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## Features of meta-competences in primary school children

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### Abstract

This article researches the problem of defining meta-competences for primary school-age children. It presents an analysis of the origin of the concept of meta-competences and a review of domestic and international researches in this area. Meta-competences are defined as competences determining individual efficiency, which facilitate the acquisition of other competences. The methods of research in accordance with the age characteristics of primary school-age children are substantiated. As the subject of empirical research we chose the characteristics of meta-competences in the context of emotional perception of primary school-age children through a child's understanding and orientation in the area of feelings and emotions. To diagnose it a complex of techniques was used including a methodology now being tested which diagnoses the meta-competency of primary school children. It reveals a significant relationship (the Pearson correlation) between emotional intelligence and the scale of «the ability to choose» and between the cognitive scale and the scale of emotional content.

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### 1. Introduction

Meta-subjectivity in modern education becomes a key concept and a vector of development. Meta-subjective results as a means of action and regulation of a child's activity are considered in the context of creating

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appropriate conditions for education. The ability to find meta-subjective connections is expressed and corresponds to a personality phenomenon – meta-competence.

Meta-competences are understood as universal competences which have psychological essence. At the heart of meta-competences lies a universal and unitary process - reflection. The versatility and solidity of meta-competences lay the basis for creating effective relations between their subject and both the external world and his inner world; meta-competences contain a potential and resources needed to develop creative and constructive activity and self-realization.

The question of meta-processes was first studied by A. Brown, G. Wellman and J. Fleywell. Meta-thinking was considered as a process of thinking regulation and its functions included planning, regulation and coordination of cogitation processes [1].

M.M. Kashapov describes the basic mechanism of creative thinking - above-contextuality or meta-position that helps to overcome challenges, contributes to the formation of views of definite situations without the influence of external factors [2]. The works by M.M. Kashapov also describe the concept of meta-cognition, which, in our opinion, gives a deeper insight into the essence of meta-competences [3]. Meta-cognition is understood as an interaction of processes related to meta-cognitive activity. Acquisition of meta-cognitive knowledge comes as a result of this interaction. Thus, meta-cognition implements the inner regulation of cognitive processes, monitoring, control, transformation processes and planning.

As the result of the competences analysis and the peculiarities of their use in the training context foreign researchers (USA, Great Britain, Germany and France) have singled out competences necessary to ensure efficient work [4]. Among the key competencies meta-competences were identified as basic ones being the central link and providing acquisition of other competencies.

Development of meta-cognitivism and the competence-based approach has also influenced the educational system, in particular as the ultimate goal of education has changed. Meta-subjectivity is the core of both secondary and higher professional education. Meta-subjective results are determined and implemented in the way of thinking which has been formed and perfected throughout man's active existence. Being an a personality's integrating element meta-competences combine knowledge, experience and skills needed to acquire new knowledge, identify missing information, manage one's development, only to grow more complex throughout the life cycle, developing a specific system based on reflection [5]. In accordance with foreign [4,7] and domestic [2,3,6] views on the typology of competences within a holistic model of competences, we consider meta-competences as competences defining individual efficiency which facilitate the acquisition of other competences.

The description of meta-competences is more often understood and illustrated by the examples of the activity of an adult person, a professional [6,7]. Developing conditions for meta-subjectivity formation as a result of education at all its stages changes the focus of view. Continuity of the concept of education and its stages raises the question about the genesis of meta-competences in childhood, at the beginning of primary education.

The most developed sphere in childhood is an emotional one, unlike the scope of accumulated knowledge, skills and experience. Moreover, emotions and feelings is field of knowledge available for perception from the early age. The childhood period is related to the rapid development of emotions and thinking which are closely intertwined in their functioning. A child between the ages of 9-10 years masters its conscious regulation, to some extent. At the same time, the emotional attitude is the basis of a child's life, estimation of facts and behavior also occurs on the basis of emotion.

The object of the study is emotional perception in primary school children. The subject of the study is the characteristics of meta-competences in the context of emotional perception by children of the primary school age. We used a set of methods, including the methodology, now being tested, which diagnoses meta-competency in childhood through the child's understanding of and orientation in the area of feelings and emotions.

In the context of the set task it is appropriate to use art therapeutic methods. Art therapeutic methods facilitate access to unconscious processes; also by means of art therapy the subject has an opportunity to express the inner world through symbolic language performing some transformations of modalities of the content essence [8].

## 2. Method

The participants of our research were 26 primary school children aged 9-10 years. All of them live in the city of Vladivostok, the Primorskiy krai. We used the following techniques: 1) the pictorial test “Draw a story” by R. Silver which allows us to assess cognitive abilities and processes to evaluate creativity and the current emotional state; 2) the test of artistic and emotional perception (TAEP) (Kopytin A.I.) [9], as part of the approval testing it was used in conjunction with the “Draw a story” test by R. Silver, allowing for determination of the emotional intelligence level.

