POSSIBILITIES OF INCLUSIVE ASSESSMENT AND STIMULATION OF PRESCHOOL-AGED CHILDREN IN THE SLOVAK REPUBLIC

[a]VIERA ŠILONOVÁ, [b]VLADIMÍR KLEIN

Faculty of Education, University of Prešov, 17. novembra 15, Slovak Republic
email: [a]viera.silonova @unipo.sk, [b]vladimir.klein@unipo.skl

The research is published as part of VEGA project No. 1/0114/23 *"Possibilities of inclusive education of students with special educational needs"*.

Abstract: The issue of inclusive education is one of the most current and discussed theoretical and empirical topics. The scientific study focuses on the process of diagnosis and stimulation of preschool children's development, which is a key component of inclusive education in kindergartens. The aim of the research was to verify the effectiveness of the Depistage-Stimulation Programme for three- and four-year-old kindergarten children by means of input and output diagnostics. The results of the input and output orientation assessment of 3–4-year-old children were analysed, and then the effectiveness of a stimulation programme designed to train areas of deficit in sub-functions and symptoms was tested. Finally, the authors of the research formulated recommendations for educational theory and practice in inclusive approaches at the pre-school level of the school system. The research showed: Children scored statistically significantly better on the Output Depistage than on the Input Depistage assessment.

Keywords: assessment, inclusion, partial cognitive functions and symptoms, pre-school age, stimulation.

1 Introduction

The issue of inclusive education is a hot topic today. The countries of the European Union, including Slovakia, have committed themselves to the implementation of inclusive education. Booth & Dyssegaard have designed the education system to respond to all differences, which will contribute to the improvement of the school environment (2008). Therefore, there is a need to address issues of inclusion in education, which should reflect not only the implementation of the work of school support/inclusion teams in the nursery setting, but more importantly, the development of the potential of all children and pupils. Inclusive education of children with special educational needs, with emphasis on children from socially disadvantaged backgrounds, becomes an integral part of the work of pedagogical and professional staff, which consists of close contact with the child and with other actors in the educational process. In a humanistic society, it is necessary to promote a new philosophy of education - education for all, without distinction, without exclusion, so that diversity becomes the norm.

The European Agency for the Development of Special and Inclusive Education (2014) identified five key conditions for the successful implementation of inclusive education:

1. *As early as possible:* the positive impact of early detection and intervention and proactive measures.
2. *Inclusive education benefits all:* the positive educational and social impact of inclusive education.
3. *High quality professionals:* the importance of high-quality professionals in general and teachers in particular.
4. *Support systems and funding mechanisms:* the need for effective support systems and related funding mechanisms.
5. *Reliable data:* the important role of data - benefits and limitations of its use.

These key requirements summarise much of the work of the European Agency over the past decade and address key issues related to inclusive education. We see inclusion as an evolving philosophy, a concept within which issues of diversity and democracy are increasingly important. Implementing a rights-based approach to education to achieve a higher quality of inclusion requires a comprehensive reform of the education system, including adjustments to constitutional guarantees and attitudes, curricula, teacher training systems, materials, learning environments, methodologies, resource allocation, etc. Above all, it will require a change in the attitudes of everyone in the system to embrace diversity and difference and see it as an opportunity rather than a problem.

1.1 Theoretical framework

The rate of segregated education of socially and medically disadvantaged children in the Slovak Republic is one of the highest in the world, while much research and practice has shown that ethnically and socially mixed schools are much more suitable spaces for the acquisition of human (social and cultural) capital than homogeneous environments. Human capital also depends on a variety of relationships with people from different backgrounds, cultures, and social statuses, among whom there is trust and rules. The greater the heterogeneity, the better a person is able to integrate into society. Children who are educated in a segregated way and who have contact only with people from socially excluded groups do not have the ability to adapt and identify themselves as belonging to the *"second category"*. The essence of creating the conditions and prerequisites for building an inclusive society in Slovakia lies in the social inclusion of the most vulnerable groups. The key to the solution is the introduction of an inclusive way of education, especially in kindergartens. The main goal of education and training in kindergarten is to achieve an optimal cognitive, sensorimotor, and socio-emotional level as a basis for further education in primary school and for life in society.

We see inclusive assessment and developmental stimulation of pre-school children as part of inclusive education for these children. We start from the philosophy of humanistically oriented educational processes, which is based on the following premises:

- children have more in common, that which unites them, than they have in differences, whatever their abilities.
- children are part of families and communities which, in the pre-school years, have a significant impact on their development and learning.
- children learn best from each other in shared activities that support the experience of everyday life.
- children develop best in an environment where their specific individual abilities and needs are considered and met.

According to Šilonová & Klein (2023, p. 31), diagnostics and stimulation are important prerequisites for effective inclusive education and training in kindergartens in order to create an environment that respects differences. This includes not only the inclusion of children with disabilities, but also the inclusion of children growing up in different social and cultural environments, immigrant children, gifted children, and children from socially disadvantaged backgrounds.

