

The Theoretical Foundations of the purposeful formation, in the project method, of the personal quality: “independence”.

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Annotation

The meaning of the word is revealed independently; property that is made up from the essence of self-activity, based on the modeling of students' independent activities. The article shows the types and forms of students' independent activity, the criteria and methods of researching independence, as well as the levels of the formation, the autonomy, the reflexivity, the ingenuity, and the achievement of the final form of them in the practical implementation.

Key words: *independence; didactic principles; model; autonomy; reflexivity inventiveness, practical implementation.*

Introduction

The direct analysis of the philosophical, the psychological and the pedagogical scientific subgenres of literature manifested that: there is no an unambiguous interpretation of the concept of independence in science. This is largely explained not only by the complexity of the problem, but also by the multidirectional approaches to its study. In the last decade, the concept of independence has been enriched with new content, which has led to the emergence of a new problem – the problem of discovery of the most effective ways of its development as a significant quality of personality. In pedagogy and pedagogical psychology there is still no single view on the essence of the concept of "independence". So, S.L. Rubinshtein defined independence as an essential feature of the will.

The meaning of the word – independence, is defined in many different ways and could be presented by the following definitions:

1. Not subordinate or dependent, acting freely; independent.
2. Processing of the self-initiative, capability of reasoning and acting independently.
3. Carried out on the basis of its own initiative.
4. Free from extraneous influences, and developing its own way; original.
5. Having its own meaning and taking its own place among others.

Therefore, I adhere to the opinion that the categories of the independence, the autonomy and the freedom from outside influence are quite common.

Psychologists identify a whole number of properties, that are originated from the essence of independence and are related to the psychic phenomena. They are: the ability to assert oneself and maintain the stability of the "I"; self-control; the ability to regulate one's own behavior and emotional reactions; the ability to make and realize decisions; the ability to maintain one's opinion in spite of the external pressure, and finally, the tendency to take *responsibility*. Despite the differences, studies have manifested that people are characterized by high constancy of personality traits, variability and unpredictability. However, the most important, in-depth characteristics of independence are very stable.

By the term – independence as the variation of components of an individual's ability, researchers understand:

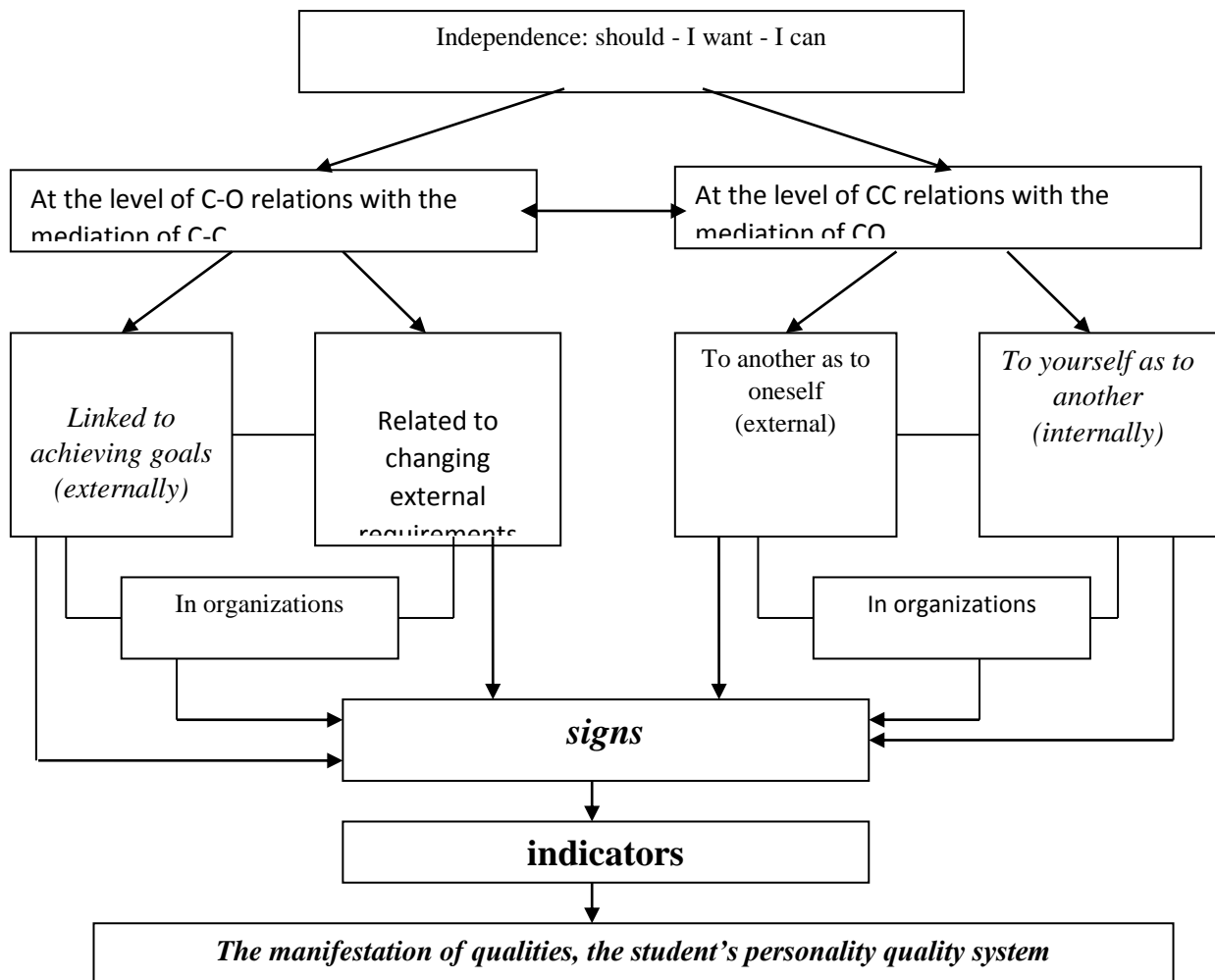
- the ability to isolate one's position (R.R. Kondratiev);
- the ability to independently implement the structural blocks of activity (G.I. Schukina);

