DOI: https://doi.org/10.54937/ssf.2022.21.2.41-51

Možnosti rozvíjania kognitívnych funkcií prostredníctvom emócií u detí v predškolskom veku

Opportunities for the Development of Cognitive Functions in Preschool Children Through Emotions

Daniela Kolibová, Eva Dolinská

Abstract

Educational practice currently deals with the emotions of preschool children to a small extent, so we are of the opinion that their preparation is not sufficient for the school and for life, too. We came to this knowledge when we were working with preschool children hospitalized in hospital. The aim of the presented study is to analyse the opportunities of developing cognitive functions of preschool children through working with their emotions. The goal was set because of that in the practice is not the sufficient account of an association of the child's cognitive and emotional development. We approached this goal through qualitative and quantitative research, in which the level of partial cognitive functions of children before and after working with their emotions were diagnosed. To diagnose children from the research group, we used the B. Sindelar method and the B. Bays method "PATH". In the practical part we present the goal of the research - the importance of the relationship between cognitive functions and emotions. The sub-targets are formulated in research questions and hypotheses about differences in children's performance, which were statistically verified. Based on the survey, a discussion and conclusions for practice are formulated.

Keywords: Cognitive functions. Educational diagnostics. Child of preschool age. Emotions.

Preschool child

Preschool age is the period of a child from three, usually to six years, the upper limit is given by the child's entry into school. The name preschool age refers to the period of a child who is intensively prepared for a big event in his life to enter school so these children are preschool.

The name preschool age refers to the period of a child who is intensively preparing for a big event in his life, to enter school, so they are preschool. *"At the beginning of preschool age, the child is "mature" for entering*

kindergarten - at the end of it is "mature" for entering school" (Matějček, Pokorná, 1998, p. 10). The term "preschool" also evokes the last year before the start of compulsory school attendance. The child will not „prepare" for school for the last, really "preschool year". The skills and abilities which he needs to be successful in school one day they appear at an early age and in preschool age he deepens and improves these skills. In the child's life, the first six years are the period of the most intensive development. The name preschool age refers to the period in a child´s life and it is an intensive preparation for a significant event in his life, the school entrance. The development of preschool children is manifested by fundamental changes in individual areas: physical, emotional, cognitive, emotional, social and the development of the speech.

The characteristic of this age is the gradual weakening of the attachment with the family and the development of an activity that ceases to be self-serving and contributes to the child´s application and promotion in the group of peers. The adoption of behaviour common standards, an acceptable level of communication and knowledge of the role´s content contribute to the weakening of the attachment to the family. On the other hand, the child´s thinking is still pre-logical and egocentric, linked to his own, subjective feeling and the current context of the situation. Overcoming this barrier represents one of the important tasks of preschool age and becomes a prerequisite for entering school, which is an important milestone in a child´s development (Vágnerová, 2000).

The child´s preschool period is a very important stage in his life and has a special significance in terms of shaping the basic foundations of his personality, with consequences for the rest of his life (Trubíniová, Vaňková, Bednaříková, 2001).

Emotions and family

The family plays an irreplaceable role in our society. A child needs to grow up with his mother and father, to feel the love and care of both parents due to healthy personality development.

In healthy families, people talk freely about their feelings together (Satirová, 1994), they can talk about everything - disappointment, fear, pain, anger. In troubled families there are people´s bodies and faces reflect their troubled situation. We can easily be convinced of the child´s family from his posture, eyes, facial expressions.

As Pružinská (2006) states that in the background of disturbed favorable emotional development of a child and make it difficult for his further development – for this situation it is responsible:

- poor emotional environment with insufficient number of emotional stimuli, which leads to the child's suffering in the emotional area - the child does not develop, remains emotionally retarded

- an excessively rich emotional environment in which the child is constantly and inappropriately influenced by various emotional stimuli, leading to indifference, fatigue, and even emotional lability and neurotization
- a one-sided emotional environment in which certain emotional qualities prevail and the child becomes emotionally one-sided a harmful emotional environment with a predominance of some negative emotional states.

