

# ABILITY TO GENERALIZE IN FOREIGN LANGUAGE OF THE FIRST YEARS STUDENTS IN THE HIGHER EDUCATIONAL INSTITUTIONS

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## **Abstract**

The article presents an overview of works of the foreign and national psychologists that carry out search of opportunities to optimize the system of specialists training in foreign language, clarify specific character of generalization processes influence within learning of a foreign language in traditional and modern psychological science, provide empirical studies of qualitative indicators of this phenomenon.

**Key words:** *ability to generalize, empirical thinking, classification, image, practical thinking, theoretical thinking.*

## **Introduction**

In the age of the world's economic and cultural processes globalization one may notice increase of social demand for training of competitive specialists with highly developed mind, flexible thinking, and fluency in foreign languages.

Psychological research related to the observation of various aspects of thinking process gives a chance to greatly optimize the training system of specialists with the higher education. In particular, research of specific character of generalization processes during foreign language learning is intended not only to acquisition of linguistic knowledge, but also to optimization of students' foreign language thinking.

Mental mechanism of generalization is considered as a basis: socially produced concepts (Брушлинский, 1990; Выготский, 2005; Давыдов, 1973), the formation and existence in the minds of values, meanings, space-time coordinates (Абульханова-Славская, 1990; Артемьева, 1999; Леонтьев, 2003; Петренко, 2005). Attention of foreign researchers mainly focused on the features for a generalization (Restle, 1962; Wason, 1972; Johnson-Larid, 1983), homeland – mostly on finding factors for generalization (Менчинская, 1989; Тальзина, 2001), in generalizing the role of word (Ахутина, 2000; Холодная, 2012), the sense of action investigated during generalization (Ельконин, 1994).

Generalization as a process of judgment formation that leads to selection and attribution of relatively stable properties of objects is interpreted as result, process, method and attribute of

thinking. Generalization refers to the system of intelligent actions, subsystem of mental (logical) operations, along with the comparison, analysis, synthesis, abstraction and classification.

The basic mechanisms of generalization within concept formation include: implicit mechanism (integration, addition, transformation, presupposition); categorization as a process of attribution of a single object, event, experience to some class; analysis through synthesis as incorporation of the object of knowledge to new connections; semantic abstraction as selection from the items of their generalized and significant properties and relations; syncretic grip as identification by a single word of disordered number of separate items etc.

Specific character of generalization on the basis of foreign language is distinguished by its tentative link and operational structure of speaking activity. In foreign language activities the following mechanisms of thinking and speaking activities are realized: realization, coding and decoding, transition from abstract to concrete, mechanism of advance reflection (in subtypes of probabilistic forecasting and advanced synthesis). In adolescence the leading position in formation of ability to generalize belongs to the native language sign system; the foreign language system has complementary importance. While mastering of the foreign language concept system the students will acquire an ability to discover general in singular.

In the works of Запорожець (1964) and his colleagues it is found that the generalization process depends on the nature of tentative actions directed to generalize subjects. In particular, Талызина (2001), having studied dependence of generalizing properties from their place in the structure of the person activity, concludes that generalization occurs under such properties of objects that are included in the content of basic recommendations. This proves that generalization is determined not directly by objects, but indirectly by the person's activities with these objects.

The ability is traditionally interpreted as mental and physical state in which an individual is able to perform some kind of productive activity. The ability to generalize is seen in the intellectual thinking abilities of the individual which at the point of view of Занічковська (2010) allow to refuse from patterns and stereotypes that exist and to find new estimates, generalizations, approaches, actions.

The ability to generalize occupies a certain place in the action model of the life path by Роменец (2001). Describing the adolescence as a creation process of the "life philosophy" with its aspiration for absolute values, the scientist examines connection of centration and decentration mechanisms. Actional concept of personality states that in the adolescence there is subconscious attraction to decentration, melding with the entire world, aspiration to transform the real world in such way that it could come near to ideal. This aspiration on the intellectual and procedural level is provided by generalization mechanism of different knowledge about the world.

The concept of ontogenetic development of Пиаже (2004) interprets special character of adolescence in the spirit of intellectual approach to the human being ontogenetic development. The scientist states that intellectual development in adolescence can be characterized by complexity of mental operations (transfer to formal operations), that causes aptitude to theorizing, reflection and generalization, which allow to understand life as a whole, create a picture or a concept of one's own life. While the peculiar restraining force of development of the ability to generalize is self-centered adolescent thinking, which mostly relies on the category of possible, but not real.

