

POSSIBILITIES AND LIMITS OF GRAPHOMOTOR DIAGNOSIS IN PRESCHOOL CHILDREN IN THE CONTEXT OF A CHANGING EDUCATIONAL ENVIRONMENT

BEÁTA POŠTEKOVÁ*, LIBUŠA GUŽÍKOVÁ

*Corresponding author: beata.postekova@umkd.uniza.sk

Abstract. Preschool age is a period of dynamic development of the child. The paper focuses on diagnosing the graphomotor skills of children of the Alpha generation from the perspective of preschool educators. The aim of the research was to identify the methods and techniques that preschool teachers apply in the diagnosis in the field of graphomotor skills. The quantitative research was carried out in the form of a non-standardized questionnaire of own design, which was completed by 173 respondents. The obtained data were analyzed by means of descriptive statistics and Pearson chi-square test. The results showed that teachers attach high importance to the diagnosis of graphomotor skills and the preferred methods are observation, analysis of children's work and portfolio. The choice of diagnostic tools correlates to some extent with the length of teaching experience. The research also identified the need for systematic and regular diagnostic assessments as well as the use of multiple methods for comprehensive assessment of graphomotor skills. Furthermore, it highlighted the importance of continuous professional development and support for educators to enhance their diagnostic competences. Emphasis was placed on creating a standardized framework to ensure consistent and objective evaluation practices. Based on the research findings, detailed recommendations for pedagogical practice were developed, focusing on integrating diagnostic activities into everyday teaching routines, encouraging collaboration among educators, specialists, and parents, and promoting the use of diverse and innovative assessment techniques. These recommendations aim to improve the early identification of potential difficulties and support targeted interventions to foster optimal graphomotor development in children.

Keywords: preschool age, graphomotorics, diagnostics, methods, Alpha generation, kindergarten, preschool teachers.

1. INTRODUCTION

Preschool age is a period of dynamic child development, during which significant changes occur in body structure, motor skills, cognitive processes, as well as in social and emotional experience. This development is characterised by significant qualitative and quantitative shifts.

Significant transformations are also observed in the development of the preschool child's graphomotor skills, which are a key aspect of overall psychomotor, cognitive and emotional development. Today, in the context of rapid global changes that are fundamentally affecting the way children live and perceive themselves, the development of graphomotor skills is even more urgent.

The level of graphomotor skills is becoming an important criterion in assessing a child's entry into school, and so it is becoming a central issue in the preschool years, both for professionals and for parents. An effective diagnostic process of these skills is a key tool that allows early identification of

possible difficulties and the introduction of targeted interventions. As Kožík Lehotayová (2022, p. 8) states, 'the maturation of the organism takes place more rapidly in the preschool period than in later periods; for this reason, it is appropriate to induce targeted activities for the development of specific skills and functions related to drawing and writing'.

In this context, the diagnosis of graphomotor skills is not only formal in nature, but also represents an important preventive tool for the early detection of possible developmental difficulties and, at the same time, enables targeted pedagogical intervention. Given the changing educational environment and growing demands on children's school readiness, pedagogical diagnostics play a super important role in the inclusive and supportive educational process in kindergarten.

2. THEORETICAL BACKGROUND

Motor development in preschool children is generally an important indicator for assessing a child's cognitive, social or emotional development. It includes fine and gross motor skills, graphomotor skills, speaking motor skills and eye movements (Bednářová, Šmardová, 2022).

In preschool, it is the *graphomotor skills* that are crucial and can be defined in a number of ways. The simplest definition is the movement involved in writing and drawing, yet it is essential to consider graphomotor skills as a multifaceted and complex psychomotor phenomenon. According to Bednářová, Šmardová (2022, p. 52), 'it is not only a motor act, equally important are psychological functions such as visual perception, hand-eye coordination - visuomotor, spatial perception, memory or attention'. Consistently, according to Průcha et al. (2009), it is a set of psychomotor tasks that a person performs while writing and drawing. The degree of gross and fine motor skills, sensorimotor abilities and general motor coordination play a role.

The basis for the formation of graphomotor skills is rooted in early psychomotor development, in which representations of one's own body ('body schema') are integrated with visual-spatial orientation (Vasileva, 2023). There is also a significant connection with physical development; according to Kozhik Lehotayova (2022), the maturation of the central nervous system, the degree of ossification of the carpal bones, and the overall level of gross and fine motor skills are also significant. The maturation of the central nervous system refines and refines the movements of the entire hand, from the shoulder joint, elbow, wrist and fingers. As Podprocká (2014) writes, the intensive development of the preschool child determines the influence of the cerebral cortex on the overall psychological development, practice develops and refines, movements are more purposeful, more coordinated, the ossification of the carpal bones is completed by the end of the mentioned period, and the motor coordination of the hand becomes more refined.

Graphomotorics, as a set of psychomotor activities, is also a special kind of communication, because the child leaves a permanent graphic trace after the activity, which has meaning for him and is a sign of his psychological development (Doležalová, 2010). However, it is a dynamically developing and by its nature and organization superior mental phenomenon, which is one of the forms of information transfer from the child, in preschool age mainly in the form of a graphic activity – drawing. In the later period, with the complexity of the neural networks of the brain and improved intellectual abilities, it begins to manifest itself through the written signs of language (Vasileva, 2023). Fine motor and graphomotor skills are particularly interconnected. Fine movements of the hand, palm and fingers constitute graphomotor skills. In addition to fostering a positive relationship with writing and drawing, which is a strong predictor of a child's overall development of graphomotor skills, we can help children develop finger movements becoming more dexterous, precise, and faster (Droppova, 2014).

In the State Curriculum for Preschool Education, graphomotor skills play an extremely important role in the development of sensorimotor skills. In addition to targeted graphomotor exercises, general links between many areas of preschool education contribute to the development of graphomotor skills. Children need to improve in several areas, as graphomotor skills are a complex phenomenon. The area

of graphomotor skills is mainly addressed in the educational area of Language and Communication, but graphomotor skills can also be developed to a considerable extent in the educational areas (abbreviated as 'ACE') of Art and Culture - Art Education, or Health and Movement (SPP, 2016). Similarly, within the VO Human and the world of work, sub-area Constructing or User skills, e.g. manipulative activities, as well as VO Mathematics and information work, sub-area Geometry and measurement, e.g. drawing activities in connection with geometric shapes (Balážová & Domanická, 2022).

Graphomotor skills need to be honed gradually. Since graphomotor skills are a complex process, as we have already mentioned above, it is necessary to start from gross motor skills in their development. The development of fine motor skills is the next step. According to the difficulty of the exercises, we progress from the most basic to the most complex (Doležalová, 2010). The development of graphomotor skills in children aged 3 - 6 years begins with the development of the coordination of the fine muscles of the hand and vision, the induction of the correct posture of the writing utensil, relaxation exercises, and then the development of graphomotor skills through graphomotor elements (Bednářová & Šmardová, 2022).

Doležalová (2010) points out the following general principles for the effective development of graphomotor skills: (1) appropriateness of the activity, (2) gradually increasing the difficulty of the activity, (3) stimulating children's interest (through play, aids, motivation, theme...), (4) integrating graphomotor activities into a coherent context and natural situation, (5) praise, encouragement and positive feedback, (6) initiative and a positive psychosocial climate.

According to Droppa (2014), Loose, Diener, Piekert (2011), the conditions for targeted training of graphomotor skills include the selection of an appropriate surface, format; the choice of graphic and drawing material; relaxation of the hand when drawing, writing; body position or grip of the writing material.

Graphomotor skills are crucial for a satisfying personal life in today's culture and should be developed in children from an early age (Doležalová, 2010), uniquely and in stages that are determined by its physiological make-up – it is essential to take into account the age, uniqueness and character traits of the child (Kožík Lehotayová & Valachová, 2018).