The inclusive perception of special education diagnostics places demands on the diagnostic competence of the special educator as one of his/her professional competences. In this context, we encounter a new approach to diagnostics with the so-called dynamic diagnostics, which is perceived as both supportive and individualised diagnostics. It is an approach that combines elements of diagnosis and intervention. The aim is to find answers to questions such as what the child's cognitive and metacognitive skills are, how do affective and motivational factors influence the learning process, how does the child respond to interventions and how can we help the child to make the learning process more effective. We see assessment in an inclusive perspective as an important tool for children, pupils, parents, and teachers to discover the child's strengths, to provide possibilities for future directions in his/her education and consequently his/her application in the labour market. Diagnostics in an inclusive environment should primarily serve as a tool for the teacher to learn about the specific and individual learning processes and teaching conditions of the diagnosed child. Inclusive special education diagnostics is a long-term process, the results of which must be consulted with other actors involved in the child's education and diagnostics (teachers, parents, school counselling and prevention staff). At present,

inclusive diagnostics should be seen as a potential change in the education of socially and medically disadvantaged children of preschool and younger school age, which consists in the application of progressive, innovative methods. One of them is the ambition of the authors of the paper to create a tool of depistage orientation diagnostics and stimulation that can contribute to accelerating the development of intact, socially, and medically disadvantaged preschool and younger school-aged children.

We selectively present the results of publications that are relevant to the topic of the paper. Valachová (2009) is the author of a study that we consider to be a methodological material for teachers at the pre-school level of the school system. The scientific monograph focuses not only on the theoretical treatment of the issue, but also offers practical information on the possibilities of its use in the educational practice of kindergartens in the field of pedagogical diagnostics. Brťková & Bahurinská (2012) developed a stimulation programme for the prevention of specific developmental learning disorders in preschool children. The aim of the programme is to help children (and teachers working with them) to develop weakened or disrupted basic skills (subfunctions) of cognitive development, and thus to prevent possible problems that may occur in the acquisition of reading, writing and arithmetic due to underdeveloped functions in school activities. In 2014, the Human Development and Sustainable Development teams focused on diagnostics and advice to promote Roma inclusion in Romania. Within the results-oriented framework of preschool education, the authors cited a study by Kendall et al. (2008), which found that Roma children who benefited from preschool and parental stimulation had significantly better outcomes. Roma children aged 4 to 6 who attended preschool in Romania had more developed skills in identifying the ten letters of the alphabet, reading four simple common words, writing their name, distinguishing numbers 1-10 and recognising simple sentences in the local language. Comparisons were made between groups of Roma children who attended a local preschool and those who did not. Research has shown that preschool attendance by disadvantaged groups increases an individual's chances of socio-economic integration later in life. In Poland, the diagnosis and stimulation of pre-school children is primarily the domain of psychologists. Kwiatkowska, from the Institute of Psychology in Lublin, published a remarkable scientific study, Spontaneous Drawing in the Diagnosis of Disorders in the Adaptation of 3–4-Year-Old Children to Kindergarten (1996), in which she described the importance of spontaneous drawings made by preschool children in the diagnosis of their adaptation disorders and kindergarten conditions. She applied empirical research to 240 children (4- and 5-year-olds). The colour pyramid test and the spontaneous drawing activity were used in three time periods. The results showed that children's spontaneous drawings are effective in diagnosing adaptive disorders in 3–4-year-old children. In order to assess the vocabulary of preschool children, the authors (Haman, Fronczyk & Miękisz, 2010) developed a new diagnostic tool. The authors validated the tests - Picture Vocabulary and Mental Vocabulary as the basis of language and communication competence. Vocabulary significantly influences other aspects of language development. The tests are used to assess the level of understanding of words in preschool children. The study involved 351 children aged 2-6 years. The aim of the *Children's Task Persistence in Relation to Stimulation at Home* study was to examine the relationship between cognitive stimulation at home and children's task persistence. Using a sample of 60 children and parents, with an equal number of low- and high-income families selected, the researchers validated the researchers' findings on the level of cognitive stimulation in the home environment using parental control records. The results showed that children from low-income families who had less cognitive stimulation completed fewer tasks than their peers from high-income families (Orr, 2020). The impetus for our research in the field of diagnosis and stimulation of preschool children was the familiarity with the ideas of Brigitte Sindelar (2009a, 2009b) - the author of a methodology aimed at identifying deficits in sub-functions. Sindelar (2009a, 2009b, 2014) identified not only the child's weaknesses but also the child's strengths. This means that her methodology focuses on what the child knows, not just what he or she does not know. According to B. Sindelar (2009a), sub-performances can be viewed as *"sub-functions of a holistic information processing network, representing specific modal and intermodal processes of attention, perception and memory, as well as their serial integration. Information processing, in turn, is a prerequisite for complex cognitive performance as well as for executive functions such as mentalisation"*. These basic functions underpin the proper development of speech, writing, reading and arithmetic. The effectiveness of the Sindelar Method has been confirmed by the results of research carried out as part of its standardisation in Austria, Switzerland, and Germany. Pre-school children were diagnosed and then trained according to the Sindelar Method for the whole school year. At the end of the research, a rediagnostics was carried out which showed that the deficits in the sub-functions had been eliminated in these children (2009b).

