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RESEARCH COMPETENCY AS AN INTEGRATIVE QUALITY OF THE PRIMARY SCHOOLCHILD'S PERSONALITY

The given article examines the development of the research competency of a primary schoolchild as an integrative quality, presents a characteristic of its structure and the indicators of the formedness of research competencies. The formation of the research competency of schoolchildren represents one of the topical directions for implementing primary school education at comprehensive school. Addressing the problem of the formation of research competency in primary schoolchildren at comprehensive school is associated with the changing requirements to the organization and design of the educational process. Research activity is considered as a highly productive way of forming the research competency in primary schoolchildren. According to our research tasks we have analyzed and concretized the concept of the research competency, which is understood as an integrative personal quality of a primary schoolchild expressed in his conscious readiness and ability to perform educational research and includes value, cognitive, activity components.

Keywords: research competency, primary schoolchildren, integrative quality, research activity, structure, components, indicators, development of research competencies.

Introduction

Primary school is the basis of education, since it is the period of the formation and all-round development of the primary schoolchild's personality. It is not as much acquiring ready-made knowledge by schoolchildren that becomes significant,

as their own efforts, initiative, and search activity to discover knowledge. Therefore, strengthened instructions are put forward to the primary education in order to effectively implement the educational process, namely to provide conditions for teaching primary schoolchildren, so that they could master key and subject competencies and demonstrate their abilities in various activities. In this regard, the authors emphasize the need to develop the research competency in primary schoolchildren for further successful learning.

However, an analysis of scientific literature and pedagogical practice show that the existing system of preparation of primary schoolchildren to carry out independent research is insufficient and requires further theoretical apprehension.

This has served as the basis for addressing the problem of developing the research competency of primary schoolchildren in the framework of improving the emerging system of organizing the educational and research activities of primary schoolchildren. The research activity is considered as a highly productive way of forming research competency in primary schoolchildren.

Modern studies, which have already been devoted to the study of the competence-based approach, do not consider the task technology as the basis for preparing a child for an independent research, i.e. for the development of the research competency in primary schoolchildren.

The aim of the research is to experimentally test the effectiveness of the technology for the development of the research competency in primary schoolchildren at comprehensive school.

Materials and methods

Modern researchers Vainikainen Wüstenberg Kupiainen, Hotulainen, Hautamäki [1], Kazarina, Itsenko [2] suggest that the research competency is one of the basic subject competencies that a primary schoolchild should acquire as a result of study. Numerous approaches to defining the meaning of the concept of «research competency» and the methods of its formation in primary schoolchildren have been noted from the analysis of scientific literature. In particular, the given problem is reflected in the studies of Cornford [3], Belyanina [4], Kaskatayeva [5], Khutorskoy [6] and others.

The research competency of a primary schoolchild is considered as an integrative personal quality and is a combination of natural ideas, knowledge, skills and habits, attitudes, value judgments and activity experience, which make it possible to formulate reasonable and conscious judgments about objects and natural phenomena and are manifested in the process of active independent, practical, research, environment-friendly actions of a primary schoolchild.

The research competency consists of the following structural elements: value, cognitive (knowledge), and activity. The structure of the concept of «competency»

includes a set of value orientations, because one of the main tasks of school science education is the formation of children's positive value orientations towards living things. In the opinion of Edwards and Ossipova [7], the attitude of a person to nature as a value in general and natural objects in particular is an important educational aspect.

The cognitive component of the schoolchildren's research competency is subject knowledge. Knowledge in natural science is solid and functional if it is brought into an appropriate system and characterized by integrity. Goodnough [11] and Dammer [12] define knowledge integrity as an internal characteristic of the system acquired at the final stage of its upward development. The formation of systemic knowledge among schoolchildren is the basis for their integrity formation.

The activity component of the schoolchildren's research competency is based on the cognitive and creative activity of children and includes observing natural objects and identifying the cause-and-effect relationships between natural phenomena and human life, the ability to carry out search and research, practical and environmental activities, to draw conclusions and generalizations, to create projects to stimulate cognitive interest, the development of observation, and speech activity.

The criteria of the level of the research competency development are the designated characteristics of each of the components. To assess the general level of the research competency development, three levels of its development are determined: low, medium, high.

Thus, the primary schoolchildren's research competency is an integrative personal quality, characterized by a set of motives, value orientations, knowledge, skills and abilities. The acquisition of a system of knowledge, abilities and skills by schoolchildren is aimed at the formation of their competency, therefore, the research competency and the ways of its formation should be considered as a result of teaching natural science to primary schoolchildren.