For this reason, the characteristics of contemporary childhood must also be respected. Today's preschool children belong to the youngest and most modern generation - the Alpha generation, which differs in many ways from previous generations of children, as it is most strongly connected with new technologies and brings many advantages as well as disadvantages in connection with the experience of childhood (Baron-Polańczyk & Nowak-Łojewska, 2022; Hrobková & Huřová, 2024).

It is difficult not to notice the continuous decline in the age of a child's first contact with the digital world (Szczygieł, 2021). Children from that generation are defined as 'digital natives' because they are already immersed in the digital world in the first years of their lives; technology influences their way of life and behaviour from an early age (Thompson, 2018). The youngest users are the most vulnerable, their value system and different spheres of personality development are still taking shape. Excessive contact with digital devices can stifle a child's imagination and reduce the level of motor skills, causing difficulties in institutional settings (Ziębakowska-Cecot, 2016).

In addition to individual factors, external factors also play a key role in determining the child's development at a holistic level, and according to Dropp (2014), the external environment is primarily the influence of family upbringing, which also depends on the parents' involvement in the development of the child's graphomotor skills and their position as a role model. The research findings of Sinvani et al. (2023) show a link between Bronfenbrenner's (1979) theory and children's graphomotor skills. Proximal factors (home literacy and educational access) had a greater influence on child graphomotor skills than distal factors (socioeconomic and parental immigration status).

Clearly, as Mlčáková (2009) writes, graphomotor skills are governed by psychological cognitive processes and can be useful in diagnosing psychological conditions, processes and characteristics. Thanks to this, we can diagnose various psychomotor disorders, anomalies or problems of an individual

in a timely manner and thus prevent their onset and worsening.

Pedagogical diagnostics is a set of activities that focus on the process of assessment and analysis of the child, along with its outcomes. The aim of pedagogical diagnostics is to determine the prognosis for further development by diagnosing the level of knowledge, abilities, skills, talents and personal qualities of the individual. The complex process of pedagogical diagnosis must be an important part of every educator's work (Belesova, 2014).

In order to implement effective diagnostics also in the field of graphomotor skills, it is essential for the educator to know the different stages of graphomotor development, as well as the psychological state of the child (Sobotova et al., 2013).

At preschool age, the nervous system and the whole body mature quite quickly. Movements of the whole body, from the wrist through the shoulder joint to the hands and fingers, make up the majority of the child's unplanned visual expression. The joy of moving the hand, the pleasure of the filled area and the colour left by the drawing material are associated with the earliest stages of spontaneous graphic expression (Sobotova et al., 2013). The child's graphic skills begin with the first attempts at graphic representation of individual elements, progress through activities of independent drawing of objects, and end with the mastery of intricately organised serial movements in writing (Vasileva, 2023).

Graphomotor aspects are grouped according to the developmental stage at which they are depicted in the child's unplanned (spontaneous) drawing: 1. group of elements – after the writing stage, the components are coordinated, purposefully guided forms with the lowest developmental stage. Vertical lines (from top to bottom) appear before horizontal lines, which then close into a circle. This includes point, arc and slant lines guided by fulcrum points; 2nd group of elements - requires a greater range of coordinated movements by the child as well as deliberate distance maintenance. They consist of ellipses, teeth (sharp turns), wavy lines, spirals and oblique lines in all directions. To guide movement along the vertical axis, wavy lines require knowledge of arcs and, in particular, the horizontal direction of the line from left to right; the 3rd group of elements – a set of components related to hand coordination, including various vertical and horizontal movements that are key to writing. The more challenging bottom loop follows the above loop. The goal is to move the hand smoothly from the shoulder joint. Loops can be added later in other places. The group consists of lower arc loops with backstroke (garlands) and more challenging higher arc loops with backstroke (arcades); 4th group of elements – the set of elements includes specific elements of writing, such as the rising slanted line, the heart, and the upper and lower strokes, i.e. the components of the letters a and o. Naturally, writing also requires mastery of the components of the previous categories (Bednářová & Šmardová, 2006).

The position of the hand when drawing and writing also plays an essential role, which should prevent excessive bending of the hand at the wrist, so the movement comes from the shoulder and elbow (the end of the writing instrument makes an angle of about 45 degrees with the shoulder). Likewise, the relaxation of the hand, which allows for fluidity of hand movement and consequently line guidance (Bednářová & Šmardová, 2022).

Drawing (Kožík Lehotayová, 2022), which can be evaluated from two perspectives, is one of the essential indicators of the level of graphomotor skills: formal, which includes line guidance, fluency of drawing, correctness and variety, and content, which includes the richness, variety and detail of the subject matter (Bednářová & Šmardová, 2006). Fluency, flexibility, originality, composition, colour, line management and character representation are among the characteristics used to evaluate children's artistic expression (Valachová & Tilešová, 2015).

Pedagogical diagnostics uses various tools and techniques; graphomotor skills in preschool education can be diagnosed using various basic techniques such as worksheets, portfolios, interviews, questionnaires and children's drawings (2010, In Miňová, Vicáňová 2016), at the same time many test batteries as diagnostic tools designed to assess the level of graphomotor skills (Mojtová, 2014).

A relatively newer diagnostic tool in the Czech Republic is a screening tool for early detection of graphomotor difficulties in preschool age. The assessment scale contains 28 items that are divided into

five domains, namely the child's relationship to motor activities, circumstances of drawing activities, characteristics of drawing lines, characteristics of spontaneous drawings, and manipulation of specific graphic elements (Havigerová & Janků, 2018).

Perhaps the most natural diagnostic approach in preschool education is observation. The educator observes events and phenomena while observing the child's growth, setting the goal of deliberately carrying out the observation. In organized observation, the educator records data on a pre-prepared recording sheet. In unorganized observation, the educator looks at the subject matter in detail and considers many aspects at once. Unstructured observation is recorded in free form, for example in the form of a diagram or graphical representation (Gavora, 2013).

Interviewing is a diagnostic technique that is usually conducted in person, is somewhat organic and occurs frequently in preschool education, allowing the educator to gain a deeper understanding of the child's situation and revealing the child's motivations, attitudes and feelings (Gavora, 2013). The interview technique should be used during and after the activity (Uváčková, Valachová & Droppová, 2009).

A portfolio is a collection of a child's work that we collect to track their growth and progress in specific areas. It provides us with a thorough overview of a child's developmental stages (Gavora, 2013). The portfolio provides the educator with information about the child's current status as well as opportunities for improvement, allowing him or her to modify individual exercises appropriately. The portfolio provides various projects, worksheets, pictures and others. As far as graphomotor skills are concerned, it mainly focuses on the child's drawings and individual graphomotor activities (Belesova, 2014). The prerequisite for the creation of the portfolio is long-term (we collect the content for at least a year) and the variety of activities is also a motivating factor. The child who is the author of the works can monitor his/her own progress. One of the characteristic features of childhood is artistic expression, which is an element of the child's growth and is related to his/her personality structure and current psychological state (Valachová & Tilešová, 2015). Point, line, surface, movement and composition are the basic elements of drawing, closely related to graphomotor skills. According to Kožík Lehotayová and Valachová (2018), we progress from a point through: horizontal, vertical, broken, intersecting lines, arc, wave, circle, loop and figure eight.

In order to use drawing as a diagnostic technique, it is necessary to understand the many stages of a child's drawing development in preschool education. The stages of a child's artistic expression can be divided into many time periods, according to Valachová (2014). A portfolio often includes worksheets. Educators often use worksheets to assess a child's abilities, knowledge and skills. The worksheets are varied and include different worksheets for the development of graphomotor skills, surface orientation, and visuomotor skills (Vlčková, 2014). To avoid using worksheets as the only method of improving graphomotor skills, several experts, including Kožík Lehotay and Valachova (2018), advise using a variety of activities.