David Pérez-Castejón (2023) published a scientific study analysing the level of teacher education and training, with an emphasis on the direction of inclusive education based on social justice. The author states that in the pre-service phase of the study, teachers can look at inclusive education and the diagnosis of students with special educational needs through the lens of special education. The paper presents a contextualised ethnographic study that focuses on the production of data from the author's own institution and educational space, working with students at a university in northern Spain. The aim of this reflective article is to identify the practices and intellectual demands that contribute to early childhood teacher education acting in the interests of social justice and inclusive education. Data is gathered through participant observation, text analysis and interviews. The analysis highlights three conditions to consider: destabilising common sense, creating space for theoretical reflection and learning experiences, and research scenarios for rethinking the possibilities of inclusive education. These findings are supported by a review studies by Kožárová (2022a, 2022b), who, when analysing the curricula of individual countries, emphasises the need for early diagnosis and stimulation for children with special educational needs.

The authors Šilonová, Klein, & Rochovská (2021) conducted research in the area of diagnosis and stimulation of preschool children, which is a crucial component of inclusive education. The aim of the research was to experimentally verify the effectiveness of a stimulation programme for 5–6-year-old kindergarten children by means of input and output orientation diagnostics. The results of the input and output orientation diagnostics of 5–6-year-old children from the experimental and control groups were analysed. The authors tested the effectiveness of a stimulation programme designed to train areas of sub-functional deficit and symptoms in the experimental group and formulated conclusions and recommendations for educational theory and practice in the field of inclusive approaches at the pre-school level of the school system. The research showed that the experimental group of children performed statistically significantly better than the control group in the post-test on the symptom areas measured by the t-test. It was also confirmed that both groups of children (control and experimental) performed statistically significantly better on the post-test targeting the area of sub-functional deficits than on the pre-test.

2 Methodology

Research Issue

The main topic of research is orientation diagnosis and stimulation of preschool children. Current perceptions of diagnosis reflect changes in perceptions and attitudes towards children in relation to inclusive trends. Emphasis is placed on the area in which the individual excels, which can be built upon in the context of further intervention. He or she is seen as a personality with potential for further development. Based on the theoretical background, the research question became whether the use of a depistage-stimulation instrument with 3–4-year-old

children would contribute to their better results in the output depistage.

The Aim and Hypotheses of the Research
The aim of the research was to test the effectiveness of the stimulation programme for 3–4-year-old kindergarten children using input and output orientation diagnostics.

In this context, the following objectives have been formulated:

1. To analyse the results of the initial and final orientation test of 3–4-year-old children.
2. To verify the effectiveness of the stimulation programme designed to train the areas of sub-functional deficits and symptoms in the experimental group.
3. To formulate conclusions and recommendations for educational theory and practice in the field of inclusive approaches at the pre-school level of the school system.

Based on the theoretical background, the field experience, the research problem and the research objectives, a hypothesis (H) was formulated.

H: We predict that the results of the output orientation diagnostics of 3- and 4-year-old children will be statistically significantly better than the results of the input orientation diagnostics of 3- and 4-year-old children.

General Background
The Depistage-Stimulation Programme for Three- and Four-Year-Old Kindergarten Children (Šilonová, Klein & Šinková; 2019) is a concrete guide for educational and professional staff in kindergartens on how to successfully conduct orientation diagnostics and stimulation for the readiness of preschool children. After identifying individual areas and mapping possible partial impairments, a well-conducted input depistage thus directs the further care of the child by applying a specific stimulation programme, so that by the time the children start school they are adequately prepared to cope with the demands placed on them in the primary school environment. The essence of the Depistage Stimulation Programme is to achieve the most accurate identification and subsequent stimulation of the child's basic functions, in line with the Early Childhood Education and Care (ECEC) programme offered by the OECD in identifying key elements and approaches to early childhood education and care. The authors emphasise the prevention of the causes of learning and attention disorders in line with current trends in inclusive pedagogy and inclusive educational (special) and psychological diagnosis. They present concrete procedures - how to put into practice a stimulation programme for a child in a kindergarten environment. The stimulation programme serves as a concrete guide for pedagogical and professional staff in kindergartens to successfully stimulate and accelerate the development of preschool children, directly based on and building upon the results of the input orientation diagnosis.

Instruments and Procedures
The authors selected the test method. In the depistage area, 67 kindergartens participated in the research. 425 children took part in the input orientation diagnosis and 390 children were diagnosed in the output orientation diagnosis. The selection of the kindergartens from which the participants (3–4-year-old children) were deliberately recruited for the research was based on the following criteria:

- Kindergartens where both input and output depistage of 3–4-year-olds was carried out by educational and professional staff,
- Kindergartens where a stimulation programme was implemented for diagnosed 3–4-year-olds.

Depistage (orientation diagnostics of 3–4-year-old children) was carried out in kindergarten premises on two dates according to the following schedule: in September/October 2022 - input orientation examination and in May/June 2023 - output orientation diagnostics. The *Depistage-Stimulation Diagnostic Instrument for three- and four-year-olds in kindergarten was used* (Šilonová, Klein & Šinková, 2020). The research population consisted of all diagnosed 3–4-year-olds (390 kindergarten children) who underwent an input and an output orientation diagnosis. We had a sample with n-pair measurements, with n = 390.
In Tables 1, 2 we present the domains and items of the assessment instrument that are identical to the domains of the *Kindergarten Depistage-Stimulation Programme for 3–4-year-olds*. Depistage 1 focuses on the domain of sub-functions and Depistage 2 on the domain of symptoms.