Starting our research, we have proceeded from an assumption that purposeful development of the research competency will be implemented in the context of the task approach; the technology for the research competency development will be based on a set of research tasks, through solving which primary schoolchildren master the basics of scientific knowledge and methods of scientific research. We suggest that it is necessary to distinguish three stages in the formation of the research competency in primary schoolchildren at comprehensive school (See Figure 1).

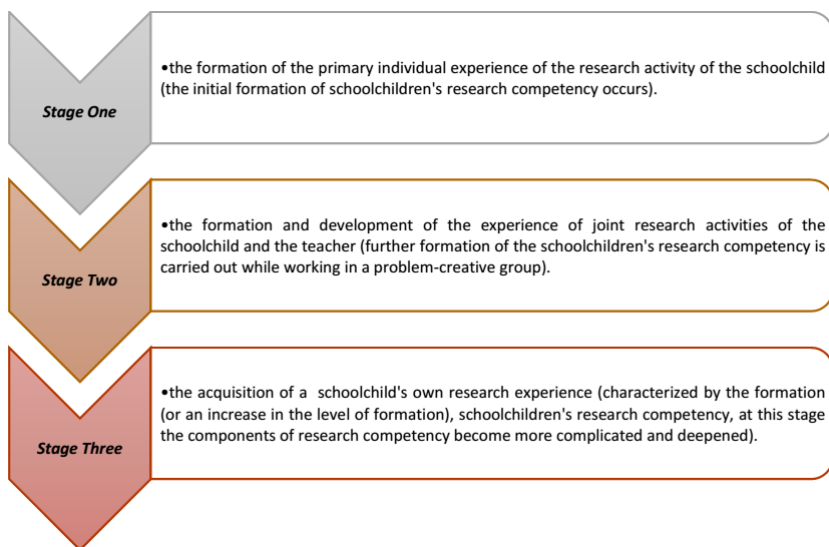


Figure 1 – Scheme of Stages of the Research Competency Formation

The research competency formation among primary schoolchildren at comprehensive school is most effective under conditions of the unity of the organizational forms used.

The following methods were used while conducting the research: observation of the schoolchildren's activities, questionnaire, testing, one-to-one conversations, analysis of the products of research activities of primary schoolchildren.

Results and discussion

The results of the ascertaining experiment reflecting the initial level of the research competency development in primary schoolchildren at comprehensive school are presented in Table 1.

Table 1 – The Level of the Research Competency Development of Primary Schoolchildren before Experimental Training

Level of the research competency development	Experimental group, %	Control group, %
Low	43,7	47,4
Medium	48	49
High	8,6	4,6

The table shows that both experimental and control groups demonstrate low and medium levels of the research competence development. Having based on the analysis of the data obtained, we came to the following conclusions: the respondents feel the need to engage in research activities, but they do not have knowledge and skills sufficient for its implementation and find it difficult to assess the results of the conducted educational research. The implementation of the technology for the research competency development among the research participants was carried out in 3 stages. In order to demonstrate the practical value of the research let us attempt to reveal the technology of the research competency development (See Table 2).

Table 2 – The Contents of the Technology Aimed at Developing the Research Competency

Stages	Period of time	Statement of work
The diagnostic stage	1 week	Questionnaire aimed at detecting the level of the research competency formedness among the research participants Processing and compilation of the results.
The educational and correction stage. Familiarizing schoolchildren with the basics of educational and research activities by solving educational and research problems	2 terms	Formation of a modern environmentally oriented picture of the world in schoolchildren with the help of «The World Around Us» course. The course is aimed at the formation in the schoolchild's mind of a value-colored image of the world around as one's own home and common home for all people and for all living things. On this basis a feeling of belonging to the life of nature and society is developed, personal qualities of a cultured person, such as kindness, tolerance, responsibility, are formed. Organization of independent educational and research activities of schoolchildren: the implementation of group and individual research projects and research work.
The concluding stage: final diagnostics	1 week	The diagnostic block of the technology reflects methodology for tracking the dynamics of the development of research competency in primary schoolchildren.

As one can conclude from the description of the technology contents, the research participants get involved into independent research activity. The given technology allows not only to teach examination and experiment, but also teaches to detect problems, present and defend the research results. Schoolchildren develop their ability to argue, prove their reasoning, to ground the fidelity of their conclusions.

At the end of the experimental training, a final diagnostic test was carried out in both groups. The effectiveness of the formative experiment, conducted with the use of the elaborated technology for developing the research competency in research participants, was tested by comparing the initial and final sections of each group by levels (low, medium, high).

Table 3 shows data reflecting the general level of the development of the research competency and its components among research participants of the experimental and control groups at three development levels in the pre-experimental and post-experimental sections.