Mapping the child's graphomotor skills in preschool allows for the early detection of graphomotor problems, as Havigerová, Janků (2018) write, which can indicate serious pedagogical and psychological consequences in the subsequent primary education. According to the findings of Medojević (2024), it is possible to single out children with graphomotor disorders already at preschool age, based on the lack of visual discrimination of the size and shape of the given and drawn shapes, as well as poor orientation in space or on the surface of the paper. It is the identification of children with visual-perceptual and graphomotor difficulties in pre-school age that helps to overcome the above-mentioned deficiencies, through preventive, early and systematic exercises, so that possible difficulties in entering school can be eliminated.

The findings from the pedagogical diagnosis lead to an individualized approach, including graphomotor training in relation to the child's current developmental and developmental level. The teacher's long-term goal should be to strive for a dynamic pedagogical diagnosis, oriented to the changes that may occur after the application of a supportive strategy (Kožík Lehotayová, 2023).

3. RESEARCH OBJECTIVE, METHODOLOGY AND DATA

One of the most important tasks that an educator in preschool education performs is the diagnosis of the child. The structure of the submitted research article meets the requirements of a scientific journal for research-type contributions – it includes an introduction, theoretical background, research objective with methodology and data, presentation of results with discussion, and formulation of conclusions. This framework ensures clarity of the research process and allows for clear interpretation of the findings.

A key area is graphomotor skills, which determine not only the child's entry into the institutional environment, but also, in synergy, the process of adaptation, acceptance of the role of pupil, as well as the child's overall satisfaction. The child's graphomotor readiness, which is a direct measure of his or her readiness to write, is a prerequisite for entry into primary school. However, it is clear that the child develops writing habits at the very first attempts at writing, and so preschool preparation becomes a key aspect of adequate written expression.

The research problem of a descriptive nature is aimed at investigating the field of diagnosis of graphomotor skills in preschool children from the perspective of preschool educators. The aim is to identify which techniques and approaches are used by preschool teachers in the diagnosis of graphomotor skills, as well as to assess the child's graphomotor readiness. In conjunction with the above, it is also necessary to approach how preschool educators perceive the development of graphomotor skills in current preschool children, in the context of specific prerequisites for graphomotor activity, such as grasping graphic material or correct posture during graphic expression.

In the section assessing diagnostic methods, the interview method refers to a structured or semi-structured conversation with the teacher, aimed at understanding their diagnostic procedures and experiences related to graphomotor development. It did not involve direct interviews with children or parents.

The main research aim is to *identify the method of pedagogical diagnosis of kindergarten children in the area of graphomotor skills and subsequent intervention in the development of graphomotor skills*. From the above research aim, we derived the following research questions and research hypotheses:

RQ: Which strategies do preschool teachers use in diagnosing the graphomotor skills of preschool children?

RH1: There are significant differences in the preference of methods and ways of diagnosing the graphomotor skills of preschool children by preschool educators.

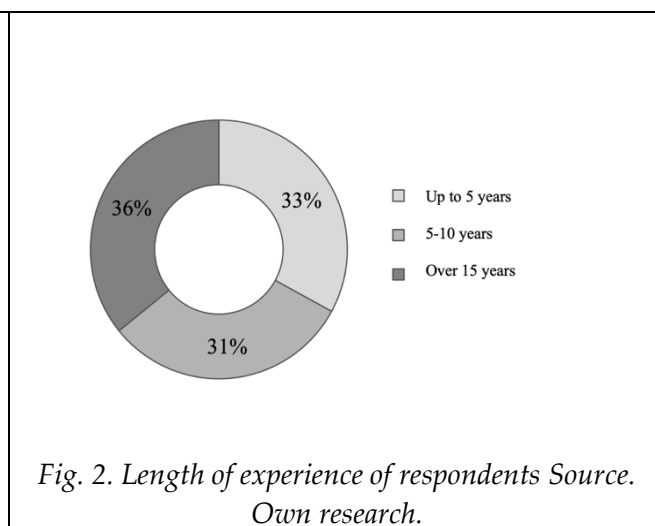
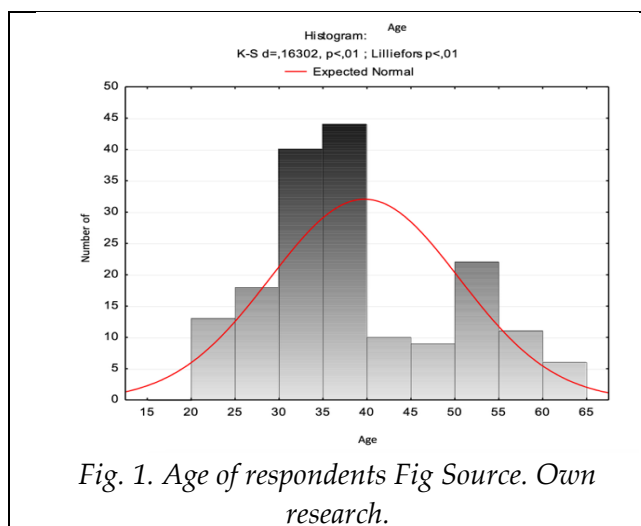
RH2: The length of teaching experience of preschool educators is related to the choice of diagnostic methods aimed at monitoring the graphomotor skills of preschool children.

A non-standardised questionnaire (a questionnaire of our construction) was used to obtain the research data. The questionnaire contained instructions and directions for completion. The central section of the survey consisted of 14 open-ended items aimed at identifying techniques, approaches and activities used by educators in diagnosing a child in pre-primary education in the area of graphomotor skills. Open-ended items were applied to several items of the questionnaire, as well as a four-point Likert scale (1 – very important, 2 – important, 3 – not very important, 4 – not important), which allowed for the quantitative expression of respondents' attitudes towards different aspects of the diagnosis of graphomotor skills.

The questionnaire was anonymous and the results obtained were used only for research purposes. The obtained data were processed in MS Excel and Statistica statistical software version 10. The data were analyzed using descriptive statistics (absolute and relative frequency, mean - Mean, standard deviation - SD), and inferential statistics - Pearson chi-square test. A p value < 0.001 was used to confirm statistical significance. Values of $p < 0.05$ were considered statistically significant, with $p < 0.01$ or $p < 0.001$ reported at deeper significance. Values were also supplemented with 95% CI confidence intervals when methodologically appropriate. The reliability of the questionnaire was verified by calculating Cronbach's alpha, which reached $\alpha = 0.81$, indicating good internal consistency of the instrument.

For the purposes of our research, we chose a deliberate selection of respondents, the basic criterion was the category of employee according to Act No. 138/2019 Coll. on pedagogical and professional staff and on amendment and supplementation of certain acts. The prerequisite was a pedagogical employee currently working in the category of teacher, specifically in pre-primary education.

The research sample consisted of 173 pre-primary education teachers ($n = 173$). As shown in Figure 1, the mean age of the respondents was $M = 39.7$ years, standard deviation of age $SD = 10.8$ years. In terms of years of teaching experience (Figure 2), the largest group was made up of teachers with more than 15 years of experience, with a total of 62 (36%). This was followed by a group of novice teachers with up to 5 years of experience, who totalled 57 (33%). The least numerous group was made up of teachers with experience ranging from 5-15 years, with 54 (31%).



4. RESULTS AND DISCUSSION

In the context of the above research aims and questions, we investigated which strategies are applied by preschool educators in diagnosing the graphomotor skills of preschool children.

First, we investigated whether preschool educators perceive the need for pedagogical diagnosis with an orientation towards mapping preschool children's graphomotor skills.