Data Analysis
A paired t-test was used to test hypothesis H for items with more than one binary score. A Pearson chi-squared test (for a four-way table) was used for binary scored items for the hypothesis and its sub-hypotheses.

3 Results and Discussion

Verification of the hypothesis
We hypothesised that the results of the output screening of 3- and 4-year-olds would be statistically significantly better than the results of the entry screening of 3- and 4-year-olds. Descriptive statistics of the distributed data from the baseline and output orientations are reported in Tables 3 and 4. The data recorded on the depistage sheets in the baseline and output kindergarten measurements were distributed across classes according to the domains being developed.

Results were processed for significance within each domain using a paired t-test. We formulated null hypotheses of equality of means, which were tested against the two-tailed alternative hypothesis at the 0.05 significance level. An overview of the means and standard deviations measured in each domain is presented in Table 3, which shows the statistically significant results from the input and output orientation diagnostics, focusing on the sub-functional domain (Depistage 1) and the symptom domain (Depistage 2).

In the areas of Depistage 1, which focuses on the area of sub-functions, *all 8 areas of interest are statistically significant.* In the *Tactile-Kinesthetic Perception* item we calculated a t-statistic ($t = -7.293$) at the significance level ($p = 0$) and found a statistically significant difference between the results of the input measure ($\bar{x} = 3.82$) and the output measure ($\bar{x} = 4.72$) in favour of the output measure. In the item *Auditory Memory*, we calculated the t-statistic ($t = -8.031$) at the significance level ($p = 0$) and found a statistically significant difference between the results of the input ($\bar{x} = 2.84$) and output measure ($\bar{x} = 3.86$) in favour of the output measure. Statistical significance was also confirmed for the *visual discrimination* item. By calculating the t-statistic ($t = -6.351$) at the significance level ($p = 0$), we found a statistically significant difference between the results of the input measurement ($\bar{x} = 3.86$) and the output measurement ($\bar{x} = 4.76$) in favour of the output measurement. We also confirmed statistical significance in the *Visual Seriality* item. By calculating the t-statistic ($t = -6.906$) at the significance level ($p = 0$), we found a statistically significant difference between the results of the input measurement ($\bar{x} = 3.12$) and the output measurement ($\bar{x} = 4.24$) in favour of the output measurement. In the item *Auditory Differentiation*, we calculated the t-statistic ($t = -7.116$) at the significance level ($p = 0$) and found a statistically significant difference between the results of the input measurement ($\bar{x} = 2.66$) and the output measurement ($\bar{x} = 3.69$) in favour of the output measurement. Statistical significance was also confirmed for *visual-auditory and auditory-visual intermodality*. By calculating the t-statistic ($t = -7.268$) at the significance level ($p = 0$), we found a statistically significant difference between the results of the input measurement ($\bar{x} = 1.18$) and the output measurement ($\bar{x} = 1.88$) in favour of the output measurement. In the *Auditory Figure-Background Differentiation* domain, we calculated a t-statistic ($t = -7.969$) at the significance level ($p = 0$) and found a statistically significant difference between the results of the input measurement ($\bar{x} = 2.09$) and the output measurement ($\bar{x} = 3.31$) in favour of the

output measurement. In the area of *auditory and background seriality*, we calculated the t-statistic (t = -8.040) at the significance level (p = 0) and found a statistically significant difference between the results of the input ($\bar{x}$ = 3.35) and output ($\bar{x}$ = 4.54) measurements in favour of the output measurement. Statistical significance was also confirmed for the item *Visual discrimination of figure and background*. By calculating the t-statistic (t = -4.507) at the significance level (p = 0.001), we found a statistically significant difference between the results of the input ($\bar{x}$ = 4.96) and output ($\bar{x}$ = 5.40) measures in favour of the output measure. In the *Visual Memory* item, we calculated the t-statistic (t = -6.669) at the significance level (p = 0) and found a statistically significant difference between the results of the input ($\bar{x}$ = 1.84) and output ($\bar{x}$ = 2.32) measures in favour of the output measure.