- the ability to plan, systematize, regulate and actively carry out their activities without constant external guidance and assistance (K.K. Platonov);
- the ability to correlate one's aspirations and capabilities, adequately evaluate the process and the result of one's activity (L.A. Rostovetskaya);
- an integrative property of a person based on the unity of mind, feelings, will and character (A.I. Shcherbakov);
- the synthesized personality trait, which is reflected and expressed in all areas of the personality's activity, which determines the general type of personality, the nature of its behavior, attitude to life and activity (L.M. Pimenova);
- the knowledge of her behavior, attitude to life and activity (L.M. Pimenova);
- the cognition of its necessity and use by its personality without external coercion and leadership responsible for its actions (I. Molnaru).

From the perspective of the relationship, independence is considered as a generalized component of the individual's attitude towards the observing of his duties, towards the process of activity, its outcome, orientation towards independence, autonomy of its social practice and relationships with people (P.N. Vinogradov, U.N. Nishanaliev, L.A. Rastovetskaya, M.I. Shilov).

The expression of independence is actions, statements, assessments of the personality both in relation to others and to oneself.

I will show the essence of independence in the form of a diagram (**Fig. 1.**)



It could be verified from the figure, that the structure of the autonomy as the property of an individual, consists of non-aligned elements of a multileveled organization of any individual. People are able to behave independent in the process of interaction with the outside world at the following levels:

- at the component level, determining the system indicators of an independent personality;
- at a personal level, defining the personality quality system, their specific hierarchy, reflecting the relationship of independence with other personal characteristics;

- at the level of the student's individual life, determining the type of a student on the basis of independence.

The formation of a student's gratitude independence is a complex, multifaceted process of preparing a creatively thinking person. Besides, strong personality formations differ in that they manifest themselves in any environment. I model students' independent activities (**Fig. 2.**) I formulated a pedagogical concept, which is based on the following didactic principles:

1. Systematic work;
2. Structurally of educational material (i.e. its construction from certain stages);
3. Equal complexity ("weight load");
4. Concise presentation;
5. The combination of words and clarity in the presentation of the material;
6. The relationship of educational material with life;
7. The variability of the structure, determined each time by the choice of "their" pedagogical goals and objectives, basic concepts and cause-effect relationships;
8. The dynamism of the learning process (that is, the sequential transition from one private, simpler work to another – complicated, but also honest, and from it to more difficult).