The answers of the respondents showed (Table 1) that all respondents answered positively to this question and thus considered the diagnosis of graphomotor skills in preschool children to be important. 47 respondents (27%) did not specify their answer (they gave only the answer "yes"). The remaining 126 respondents (73%) gave a reason for their answer in addition to a positive answer. We categorized their answers into the following areas (Table 1), i.e., the largest proportion of respondents – 51 (29%) perceived the diagnosis of preschoolers' graphomotor skills as an important tool to find out the child's current state in the field of graphomotor skills, but also as a means to detect possible deficiencies and problems in this area. A relatively equal group of respondents ($n = 42$; 24%) considered the diagnosis of preschool children's graphomotor skills as an integral part of their preparation for school. In particular, 14 respondents (8%) perceived the key benefit of preschool diagnosis of graphomotor skills to be the opportunity to improve and streamline the learning process for children, and 11 respondents (6%) the opportunity to identify specific areas that require targeted development of graphomotor skills. The remaining 8 respondents (5%) considered the diagnosis of graphomotor skills of preschool children primarily as a means to determine the psychological state of the child and the level of ossification of the bones and muscles of the hands.

Importance of diagnosing the graphomotor skills of preschoolers

Answers	N	%
Yes.	47	27
Yes, to find out the current status of the child and a means of detecting possible deficiencies and problems.	51	29
Yes, it is an integral part of preparing for school.	42	24
Yes, an opportunity to improve and streamline the learning process for children.	14	8
Yes, an opportunity to uncover specific areas that require targeted development of graphomotor skills.	11	6
Yes, to detect the child's psychological state and the level of ossification of the bones and muscles of the hands.	8	5
No.	0	0
Total	173	100

Source: Own research

The research also brings scientific innovation in the form of a comprehensive analysis of diagnostic strategies used in preschool education when working with children of the Alpha generation. This generation brings new challenges due to early contact with digital technologies, which also has an impact on graphomotor development. The finding of a lower frequency of use of traditional methods such as interviews or testing, as well as the need to systematize diagnostics and link them to innovative approaches (e.g., motivated graphomotor activities or portfolio assessment), provide new impetus for further research and pedagogical intervention. The discussion thus opens up new perspectives in the area of linking diagnostics with the prevention of school failure.

In the next part of the research, we investigated which rules kindergarten teachers' rate as important in the drawing and writing activities of preschool children.

A significant majority of respondents, up to 109 (63%; $p < 0.001$), indicated that a correct grip on graphic materials (pencils, pens) is important when drawing or writing. A significantly smaller proportion of respondents (35, 20%) attributed importance to correct posture when using graphic expression. The format of the paper on which the child writes or draws is important from the point of view of only 11 respondents (6%). A separate category was made up of respondents who indicated the other option ($n = 18$; 11%), with 15 respondents (9%) considering all three of the above factors important, and 3 respondents (2%) perceiving the lighting of the room to be very important.

Motor activity is an organized function that is controlled by the nervous system and is closely related to a child's physical, motor or psychological development. In the context of the above, we used a four-point scale to investigate the importance kindergarten teachers attach to each of the partial functions that contribute to the overall development of a preschool child's graphomotor skills.

The participants' statements (Table 2, Figure 3) show that the level of graphomotor skills is mainly related to the development of fine motor skills ($M = 1.10$; 91% very important, 8% important, 1% not important) and visual perception ($M = 1.39$; 72% very important, 19% important, 8% not important, 1% not important). Both of these functions are perceived by teachers as very important for preschoolers' mastery of graphomotor activities.

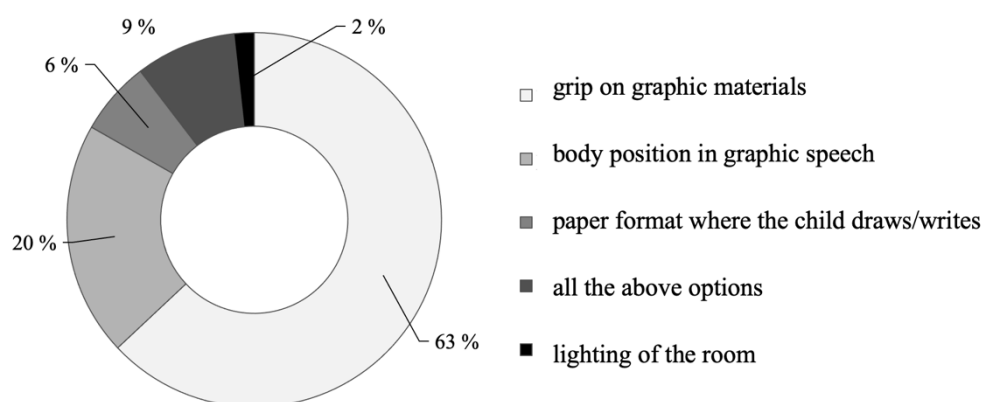


Fig. 3. Importance of elements in children's drawing and writing

Source: Own research

Other functions play a relatively equally important role in preschoolers' graphomotor skills, with more than half of the respondents identifying gross motor skills as essential ($M = 1.57$; 56% very important, 32% important, 10% not very important, 2% unimportant), and almost half of the respondents identifying spatial orientation as essential ($M = 1.64$; 49% very important, 40% important, 10% slightly important, 1% unimportant) and spatial-motor orientation ($M = 1.67$; 48% very important, 40% important, 10% slightly important, 2% unimportant).

Auditory perception ($M = 1.88$; 41% very important, 35% important, 20% not important, 4% not important) or rhythmic perception ($M = 1.88$; 45% very important, 30% important, 18% not important, 7% not important) play a less important role from the participants' point of view. However, it has to be stated that although these functions are considered by the teachers to be important for the overall development of graphomotor skills, they are not considered to be crucial in comparison to fine motor skills and visual perception.

Tab. 2

Assessing the importance of partial functions in the development of graphomotor skills

Partial functions	Mean
fine motor skills	1.10
visual perception	1.39
gross motor skills	1.57
spatial orientation	1.64
spatio-motor orientation (right-left orientation)	1.67
auditory perception	1.88
rhythmic feeling	1.88

Source: Own research

In a follow-up study, we investigated what methods kindergarten teachers use to diagnose children's graphomotor skills.

The results showed (Figure 4) that preschool teachers prefer the observation method for diagnosing graphomotor skills, which is used by the majority of respondents ($n = 137$; 79%; $p < 0.001$; 95% CI [72.4; 85.0]). Closely followed by observation was the analysis of children's work and drawings, which is also used by a significant majority of pre-primary teachers ($n = 132$; 76%; $p < 0.001$; 95% CI [69.3; 82.4]).

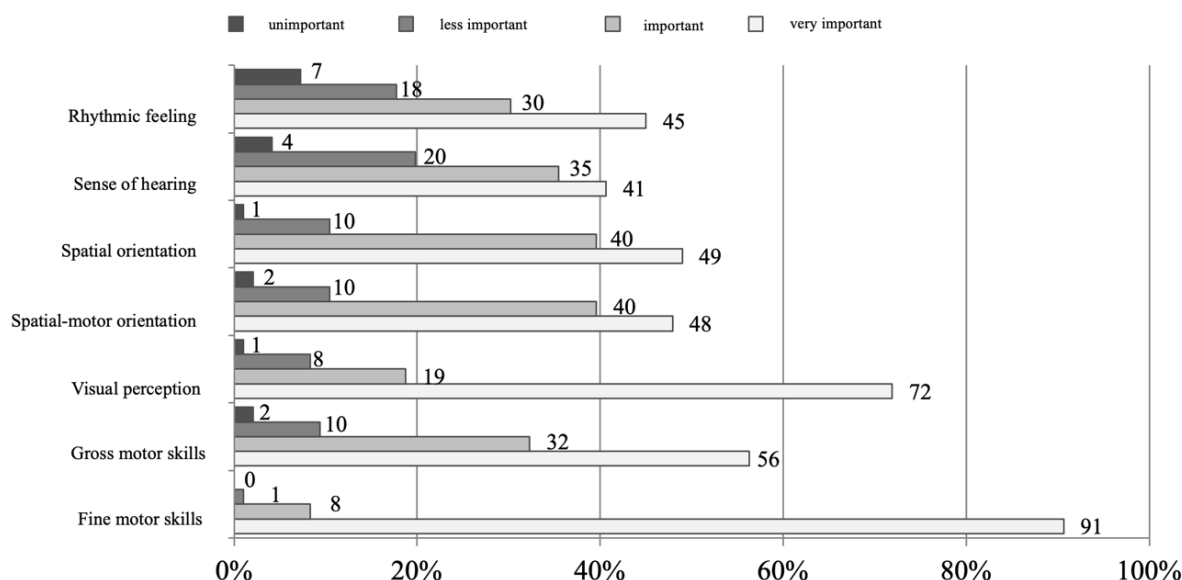


Fig. 4. Importance of partial functions for the development of graphomotor skills

