. Olempska-Wysocka, *Zadaniowa wrażliwość edukacyjna uczniów z uszkodzonym słuchem*, Szkoła specjalna nr 4, 2017.

⁶ S. Kagan, E. Moore, Bredekamp S. (red.), *Reconsidering children's early learning and development: Toward shared beliefs and vocabulary*. Washington, D.C.: National Education Goals Panel, 1995.

Own research

The research was carried out on a group of 74 deaf pupils⁷, with intellectual development at the standard level, who started their studies in the first grade in primary school. The research covered children from central Poland, from integration and special schools. The aim of the research was to determine the situational level of sensitivity of students with hearing impairment, starting school education. The following research questions were formulated and verified using the appropriate measurement tool:

1. What is the level of situational educational sensitivity of students with hearing impairment at the time of their school start?
2. If so, what are the differences in the level of situational educational sensitivity conditioned by the form of student education with hearing impairment?
3. If so, what are the differences in the level of situational educational sensitivity of students with hearing impairment, conditioned by the gender of the respondents?

A Sheet of the Student's Special Cognition of the Special School of J. Głodkowska (1999) was used in the research. Through observation of the behavior of children in natural situations, the teacher monitors, participates in the child's activities, recording their effects. The questionnaire is designed to test the educational sensitivity of children with intellectual disabilities, but according to the assumptions of the author of the Sheet, it can also be used in inclusive and generally accessible forms of education. Relevance and reliability of the Sheet are at a high level ($r = 0.98$, $p < 0.001$) in diagnosing the school readiness of a student with a slight intellectual disability. It is also worth emphasizing the prognostic role of the tool as to the further school achievements of students (Głodkowska, 1999).

⁷ With significant and deep hearing loss.

Situational educational sensitivity of students with hearing impairment in the light of their own research

The results of the research on the situational sensitivity of students with hearing impairment at the time of school leaving were collected in Table 1 below.

As can be seen from the data in Table 1, the average value in the category of educational sensitivity – for collective work, obtained by students with hearing impairment is 205.23 points, which is 53.30% of the maximum score, which is just over half. Standard deviation value is 81.68 points, and created in this way, the range of average results is (123.55, 286.91).

The lower limit corresponds to 32.09% of the maximum result, and the upper limit is 74.52% possible to obtain. Thus, the average results in the situational educational sensitivity to collective work fall within the percentage range (32.09%, 74.52%). The value of the skewness coefficient for results in the situational educational sensitivity category to collective work is positive (0.082). The distribution is therefore minimally asymmetrical and extends slightly towards the lower results. The focus factor (kurtosis) is negative, the distribution is therefore platykurtic. Platykurtic of the distribution suggests the lack of hearing-impaired students in the examined group who achieve higher scores in this category than the others. Among them, there is a group that obtained results on a similar level, and slightly above the level obtained by the whole group.

The results obtained by students with hearing impairment at the time of their educational start in the category of educational sensitivity – for movement fun, show that the average value is 46.46 points, which is 68.32% of the maximum possible score and it is just over half, it is although higher comparing to the situational sensitivity of the surveyed students to the collective work. The value of the standard deviation is 11.63 points, and the range of average results is (34.53; 58.09). The lower limit corresponds to 51.22% of the maximum result, while the upper limit corresponds to 85.42% result that is possible to achieve in this educational sensitivity situational cate-

Table 1. Results of situational assessment of educational sensitivity of students with hearing impairment