At this age Головаха (1984) observes appearance of a special formation – life perspective that incorporates past, present and future of the personality as certain stages of life. According to the authors, establishment of global life goals appears through understanding and generalizing of value-semantic aspects of one's own self-realization, self-actualization.

The ability to generalize acquires special applicability in the process of adequate personal formation, in particular, in the context of one of its three components – cognitive component as the amount of self-knowledge, ideas about one’s qualities and properties. Thus, formation of qualities system that characterizes the “nature” of individual: self-organization, self-regulation, self-respect, self-realization, self-actualization, self-confidence, independence, self-love, is associated with mental processes of reflection, self-determination, self-comprehension, self-appraisal and one of the leading intellectual mechanisms of which is generalization.

The general trend of intellectual processes in adolescence, according to Выготский (2005), is their subsequent internalization, coagulation and transition to reflexive level. New formation regarding the generalization processes is the fact that the present period witnesses formation of a new level of the image integration, change of the “objectivistic” view of the “outside” world for “inside” subjective, dynamic position. Therefore, the student, having formed scientific concepts in a particular area, may think by these concepts without evoking in his/her consciousness of the images of specific objects to which they relate. However, each abstract, generalized concept carries the possibility of image appearance: they may appear at the first need as a certain specification, illustration of the abstract content of the concept.

However, despite the significant developments in the field of formal logic, cognitive, developmental, educational psychology, during the long-term period one may feel the lack of researches of generalization as process of judgment formation, selection and attribution of relatively stable properties of objects on the basis of foreign language.

**Research object** - Ability of the first years students to generalize in foreign language in the higher educational institutions.

**The object of article** is thinking processes of the first years students to generalize in foreign language in the higher educational institutions.

#### **Subject of the research**

The first years students of pedagogical, historical, philological faculties and the faculty of pedagogy and psychology of the State Higher Education Institution “Pereyaslav-Khmelnytskyi State Pedagogical University named after Hryhorii Skovoroda”. Period of the research – November 2009 till April 2012 and included.

#### **Methods and methodology of the research**

Empirical research of the ability to generalize on the basis of foreign language was carried out with the help of the complex of psychognostic methods, techniques and approaches that were selected according to the objectives of the research. Mathematical and statistical data processing was implemented using the SPSS 17 software package.

The primary task of the determining stage became the investigation of the second language acquisition level by the first year students of the higher education institutions. For this purpose a modified technique of Зейгарнык (2006) “Interrelation of proverbs” (cited by Сборник психологических тестов, 2006) which reveals an understanding of the figurative meaning of expression, ability to distinguish the main idea in the specific content phrase, differentiation, determination of judgments and therefore the level of ability to generalize was used. An assumption from the scientific position that understanding by the speaker of the hidden, latent, obscure meaning characterizes the level of his/her handling the notion was made. Just as in the things hidden, obscure, latent properties are opening, so at the level of word meanings possibilities of new use of word and specification of its content within an entire system appear.

The priority character of concepts in the thinking of students was determined with the application of the modified method of pictograms by Выготский (2005).

The method of “Distinguishing of essential features” by Рубинштейн (1958) was used for establishment of the actual level of generalization.

For determination of the students’ ability level to complex logical relations and distinguishing of abstract relations the “Logic of connection” method was used, which is used in the scientific literature as “Sophisticated analogies” by Коробкова (1995) (cited by Сборник психологических тестов, 2006).

Four verbal tests of the Intellect Structure Test by Amtkhauer (1973) adapted by Гуревич, Борисова, Логинова (1997) (cited by Сборник психологических тестов, 2006) was used in order to determine the students’ ability to distinguish essential features, categorical belonging of the concept, its class and understanding by them of regular connections between the concepts on the basis of their native language. From two equivalent forms A and B of the test the A form was chosen. It was stopped on the first four subtests because they diagnose verbal intelligence of the speaker as the most relevant display for the purposes of the present research. The last three components of intelligence, calculating and mathematical, dimensional and mnemonic component have not been considered. Selection of these subtests was determined by the possibility to detect the formation level of main thinking operations in the concepts (inductive thinking (subtest 1); selection of essential feature of the concept (subtest 2); understanding of natural connections between events (subtest 3); establishment of categorical belonging, class determination (subtest 4).

