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Research Competencies Condition Assessment of Pupils from Humanitarian-oriented Classes of Comprehensive School

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Abstract

The description of process and results of research competencies condition assessment of pupils from humanitarian subjects-oriented classes of comprehensive school is presented in the article. The interpretation of the obtained empirical data is given. The appeal to a problem of formation of research competence at pupils of comprehensive school is connected with the changing requirements of modern education to the organization and design of educational process, as well as formation of key competences at comprehensive school graduates. The transfer of the senior stage of comprehensive school to the profile training significantly expands opportunities for the research activity of pupils that is one of productive ways of their research competence formation.

Keywords: Profile training; research activity; research competence; research competences; pupils of humanitarian-oriented classes; questioning.

1. Introduction

The subject-oriented education provided by the corresponding Concept of 2002 at the senior step of comprehensive school is still actual and demanded direction of the State policy in the field of education. The improvement of quality of educational process due to subject orientation of the directions of pupils training is the task of subject-oriented education. The transfer of the senior stage of comprehensive school to the subject-oriented education provides opportunities for the research activity of pupils by means of inclusion of additional hours for

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research activity into the curriculum (Kontseptsiya profil'nogo obucheniya na starshey stupeni obshchego obrazovaniya, 2002).

The senior school age is the optimum period for the development of research activity. Reputed Russian scientists note that at this stage seniors undergo the formation of logical and system thinking (Kon, 2000), imagination, world outlook and system of values (Muhina, 1999), steady cognitive and professional interests, and development of personal reflection (Mudrik, 1979).

The importance of research activity for pupils is determined by needs of the vocational guidance mediated by subject-oriented training and for the solution of personal and significant problems of informative character (Novozhilova, 2008). Thanks to transition to the subject-oriented education, the senior becomes the subject of research activity while research activity acts as one of implementers of a further educational trajectory. Various types of research activity promote formation of pupils research competence by naturally interacting with the whole complex of educational tasks.

Formation of research competence of the pupil supposes above all determination of initial level of its formation (in our test and experimental work aimed at research competencies). Therefore, the main goal of research was the determination of the initial level of research competence formation in pupils of humanitarian subject-oriented classes of secondary school. To achieve the set goals, such problems as diagnostics of initial level of pupil research competence formation and determination of deficiencies in research competence of pupils, have been solved.

The problem of research competence formation is considered in works of a number of Russian researchers. The majority of works are dedicated to the problems of secondary education system: formation (Krivenko, 2006) and development (Ushakov, 2008) of research competence in senior pupils at subject-oriented education; formation of research competence at additional education and subject-oriented training (Feskova, 2005); formation of pupils research competence in mathematics at school and higher education institution assistance (Forkunova, 2010) and others.

At organization of research activity of pupils in humanitarian subjects, it is necessary to take into account the specificity of humanitarian knowledge and its value and meaning-oriented nature. Humanitarian paradigm is used as the base of young scientist's development environment, provides possibility if further self-realization in future professional activity and requires special research activity formation for pupils of humanitarian subjects-oriented classes.

Therefore the formation of research competence in pupils of humanitarian subjects-oriented classes of secondary school becomes one of the most important tasks in senior stage of school education.

2. Basic assumptions

We understand the integrative quality of the personality assuming the readiness and ability of productive implementation of research activity in the sphere of the humanities to be the research competence of pupils of humanitarian subjects-oriented classes.

In the structure of research competence of pupils of humanitarian subjects-oriented classes of comprehensive school (hereinafter pupils) we point out its following components: personal, cognitive, activity. These components are presented in the corresponding competencies groups: personal-, cognitive- and the activity-accented competencies. The set of the given competences is the essence of research competence of pupils of humanitarian subjects-oriented classes of comprehensive school (Kazarina, 2015).

It is mostly effective to form the research competence of pupils on the basis of purposeful use of special pedagogical model of research competence formation in pupils of humanitarian subjects-oriented classes in comprehensive school, where the conditions, means and methods promoting its formation process are provided.

3. Methodology

In accordance with the set goal and tasks, methodological base includes research methods complex allowing determining the level of indicated competencies formation: question lists, interview, expert evaluation method, observation.