Source: Own research

More than half of the respondents use the Activity Outcome Analysis - Portfolio, which was also confirmed through statistical significance ($n = 108$; 62.5%; $p < 0.01$; 95% CI [54.8; 69.7]). Less preferred methods included the test method, which is used by less than a third - 55 teachers (32%; 95% CI [24.9; 39.3]), and the interview, which is used to diagnose children's graphomotor skills by only 35 teachers (20%; 95% CI [14.5; 27.0]). The other option was indicated by 4% of the respondents, who mentioned other ways of diagnosing graphomotor skills in preschool children, such as artephysics, shaping by pattern, games with children's mosaic and motivated graphomotor activities.

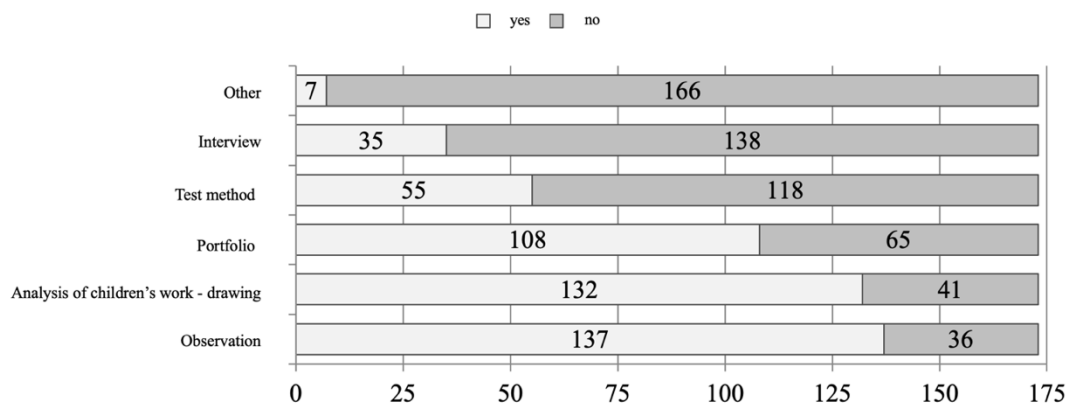


Fig. 5. Method of diagnosing graphomotor abilities in preschool children

Source: Own research

In conjunction with the above, we used an open-ended item to explore the reasons why educators use the (preferred) diagnostic tools listed above. We grouped respondents' answers into six categories (Table 3).

The most frequent method is observation, which is used by more than half of the educators ($n = 55$; 32%) mainly to monitor the level of conditions affecting the development of graphomotor skills. This is followed by the analysis of children's work and drawing activities, which, according to 43 respondents (25%), reveals the level of artistic expression, but also the level of psychological development, emotional experience, interests, fears, or the child's way of perceiving the world.

The portfolio is perceived by 29 teachers (17%) as a tool that they use mainly to detect stagnation and progress of the child. The least frequent responses were recorded when using the interview and test

methods. The interview method is mainly used by the respondents to find out the child's relationship with graphomotor skills ($n = 11$; 6%), while the test method is used to find out the child's level of development of graphomotor skills and readiness for writing ($n = 13$; 8%). Another response, comprehensiveness of development ($n = 22$; 13%), was also present in the responses, where respondents justified the use of all of the above methods to reliably and completely diagnose graphomotor skills.

Tab. 3

Reasons for using specific types of diagnostic tools

Answers	M	N	%
monitoring the level of conditions affecting the development of graphomotor skills (grip, pressure, body position)	P	55	32
finding out the level of artistic expression, psychological development, emotional experience and perception of the child	RP	43	25
detecting the child's progress/stagnation	A	29	17
determining the level of graphomotor development and its readiness for writing	T	13	8
finding the relationship to graphomotor skills	R	11	6
comprehensiveness of development - use of all methods to reliably diagnose graphomotor skills		22	13
Total		173	100

Explanatory notes: M - Methods, P - Observation, RP - Thesis analysis, A - Activity results analysis (portfolio), T - Test method, R - Interview

Source: Own research

In the final question, "How often do you diagnose the graphomotor skills of preschool children?", we focused on the frequency of diagnosis of the graphomotor skills of preschool children by the teachers of the preschool. The analysis of the responses showed that the majority of teachers – 94 (55%) perform diagnostics regularly at monthly intervals ($p > 0.05$; however, this was not a significant majority of teachers). Consistently, 30 teachers (17%) each reported that they diagnose preschoolers' graphomotor skills once a quarter or once a year. 14 respondents (8%) indicated a response before entering primary school and four respondents (2%) indicated that they do not purposefully diagnose. Only one respondent (1%) indicated a weekly frequency of diagnosis.

In connection with the above, we focused on the research verification by means of the hypothesis whether there are significant differences in the preference of methods and ways of diagnosing the graphomotor skills of preschool children by pre-primary education teachers (H1).

The results of the univariate Pearson chi-square test confirmed (Fig. 7) that there were statistically significant differences in the preferences of preschool teachers in the choice of these diagnostic methods ($\chi^2 = 90.891$; $df = 4$; $p < 0.001$). The choice of diagnostic methods varied among preschool teachers, which may have been due to several factors. We speculate that it may be the teachers' education, their experience, or their personal beliefs about effective assessment procedures. Significantly, observation was the most preferred and therefore the most frequently used diagnostic method, while the least used method was interview.

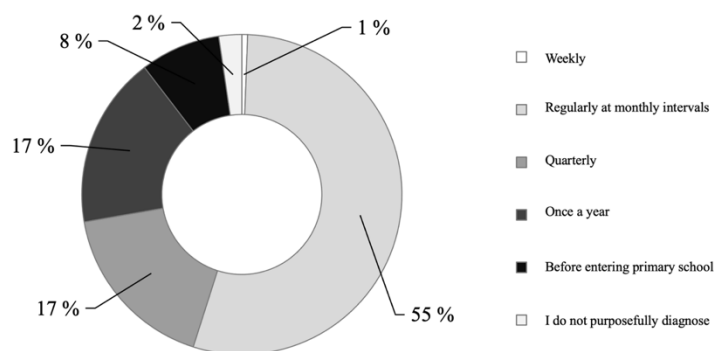


Fig. 6. Diagnostic intervals for graphomotor skills

Source. Own research

Although educational background might influence the selection of diagnostic tools, our research focused on professional teaching experience due to its more direct impact on day-to-day diagnostic decision-making. Future research should further explore the role of teacher education and special training in diagnostic preferences.