Categories of situation of educational sensitivity	N	W.M	\bar{x}	δ	$\bar{x} : \bar{x}$ max w %	P \bar{x}	w. min.	w. maks	X_{typ} ($\bar{x} \pm \delta$)	k	g
1. For collective work	74	385	205,23	81,68	53,30	0,53	63	350	(123,55-286,91)	-1,171	0,082
2. Sensitivity of instrumental processes	74	343	175,40	77,98	51,14	0,51	41	313	(97,42-253,38)	-1,168	0,123
3. Sensitivity of directional processes	74	42	29,82	7,38	71,00	0,71	8	42	(22,44-37,2)	0,071	-0,574
4. For movement fun	74	68	46,46	11,63	68,32	0,68	24	67	(34,83-58,09)	-0,894	-0,011
5. Sensitivity of instrumental processes	74	59	38,61	10,86	65,44	0,65	16	58	(27,75-49,47)	-0,869	0,024
6. Sensitivity of directional processes	74	9	7,85	1,76	87,22	0,87	1	9	(6,09-9,61)	3,622	-1,885
7. For independent mental work	74	50	28,65	10,15	57,30	0,57	6	50	(18,50-38,80)	-0,404	-0,225
8. Sensitivity of instrumental processes	74	35	16,93	8,42	48,37	0,48	0	35	(8,51-25,35)	-0,597	-0,151
9. Sensitivity of directional processes	74	15	11,71	3,00	78,06	0,78	4	15	(8,71-14,71)	-0,451	-0,694
10. For manual work	74	96	68,59	20,68	71,44	0,71	26	96	(47,91-89,27)	-0,912	-0,250
11. Sensitivity of instrumental processes	74	80	55,94	18,63	69,92	0,69	17	80	(37,31-74,57)	-0,911	-0,251
12. Sensitivity of directional processes	74	16	12,65	3,25	79,06	0,79	4	16	(9,4-15,90)	0,233	-0,919

Explanations for the table:

\bar{x} - arithmetic average

δ - standard deviation

$P \bar{x}$ - coefficient of easiness

W.M. - maximum result possible to obtain for a given category

w.min. - the smallest result obtained in a given category

w.maks. - the highest score obtained in a given category

X_{тип} - the boundaries of the typical area

k - kurtosis

g - skewness (distribution asymmetry coefficient)

gory. It is also worth noting the fact that over half of the examined students with hearing impairment (51.22%) achieved low results in this category. Analysis of the asymmetry coefficient allows to conclude that we are dealing with a minimally left-sided distribution. However, the focus factor is negative and informs us, as in situational educational sensitivity to collective work, about the pliability of distribution. The analysis of the research material also revealed the high sensitivity of the directional processes of children with hearing impairment to participate in movement games (87.22%), with a relatively lower level of instrumental processes (65.44%). These data confirm the value of fun, including movement fun, emphasized by the pedagogues and psychologists many times.

Looking at the results in the situational category of educational sensitivity - for independent mental work, it can be noticed that the average value is 28.65 points, which is 57.30% of the maximum result. In turn, the standard deviation value is 10.15 points, and the resulting range of average results is (18.5, 38.80). The lower limit corresponds to 37% of the maximum result and the upper limit is 37.6% of the maximum possible. Thus, the average results in the situational category of educational sensitivity to independent mental work fall within the percentage range (37%, 77.6%). The coefficient of concentration around the average is negative and informs about the platykurtic distribution, which proves the diversity of results obtained by the surveyed students. Also the value of the asymmetry of the distribution of results has a negative value, which speaks for left-hand asymmetry. It is important that one of the least beneficial of the student's psychological abilities is his participation in independent mental work (57.3% of the maximal result), and in this aspect the low value of instrumental processes (48.37% of the maximum result) and relatively higher sensitivity of directional processes (78.06% of the maximum result). These results are a confirmation of the educational sensitivity noted in the area of general analysis, low level of maturity of students with hearing impairment, beginning school education to meet tasks that require operational reasoning. It is worth remembering that the knowledge about the

low level of pupils' educational sensitivity to meet tasks that require operational reasoning should be reflected in constructed didactic situations including capabilities of students with hearing impairment