In the symptom-focused domains of Depistage 2, *all 8 domains of interest are statistically significant.* In the item *Graphomotor: figure drawing*, we calculated a t-statistic (t = -7.007) at the significance level (p = 0) and found a statistically significant difference between the results of the input measure ($\bar{x}$ = 2.59) and the output measure ($\bar{x}$ = 3.62) in favour of the output measure. Statistical significance was also confirmed for the *Speech, Language, Communication: Articulation* item. By calculating the t-statistic (t = -4.727) at the significance level (p = 0), we found a statistically significant difference between the results of the input measure ($\bar{x}$ = 2.41) and the output measure ($\bar{x}$ = 2.95) in favour of the output measure. In the *Vocabulary* domain, we calculated a t-statistic (t = -6.568) at the significance level (p = 0) and found a statistically significant difference between the results of the input measure ($\bar{x}$ = 4.31) and the output measure ($\bar{x}$ = 5.04) in favour of the output measure. In the *Categorisation* domain, we calculated a t-statistic (t = -6.646) at the significance level (p = 0) and found a statistically significant difference between the results of the input ($\bar{x}$ = 0.67) and output measure ($\bar{x}$ = 1.10) in favour of the output measure. In the domain of *Mathematical Skills*: ascending number series up to 5, we calculated a t-statistic (t = -9.207) at the significance level (p = 0) and found a statistically significant difference between the results of the input measurement ($\bar{x}$ = 1.16) and the output measurement ($\bar{x}$ = 1.66) in favour of the output measurement. Statistical significance was also confirmed in the domain of *mathematical ability: descending number series up to 5*. By calculating the t-statistic (t = -6.429) at the significance level (p = 0), we found a statistically significant difference between the results of the input measure ($\bar{x}$ = 0.16) and the output measure ($\bar{x}$ = 0.46) in favour of the output measure. In the domain *Mathematical ability: determining the number up to 5*, we calculated a t-statistic (t = -7.669) at the significance level (p = 0) and found a statistically significant difference between the results of the input measure ($\bar{x}$ = 0.65) and the output measure ($\bar{x}$ = 1.15) in favour of the output measure. In the item *Dimension, quantity, order*, we found a statistically significant difference between the results of the input ($\bar{x}$ = 2.81) and output measurement ($\bar{x}$ = 3.42) in favour of the output measurement by calculating the t-statistic (t = -6.861) at the significance level (p = 0).

A total of 18 items were measured by T-test, all of which were statistically significant. In the results of the output measurement, we register higher average scores achieved in all 18 areas studied, which shows that the level of knowledge, skills, and abilities of the 3–4-year-old kindergarten children has increased, thus confirming the effectiveness of the depistage-stimulation programme for three- and four-year-old children in kindergarten.

Further processing of the results of the input and output orientation diagnostics was carried out using the Pearson chi-square test. This test was used to detect relationships between two nominal variables. This includes a group of non-parametric tests based on the contingency table. The test was used to test the null hypothesis that the variables are independent. Comparing the calculated scores across all 14 items, *we observed statistically significantly better scores in 7* of the items achieved by the children in the Output Orientation Diagnostic than those achieved by the children in the Symptom Domain Focused Entry Orientation Diagnostic - Depistage 2 (Table 4).

In the area of *self-knowledge*, we found statistically significant improvements in scores for all four items:

- *First Name and Last Name* ($\chi 2$ = 11.62; p = 0.001). These results indicate that more children scored yes on the output assessment (from 71% of children at baseline to 90% of children at follow-up),
- *age* ($\chi 2$ = 13.56; p = 0.001). The results above show that more children scored yes on the output depistage assessment (from 62% of children at entry to 85% of children at the input),
- *Name of town/city* ($\chi 2$ = 90.00; p = 0.002). The above results show that more children scored 'yes' on the output depistage assessment (from 40% of children at input to 62% of children at output),
- *parents' names* ($\chi 2$ = 14.72; p = 0.001). These results show that more children scored yes in the output depistage assessment (from 48% of children at input to 74% of children at output).

There was only one statistically significant improvement in *Speech, language, and communication*:

Speech Intensity ($\chi 2$ = 4.49; p = 0.034). More children scored 'yes' on the output assessment (from 45% of children at baseline to 60% of children at baseline). In the other two monitored points: 1. *Difficulty understanding written instructions* and 2. *Pronunciation*, the scores did not improve statistically. There was a statistically significant improvement in *Colour* ($\chi 2$ = 17.60; p = 0). These results show that more children scored 'yes' on the output assessment (from 45% of children at baseline to 74% of children at baseline). Using a Pearson chi-squared test, we measured one area of *Mathematical ability*, basic geometric shapes, in which there was a statistically significant improvement ($\chi 2$ = 16.08; p = 0.0001).

The t-test was used to measure 18 items, *all of which were statistically significant.*

In the Depistage 1 domains, which aim to identify deficits in sub-functions, there are statistically more items at the output than at the input, and in all 10 domains. In the Depistage 2 domain, which focuses on identifying symptoms, all the 8 domains measured were statistically significantly better. Using the Pearson chi-square test, we measured 14 domains (stage 2 symptoms), 7 of which were statistically significantly better.

Of the 32 areas surveyed, 26 were statistically significant. Based on the results, it can be concluded that the application of the incentive programme was justified.

In this sense, our hypothesis H was accepted. It was hypothesised that the results of the output orientation diagnostics of 3- and 4-year-old children would be statistically significantly better than the results of the input orientation diagnostics of 3- and 4-year-old children (Tables 3 and 4).

4 Conclusions

The objectives of the integrative diagnosis and stimulation of 3–4-year-old children were to raise the educational level of children from marginalised communities, with a focus on pre-school education. The aim of the research was to obtain information on the results of the initial and final orientation diagnostics of preschool children and how the application of the stimulation programme manifested itself in kindergarten children. The research problem was formulated as follows *"Does the use of a depistage-stimulation tool with 3–4-year-old children contribute to their better performance in the output depistage?"*

The design of the diagnostic-stimulatory instrument allowed us to identify several categories, according to which we conducted the analysis of the data obtained from the input and output orientation diagnostics of socially disadvantaged kindergarten children. We evaluated 32 criteria obtained from the results of the input and output orientation diagnostics, taking into account the possibility of qualitative data processing. The presented research results are part of a longitudinal study conducted in the period 2019-2023 (we conducted 4 stages of diagnostics and stimulation of kindergarten children). For the sake of clarity, we present a summary of the results for the period 2019-2023 in Table 5 below.