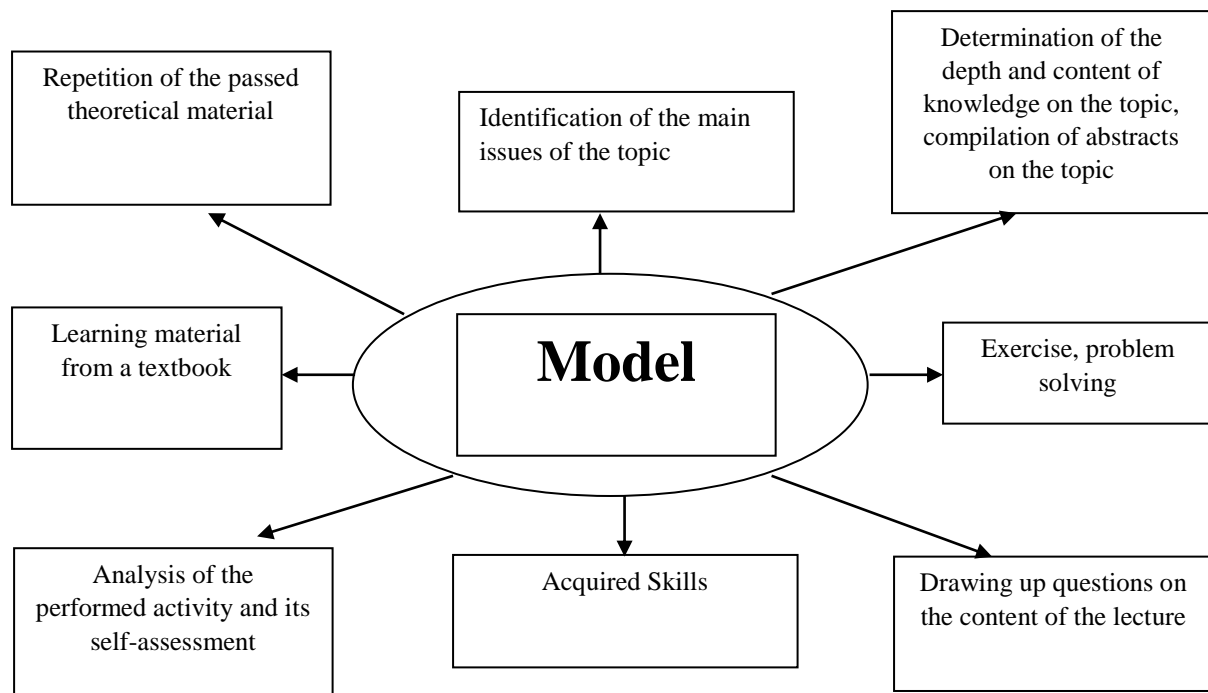


Fig. 2. Modeling students' independent activities.

Our point of view is that independence is a personal quality, an indicator of individuality. This quality plays the role of a regulator, a kind of integrating, self-organizing function and is manifested in the independence, autonomy of the individual as a subject of activity and communication, i.e. in goal setting, its implementation, correction, assessment, as well as in relation to environmental activity

A detailed analysis of the proposals of didactics on the issue of the classification of independent work, as well as their further development in special conditions of the educational process at the university, is presented in the studies, carried out under the supervision of E.L. Belkin. Consequently, summarizing of the results of these researches has led to a formation of a proposed classification, the basis of which is the modern interpretations of the private didactic goals of the independent work and the specifics of students' educational and cognitive activities in their implementation.

In accordance with them, four types of the independent work are revealed:

1. The purpose of independent work of the first type is to create conditions that ensure the formation of first-level knowledge among students.
2. Independent work of the second type is intended to create conditions that ensure the formation of the second level of knowledge among students.
3. The purpose of independent work of the third type is to create conditions that ensure the formation of students' knowledge of the third level.
4. The repetition of the situation, which directs students to search for new ideas, principles, and approaches to solutions. In this regard, the fourth type of independent work is always intended to create conditions that ensure the involvement of students in creative activity.