The C-test by Rats (1995) helped to find out the mechanism of contextual deduction as a way for generalization by the students of the concepts on the basis of foreign language. The C-test by Rats (1995) was used as a means of psychosemantic analysis of the verbal semantics of text in which concepts of the contextual connections are measured by parametric methods. The mechanism of contextual deduction here appears as the generalization mechanism, since one word is connected as usual with several generalizations, and the use of one of them depends on the context of situation, statement, from the speaker’s motives and objectives.

Contextual analysis as the method of finding the contexts for use of words (collocations) in its objective is similar to the method of content analysis in the sense that the contexts of the words use can be subject to content analysis – determination of simple categories frequencies, relative frequencies, definition of categories with the respect to norms etc. If necessary the contextual analysis allows highlighting several thematic lines in the text and analyzing them separately.

While processing the data, presence or absence of generalization and its character was considered: whether the nearest generic concept or wider concept was used. Thus the following was stated: the students were inclined to use too general, detached from the immediate context generalizations or concrete thinking, difficulty in generalization.

Methods of diagnosis of verbal creativity by Медник (1962) adapted by Воронин (2006) (cited by Сборник психологических тестов, 2006) were used to determine the mode of generalization on the basis of foreign language.

The method “Peculiarities of concept formation” was used for determination of the nature of common and distinctive features in comparison of other language notions. It is known that generalizations can be produced as a result of diverse organization of research activities, for example, generalization, based on the minimum required data, generalization based on redundant data.

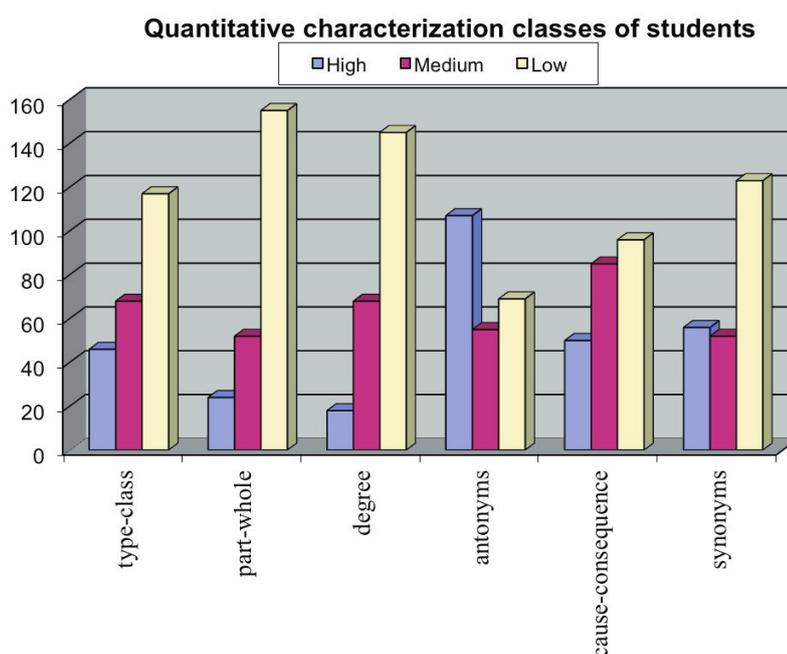
The objective was to research the comparing process of concepts by students in order to highlight similarities and differences of significant or insignificant features of the notion.

### Results of the research

The analysis of empirical material showed that only the first year students which are having the major “foreign philology”, use a foreign language at a relatively high level. The students who study the Ukrainian philology have medium-high level of competence in language. Psychologists, historians, students with the major “primary education” have language competence on the level below average. In general, received data indicates the presence of influence from particularity of professional qualification of the students under test on the foreign language competence level.

Based on the analysis of empirical data correspondence between quality indicators and substantial features of the ability to generalize was determined. In the selection there is a quantitative dominance of students under test with empiric way of thinking, with its low abstractness, low ability to generalize, with average (to low) ability for classification. It is also determined that the low level of development of ability to generalize is due to split growth of its components. Most of categories of thought (class-type, part-whole, degree, and cause-consequence) are developed insufficiently among the students of the first years of studies at university.

The results of measurements of development of basic logical categories in the speech thought of the first years students are presented on the Figure 1.



**Figure 1.** Statistically significant differences in terms of development categories in the speech thought of students

The test showed that most of thought categories such as: class-type, part-whole, degree, and synonymy were underdeveloped. With a low level of these categories common features were fixed on the basis of sensory experience, experience, observation of the operation of a facility based on life situations. The communication system is specific, but when displaying linguistic material is detailed translation sentence.