Based on the above data, we can formulate the following conclusion:

The results of the input and output diagnostics and subsequent stimulation of kindergarten children in the period 2019-2023 clearly demonstrated the high effectiveness of the diagnostic-stimulation programme applied to 3–4-year-old kindergarten children. Overall, the selected kindergarten children scored statistically significantly better in the output orientation diagnostics than in the input orientation diagnostics. The partial evaluation according to stimulation areas also showed that the children from the kindergartens involved in the research *scored statistically significantly better on the output measure than on the input measure.*

In order to improve the efficiency of inclusive education of children at the preschool level of the school system, which results from the long-term experience of the authors of the paper during the solution of scientific projects, and also from the implementation of activities of national inclusive projects, we propose:

1. Implement effective mechanisms for early diagnosis and stimulation of 3–6-year-olds in the nursery environment.
2. To experimentally validate the effectiveness of diagnostic and stimulation programmes.
3. Establish inclusive/supportive teams in nursery schools, including support teams of both educational and professional staff.
4. Strengthen family-school collaboration through diagnostic-stimulation programmes.
5. Make pre-school education compulsory from the age of 3.
6. Carry out a self-evaluation of kindergartens regarding their readiness for inclusive education.
7. The need to change the approach to the diagnosis of children and pupils: a child (pupil) will be recommended for education as a child (pupil) with mental disability only after confirmation of this diagnosis by a child psychiatrist or child neurologist.

Literature:

1. BOOTH, T., & DYSSEGAARD, B. (2008). Quality is not enough the contribution of inclusive values to the development of education for all. Retrieved from: https://www.eenet.org.uk/resources/docs/QualityIsNotEnough.pdf
2. BRŤKOVÁ, R. & BAHURINSKÁ, D. (2012). *Stimulačný program prevencie porúch učenia detí* predškolského veku. Pro solutoins. Bratislava
3. EUROPEAN AGENCY for development in special needs education (2014). *Five key ideas for inclusive education. Introduction into theory and practice.* ODENSE, Denmark. Retrieved from: https://www.europeanagency.org/sites/default/files/Five_Key_Messages_for_Inclusive_Education_SK.pdf.
4. HAMAN, E., FRONCZYK, K., & MIĘKISZ, A. (2010). *Ocena zasobu słownictwa u dzieci w wieku przedszkolnym – nowe narzędzie testowe. Hodnotenie slovnej zásoby u detí predškolského veku - nový testovací nástroj.* In PSYCHOLOGIA ROZWOJOWA. Warszava. Nr 1 pp. 21–45.
5. HLADUSH. V, ŠILONOVÁ, V., KLEIN, V., BENCH, O. & HLOBA, A. (2020). *Preparation of pedagogical Trainers to inclusive Diagnostics. V*2020. Journal of Critical Reviews. Kuala Lumpur. Malaysia. pp. 4132-4141. Scopus №20743, ID 21100920227. http://www.jcreview.com/?mno=122618.
6. KENDALL, S. et al. (2008). *Narrowing the Gap in Outcomes for Vulnerable Groups. A Review od the Research Evidencie.* Non-Journal. Retrieved from: *https://eric.ed.gov/?id=ED502360*
7. KOŽÁROVÁ, J., MIKURČÍKOVÁ, L. (2022a). Špecifické identifikátory inkluzívnosti kurikula vo vybraných krajinách (pp. 74-94). In Kožárová, J., Mirdaliková, P., Nyklová. E. (eds.) Speciálně pedagogická konference k 20. výročí Katedry speciální pedagogiky PdF OU. 25 let studia speciální pedagogiky v Ostravě. 20 let katedry speciální pedagogiky. Ostrava University.
8. KOŽÁROVÁ, J. (2022b). Personalizované kurikulum ako možnosť úspešnej inkluzívnej edukácie (pp. 165-178.) In Šilonová, V., & Kožárová, V. (eds.) Podpora inkluzívneho vzdelávania na Slovensku a v zahraničí: zborník príspevkov z medzinárodnej vedeckej konferencie. Prešov University.
9. KWIATKOWSKA, G.E. (1996). *Rysunek spontaniczny w diagnozie zaburzen w adaptacji dzieci 3-4 letnich do przedszkola.* Instytut Psychologii. pp. 115–121. Retreived from: https://repozytorium.ukw.edu.pl/bitstream/handle/item/699/Kwiatkowska%20Rysunek%20spontaniczny%20w%20diagnozie%20zaburzen%20w%20adaptacji%20dzieci%203_4%20letnich%20do%20przedszkola.pdf?sequence=1&isAllowed=y
10. ORR, E. (2020). *Children's Task Persistence in Relation to Stimulation at Home. Early Child Development and Care*, v190 n11 pp. 1725-1737
11. PÉREZ-CASTEJÓN, D. (2023). *Practices and intellectual requirements for attaining inclusive education and social justice.* In Initial Teacher Education: ethnography. Taylor Francis Online. https://doi.org/10.1080/17457823.2023.2186740.
12. ROCHOVSKÁ, I., KUŠNÍROVÁ, V., ČARNICKÁ, M., & ŠILONOVÁ, V. (2023). *The Analysis of the Kindergarten Teachers' and Teaching Assistants' Attitudes to Their own Experiences in the Process of Inclusive Education.* In: Pedagogika / Pedagogy. pp 185-195.
13. SINDELAR, B. (2014). *Príručka k metodike na zachytenie čiastkových vývinových deficitov v spracovávaní informácií.* Bratislava: Vydavateľstvo Kanije.
14. SINDELAR, B. (2009a). *Testtheoretische analyse und standardisierung des verfahrenszur erfassung von teilleistungsschwächen.* Wien, Austria: Elisabeth Unterfrauner Verlag Austria Press.
15. SINDELAR, B. (2009b). *Trainingsprogramme gegen Teilleistungsschwächen*. Wien: Verlag Austria Press GmbH.
16. ŠILONOVÁ, V., KLEIN, V. & ŠINKOVÁ, P. A. (2018). *Manuál k depistáži pre deti predškolského veku pochádzajúce zo sociálne znevýhodneného prostredia - inovovaná časť.*
17. ŠILONOVÁ, V., KLEIN, V. & ŠINKOVÁ, P.A. (2020). *Depistážno-stimulačný program pre 3-4 ročné deti v materskej škole.* Ministerstvo vnútra SR - Úrad splnomocnenca vlády SR pre rómske komunity. Bratislava. Retrieved from: https://www.minv.sk/swift_data/source/romovia/np_docs/np_prim/publikacie_k_np_prim_i/Depistazno_stimulacny_program_pre_3_4_rocne_deti_MS_2020.pdf.
18. ŠILONOVÁ, V., KLEIN, V. & ŠINKOVÁ, P. A. (2018). *Manuál k depistáži pre deti predškolského veku pochádzajúce zo sociálne znevýhodneného prostredia - inovovaná časť.* Prešov: Metodicko-pedagogické centrum v Prešove. Retrieved from: https://www.minv.sk/swift_data/source/romovia/np_docs/np_prim/pre_pre_materske_skoly/Manual_k_depistazi_inovSOV_PDF.pdf.
19. ŠILONOVÁ, V., KLEIN, V. & ŠINKOVÁ, P.A. (2018). *Manuál k stimulačnému programu pre deti predškolského veku pochádzajúce zo sociálne znevýhodneného prostredia - inovovaná časť.* Prešov: Metodicko-pedagogické centrum v Prešove, 2018. Retrieved from: https://www.minv.sk/swift_data/source/romovia/np_docs/np_prim/pre_pre_materske_skoly/Manual%20k%20stimulacnemu%20programu_inov_NP%20SOV.pdf.
20. ŠILONOVÁ, V. (2021). *Inkluzívne prístupy k edukácii detí predškolského veku.* VERBUM – vydavateľstvo Katolíckej univerzity v Ružomberku.
21. ŠILONOVÁ, V. & KLEIN, V. (2020). *Metodická príručka inkluzívneho predprimárneho vzdelávania.* Ministerstvo vnútra