Formulating the private didactic goals of independent work and then organizing the appropriate student activities, it should be kept in mind that the knowledge of the characteristic features of independent work of each type, as well as its use from time to time in training, does not allow one to obtain that effect, which university teachers usually expect. Timely and consistent inclusion of appropriate independent work in the educational process, taking into account their entire system, is necessary to correlate each type of independent work with the didactic goals of the individual stages of the educational process, defined by its organizational forms and pedagogical means for their implementation.

Table 1. Types and forms of organization of students' independent work.

Types of students' independent work	Teacher's guide
1. Note-taking	Spot check
2. Summarization.	Theme development and verification.
3. Annotating books and articles	Sample annotations and verification.

4. Completing the search engine tasks	Task development, creation Search situations; special course, special seminar, filing
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In the course of experimental training, it was necessary to find out how effectively the application of the project method is in the formation of independence in studying a foreign language at a university. This was the purpose of the experiment.

The experiment was implemented in three stages:

- 1) *preparatory* - the stage of determining the goals and objectives of the experiment, based on the goals and objectives of the study. At this stage, the development of experimental methods was carried out, its content, choice of questionnaires, and teachers' training were determined;
- 2) *experimental* – the stage of implementation of the developed research methods.
- 3) *analytical* – the stage of quantitative processing of data obtained as a result of the experiment, theoretical analysis (qualitative interpretation) of the results.

In the study of independence, we limited ourselves to a group of its activity components: autonomy, reflectivity, ingenuity in implementation, commitment. For each component, we have chosen the criteria that most fully identify the named components of independence. Next, a choice was made of the methods that provide the technological part of the diagnosis in accordance with the selected criteria

(Table 2.)

Table 2. Criteria and methods for the study of independence

Independence component	Criteria	Methods Of Diagnosis
1. <i>Autonomy</i>	Indicator of preferences for group and individual forms of work	Survey. The "Autonomy-dependence" method
2. <i>Reflexivity</i>	The need for evaluation actions. Objectivity of self- assessment	Survey of students. Expert survey of teachers
3. <i>Ingenuity in the implementation of ideas</i>	Development of intuition, creativity in practical actions	Tests by G. Eysenck
4. <i>Purposefulness</i>	Achieving the goal in practical implementation	Expertise of the project execution process. The test-questionnaire «perseverance in achieving the goal»

I called the criteria for the formation of reflectivity the need for evaluative actions, as well as the objectivity of the student's self-esteem. The student's need for evaluative actions is a consequence of his desire for self-knowledge and self-improvement.

To the criteria of such a component of independence, as ingenuity in the implementation of ideas, we include the development of intuition and creativity.

We consider the student's determination as a stubborn desire to achieve his goal, despite the difficulties and obstacles encountered.

The manifestation of decisiveness in uncertain situations, perseverance in achieving goals lead to the practical implementation of intentions. A high degree of

manifestation of purposefulness contributes to the successful completion of what was conceived to the ultimate goal, which in reality means the practical implementation of the solution, which at the beginning is a speculative form. In order to determine the student's ability, to subordinate their actions to their goals, to mobilize their capabilities and to solve the tasks we organized:

- a) *examination* of the project implementation process;
- b) *the test questionnaire* "Persistence in achieving the goal";

Thus, for each component of independence, we selected their representative criteria as a form of quantitative or qualitative measure of development of the individual components of independence.

The ascertaining part of the experimental work showed: what place do individual and group forms of work occupy among the preferred types of educational activity, how do students motivate their preference for individual forms and types of educational work, how much the preferred types of classes coincide with the actual ones.

Our study used questionnaires, observation, tests, test-questionnaires, examination of the process of project implementation.

In our study, a qualitative description of the forming experiment is presented above; therefore, we restrict ourselves to the quantitative characteristics of the results of the experimental work.

Consider research materials for each component of independence.

The results of the study on the component "autonomy" are presented in the **Figure № 4**.