Table 3 – Correlation of the Level of the Development of Research Competency and Its Components among the Participants of the Experimental Research before and after Experimental Training

Level of the research competency development	Experimental group		Control group	
	Pre-experimental test results, %	Post-experimental test results, %	Pre-experimental test results, %	Post-experimental test results, %
Low	43,7	3,2	47,4	38,3
Medium	48	39,4	49	49
High	8,6	43,2	4,6	12, 2

Hereby, analysis of the obtained data shows significant changes in the respondents of the experimental group. After purposeful experimental teaching the number of respondents with a high level of the research competency development has increased (by 48.9 %), the number of schoolchildren with a low level of the development has significantly decreased (by 39.7 %). The reliability of the results of the ascertaining and formative experiments was proved by the method of mathematical statistics (method of statistical hypotheses).

Conclusions

The article presents the results of the effectiveness of technology for the research competency development in primary schoolchildren.

According to the tasks of our research, we have analyzed and concretized the concept of the research competency, which can be understood as an integrative personal quality of a primary schoolchild, manifested in their conscious readiness and ability to carry out educational research and includes value, cognitive (knowledge) and activity components.

This study was deliberately limited to a range of issues related to the organization of research activities at comprehensive school. As a prospect for developing the obtained conclusions, it seems necessary to study further the continuity of the organization of research activities in the process of individual development of the

personality of a primary schoolchild in more detail, to develop a support system for the formation of research competencies, to reveal the specific possibilities of the educational potential of research activities on the material of various subjects studied at different school levels. The solution of these problems opens up the prospects for further theoretical and experimental research.

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ЗЕРТТЕУШІЛІК ҚҰЗЫРЕТТІЛІК КІШІ ОҚУШЫЛАРДЫҢ ТҮЛҒАЛЫҚ ИНТЕГРАТИВТІ САПАСЫ РЕТІНДЕ

Мақалада кіші оқушылардың зерттеушілік құзіреттілігін интегративті сапа ретінде дамыту қарастырылады және оның құрылымының сипаттамасы, зерттеушілік құзіреттіліктің қалыптасуы көрсеткіштері көрсетілген. Оқушылардың зерттеушілік құзіреттілігін қалыптастыру жалпы білім беретін мектептердің төменгі сыныптарында бастауыш оқытуды жүзеге асырудың өзекті бағыттарының бірі болып табылады. Жалпы білім беретін мектептегі бастауыш сынып оқушыларының зерттеушілік құзіреттілігін қалыптастыру мәселесіне жүгіну қазіргі заманғы білім берудің оқу үрдісін ұйымдастыруға және жобалауға қойылатын өзгертілген талаптарымен байланысты. Бастауыш сынып оқушыларының зерттеушілік құзіреттілігін қалыптастырудың өнімді әдісі ретінде зерттеу іс-әрекеті қарастырылады. Біздің зерттеуіміздің міндеттеріне сәйкес зерттеушілік құзіреттілік ұғымын оқушылардың интегративті тұлғалық сапасы ретінде сипатталуы, оқу іс-әрекетін орындау қабілеті мен дайындығы, құндылық, танымдық және әрекеттік компонентін құрайды.

Кілтті сөздер: зерттеушілік құзіреттілік, кіші мектеп оқушылары, интегративті сапа, зерттеу әрекеті, компонент құрылымдары, көрсеткіштер, зерттеушілік құзіреттіліктің қалыптасуы.

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ИССЛЕДОВАТЕЛЬСКАЯ КОМПЕТЕНТНОСТЬ КАК ИНТЕГРАТИВНОЕ КАЧЕСТВО ЛИЧНОСТИ МЛАДШЕГО ШКОЛЬНИКА

В данной статье рассматривается развитие исследовательской компетентности младшего школьника как интегративного качества. представлена характеристика ее структуры, приведены показатели сформированности исследовательской компетентности. Одним из актуальных направлений реализации начального обучения в младших классах общеобразовательного учреждения является формирование исследовательской компетентности учащихся. Обращение к проблеме формирования исследовательской компетентности у учащихся начальных классов связано с изменяющимися требованиями обновленного содержания образования в республике к организации учебного процесса в начальной школе. В качестве весьма эффективного способа формирования исследовательской компетентности у младших школьников рассматривается исследовательская деятельность. В соответствии с задачами нашего исследования мы проанализировали и конкретизировали понятие исследовательской компетентности, понимаемое как интегративное личностное качество младшего школьника, проявляющееся в его готовности и способности выполнять учебное исследование и включающее ценностный, когнитивный, деятельностный компоненты.

Ключевые слова: исследовательская компетентность, младшие школьники, интегративное качество, исследовательская деятельность, структура, компоненты, показатели, сформированность исследовательских компетенций.

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