The speech thought middle-level categories of development inherent to the system links with the categories that make up the categorical matrix. Reflection of these categories was based on their specificity to establish relationships between semantic layers in each specific category. In a study this category was “cause-effect”.

At the level of analysis of speech-thought processes the high level of categories is characterized by the predominant use of such categories, which form a relationship with other categories of this level and concretized the content within an integrated system. On the other hand, these concepts have their own semantic organization in point of the other categories.

In thinking of the speaker semantic categories are collapsed into a single integrated system of concepts, ideas, knowledge produced by humanity. The most advanced category of the testing group was the category of contrasting (antonyms).

Instead, nonlinearity of changes in logical relations of opposition (antonyms) and similarity (synonymy) do not allow making the conclusion on statistical significance of their development for intellectual function to generalize among the students.

The most productive for identification by students of similarity between the other language concepts were the categories of “functional similarity” and “belonging to one class or generic concept”. Generalization of the common features of objects was as through the nearest generic concept, so by means of more remote generic concept. The standard of comparison according to functional similarity has the highest measure of dispersion of majority of data around the median, criterion of belonging to one-class occupies medial position, the criterion of common components and similarity in size, color and shape completes this range.

In the processes of the concepts distinction difference in size, color or shape had the biggest significance. Quantitative indicators in distinction of concepts while comparing them turned out to be in three times fewer than the indicators of concepts similarity, this fact can be explained with the low analyticity of thinking among respondents. Among the distinguished criteria the highest dispersion is observed in the criterion of differences in size, color, shape; the lowest – in functional differences. In general, synthesis operations dominate analytical operations in the students’ thinking on the statistically significant level.

Thus, at this stage of research the following intellectual properties of the students that participate in the generalization process were diagnosed: theoretical thinking, practical thinking, empirical thinking, and predominance of abstract, mixed or specific images, ability of classification, linguistic skills, performance, originality and unique character of verbal thinking and actual ability to generalize.

Summarizing selected objects for type, class and other features, students showed not only significant, but common to multiple objects characteristics (Table 1).

**Table 1.** Levels of ability to generalize in mastering foreign language by the students of different specialties (n=231)

Level of generalization	Specialities										Total	
	Psychology		History		Elementary education		Ukrainian philology		Foreign philology			
	Absolute number	%	Absolute number	%	Absolute number	%	Absolute number	%	Absolute number	%	Absolute number	%
High	5	7,6	0	0	0	0	0	0	0	0	5	2,2
Medium	23	34,9	7	11,9	6	12,8	4	8,5	0	0	40	17,3
Low	38	57,5	52	88,1	41	87,2	43	91,5	12	100	186	80,5
Total:	66	100	59	100	47	100	47	100	12	100	231	100

As a result of previous estimates following quantitative distribution was obtained: a group of students with a low level of ability to generalize – 186 people (80.5% of total number). Low ability to concentrate on the material properties of objects accompanied them in vague diffusivity of conceptual thought. Significant factor limiting analytic-synthetic activity, the results of which become a low ability to generalize is the high level of youth Internet addiction. For this group of students the process of internalization intellectual processes of coagulation and transition to reflexive level is still incomplete.

Group with a medium level of ability to generalize were 40 individuals (17.3%). In this group the adolescents of self-centered thought are stopping developing the ability to generalize, balanced timely complexity of mental operations, decentration, generalization of knowledge.

The group with a high level of ability to generalize was only 5 persons (2.2%). Students of this group showed the ability to give up the templates and the stereotypes, and looked for new assessment approaches.

Subsequently, each of the designated groups determined the percentage of students, in which some of the components of the ability to generalize dominate: concreteness of thought, the level of classification, class-type components, the component “part-whole”, category “degree” “cause-consequence”, the category of contrasting (antonyms), the category of similarity (synonyms). The results are shown in the table (Table 2).

**Table 2.** The dominant components of the ability to generalize in groups of students with different levels of development

The components	Levels of development the components (%)		
	High	Medium	Low
Abstraction thought	1,3	5,6	93,1
Classification level	9,1	38,1	52,8
Class-Type correlation	19	29,9	51,1
Correlation “part-whole”	10	22,5	67,5
Category “degree”	6,9	29,9	63,2
Correlation “cause-consequence”	23,4	36,4	40,2
Correlation contrast (antonymy)	46,8	23	30,2
Correlation similarities (synonyms)	25,1	22,5	52,4

As the results showed, the subgroup with a low level of ability to generalize, which consists mainly of people who have dominated concreteness of thought, is the largest. This distribution suggested that low ability to generalize in this group is caused by the low resolution of the classification and also lack of development of logical components of “part-whole”, “class-type” similarity (synonyms) and the category of “degree.”