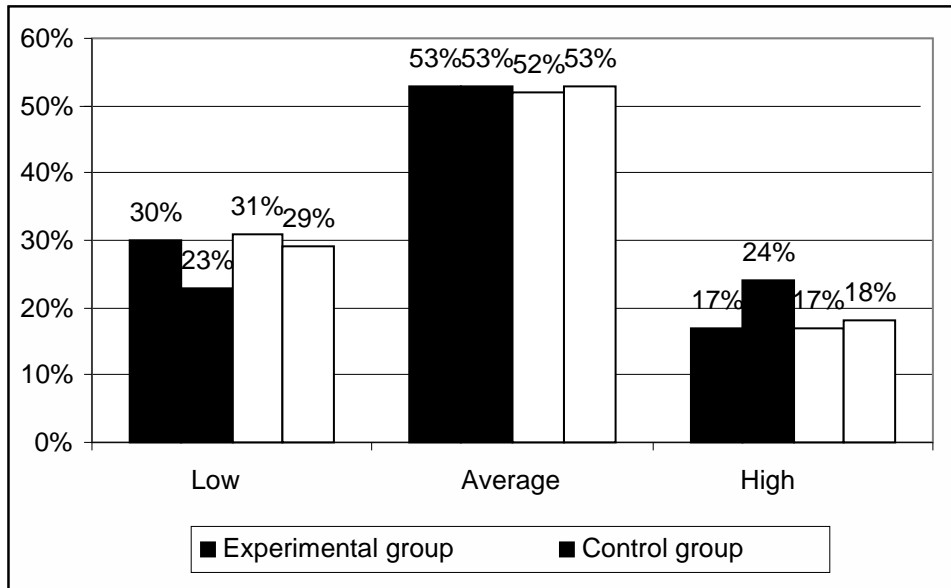


Fig. 4. Level of autonomy

The second component – reflexivity, was evaluated by us basing on answers to questions related to the need for evaluative actions. This criterion revealed a tangible advantage of project training over traditional. During the implementation of the projects, a constant reflexive training was carried out, which contributed to the development of skills to more objectively relation to their actions and objective reality. The results of the study of this component are presented in the **Figure. 5.**

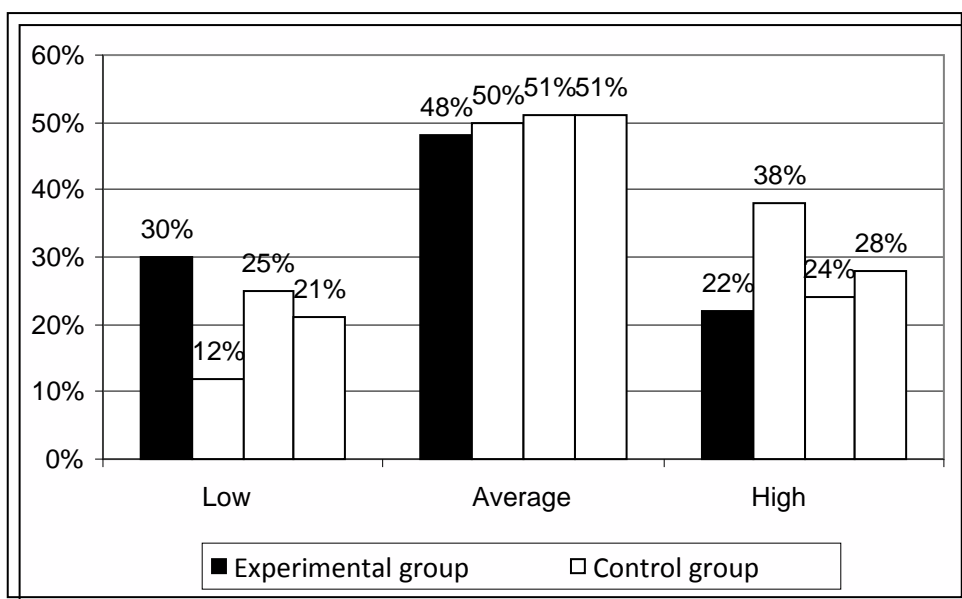


Fig. 5. The level of formation of reflexivity

The third component is ingenuity in the implementation of ideas. At the beginning of this section, we touched on the issue of the need to develop creativity precisely because of this component.