As Diešková (2005, p. 27) states, emotional upbringing in the family is also influenced by other factors. It is known that the emotional development of children is also affected by material poverty. At the age of five, poorer children tend to be more anxious, sad, and frightened than their better-off peers. They have more behavioural problems, they explode angrily, they destroy things. The space for educational influence and emotional satisfaction of the child decreases by the deteriorating economic conditions and unemployment of parents. The quality of a child´s emotional life is clearly conditioned and depends on the emotional wealth of the parents themselves. The choice of educational strategies they use to guide their children´s behaviour is influenced by the parenting style. This style includes the emotional relationship between adults and children, the amount of love and attention that the parent can give and the number of the child´s requirements and its control. The educational style is manifested by the choice of educational means and the way the child responds to them. Parents with a positive attitude towards the child often use eye contact, touch, kind tone of speech, diminutives, they plan their free time together, they listen to the child, and they react emotionally to situations and events related to the child to express their affection. On the contrary, a negative emotional relationship is characterized by constant criticism, comparison, threats, ridicule, swearing, and accusations. The adult uses strongly negative statements and addresses, he expresses disappointment and distrust of the child, he reminds him of how they sacrificed themselves for him, they trivialize the feelings and problems of the child and emphasize his inability. Parent´s parenting styles comprehensively affect the child´s whole personality. It is not only a value system, a way of using free time, but also balance, emotional stability, defiance, perseverance, or self-control (Anyalai, 2004).

In families where feelings are expressed and openly discussed, children automatically create a dictionary with which they can consider and express their own feelings.

In families where emotions are suppressed and family members avoid emotional communication, children are more likely to be emotionally poor. Although psychotherapy has shown that the “language of emotions” can be learned at any age, pre-schoolers and younger children will do it best. The responsibility for progressing a child can put a lot of pressure on some parents. It is important to realize that they are not alone in development of their children. Support for parents is to realize that instead of blaming and falling into growing uncertainty there is a place to ask for help and its receiving.

Parents education is a subject that we will not encounter at school, it happens during the process of development. Before we could get a driver´s license and get behind the steering wheel, we had to complete several hours of theory and practical driving in driving school classes.

If we successfully perform the tests, we will become the drivers. We will become parents without any "authorization", the solution of specific situations of this life role takes place in the process of development our own children. Parental education is determined by everyday duties and work, the experience gained in their original family is also important, the mutual relations of parents are important. Cultural and social customs also enter the education system to a significant extent.

Research

The work deals by the relation between cognitive functions and emotionality of the child. In practice, a child´s cognitive performance is overestimated, and they often do not look deeper for what causes the child failure. Failure can be the result of emotional injuries or unresolved family problems, or trauma in a hospital setting. Based on the above, we identified a research problem: Is there a relationship between a child´s cognitive functions and emotionality? The research was carried out at the National Institute of Paediatrics Diseases with children who were hospitalized at an otorhino-laryngology clinic. We selected four children aged 5 and a half for the research up to 6 years, two boys and two girls who were before enrolment in primary school. The research also included the meeting of their parents and obtaining anamnestic data on the children. The parents continuously provided feedback on the children in the hospital and home environment and information on the results of psychological examinations. The research was carried out from February 2020 to May 2021. The main goal of the research is to emphasize the importance of the relationship between cognitive functions and children's emotions through qualitative and quantitative analysis of data obtained by different methods.

- The aim of the first phase of the research is to identify impairments of partial cognitive functions.
- The aim of the second phase is to work with children's emotions using Cesta method.
- In the third phase, the aim is to identify changes in the level of partial functions in children after completing work with Cesta.
- Describe the course and results of work with used research methods.

According to the research problem and goals, we approached the formulation of the following research questions:

- What deficits of children´s partial functions are related to emotions?

- What are the differences in the values of the partial functions according to the Sindelar methodology before and after the application of PATH method?
- In which functions did we find statistically significant differences?

Based on research questions, we formulated the following hypotheses:

H 1: Values measured in children around visual perception before passing PATH method will indicate significant differences in the values measured around visual perception after completing the PATH methods.

H 0: The values measured in children around visual perception before passing the PATH method do not show significant differences in the values measured in the area of visual perception after completing the PATH methods.