Test and experimental work on approbation of the offered pedagogical model was carried out in Tomsk Municipal autonomous educational institution high comprehensive school No. 30 (Tomsk MAOU No. 30) from 2011 to 2014. 96 pupils from 10-11 grades of the school took part in the test and experimental training.

In the course of the test and experimental work in Tomsk MAOU SOSH No. 30, 2 groups were created: control (CG) and experimental (EG). Pupils from CG of 48 people were trained in formation of research competence traditionally (writing of research works both under teachers supervision and independently; research activity was carried out spontaneously, incidentally) while participants of EG consisting of 48 people were trained according to the program of research competence formation.

Test and experimental work was carried out in three stages (production stating, forming, final generalizing). Tasks of the production stating stage were: diagnostics of initial level of pupil research competence formation; detection of deficiencies of pupil research competence; pedagogical activities content design for formation of research competence of experimental group.

Within the forming stage the pedagogical activity aimed at pupils research competence formations is carried out, there takes place a stage-by-stage realization of pedagogical model which didactic algorithm includes the stage of formation of competences necessary for individual and joint pupils research activity, the stage of formation of the reflexive relation to the own research activity and its results, and the stage of positioning of the own research experience results.

According to this algorithm at the first stage (a stage of formation of the competences necessary for individual and joint research activity of pupils), there is an initial formation of research competence of pupils. The integration of fixed and after-hour forms of education is expedient for the formation of motivation, system of knowledge and ideas of pupils research competence.

At the second stage (formation of the reflexive relation to the own research activity and its results) further formation of pupils research competence within the work of task and creative group is carried out.

The third stage (the stage of positioning of the own research experience results) is characterized by the formation (or increase of formation level) of the pupils research competence. At this stage, components of research competence become more complicated and deepened.

Within the total generalizing stage, the diagnostics of total level of pupils' research competences formation in both groups is carried out.

4. Data Analysis

At the search stating stage, we have studied the level of formation of research competences of pupils according to four allocated groups.

In the process of questioning 96 pupils were included. Pupils' answers were estimated on the following scale: 3 points –high level of competence formation; 2 points – medium level of competence formation; 1 point – low level of competence formation; 0 points – lack of competence.

In order to provide characteristics of research competences formation level, we used the indicators developed by L.G. Smyshlyaeva: high level – stable receiving good results in research activity; average level – situational receiving good results in research activity provided with this competence; low level – frequent (almost constant) essential difficulties of the pupils in research activity provided with this competence (Smyshlyaeva, 2011). Results of diagnostics of participants in both groups are presented in Table 1.

Table 1. Research competences formation levels of the experimental groupo (EG) and control group (CG) of pupils.

Research competences	Research competences formation levels	Production stating stage			
		EG, person.	EG, %	CG, person.	CG, %
1. Competences providing interaction between various subjects of research activity					
Cooperation ability	high	12	25	8	16.67
	medium	16	33.33	16	33.33
	low	**20**	**41.67**	**24**	**50**
Teamwork ability	high	10	20.83	9	18.75
	medium	17	35.42	17	35.42
	low	**21**	43.75	**22**	45.83

2. Competences of the organization and carrying out of the researches					
Ability to perform analysis and synthesis	high	8	16.67	7	14.58
	medium	15	31.25	15	31.25
	low	**25**	**52.08**	**26**	**54.17**
Ability to use methodological concepts and principles	high	6	12.5	8	16.67
	medium	18	37.5	16	33.33
	low	**24**	**50**	**24**	**50**
Ability to use competently various research methods	high	4	8.33	5	10.42
	medium	20	41.67	19	39.58
	low	**24**	**50**	**24**	**50**
Ability to use correctly and methodologically various procedures of research activity	high	12	25	12	25
	medium	18	37.5	16	33.33
	low	**18**	**37.5**	**20**	**41.67**
Critical thinking	high	4	8.33	4	8.33
	medium	18	37.5	17	35.42
	low	**26**	**54.17**	**27**	**56.25**
3. Competences of self-improvement (self-organization and self-government)					
Reflexion	high	8	16.67	4	8.33
	medium	22	45.83	24	50
	low	**18**	**37.5**	**20**	**41.67**
Ability to work independently	high	14	29.17	12	25
	medium	18	37.5	20	41.67
	low	**16**	**33.33**	**16**	**33.33**
Ability to work concentratedly and orderly	high	10	20.83	8	16.67
	medium	24	50	24	50
	low	**14**	**29.17**	**16**	**33.33**
Ability to manage time productively	high	18	37.5	14	29.17
	medium	14	29.17	16	33.33
	low	**16**	**33.33**	**18**	**37.5**
4. Competences of independent search-cognitive activity					
Orientation to research activity	high	8	16.67	4	8.33
	medium	16	33.33	14	29.17
	low	**24**	**50**	**30**	**62.5**
Knowledge management (educational competence – "ability to study")	high	12	25	8	16.67
	medium	20	41.67	24	50
	low	**16**	**33.33**	**16**	**33.33**
Information technologies knowledge	high	24	50	24	50
	medium	14	29.17	16	33.33
	low	**10**	**20.83**	**8**	**16.67**