Creativity levels are shown in the **Figure 6.**

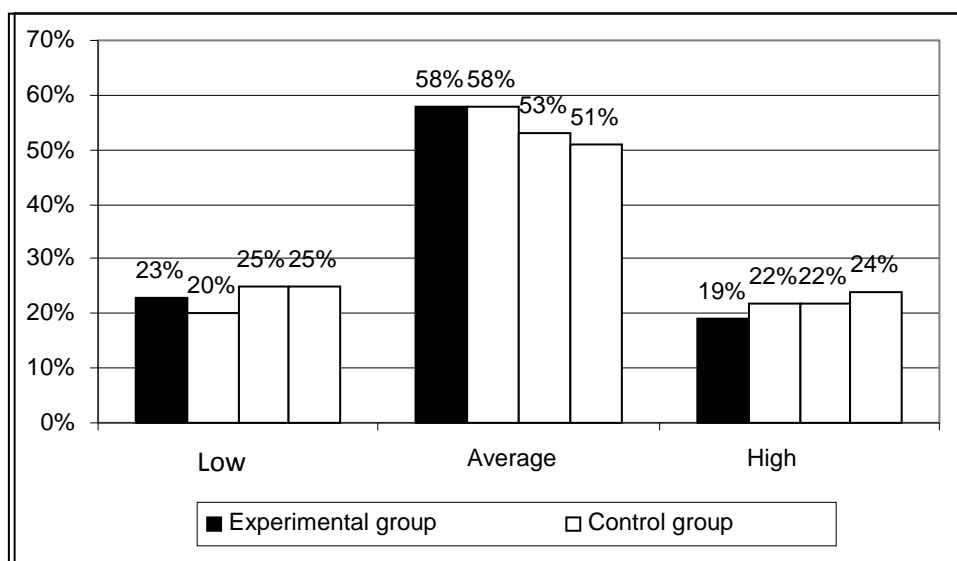


Fig. 6. Level of creativity

Based on the final data, we can conclude the following: the experimental group did not have a clear advantage, however, its results from the point of view of the considered component of independence testify in favor of the project training system.

The last – the fourth component of “Achievements of the final form in practical implementation” reveals the student’s determination, perseverance in achieving his goal. The results of the study suggest that such a personal quality, as determination, intensively develops in the process of completing tasks related to overcoming difficulties.

Levels of formation and determination are presented in **Figure № 7.**

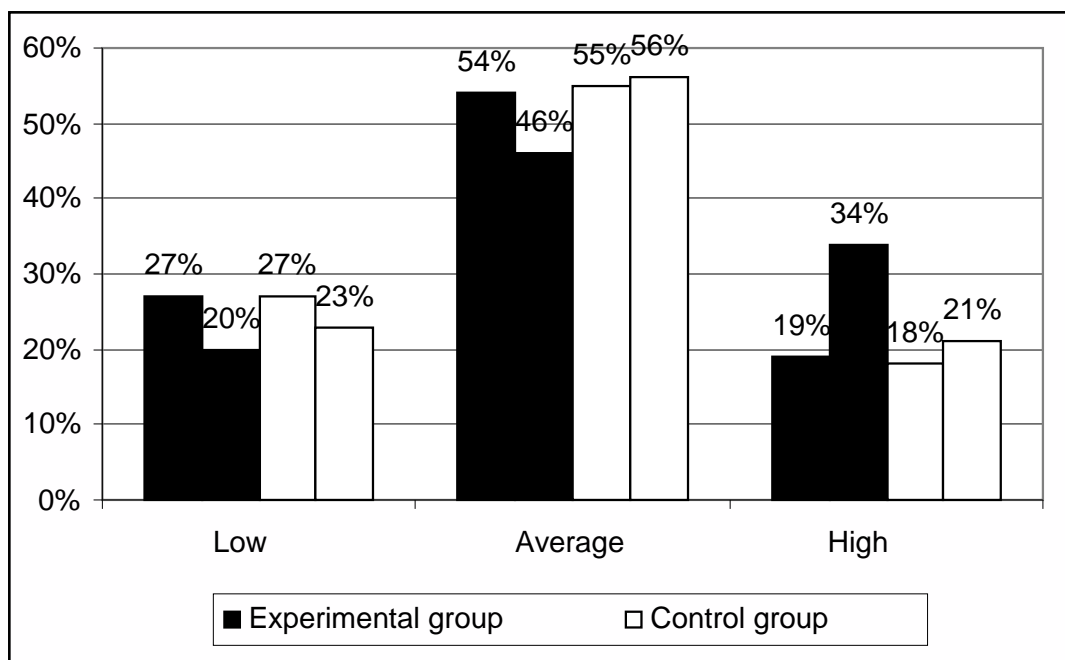


Fig. 7. Level of determination

Thus, all of the above indicators testify to the positive influence of the project method on the degree of development of one or another component of independence, what, of course, allows one to state with certainty the possibility of developing the quality itself. This quality is independence in the process of teaching a foreign language by the application of the project method.