The study involved primary school children (N = 26; the mean age equal to 9.5 years) in the form of training by immersing them in a creative process, creating contacts and an atmosphere of confidence. We assumed that the ability to find an equivalent of feelings and emotions in the proposed abstract drawings (TAEP) may be interpreted as meta-competences. It was assumed that the results obtained by using the artistic emotional perception test would relate to the cognitive and emotional scales of the “Draw a story” test by R. Silver.

## 3. Results and discussion

The results of the diagnosis, conducted with the help of drawing tests on the cognitive scale and the scale of the emotional content: high rates at the level of emotional intelligence were found in 30.8% of the study sample, 68.2% of the study sample had an average or low level of emotional intelligence, according to the results of the artistic test for emotional perception.

The analysis of correlations was made regarding the emotional intelligence scale. The cognitive scale of the drawing test «Draw a story» is represented by three scales: the ability to choose (the content or the idea of the picture), the ability to transmit the percept in the picture and stories (creativity represented in the form and content of drawings and making up a story), the ability to combine (the form of a picture). Thus, the correlation relationships were calculated between the indicators of emotional intelligence and all specified scales of the drawing test. The correlation relationships were analyzed using the Pearson coefficient at a significance level of 0.05.

Table 1. Correlation coefficient (by Pearson)

Scales of the test by R. Silver	Emotional intelligence
<b>Cognitive scale</b>	0,47
the ability to choose (the content or the idea of the picture)	<b>0,68</b>
the ability to transmit the percept in the picture and stories (creativity represented in the form and content of drawings and making up a story)	-
the ability to combine (the form of a picture)	-
<b>Emotional content</b>	0,4

A significant relationship (correlation on Cheddok's scale) between emotional intelligence and the scale of the ability to choose (the content or the idea of the picture) was found out, the correlation coefficient was 0.68. A moderate positive correlation was also found to exist between the cognitive scale and the scale of emotional content. Thus, there is a link between the level of emotional intelligence and performance on the cognitive scale (ability to choose the content or the idea of the figure), and on the scale of emotional content. This can be interpreted as transformation of the emotional content into a cognitive one.

At the same time no relationship was revealed between the ability to transmit the percept in the picture, and the ability to combine forms of the picture.

The test of artistic and emotional perception reflects the level of emotional and sensual sphere development. The subject in this test was asked to relate the feelings and emotions with abstract paintings, i.e. to find the equivalent of feelings among the images offered. We identified this problem as meta-subjective and its solution as a characteristic of meta-competences. It required a synthesis of knowledge and understanding not only in the sensory and emotional sphere, but also in the area of color and flavor sensation as well as their relationships and flowing from one into another. In other words the transition from one modality to another was carried out (in this case, the transition from the senses to the image) while preserving the essence of the concepts. Carrying out such a transformation required the development of emotional perception (scale of emotional content of the R. Silver test), as well as cognitive development (cognitive scale of the R. Silver test). We should note that the ability to implement such a transition was demonstrated by 31% of the study sample.

The closest correlation among those detected indicates a relationship between emotional intelligence and indicators of cognitive scale - an ability to choose (the content of an idea or a picture). We should note that the latter reflects the elaboration level of ideas and content of the picture, as well as the degree of abstract thinking. In this case, the idea of development, drawing a picture on the basis of stimulus material (a set of black-and-white drawings) is a demonstration of meta-competences. As a process participant the subject had to determine for himself the ultimate goal of the pattern he had created and, accordingly to transform objects for this purpose, think over the content of the picture, which means much more than what can be seen in the drawing. The selection process and the development of ideas and the content of the drawing are similar to the process of selecting images suitable to a particular feeling. In this case, it is needed to have a conceptual understanding of the notion in order to express it in another modality more accurately. Meta-competences in this sense help to highlight the essence of what is being understood without «frame definitions» and move it to another modality.

#### 4. Conclusion

In our study we described the demonstration of meta-competences that develop in childhood at the age of 9-10 years. The problem of describing meta-competences is complex because the concept is to a large extent controversial and has no exact scientific status yet. Strong development of the sensory and emotional sphere in childhood permits to diagnose meta-competences exactly in this area.

With the help of R. Silver's methodology we identified scales, corresponding to our understanding of meta-competences. It was proved that there is a relationship of emotional intelligence and the results obtained using the technique TAEP: the scale of emotional content and the cognitive scale, it shows the closeness of the relationship between the child's emotional and cognitive spheres. The effect on the emotional sphere mediated by cognitive processes allows the child to move on to a new level of thinking and feeling; it ensures to some extent the harmonious development of a personality. This is justified by the internal processes that accompany the execution of the test of artistic and emotional perception, within which emotional and cognitive structures that form meta-competency of the result are connected.

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