The medium level of ability to generalize provided the optimal capacity for classification; enough developed are the category “cause-consequence”, class-type category, and logical category “degree.”

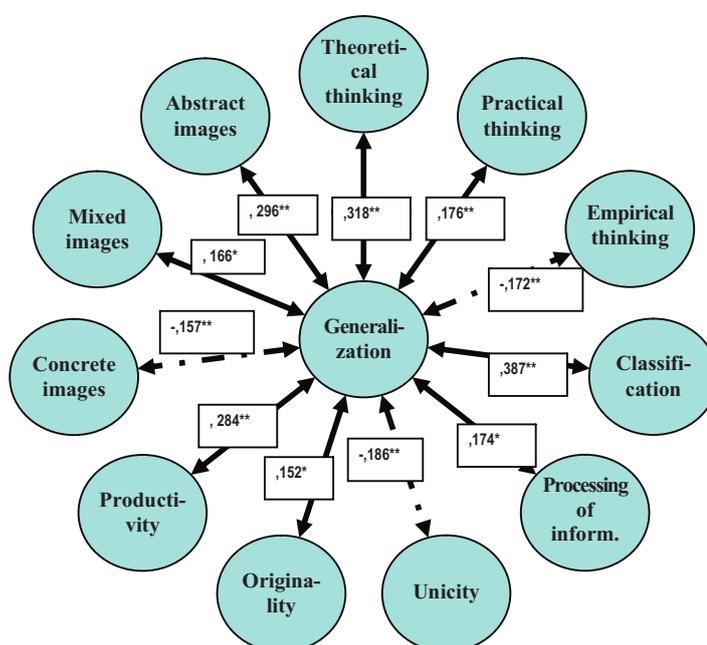
In the subgroup with a high level of ability to generalize was the largest number of individuals with abstract thought, the developed category of contrasting and similarity combined with the developed category “cause-consequence”.

The attention is drawn by the fact that the decrease in the total level of ability to generalize is connected with a reduction of its components as abstract thought, the ability to grading, installation of class-type relations, relations “part-whole” and underdeveloped category “level”.

Logical category of contrasting (antonymy) and similarity (synonyms) vary non-linearly – in the middle group they are lower than in the two extreme groups, as evidenced by the confusion in the case of antonymy median (median = 30.2) in the direction of lower showing and, in the case of synonymy (median = 25.1) – in the direction of higher values.

In addition, the analysis revealed that the most uniform distribution of components of the ability to generalize is observed in the group with medium level of development ( $\sigma x = 10,24$ ), in comparison with the high ( $\sigma x = 14,41$ ), or low ( $\sigma x = 18,98$ ). Instead of thought dominance of specificity in the ability to generalize the structure had a much higher rate than other components in all subgroups.

Finally, each of the obtained indicators was subjected to pair-wise correlation analysis with all other. The correlation coefficients were built around the most essential component for the research that is the ability to generalize. The correlation analyses results are made evident in the form of correlation plead (Figure 2.).



**Figure 2.** Correlation plead of components of the ability to generalize

*Note:* positive correlation relationship is marked with the single line; negative correlation relationship is marked with the dashed line. Correlation relationships at the level  $p \leq 0,01$  are marked \*\*, correlation relationships at the level  $p \leq 0,05$  are marked\*.

The correlation plead of components of the ability to generalize vividly demonstrates the importance of all presented scales. The mentioned phenomenon has a direct correlation with the scale “ability of classification” (0,387;  $p \leq 0,01$ ), which should be regarded as an indicator of genetic and procedural proximity of these two qualities.

The positive correlation is also present with the scale of “theoretical thinking” (0,318;  $p \leq 0,01$ ), “predominance of abstract images” (0,296;  $p \leq 0,01$ ), “efficiency of verbal thinking” (0,284;  $p \leq 0,01$ ), from this a conclusion can be made that theoretical substance and abstraction combined with efficiency are capable to provide quality of the generalization procedures.