Noteworthy are relatively higher scores in the situational category of educational sensitivity – for manual work. Average obtained by students with hearing loss is 68.59 points, which is 71.44% of the maximum result. The value of the standard deviation is 20.68 points, and the range of average results created in this way is (47.91, 89.27). The lower limit corresponds to 49.9% of the maximum result and the upper limit is 92.9%. Thus, the average results in the situational category of educational sensitivity to independent mental work fall within the percentage range (37%, 77.6%). The difference between students with an average of the weakest situational educational sensitivity to independent mental work and students with the highest situational educational sensitivity to independent mental work is 43.6%. Asymmetry of the distribution of results as well as the coefficient of concentration around the average reach negative values, which allows us to state that we are dealing here with a platykurtic distribution and left-hand asymmetry, where larger numbers are concentrated in the scope of a larger variable. It is worth noting that, as in previous categories of situational educational sensitivity, also in the case of manual work, the predominance of directional over instrumental processes stands out. It is necessary to emphasize the children's willingness and their involvement in didactic situations (79.06%), that involve students manually and seem to bring pleasure, satisfaction with the activities performed and tasks fulfilled.

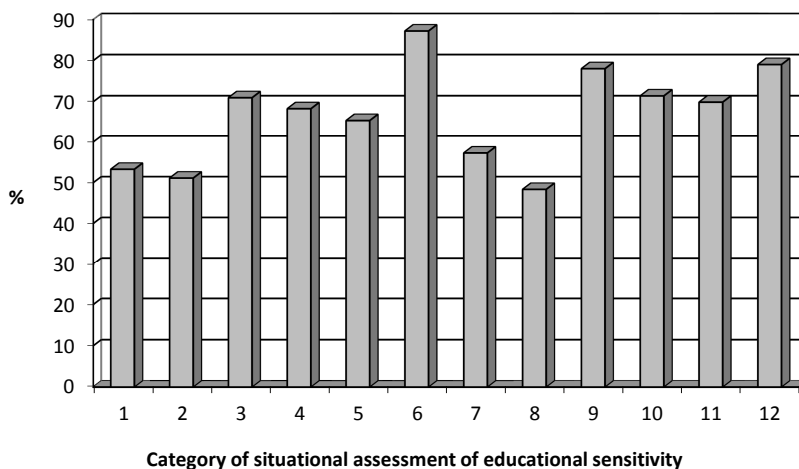
Moreover, the analysis of the results obtained during the research process allows to conclude that at a relatively high level (above 0.70 of the easiness coefficient) are:

- sensitivity of directional processes for movement fun (87% of the maximum result);
- sensitivity of directional processes to independent individual work (79% of the maximum result);

- sensitivity of directional processes to independent mental work (78% of the maximum result);
- sensitivity of directional processes to collective work (71% of the maximum result).

Therefore, it can be stated that the studied group of hearing impaired students who start their education in the first grade of primary school shows a fairly high level of motivation, willingness and involvement in didactic situations including: collective work, movement games, independent mental work and independent individual work. Relatively lower results in individual categories of situational educational sensitivity, and concerning instrumental processes may indicate the need to more favorable adaptation of forms and methods of work with a student with hearing impairment, starting learning in the first class. J. Głodkowska (1998), draws attention to the fact that the child at the time of the educational start manifests a greater need for action than his ability to face tasks indicates. This applies in particular to: collective work, movement fun, independent

Chart 1. Percentage of results of situational assessment of educational sensitivity of students with hearing impairment



mental work, or manual manual work. This conclusion leads to the following pedagogical indication – the teacher should, using skilful pedagogical and psychological procedures, use the desire of the child, make the engagement dynamize the psychic forces, let the desire not expire, but mobilize to the effort.

A graphical presentation of the results obtained, on the basis of the percentage maximum results, is presented in Chart 1.

Comparative analysis of the situational level of girls' educational sensitivity and boys with hearing impairments

The conducted research also analyzed differences in the situational sensitivity of the tested students with hearing impairment at the moment of educational start taking into account the variable gender. A comparison of results obtained by both groups (girls and boys) is presented in Table 2.