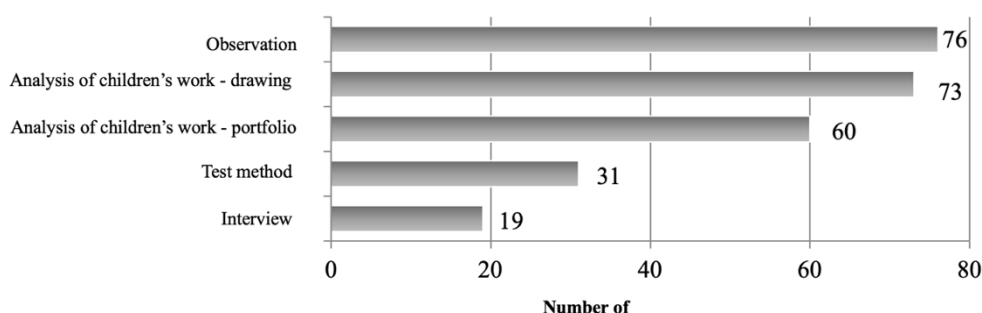


Fig. 7. Preferred methods and ways of diagnosing graphomotor skills of preschool children by teachers of preschool education

Source: Own research

Subsequently, we investigated whether the length of teaching experience is related to the choice of diagnostic methods targeting the monitoring of preschool children's graphomotor skills (H2). As shown in the data of Table 5, the results of the Pearson chi-square test showed that there were no significant differences between groups of teachers with different experience for most of the methods studied, such as observation, analysis of children's work-drawing and testing. This means that the experience of the MOE teachers (senior vs. junior in seniority) did not have a significant effect on the choice of these methods. However, significant differences were confirmed for the methods portfolio-analysis of children's performance ($\chi^2 = 17.845$; $df = 2$; $p < 0.001$) and interview ($\chi^2 = 19.266$; $df = 2$; $p < 0.001$). The senior, more experienced teachers used both of these methods significantly more often than their junior colleagues. These findings suggest to some extent that teachers' experience and experience influences their approach to the methodology of assessing children's graphomotor skills.

The child's graphomotor expression indicates the level of graphomotor skills, it also represents a form of communication for the child and is an indicator of overall psychological development. The findings of the present study show that teachers of preschool education perceive the diagnosis of a preschool child's graphomotor skills as important for many reasons: it is an effective tool for finding out the child's current state in the field of graphomotor skills, the level of ossification of the bones and muscles of the hands, the detection of possible deficiencies and problems in this area, as well as a tool that offers the possibility of identifying specific areas that require targeted development of graphomotor skills.

Kindergarten teachers perceive the diagnosis of graphomotor skills as an integral part of a child's preparation for schooling, the key benefit of which is to improve and streamline the children's learning process, especially through an early diagnostic process.

Tab. 4

Length of teaching experience and diagnostic methods used

	Method used									
	Observation		Analysis of children's works-drawing		Portfolio		Test method		Interview	
Length of practice	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
up to 5 years	43	14	42	15	26	31	16	41	3	54
5-15 years	42	12	38	16	31	23	14	40	9	45
over 15 years	52	10	52	10	51	11	25	37	23	39
Total	137	36	132	41	108	65	55	118	35	138
p-value	0,502449		0,198794		0,000133		0,19189		0,000066	

Source: Own research

The child's graphomotor expression indicates the level of graphomotor skills, it also represents a form of communication for the child and is an indicator of overall psychological development. The findings of the present study show that teachers of preschool education perceive the diagnosis of a preschool child's graphomotor skills as important for many reasons: it is an effective tool for finding out the child's current state in the field of graphomotor skills, the level of ossification of the bones and muscles of the hands, the detection of possible deficiencies and problems in this area, as well as a tool that offers the possibility of identifying specific areas that require targeted development of graphomotor skills.

Kindergarten teachers perceive the diagnosis of graphomotor skills as an integral part of a child's preparation for schooling, the key benefit of which is to improve and streamline the children's learning process, especially through an early diagnostic process.

In particular, teachers assess the correct grip and posture of graphic material, the lighting of the room and the format of the paper as important criteria for a preschool child's graphomotor activity. At the same time, they describe the importance of partial functions that contribute to the overall development of the preschool child's graphomotor skills. These are primarily fine motor skills and visual perception, which are perceived by most teachers to be crucial to preschoolers' mastery of graphomotor activities. Subsequently, gross motor skills, spatial orientation, auditory perception or rhythmic perception, which, although considered important for the overall development of graphomotor skills, are not considered to be crucial in comparison with fine motor skills and visual perception.

Teachers prefer static diagnosis of graphomotor skills of preschool children, which is focused on the state, i.e. its aim is to identify the current state of development of graphomotor skills. They prefer its non-standardised form, the most used methods include the method of observation, as well as the analysis of children's work and drawings. More than half of the surveyed teachers use the analysis of activity results – portfolio. It is undeniably surprising to find that the less preferred diagnostic methods include test methods or interviews, which have their "tradition" not only in the field of diagnostics itself. A positive finding is the fact that some of the respondents mentioned artephysiics, as well as shaping according to a pattern, games with children's mosaics and motivated graphomotor activities, which can be understood as a manifestation of efforts to apply modern pedagogical approaches that promote creativity, sensory perception and the development of fine motor skills in children. On the other hand, it

can be stated that the respondents do not perceive the term 'artephiletics' adequately, or in accordance with its terminological and professional framework, as it is not a diagnostic method, it is not used for examination or testing and is not intended for interpretation.

However, the term artefiletika was often mentioned inaccurately, with respondents misinterpreting it as a diagnostic method rather than a pedagogical or therapeutic tool. This indicates a need for clearer understanding of terminological boundaries.

The results show that respondents apply different diagnostic methods depending on the specific goal or purpose. Observation is most often used to monitor the level of conditions that influence the development of graphomotor skills. A comprehensive view is offered by the analysis of children's work and drawing activities, through which the level of artistic expression is ascertained, as well as the level of psychological development, emotional experience, interests, fears or the child's way of perceiving the world. The portfolio is used by educators to detect stagnation and progress of the child. Subsequently, we investigated the frequency of diagnosis of graphomotor skills of preschool children. According to the above findings, more than half of the respondents carry out diagnostics regularly at monthly intervals, which is undeniably a positive finding. The majority of respondents reported conducting graphomotor diagnostics regularly, though the choice of tools and techniques varied depending on experience and institutional context.

Several respondents listed practical activities such as mosaic play, pattern-based shaping, and creative drawing among their preferred tools for developing fine motor skills. These activities suggest a leaning toward modern pedagogical approaches that emphasize creativity and sensory engagement.

5. CONCLUSIONS

Through research hypotheses we verified the differences in the preference of methods and ways of diagnosing graphomotor skills of preschoolers by preschool educators. The obtained results confirm that there are statistically significant differences in the choice of diagnostic methods by preschool teachers. One of the factors related to the choice of diagnostic methods aimed at monitoring the graphomotor skills of preschool children (portfolio – analysis of children's activity results, interview) is the pedagogical practice of teachers. Older, more experienced teachers used both of these methods significantly more often than their younger colleagues. These findings suggest to some extent that teachers' experience and practice influences their approach to the methodology of assessing children's graphomotor skills.

Teachers should consider using validated tools such as the Goodenough Draw-a-Person Test, the VTS system, or the Graphomotor Development Scale by Ďuričová when assessing fine motor skills in early childhood education.

On the basis of the presented research results, we formulate the following recommendations for preschool educators in the issue of diagnosing the graphomotor skills of a preschool child:

- (1) Emphasize the diagnosis of graphomotor skills in preschool children, which is a significant predictor of future writing and school competence.
- (2) Diagnosis of graphomotor skills should be conducted regularly (at least monthly). Re-evaluate diagnostic intervals with a view to setting them on a monthly to quarterly basis, which appears to be the most appropriate for monitoring children's progress.
- (3) Observation as the most preferred method should be combined with other methods such as analysis of children's work and drawings and portfolio. Teachers should be trained to use these methods in practice to gain a comprehensive view of the child and his/her graphomotor skills.
- (4) Use diagnostic methods such as the interview (e.g., parent interview) and the test method as complementary tools for a deeper understanding of behavior patterns and the development of graphomotor skills.
- (5) When diagnosing graphomotor skills, examine the phenomenon comprehensively and observe

the individual part functions. In particular, we recommend including more activities targeting fine motor, gross motor, and visuomotor skills, which are key in the overall development of graphomotor skills.