H 2: Values measured in children around auditory perception before passing the PATH method, there are significant differences in the values measured in the area of auditory perception after passing the PATH method.

H 0: Values measured in children around auditory perception before passing the PATH method do not show significant differences in the values measured in the area of auditory perception after passing the PATH method.

Hypotheses marked H0 are confirmed as alternatives in the absence of hypotheses H1 and H2.

Research tasks

- To select a research sample of children and make contact with their parents.
- To collect anamnestic data on children.
- To diagnose in children partial developmental deficits in the cognitive area according to the B. Sindelar method.
- To evaluate the results of diagnostics in individual sub-functions: auditory differentiation of the figure and background, auditory differentiation, auditory-visual intermodality, auditory memory, visual differentiation, visual memory, visual-auditory intermodality.
- To work with children´s emotions by the PATH method.
- To re-diagnose the level of individual sub-functions that showed deficits.
- By the chi-square test ($\chi 2$) to find out the differences in the partial functions of the Sindelar diagnostics.
- To analyse statistical data from the Sindelar test and evaluate them.
- To present research results with respect to hypotheses.
- To document (case) the course of B. Sindelar´s diagnostics.
- To analyse the work with the PATH method with respect to solving children´s emotional problems.
- To formulate research conclusions and recommendations for practice.

Basic anamnestic data on the research sample

During research we were able to look at anonymous sheets with anamnestic data on children from parents. At this point, we will point out some common features of children from the research group, which we found out by collecting data from parents. Pregnancy in all mothers of our children was risky, due to the age of the mothers. Communication and relationships between parents were problematic during pregnancy and after the birth of children. (We did not have this information before it was included in the research group.) Mothers had lactation problems, children were fed. Both boys developed respiratory arrest, all children had respiratory problems, and reflux was identified in three children. Vojta´s method was practiced at an early age by three children. Speech defects in preschool age occurred in three children. One child had a visual defect, one a hearing defect. In all families there are the relationships between the parents disharmonious. (We found out the information only after collecting anamnestic data.).

The course of diagnostics by the Sindelar method

The Dr. Sindelar method was used for diagnosis to capture the partial functions of development deficits T-254. The children in the research solved tasks in all areas of the methodology, and because they were at an age when they did not yet know the letters, we left out those where they needed the ability to master the letters. To start the diagnosis, we verbally motivated the children to solve the tasks. Diagnosis at the beginning of the research was divided into two meetings with each child. The results of the individual tasks were recorded in a sheet during the diagnosis.

Specifically, we focused on children´s performance in the methodology of Dr. Sindelar to investigate partial developmental deficits of cognitive functions: auditory differentiation of figure and background, auditory differentiation, auditory-visual intermodality, auditory memory, visual differentiation, visual memory, visual-auditory intermodality We partially diagnosed these partial functions after working with the PATH. Diagnosis of T-254 Deficits of partial functions according to Dr. Sindelar can be reused because it is designed to prevent transmission from previous testing.

In the statistical processing of results in visual perception, we have included solutions related to deficits of partial functions in the area: auditory differentiation of figure and background, auditory differentiation, intermodality, auditory-visual, auditory memory. We have included in the results of auditory perception solutions to problems related to deficits of partial functions in the area: visual differentiation, visual memory, visual-auditory intermodality. The children showed satisfaction with the correct solution of the task. When the solution failed, when they could verify the results themselves, they were dissatisfied. They were supported throughout to solve other tasks. In diagnosing

individual tasks where children demonstrated the use of compensatory strategies, these were considered in the results. Compensation strategies can be many e.g., in the auditory differentiation of the figure and the background, the children helped themselves with articulation, which means that this function is weakened. According to the literature, preschool children do not have a well-acquired spatial orientation, which has been confirmed in our research.

When comparing the results in deficits of partial functions, the most frequent errors in visual differentiation and auditory memory appeared after completing the PATH.

Statistical processing procedure Sindelar test data

Comparison of point values in children in the field of visual and auditory perception. By comparison, we found out whether there are statistically significant differences in the measured values in the monitored areas before the application of the PATH method and after the application of this method.