SR - Úrad splnomocnenca vlády SR pre rómske komunity. Bratislava, 2020.
22. ŠILONOVÁ, V., KLEIN V., & ROCHOVSKÁ, I. (2021). *Inclusive diagnostics and stimulation of socially disadvantaged children of a pre-school age: Experimental verification.* P. 804-825. *The International Scientific Periodical Journal "Problems of Education in the 21st Century.* 79 (5), 00-00. https://doi.org/10.33225/pec/21.79.00. Siauliai. Lithuania.
23. ŠILONOVÁ, V., KLEIN V., & ŠINKOVÁ, P.A. (2020). *Effects of a Stimulus Programme for Socially Disadvantaged Children of Preschool Age in the Slovak Republic.* In KAIROS – Slovenian Journal of Psychotherapy. *pp.* 211-229.
24. ŠILONOVÁ, V., KLEIN, V., & ŠINKOVÁ, ARSLAN, P. (2019). *Depistážno-stimulačný program pre 3-4 ročné deti v materskej škole.* Ministerstvo vnútra SR – Úrad splnomocnenca vlády SR pre rómske komunity. Bratislava
25. ŠILONOVÁ, V. & KLEIN, V. (2023). Diagnostika a stimulácia detí materských škôl ako súčasť národného projektu PRIM II. Úrad vlády SR. Bratislava.
26. ŠTÁTNY VZDELÁVACÍ PROGRAM *pre predprimárne vzdelávanie v materských školách*. Ministerstvo školstva, vedy, výskumu a športu Slovenskej republiky. 22. september 2022. číslo 2022/10933:5-A2140 s platnosťou od 1. septembra 2022.
27. UNESCO (2009). *Policy Guidelines on Inclusion in Education.* Retrieved from: https://www.eldis.org/document/A55122.
28. VALACHOVÁ, D. (2009). *Ako spoznať dieťa v materskej škole. Pedagogická diagnostika v materskej škole.*Metodicko-pedagogické centrum. Bratislava, 2009.