Table 2. List of results obtained by girls and boys with hearing impairments in terms of situational educational sensitivity

Categories of situation of educational sensitivity	sex	N	Average rank	Sum of rank	Statystyki testu		
					U Manna-Whitneya	Z	Asymptotic significance (two-sided)
1. for collective work	K	31	37,34	1 157,50	661,500	-0,055	0,956
	M	43	37,62	1 617,50			
2. for movement fun	K	31	39,42	1 222,00	607,000	-0,652	0,514
	M	43	36,12	1 553,00			
3. for independent mental work	K	31	38,21	1 184,50	644,500	-0,241	0,809
	M	43	36,99	1 590,50			
4. for independent manual work	K	31	37,76	1 170,50	658,500	-0,088	0,930
	M	43	37,31	1 604,50			

Explanations as to Table 1.

Comparing the level of situational educational sensitivity of girls and boys with hearing impairment in relation to didactic and educational situations, there are no significant differences between the studied groups. The results of the research indicate at the same time that girls with hearing impairments present a higher level in the field of situational educational sensitivity to:

- movement fun,
- independent mental work,
- independent manual work.

Boys however, obtained a result showing a higher level of sensitivity to collective work. As already mentioned, discrepancies in the results obtained are not statistically significant. Therefore, it can not be concluded that sex is a differentiating factor in the four categories of situational educational sensitivity.

The conducted research also included statistical analysis between the level of situational educational sensitivity and the type of school the child attends. The results are summarized in Table 3.

Table 3. The level of situational educational sensitivity of students with hearing impairment at the time of the educational start including the type of school the child is attending

Categories of situational educational sensitivity	type of school	N	Average rank	Sum of rank	U Manna-Whitneya	Z	Asymptotic significance (two-sided)
1. For collective work	integration	28	54,11	1 515,00	179,000	-5,183	0,000
	special	46	27,39	1 260,00			
2. For movement fun	integration	28	52,16	1 460,50	233,500	-4,578	0,000
	special	46	28,58	1 314,50			
3. For independent mental work	integration	28	51,88	1 452,50	241,500	-4,491	0,000
	special	46	28,75	1 322,50			
4. For independent manual work	integration	28	50,75	1 421,00	273,000	-4,138	0,000
	special	46	29,43	1 354,00			

Explanations as to Table 1.

The collected empirical material allows to conclude that there is a statistically significant difference between the 4 categories of situational educational sensitivity (for collective work, movement fun, independent mental and manual work) and the type of school (integration, special) to which the child attends. Asymptotic significance for each category is the same and amounts to $\alpha = 0.000$. The analysis of averages allows to notice that the higher level in all four categories of situational educational sensitivity is achieved by students from integration schools.

Summary

Analysis of the research material concerning the determination of the situational level of educational sensitivity of students with hearing problems allowed to formulate the following conclusions:

- In the area of educational sensitivity, students with hearing problems present the lowest level of sensitivity in collective work (53.30%). It is worth mentioning that the results regarding all four didactic and educational situations (collective work, movement fun, independent mental work, manual work) are above 50% of the maximum result.
- Sex of students with hearing problems is not a factor significantly differentiating the level of situational educational sensitivity in collective work, physical play, independent mental or manual work.
- The conducted research indicates that there is a statistically significant difference between the level of situational educational sensitivity and the type of school the child with hearing impairment attends. It is worth mentioning that the higher level of situational educational sensitivity is achieved by students attending integration schools. Presented research results also show that despite the fact that students from special schools obtain lower results, they are characterized by a higher level of motivation and school achievements (although the re-

sult is not statistically significant). The reason for this result may be the fact that students from special schools experience less stress, are more protected, feel more confident in the peer environment, are not exposed to ridicule. Their emotional state is more stable, suitable for modeling in the desired direction.

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