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## The Structure of Intellectual Competence in Late Adolescence

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### Abstract

Construct of intellectual competence, understood as a special type of knowledge organization, is considered in terms of conceptual, categorical, semantic abilities and cognitive-and-personality components of mental activity. Participants: 102 students at the age of 15 years. Methods: "Generalization of the three words", "Conceptual synthesis", "The visual semantics of words", "The semantic differential", "Features of thinking", "Narrative". According to the results, the structure of intellectual competence can be described by semantic abilities. Indicators of cognitive-and-personality components of mental activity associated with the conceptual and categorical abilities. The results display the complexity of cognitive-and-personal structure and the principle of multi-level organization of intellectual competence in late adolescence, explore the development of competence in ontogeny and mechanisms for its formation.

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*Keywords:* intellectual competence; activities; abilities; structure; adolescence; ontogeny.

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### 1. Introduction

There's a number of different definitions of intellectual competence. All this diversity is due to the fact that different authors focus on one or another aspect of the construct. Goryunova (2002), for example, notes the resource aspect of intellectual competence. The opportunities that can be realized by intellectually competent person are linked in her study. Savin (2002) explores the intellectual competence as a measure of the success of human activity in a particular subject area. In our study, as in Kholodnaya's studies (2002), intellectual competence is defined as a specific form of mental knowledge's organization, which ensures the successful implementation of any activity with respect to which a person had formed competence.

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The next step to understanding the intellectual competence was to consider its structure and its various manifestations. In view of the large number of scientific papers in which the phenomenon of intellectual competence is studied on professionals and experts, people, who have already achieved practical results in a particular profession, we decided to conduct the research on children. It is not possible to explore such advanced forms of intellectual competence in childhood, which can be fixed in adult, included in professional activities. Nevertheless, intellectual competence doesn't appear simultaneously. If we accept the principle of evolution, it is obvious that intellectual competence is developed and may be manifested in childhood. Further, we have assumed that the components of intellectual competence, that have been already identified in other studies, can be identified in late adolescence. Previously been studied (for professionals) cognitive, personality, motivational indicators: 1) subject knowledge; 2) conceptual and categorical abilities; 3) intellectual self-regulation; 4) intentional knowledge; 5) specific motivation; 6) cognitive-and-personal components of mental activity (some qualities), namely: cognitive demands, flexibility, criticality, creativity. These characteristics have been partially extended and supplemented by us, and our study we investigated: 1) the manifestation of intellectual competence as the ability to generate narrative (actively transforming domain knowledge); 2) conceptual skills; 3) categorical abilities, 4) the ability of semantic and cognitive-personal components of mental activity: cognitive demands, criticality, creativity, selectivity of interests, rationality, independence, dialogue, general intellectual culture.

Theoretical hypotheses of the study: indicators of intellectual competence related to conceptual abilities; categorical abilities; semantic abilities; indicators of intellectual competence are associated with certain cognitive-and-personality components of mental activity, such as high cognitive demand, criticality, creativity, selectivity of interests, rationality, independence, dialogue, general intellectual culture

Objective: to disclose the specifics of intellectual competence in late adolescence.

Exploratory hypotheses of the study: 1) there is a connection between the level of development of conceptual abilities (in terms of categorical, conceptual and semantic abilities measured by methods "Generalization of the three words", "conceptual synthesis", "visual word semantics", "semantic differential") and rates of formation of intellectual competence (measured in terms of narrative); 2) there is a connection between the level of development of intellectual competence and certain cognitive-and-personal components of mental activity (measured by questionnaire "quality of thinking"): cognitive demands, criticality, creativity, selectivity of interests, rationality, independence, dialogic, general mental culture.

Thus, the subject of the study – the structure and the manifestation of the intellectual competence, the object of the study - students 9th grade Moscow schools, whose intellectual competence is forming in the process of schooling.

## 2. Methods

Participants: 102 students (59 girls and 43 boys) 9th grade Moscow school at the age of 13 - 16 years (median - 15 years).

### 2.1. Techniques

#### 2.1.1. Techniques for extracting conceptual (categorical, conceptual and semantic) abilities

"Generalization of the three words" (Kholodnaya, 2002).

Material of methodology "Generalization of the three words" consists of 10 triads of words. Each triad is read out to the participants sequentially. Students should think what is common between these three words and write down this feature in one or two words. 25 seconds are given to find out and to write the answer for each triad of words. The answer should be filled into the form.

Each answer was rated by the range from 0 to 2 points for each of the 10 triads. The criteria: 0 points - lack of generalization; thematic generalization based on spatial or temporal proximity of objects; 1 point - analytic generalization; formal generalization; 2 points - strict categorical generalization using generic terms. The overall score is the sum of points for all triads. Variables: categorical abilities.

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