The positive relationship is observed also with the scales “practical thinking” (0,176;  $p \leq 0,01$ ), “originality of verbal thinking” (0,152;  $p \leq 0,05$ ) and “foreign language competence”

(0,174;  $p \leq 0,05$ ), which should be interpreted as the ability of the most part of those, who study foreign language, to make generalization on the basis of this language.

Negative relationship in this plead is observed in the scale of “empirical thinking” (-0,172;  $p \leq 0,01$ ) and “predominance of specific images” (-0,157;  $p \leq 0,01$ ) which is another proof of the importance and applicability of theoretical and abstract criterion for generalization purposes. Expressive negative relationship with the unique character of verbal thinking (-0,186;  $p \leq 0,01$ ) confirms the abovementioned fact that inappropriate verbal responses to adequate stimulus indicate on deviations from the line of formation of proper generalization.

### Conclusions

These results give rise to the conclusion that the ability to generalize is provided by the cumulative effect of a number of factors:

- total ignorance;
- specific character of inductive thinking of students (narrowing of the grounds for inductive choice, ignorance of lexical meanings and dogmatism of judgments);
- interruption of logical relations: while fixing essential features of concepts – time and space; while revealing relations of similarity between the concepts – functions, similarities and cause – consequence; while establishing categorical belonging of the object – too wide or narrow grounds for generalization; while classifying the objects – use of purely formal criteria;
- verbal-semantic criterion: the most regular generalizations the students use to the concepts specific by their semantics are combined by the syntagmatic associative link; the lowest potential of generalization have paradigmatic combinations of concepts with abstract semantics.

Correction of the causes, found in the research, of faulty generalization by students of concepts in foreign language will be the main objective of the next forming phase of the research.

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### *Summary*

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Psychological research related to the observation of various aspects of thinking process gives a chance to greatly optimize the training system of specialists with the higher education. In particular, research of specific character of generalization processes during foreign language learning is intended not only to acquisition of linguistic knowledge, but also to optimization of students' foreign language thinking.

The analysis of generalization processes influence within learning of a foreign language in modern psychological science was done.

Specific character of generalization on the basis of foreign language is distinguished by its tentative link and operational structure of speaking activity was shown. In adolescence the leading position in formation of ability to generalize belongs to the native language sign system; the foreign language system has complementary importance.

The following intellectual properties of the students that participate in the generalization process: theoretical thinking, practical thinking, empirical thinking, and predominance of abstract, mixed or specific images, ability of classification, linguistic skills, performance, originality and unique character of verbal thinking and actual ability to generalize were found.

The correspondence between quality indicators and substantial features of the ability to generalize was determined.

In the selection there is a quantitative dominance of students under test with empiric way of thinking, with its low abstractness, low ability to generalize, with average (to low) ability for classification.

It was also determined that the low level of development of ability to generalize is due to split growth of its components. Most of categories of thought (class-type, part-whole, degree, and cause – consequence) are developed insufficiently among the students of the first years of studies at university.

The most productive for identification by students of similarity between the other language concepts were the category of “functional similarity” and “belonging to one class or generic concept”. Generalization of the common features of objects was as through the nearest generic concept, so by means of more remote generic concept. The standard of comparison according to functional similarity has the highest measure of dispersion of majority of data around the median, criterion of belonging to one-class occupies medial position, the criterion of common components and similarity in size, color and shape completes this range.

In the processes of the concepts distinction difference in size, color or shape had the biggest significance. Quantitative indicators in distinction of concepts while comparing them turned out to be in three times fewer than the indicators of concepts similarity, this fact can be explained with the low analyticity of thinking among respondents. Among the distinguished criteria the highest dispersion is observed in the criterion of differences in size, color, shape; the lowest – in functional differences. In general, synthesis operations dominate analytical operations in the students’ thinking on the statistically significant level.

The conclusion was made that the ability to generalize is provided by the cumulative effect of a number of factors:

- total ignorance;
- specific character of inductive thinking of students (narrowing of the grounds for inductive choice, ignorance of lexical meanings and dogmatism of judgments);
- interruption of logical relations: while fixing essential features of concepts – time and space; while revealing relations of similarity between the concepts – functions, similarities and cause – consequence; while establishing categorical belonging of the object – too wide or narrow grounds for generalization; while classifying the objects – use of purely formal criteria;
- verbal-semantic criterion: the most regular generalizations the students use to the concepts specific by their semantics are combined by the syntagmatic associative link; the lowest potential of generalization have paradigmatic combinations of concepts with abstract semantics.