The results from the Table 1 show that research competences of participants of EG and CG are created mainly at the medium and low levels.

The identification of the initial level of the formation of research competences allowed obtaining data on deficiencies of the formation of research competence of pupils of EG and CG according to the allocated groups.

Deficiencies of the pupils research competence are those research competences, which are insufficiently developed (have low formation level) at pupils according to four allocated groups. Therefore, as insufficiently created (scarce) it is necessary to recognize competences of all four groups having the low level of formation.

So, in "The competences providing interaction between various subjects of research activity" group, it is the competence "Ability to Cooperation" (the share of pupils with competence-based deficiencies makes 41.67% in experimental and 50% in control group), ability to work productively in a team (the share of pupils with competence-based deficiencies makes 43.75% in experimental and 45.83% in control group). In this group of competences over 40% of pupils in both groups with deficiencies of formation of competence are marked out.

In "Competences of the organization and carrying out researches" group deficiencies of research competence of pupils are revealed in competence "Ability to perform analysis and synthesis" (EG – 52.08%, CG – 54.17%), "Ability to use methodological concepts and the principles (EG – 50%, CG – 50%)", "Ability to use various research methods competently" (EG – 50%, CG – 50%), "Ability to carry out correctly and methodologically various procedures of research activity" (EG – 37.5%, CG – 41.67%), "Critical thinking" (EG – 54.17%, CG – 56.25%). It should be noted that in this group of competences the highest percent (over 50% in both groups) of the pupils with deficiencies of competence formation is noted.

In "Competences of self-improvement (Self-organization and Self-government)" group such competences as "Reflexivity" (EG – 37.5%, CG – 41.67%), "Ability to work independently" (EG – 33.33%, CG – 33.33%), "Ability to work concentrated and orderly" (EG – 29.17%, CG – 33.33%), "Ability manage time productively" (EG – 33.33%, CG – 37.5%) are revealed. In this group of competences also over 30% of pupils in both groups with deficiencies of formation of competence are marked out.

In "Competences of independent research cognitive activity" group such competences as "Orientation to research activity" (EG – 50%, CG – 62.5%), "Knowledge management (educational competence – "ability to study")" (EG – 33.33%, CG – 33.33%) are revealed. The exception is made by competence "Information technologies knowledge" where deficiency of formation of competence makes (EG – 20.83%, CG – 16.67%).

Thus, the production stating stage showed that the initial formation level of research competences of pupils of experimental and control groups in general has no considerable differences: levels of formation of research competences both in control and in experimental group are mainly average and low.

Deficiencies of formation of competences in all allocated groups of competences in EG and KG are noted: over 40% of pupils in "The Competences providing interaction between various subjects of research activity" group, over 50% of pupils in "Competences of the organization and carrying out researches" group, over 30% in "Competences of Self-improvement (Self-organization and Self-government)" group, over 50 and 30% in "Competences of independent research cognitive activity" group.

5. Conclusion

For further successful research, activity in higher education institution at graduates of school research competences have to be created. The research competence of pupils of humanitarian subject-oriented classes is formed within pedagogical model. The developed pedagogical model considerably expands ideas of process of formation of research competence of pupils in humanitarian subject-oriented classes of comprehensive school and shows the trajectory of its formation.

The obtained conclusion about the level of formation of research competences and deficiencies of research competence of pupils justifies the introduction of pedagogical model of formation of their research competence and acts as the basis for continuation of purposeful test and experimental work on formation of research competence at pupils.

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