(6) Develop training and workshops for kindergarten teachers to increase their skills in the diagnosis of graphomotor skills, especially focusing on the recognition of fine motor skills, knowledge of children's drawing development, graphomotor development, visual perception, as well as other approaches that are effective in promoting children's creative development (such as artephysics, motivated graphomotor activities, games with children's mosaics).

(7) More experienced educators show a significant difference in the use of some diagnostic methods such as portfolio and interview. This fact should be taken into account when training educators. Mentoring and mutual cooperation between younger and more experienced educators can contribute to enriching the diagnostic methodology and to the exchange of experiences.

If necessary, implement a system of support measures in the process of education and training, specifically targeting "Activities to support the achievement of school competence", according to Amendment No. 182/2023 of Act No. 245/2008 Coll. on Education and Training and on Amendments and Additions to Certain Acts, as amended. Intervention activities in the field of graphomotorics target several areas of support, whether psychomotorics, fine and gross motor skills, or support for sensory perception.

Author Contributions:

Each author contributed equally to all aspects of this research, including Conceptualization, Data curation, Formal analysis, Investigation, Methodology, Project administration, Supervision, Validation, Visualization, Writing – original draft, and Writing – review & editing.

Acknowledgements: The present paper is a partial output of the research project VEGA no. 1/0087/25 Self-efficacy of Teachers and Educators for work with Family and UGA no. V/5/2025 Current parents and their relationship to school and pupils' educational outcomes.

Conflict of interest: The authors declare no conflict of interest.

REFERENCES

- [1] Balážová, J., & Domanická, M. (2022). Možné vývinové ťažkosti detí a materská škola [Possible developmental difficulties in children and kindergarten]. In M. Miňová & M. Slováček (Eds.), *Odborné pohľady na predprimárnu edukáciu* (pp. 11–21). Slovenský výbor Svetovej organizácie pre predškolskú výchovu. https://omep.sk/wp-content/uploads/2022/12/DMS-2022_Odborny-zbornik_Odborne-pohlady-na-predprimarnu-edukaciju.pdf#page=11 (in Slov.)
- [2] Baron-Polańczyk, E., & Nowak-Łojewska, A. (2022). Pokolenie Alfa w szkole: Działania projektowo-wdrożeniowe z wykorzystaniem ICT [Alpha Generation at School: Design and implementation activities using ICT]. *Problemy Wczesnej Edukacji*, 18(2), 94–105. <https://www.ceeol.com/search/journal-detail?id=233> (in Pol.)
- [3] Bednářová, J., & Šmardová, V. (2006). *Rozvoj grafomotoriky: Jak rozvíjet kreslení a psaní* [Graphomotor development: how to develop drawing and writing]. Computer Press. (in Czech)
- [4] Bednářová, J., & Šmardová, V. (2022). *Diagnostika dítěte předškolního věku 2: Co by dítě mělo umět ve věku od 3 do 6 let* [Diagnosis of the preschool child 2: What the child should know at the age of 3 to 6 years]. Edika. (in Czech)
- [5] Belešová, M. (2014). *Uplatnenie pedagogickej diagnostiky v prostredí materských škôl* [Application of pedagogical diagnostics in kindergarten environments]. MPC. (in Slov.)
- [6] Brown, B. (2010). The gifts of imperfection: Let go of who you think you're supposed to be and embrace who you are. Hazelden.
- [7] Doležalová, J. (2010). *Rozvoj grafomotoriky v projektech* [Development of graphomotor skills in projects]. Portál. (in Czech)
- [8] Droppová, G. (2014). *Grafomotorika v materskej škole alebo rozvíjanie grafomotorických zručností detí ako príprava na*

- písanie v základnej škole a detský výtvarný prejav* [Graphomotor skills in kindergarten, or developing children's graphomotor skills as preparation for writing in primary school and children's artistic expression]. MPC. (in Slov.)
- [9] Gavora, P. (2013). *Pedagogická diagnostika v MŠ: Distančná študijná opora* [Pedagogical diagnostics in kindergarten: Distance learning support]. Univerzita Tomáše Bati, Fakulta humanitných štúdií. (in Slov.)
- [10] Havigerová, J. M., & Janků, J. (2018). Graphomotor skills of pre-school children: Pilotage of screening scale. In *EDULEARN18 Proceedings: 10th International Conference on Education and New Learning Technologies* (pp. 2875–2879). <https://doi.org/10.21125/edulearn.2018.0764>
- [11] Hrobková, M., & Huřová, Z. (2024). Project-based learning in English lessons. In *Technical creativity in school's curricula with the form of project learning* (pp. 50–54). ISBN 978-961-6728-68-3.
- [12] Kollárik, K. (1996). *Orientačná skúška pripravenosti na školu* [Orientation test of readiness for school]. Psychoinsight. (in Slov.)
- [13] Kožík Lehotayová, B. (2022). *Rozvíjanie grafomotoriky v predškolskom veku* [Developing graphomotor skills in preschool age]. Univerzita Komenského. https://www.fedu.uniba.sk/fileadmin/pdf/Sucasti/Katedry/KPPE/Publikacie/B_K_Lehotayova_ucebnica_Rozvijanie_grafomotoriky_v_predskolskom_veku.pdf (in Slov.)
- [14] Kožík Lehotayová, B. (2023). *Pedagogická intervencia v podpore grafomotoriky* [Pedagogical intervention in supporting graphomotor skills]. Univerzita Komenského. https://www.fedu.uniba.sk/fileadmin/pdf/Sucasti/Katedry/KPPE/Publikacie/Lehotayova_Ucebnica_2024.pdf (in Slov.)
- [15] Kožík Lehotayová, B., & Valachová, D. (2018). *Teoreticko-výskumná paradigma grafomotoriky v materskej škole* [Theoretical and research paradigm of graphomotor skills in kindergarten]. Belianum, UMB v Banskej Bystrici. (in Slov.)
- [16] Lipnická, M. (2009). *Počiatkové čítanie a písanie detí predškolského veku* [Early reading and writing skills in preschool children]. Rokus. (in Slov.)
- [17] Looseová, A., Piekertová, N., & Dienerová, G. (2011). *Grafomotorika pro děti předškolního věku: Cvičení pro děti ve věku od 4 do 8 let* [Graphomotorics for preschool children: Exercises for children aged 4 to 8 years]. Portál. (in Czech)
- [18] Medojević, N. (2024). Graphomotor skills in preschool-aged children. *Multidisciplinarni Pristupi u Edukaciji i Rehabilitaciji*, 6(7), 84–91. <https://www.ceeol.com/search/article-detail?id=1249706>
- [19] Miňová, M. (2012). *Pedagogická diagnostika v materskej škole* [Educational diagnostics in kindergarten]. (p. 57). Prešovská univerzita v Prešove, Pedagogická fakulta. (in Slov.)
- [20] Miňová, M., & Vicánová, D. (2016). Metódy pedagogického diagnostikovania [Methods of pedagogical diagnosis]. *Predškolská výchova*, 71(6). ISSN 0032-7220. (in Slov.)
- [21] Mlčáková, R. (2009). *Grafomotorika a počáteční psaní* [Graphomotorics and early writing]. Grada Publishing. (in Czech)
- [22] Mojtová, K. (2014). *Grafomotorika detí v materskej škole z pohľadu špeciálneho pedagóga* [Graphomotor skills of children in kindergarten from the perspective of a special educator]. Metodicko-pedagogické centrum. (in Slov.)
- [23] Podprocká, O. (2014). *Hodnotenie úrovne hrubej motoriky 5- až 6-ročných detí v materskej škole* [Assessment of gross motor skills in 5- to 6-year-old children in kindergarten]. (p. 52). Metodicko-pedagogické centrum. https://mpc-edu.sk/sites/default/files/publikacie/motorika_final_podprocka_po_recenzii_zalomene.pdf (in Slov.)
- [24] Pošteková, B. (2023). Kooperatívne učenie na upevnenie slovenskej gramatiky pre budúcich učiteľov predprimárneho vzdelávania v kontexte prírodovedných vied [Cooperative learning to reinforce Slovak grammar for future pre-primary teachers in the context of natural sciences]. In *Zborník príspevkov z medzinárodnej vedeckej konferencie Kuchárska kniha pre život* (pp. 127–132). ISBN 978-80-8222-048-6. (in Slov.)
- [25] Schmidt, F. L., & Oh, I.-S. (2016). The crisis of confidence in research findings in psychology: Is lack of replication the real problem? Or is it something else? *Archives of Scientific Psychology*, 4(1), 32–37. <https://doi.org/10.1037/arc0000029>
- [26] Singh, A. A., Hwahng, S. J., Chang, S. C., & White, B. (2017). Affirmative counseling with trans/gender-variant people of color. In A. Singh & L. M. Dickey (Eds.), *Affirmative counseling and psychological practice with transgender and gender nonconforming clients* (pp. 41–68). American Psychological Association. <https://doi.org/10.1037/14957-003>