We were created two categories during the comparison of numbers. Only some categories were selected from the B. Sindelar test to compare isolated sub-functions with respect to the age of the children. We evaluated only those categories that we considered important.

Specifically, the area of visual perception is visual differentiation, visual memory. The area of auditory perception consists of auditory division, auditory differentiation, auditory memory. Subsequently, we compared the categories that formed the sum of the achieved points. (Points represent errors). We compared the points using the $\chi 2$ test, and we found out whether there were significant statistical differences between specific categories. The results of the $\chi 2$ test are presented in the following contingency table (on page 46), which contains data on the total point number. Theoretical numbers in the contingency table represent values within the area of visual perception and auditory perception. The essential data in the contingency table below are the contributions to $\chi 2$. Based on the contributions of $\chi 2$, we can determine in which categories of areas there are the most significant differences between the compared categories. In this way, we can identify those categories that create statistical differences. If the value of the test $\chi 2$ is greater than the critical value $\chi 2$ at the level of statistical significance $\alpha = 0.05$, we can state that there are statistically significant differences between the categories in individual areas. When calculating the $\chi 2$ test, it is necessary to pay attention to the values of the expected frequencies for individual categories. The test is not suitable if the expected frequencies in some categories are equal to five, less than five, or equal to zero. (For a 2x2 table, there should not be exist a single box with an expected frequency value of five or less. To avoid this situation, we have decided to merge the categories.). Results of statistical analysis of Sindelar test data (Table 1; *we accept hypothesis H0 at the level of statistical significance 0.05*).

Table 1a: Observed abundances

	before	after	Summary
visual	**81**	**12**	**93**
auditory	**66**	**14**	**80**
totals	**147**	**26**	**173**

Table 1b: Contributions to the Chi-square

	before	after	Summary
visual	**0,03**	**0,16**	**0,18**
auditory	**0,03**	**0,18**	**0,21**
totals	**0,06**	**0,34**	**0,397**

Table 1c: Theoretical abundances

	before	after	Summary
visual	**79,02**	**13,98**	**93,00**
auditory	**67,98**	**12,02**	**80,00**
totals	**147,00**	**26,00**	**173,00**

alfa	**Chi2**	**0,397**
0,05	**Chi2-krit**	**3,841**

Results with respect to hypotheses

From the contingency table we see that the chi-square test criterion is 0.397 and the critical chi-square values are 3.841 for the alpha level 0.05, data for the alternative statistical hypothesis H0 (H0: Visual and auditory perception values measured in children do not show significant differences between values measured before the application of the Path method and values after passing the Path method.) are not accepted at the stated level of statistical significance. We therefore state that there are statistically significant differences between the compared measured values. Based on this fact, we accept hypothesis H1 and H2 (H1: The values measured in children in visual perception show significant differences between the values measured before the application of the Cesta method and the values after passing the Cesta method. H2: The values measured in children in the auditory perception show significant differences between the values measured before applying the Path method and values after passing the Path method) because it shows significant differences.

All the children managed to gain trust, communication with them was immediate. The Path method took about 40 minutes, after which the children sometimes wanted to draw. The children tended to see their situation positively in the process, only when suppressed signals in the body began to enter their consciously suppressed emotions and verbalize problem situations. Sometimes they also needed to change their position because they perceived their close feelings. Children were mostly willing to talk about relationships with their friends and peer problems. Those who could not experience open communication in the family were more often in disputes with peers. Unspoken peer emotions often appeared in the Path process. All the children were able to use their imagination during the Path process and welcomed support means (balloons with features) in the process of solving problem situations.

Various repressed emotions (anger, sadness, fear) also appeared in the process, which the children needed to release. At the end of the process, each child was able to easily forgive others and there was noticeable calm and contentment (glowing eyes were also visible). They spontaneously expressed the joy of completing the Path. Interviews and feedback from parents showed that they positively assessed the work with children´s emotions using the Path and its effect. The greatest benefit of the Path method was shown in better communication between children and peers, as well as in the family. The children learned to show more joy and talk about their emotions. The positive effects of the Path on the health of children also manifested themselves - no viral disease broke out in them during the research. Parents and children would welcome a continuing meeting with the Path. Due to the children´s anamnestic data , we can recommend further cooperation not only with the Path method, but also we can stimulate for parents to work with the Sindelar method as a therapeutic tool at home.