Moreover, it should be noted, that the project method does not have the same effect on the development of independence components. Particularly, successfully developed autonomy and reflexivity, weaker – ingenuity in the implementation of ideas. Nevertheless, our study of the development of self-sufficiency among students proves the feasibility of introducing an experimental methodology of teaching a foreign language, based on the project method as the main didactic tool of the project-based learning system in pedagogical practice. To illustrate the influence of the project method on the degree of development of one or another

component of independence, we present the statistical processing of data obtained as the result of testing in both control and experimental types of groups.

According to the null hypothesis, such an influence does not exist, and according to its alternative, the influence exists. Hence, I compare the results of performance in two groups, the experimental one, and the second group is the control one. To determine whether the difference between the average values of performance indicators in the first and second groups is significant, it is necessary to calculate the statistical reliability of this difference. To do this, use the student t-test. It is figured out according to the formula:

$$t = [X_1 - X_2] / \sqrt{M_1^2 + M_2^2};$$

where, X_1 & X_2 is the arithmetic mean of the variables in groups 1 and 2

M_1 & M_2 – the average error values, which are calculated by the formula:

$$M = \frac{\sigma}{N};$$

where σ is the quadratic mean calculated by the formula:

$$\sigma = \sqrt{\frac{\sum (X_i - \bar{X})^2}{N - 1}}$$

Define errors for the first row (experimental group) and the second row (control group):

$$M_1 = \sigma_1 / N_1 = 1,63 / 7 = 0,62,$$

$$M_2 = \sigma_2 / N_2 = 1,41 / 7 = 0,53.$$

We find the value – the criterion according to the formula:

$$t = (7 - 4) / \sqrt{0,62^2 + 0,53^2} = 3,69$$

Having calculated the value of the t-criterion, it is required to determine the level of statistical significance of the differences between the average performance indicators in the experimental and control groups from a special table. The higher the value of the t-criterion, the higher the significance of the differences.

Data and intermediate results of calculating the significance of statistical differences in mean values.

№ n/n	The experimental group			Control group		
	The value of efficiency of activity	$\bar{X}_1 - X_i$	$(\bar{X}_1 - X_i)^2$	The value of efficiency of activity	$\bar{X}_2 - X_i$	$(\bar{X}_2 - X_i)^2$
1	5	2	4	6	-2	4
2	6	1	1	3	1	1
3	7	0	0	4	0	0
4	10	-3	9	5	-1	1
5	6	1	1	5	-1	1
6	8	-1	1	3	1	1
7	7	0	0	2	2	4
$\bar{X}_1 = 7$		$\sum_{i=1}^N (\bar{X}_1 - X_i)^2 = 16$		$\bar{X}_2 = 4$		$\sum_{i=1}^N (\bar{X}_2 - X_i)^2 = 12$
$\sigma_1^2 = 2,67. \sigma_1 = 1,63$			$\sigma_2^2 = 2,00. \sigma_2 = 1,41$			

For the t-test table, we find that the value of $t_{table} = 3.055$ for a one percent level ($p < 0.01$) at 12 degrees of freedom. Thus, the value of $t_{tbl} < T_{calc}$. Thus, a statistically valid conclusion can be made that the effectiveness of the activity in the experimental group is higher than in the control group at a significance level of 0.01 (the risk of error is one in a hundred theoretically possible).

Thus, the final stage of the study allowed us to draw the following conclusions out:

- 1) Systematically organized, independent cognitive activity of students significantly improves the quality of training; allows to accomplish higher results in their assimilation of program knowledge and the accumulation of experience in creative activity. This is proved by the results of our verification work in the experimental and control groups
- 2) A theoretically developed and experimentally tested system of independent work creates maximum conditions for the development of independence and educational activity of students, turning educational activity into a kind of process of scientific knowledge in the framework of training;
- 3) The organic combination of various types of independent work ensures the creation of favorable conditions for students to master the motives of knowledge, developing skills to use the acquired knowledge in cognitive activity.

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