- [27] Sinvani, R., et al. (2023). The relationship between young children's graphomotor skills and their environment: A cross-sectional study. *International Journal of Environmental Research and Public Health*, 20(2), 3–13. <https://doi.org/10.3390/ijerph20021338>
- [28] Sobotová, J., a kol. (2013). *Predškolská príprava detí v materskej škole a v rodine: Metodická príručka pre učiteľov, učiteľky materských škôl a rodičov* [Preschool preparation of children in kindergarten and in the family: Methodological guide for teachers, kindergarten teachers and parents]. MONTANEX. (in Slov.)
- [29] Szczygieł, A. (2021). Era multimediów – niebezpieczeństwa, wyzwania i możliwości dla edukacji i wychowania [The multimedia age - dangers, challenges and opportunities for education and upbringing]. *Studia Pedagogiczne: Problemy Społeczne, Edukacyjne i Artystyczne*, 39, 151–170. <https://www.ceeol.com/search/article-detail?id=1072282> (in Pol.)
- [30] Štátny vzdelávací program pre predprimárne vzdelávanie v materských školách [State educational program for pre-primary education in kindergartens]. (2016). Bratislava: RAABE. ISBN 978-80-8140-244-9. (in Slov.)
- [31] Thompson, A. (2018). Study on the Alpha generation and the reflections of its behavior in the organizational environment. *Journal of Research in Humanities and Social Science*, 6(1), 9–19. <https://www.questjournals.org/jrhss/papers/vol6-issue1/C610919.pdf>
- [32] Uváčková, I., Valachová, D., & Droppová, G. (2009). *Metodika rozvíjania grafomotorických zručností detí v materských školách* [Methodology for developing graphomotor skills in children in kindergartens]. Orbis Pictus Istropolitana. (in Slov.)
- [33] Valachová, D. (2014). *Výtvarná tvorba detí v materskej škole* [Artistic creation of children in kindergarten]. Infra Slovakia. (in Slov.)
- [34] Valachová, D., & Tilešová, L. (2015). *Grafomotorika s Krtkom vrtkom: Rozvoj grafomotoriky predškolákov pomocou výtvarných aktivít* [Graphomotor skills with Krtko: Developing graphomotor skills in preschoolers through art activities]. INFRA. (in Slov.)
- [35] Vasileva. (2023). Neuropsychological parameters of graphomotor skills in typically developing children. *Creative Education*, 14(1). <https://doi.org/10.4236/ce.2023.141012>
- [36] Vlčková, H. (2014). *Motorika a myslenie: Overovanie školských predpokladov detí. Kuliferdo a jeho svet* [Motor skills and thinking: Verifying children's school readiness. Kuliferdo and his world]. RAABE. (in Slov.)
- [37] Zelenov, Ye. (2018). Digital generation: Risks, benefits, means of interaction. *Spirituality of Personality: Methodology, Theory and Practice*, 5(86), 46–57. <http://oaji.net/articles/2019/690-1553878668.pdf> (in Slov.)
- [38] Ziembakowska-Cecot, K. (2016). Wpływ mediów cyfrowych na funkcjonowanie współczesnych rodzin [The impact of digital media on the functioning of modern families]. In K. Nowak et al. (Eds.), *Obraz rodziny w dobie zmian społecznych* (pp. 29–41). Uniwersytet Technologiczno-Humanistyczny. <https://www.researchgate.net/publication/328489699> (in Pol.)

Beáta Pošteková, Doctor of Philosophy Sciences (PhD), Institute of Mediamatics and Cultural Heritage, University of Žilina, Žilina, Slovakia.

ORCID ID: 0009-0004-9131-3965

Address: University of Žilina, Univerzitná 8215/1, 010 26 Žilina, Slovakia

E-mail: beata.postekova@umkd.uniza.sk

Libuša Gužíková, Doctor of Pedagogical Sciences (PhD), Department of Education, Faculty of Education, Constantine the Philosopher University in Nitra, Slovakia.

ORCID ID: 0000-0002-4055-2702

Address: Department of Education, Faculty of Education, Constantine the Philosopher University in Nitra, Tr. A. Hlinku 1, 949 01, Nitra, Slovakia.

E-mail: lguzikova@ukf.sk

Received: June 14, 2025; **revised:** July 30, 2025; **accepted:** September 08, 2025; **published:** September 29, 2025.

віку в умовах мінливого освітнього середовища. *Журнал Прикарпатського університету імені Василя Стефаника*, **12** (3) (2025), 65-82.

Дошкільний вік – це період динамічного розвитку дитини. Стаття присвячена діагностиці графомоторних навичок дітей покоління Альфа з погляду вихователів закладів дошкільної освіти. Метою дослідження було виявити методи та методики, які застосовують педагоги дошкільних закладів під час діагностики у сфері графомоторики. Кількісне дослідження проводилося у формі нестандартизованої анкети власної розробки, яку заповнили 173 респонденти. Отримані дані були проаналізовані за допомогою методів описової статистики та критерію χ^2 -квадрат Пірсона. Результати показали, що вчителі надають великого значення діагностиці графомоторних навичок і надають перевагу таким методам, як: спостереження, аналіз дитячих робіт і портфоліо. Вибір діагностичних інструментів певною мірою корелює зі стажем педагогічної діяльності. Дослідження також виявило необхідність систематичного і регулярного проведення діагностичних оцінок, а також використання декількох методів для комплексного оцінювання графомоторних навичок. Крім того, воно засвідчило важливість безперервного професійного розвитку та підтримки педагогів для підвищення їхньої діагностичної компетентності. Акцент було зроблено на створенні стандартизованої системи для забезпечення послідовної та об'єктивної практики оцінювання. На основі результатів дослідження були розроблені детальні рекомендації для педагогічної практики, які зосереджені на інтеграції діагностичних заходів у повсякденне навчання, заохоченні співпраці між педагогами, спеціалістами і батьками, а також на використанні різноманітних та інноваційних методик оцінювання. Ці рекомендації спрямовані на покращення раннього виявлення потенційних труднощів і підтримку цілеспрямованих втручань для сприяння оптимальному графомоторному розвитку дітей.

Ключові слова: дошкільний вік, графомоторика, діагностика, методи, альфа-покоління, дитячий садок, вихователі закладів дошкільної освіти.