Discussion

Our research has verified that the Path method for Children is applicable in practice. Its benefit lies in the fact that it not only supports the cognitive functions of children, but also has a positive effect on their mental and physical health. The perception of feelings in the body, which deepened during the research, allows children to understand their own emotions, accept them and behave in an authentic and at the same time socially acceptable way, to communicate better with parents and peers. Research has shown that there is a need for kindergartens to focus more on individual diagnosis of children and to deliberately strengthen areas where weaknesses are identified.

In counseling, propose to parents stimulating activities for the weakened area. Instructions and inspirations can be found in the publication “How to develop the child´s abilities“ by the author Šinková (2018). Instructions were inspired by the Montessori method.

Make the diagnostic tool of the Mňau Cats methodology available to kindergarten teachers through education (e.g., through methodological centres), which is suitable for children aged from 3 to 5 years. As part of the support of working with emotions, we recommend game activities, which can be found in the publications Pružinská (2006) and Lacová, Miňová (2008). In practice, we also use cards with pictures of emotionally tuned situations (Bucher-Schaal, 2018), which can be talked about or played with. In the first place we recommend that teachers get to know with the book The Path for children and they also should follow the Cesta course for themselves. In the Czech Republic there is an organization NaMaja and it offers the Path for Children as an accredited program: "Listening to children".

Bibliography

ANYALAIOVÁ, M. 2004. Ako vychovávame naše deti? In: Rodina a škola. Pezinok: Parentes, 2004, no. 10, p. 13. ISSN 0231-6463.

ARSLAN ŠINKOVÁ, P. 2018. Ako rozvíjať schopnosti dieťaťa. Návody inšpirované metódou Montessori. Bratislava: Fortuna Libri. 1. vyd. 202 p. ISBN 978-80-8142-760-2.

BUCHER-SCHAAL, M. 2018. Emoce - obrázkové karty pro porozumění emocím a rozvoj sociálních dovedností. ISBN 978-80-88290-10-0.

DIEŠKOVÁ, V. 2005. Základy sociálnej pedagogiky. Bratislava: Občianske združenie Sociálna práca, 97 p. ISBN 80-89185-08-8.

LACOVÁ, E., MIŇOVÁ, M. 2008, Náš kolotoč šťastia. Rokus, Prešov, 94 p., ISBN 978-80-89055-86-9.

MATĚJČEK, Z., POKORNÁ, M. 1998. Radosti a strasti: předškolní věk, mladší školní věk, starší školní věk. Jinočany. ISBN 80-86022-21-8.

PRUŽINSKÁ, Ľ. 2006. Emocionálny svet detí predškolského veku. Rokus, Prešov, 66 p., ISBN 80-89055-65-6.

TRUBÍNIOVÁ, V., VAŇKOVÁ, J., BEDNAŘIKOVÁ, A. 2010. Poznanie, tvorivosť a prežívanie dieťaťa v predškolskom období. Verbum, Ružomberok, 122 p., ISBN 978-80-8084-710-6.

VÁGNEROVÁ, M. 2000. Vývojová psychologie : dětství, dospělost, stáří. Portál, Praha, ISBN 80-7178-308-0.

Doc. PhDr. Daniela Kolibová, CSc.
Katedra špeciálnej pedagogiky a liečebnej pedagogiky
Katolícka univerzita v Ružomberku, Pedagogická fakulta
Inštitút Juraja Páleša v Levoči
Bottova 15, 054 01 Levoča
daniela.kolibova@ku.sk

Doc. PaedDr. Eva Dolinská, PhD.
Katedra predškolskej a elementárnej pedagogiky sociálne znevýhodnených skupín
Katolícka univerzita v Ružomberku, Pedagogická fakulta
Inštitút Juraja Páleša v Levoči
Bottova 15, 054 01 Levoča
eva.dolinska@ku.sk