Primary Paper Section: A

Secondary Paper Section: AM, AN

TABLES

Table 1: *Areas and Items of the Diagnostic and Stimulation Instrument 3-4 - Depistage 1 Partial functions*

Areas and items	Score
Tactile-kinaesthetic perception	Max. 6 points
Auditory memory	Max. 6 points
Visual differentiation	Max. 6 points
Seriality: visual	Max. 6 points
Auditory differentiation	Max. 6 points
Intermodality: visual-auditory and auditory-visual	Max. 4 points
Auditory differentiation of figure and background	Max. 6 points
Seriality: auditory	Max. 6 points
Visual differentiation of figure and background	Max. 6 points
Visual memory	Max. 3 points

Table 2: *Areas and Items of the Diagnostic and Stimulation Instrument 3-4 – Depistage 2 Symptoms*

Areas and items	Score	Criteria
Knowledge about yourself	Max. 4 points	Name and surname of the child Age of the child Exact address Parents' names
Graphomotorics	Max. 6 points	Graphomotorics
Speech, language and communication	Max. 4 points	Pronunciation Articulation Intensity of speech Difficulty understanding instructions in written language
Vocabulary range	Max. 6 points	Vocabulary range
Categorisation	Max. 2 points	Categorisation
Mathematical abilities	Max. 7 points	Ascending numeric series up to 5 Descending number series up to 5 Determination of the number up to 5 Basic geometric formations
Size, quantity	Max. 4 points	Size, quantity
Colours	Max. 1 point	Colours
Behaviour during screening	Max. 5 points	Unable to separate from loved ones/acquaintances Unfocused/inattentive Independent/uncertain Emotionally out of tune Negativist

Table 3: *Comparison of results of input and output orientation diagnostics of 3-4-years-old children by area (t-test)*

Area	$\bar{x}$		*t*	*p*	*SD*	
	Access	Output			Access	Output
Tactile-kinaesthetic perception	3,823	4,720	-7,293	0	1,874	1,452
Auditory memory	2,838	3,864	-8,031	0	1,924	1,616
Visual differentiation	3,859	4,758	-6,351	0	2,117	1,715
Seriality: visual	3,121	4,242	-6,906	0	2,387	2,064
Auditory differentiation	2,663	3,689	-7,116	0	2,070	1,971
Intermodality: visual-auditory and auditory-visual*	1,183	1,877	-7,268	0	1,246	1,387
Auditory differentiation of figure and background	2,098	3,314	-7,969	0	2,174	2,107
Seriality: auditory	3,350	4,540	-8,040	0	2,291	1,733
Visual differentiation of figure and background	4,961	5,401	-4,507	0	1,655	1,243
Visual memory	1,835	2,321	-6,669	0	1,095	0,895
Graphomotorics	2,589	3,617	-7,007	0	2,102	1,916

Speech, language and communication: Articulation	2,406	2,946	-4,727	0	1,718	1,659
Vocabulary range	4,314	5,044	-6,568	0	1,732	1,275
Categorisation*	0,668	1,100	-6,646	0	0,841	0,887
Mathematical abilities: Ascending numeric series up to 5	1,165	1,656	-9,207	0	0,846	0,634
Mathematical abilities: Descending number series up to 5*	0,165	0,455	-6,429	0	0,506	0,750
Mathematical abilities: Determination of the number up to 5*	0,653	1,147	-7,669	0	0,856	0,886
Size, quantity	2,810	3,422	-6,861	0	1,464	1,014

* We observed a reduction in the standard deviation scores on the output measure. That is, the children's recorded responses to each item were similar and the variance of the scores was smaller on the output, except for the labelled data.

Table 4: *Comparison of the results of input and output orientation diagnostics of 3–4-year-old children by areas*
(Pearson chi-square test, df - number of degrees of freedom = 1/ t crit. 3,841)

Area	χ^2	**p**
Knowledge about yourself **:** Name and surname of the child*****	11,62	0,0007
Knowledge about yourself **:** Age of the child *****	13,56	0,0002
Knowledge about yourself **:** Exact address *****	9,00	0,002
Knowledge about yourself **:** Parents' names*	14,72	0,0002
Speech, language, and communication: Pronunciation	2,08	0,15
Speech, language and communication**:** Intensity of speech *****	4,49	0,034
Speech, language and communication: Difficulty understanding instructions in written language	2,81	0,09
Mathematical abilities**:** Basic geometric formations*****	16,08	0,0001
Colors *****	17,60	0
Behaviour during screening : Unable to separate from loved Ones/acquaintances	1,56	0,22
Behaviour during screening : Unfocused/inattentive	2,75	0,1
Behaviour during screening : Independent/uncertain	0,60	0,53
Behaviour during screening : Emotionally out of tune	1,70	0,27
Behaviour during screening : Negativist	1,07	0,29

* *Statistically significant differences*

Table 5: *Diagnostic and stimulation results for 3–4-year-old kindergarten children (2019-2023)*

National project	**School year**	**Number of kindergartens**	**Number of kindergartens**	**Overall success rate (%)**
Project of inclusion in kindergartens (PRIM I)	2019/2020	25	397	100
Project of inclusion in kindergartens (PRIM II)	2020/2021	54	414	81,25
	2021/2022	68	421	78,13
	2022/2023	67	390	77,94
Total			**1 622**	**84,33**