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IMPROVING THE PROCESS OF TEACHING BIOLOGY BASED ON THE INTEGRATION OF NATURAL SCIENCES: A REVIEW OF EXPERIMENTS AND STUDIES

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ABSTRACT

The article explores the issue of improving the process of teaching biology based on the mutual integration of the Natural Sciences. The processes of conducting pedagogical experiment work to test in practice the methodological support developed in this regard are highlighted. In improving the teaching of Science, the development of mental and practical activity skills of students, the importance of Natural Sciences in everyday life are analyzed.

Keywords: STEAM education, integration, PIRLS International Assessment Program, biology, natural sciences, competence.

INTRODUCTION

Scientific research is being carried out in the world aimed at improving the Integrative content of Natural Sciences, forming theoretical and practical competencies in the acquisition of knowledge by students on the basis of modern, world requirements. For students, the need arose to develop an integrative content based on the interaction of Chemistry, Physics, Geography, Medical Sciences and a model aimed at studying the effectiveness of its teaching, to improve existing didactic materials and recommendations. Many scientific studies have been carried out to highlight the pedagogical-psychological content of the concept of STEAM education and interdisciplinary communication. In Particular, Y.A.Komensky [7], D.Locke, M.Pestalossi, K.D.Ushinsky [14] views are based on the fact that educational effectiveness can be achieved through interdisciplinary communication. Well-known Russian psychologist scientist G.S.Kostyuk believes that " when stratification (differentiation) leads to an increase in mental processes and states, integration leads to regularization, subordination, and the placement of its results in a given sequence. By integration, a new psychological process, a new structure of activity is formed. This new structure is generated by synthesis from previously isolated elements" [8;301-b]. Very little research has been carried out by scientists of our country, precisely related to STEAM educational technology. An integrative approach, international assessment programs, research on the issue of integration of Natural Sciences have been carried out, including R.A.Mavlonova, N.X.Rahmonqulova problems of integration of primary education [10], N.Abdullayeva revealed the peculiarities of the use of integrated technology in improving the efficiency of primary education [1], N.Ahmedova presented the problem of an integrative approach to improving the professional training of future teachers [2], M.N.Irisbayeva studied the integration of historical-national and modern pedagogical technologies in educational processes [6]. From the very lower stages of education in our country, the problems of organizing an integrative approach have been studied by a number of researchers. In Particular, B.R.Dzhurayeva pedagogical necessity of integrating the content

of preschool education [5], N.Abdusamatova, on the basis of an integrative approach, carried out effective research on the problems of spiritual and moral education of preschool children [3]. There has also been a number of research on international assessment programs that demonstrate the effectiveness of STEAM education. In Particular, J.While Tolipova developed a methodological support for the STEAM approach to teaching Natural Science [12], E.O.Turdikulov studied the issue of integrating and teaching natural sciences as a separate research problem [13]. M.F.And gurbanova is the formation of educational and cognitive competencies of primary students in the process of independent work (based on the requirements of the PIRLS International Assessment Program) [9], M.Askarova focused on the issue of applying international assessment programs to our national education system by researching the problems of text reading and understanding skills formation (based on the requirements of the PIRLS International Assessment Program) [4] in primary school students.

In the teaching of Natural Sciences, it is advisable to improve the traditional lessons that dominate the educational process through the use of modern pedagogical technologies. With this in mind, ways have been developed to use the collaborative teaching method in small groups of collaborative teaching technology in traditional classes. A convenient aspect of this method is the presentation of a new topic by the teacher first using visual materials according to the plan, and then the organization of independent work of students in cooperation in small groups. Problem topics that take place from the natural sciences curriculum are studied in the form of a problematic lesson "mental attack" using problematic educational technologies. It is also advisable that some subjects are studied in the form of a controversial lesson. 2 varieties of discussion lessons in the educational process: scientific discussion lessons and free thinking lessons are used[15]. The implementation of the reversal in the process of successful use of modern pedagogical technology in the lessons of Natural Sciences in an important conditional educational process, that is, the control and assessment of the acquired knowledge of students, identification of typical errors in their answers and ways to eliminate them, making appropriate changes to lesson developments in accordance with the results obtained, their improvement. Each course is designed to control and evaluate the acquired knowledge of

students twice, through the means of test assignments on the past and new topic. This control provides the basis for the regular improvement of students ' interests in the academic discipline, knowledge, conscious assimilation and strengthening of educational material

The regulatory framework for the introduction of STEAM education was laid down by the decree of the president of the Republic of Uzbekistan No. 5712 of April 29, 2019 “on approval of the concept of development of the public education system of the Republic of Uzbekistan until 2030”.

In conclusion, the STEAM education system is a system Rich in novel methodologies and developments. With this system, students are brought up in sync with technology. Increasing students ' interest in science through the use of innovative methods of teaching Natural Sciences will be directed towards easy mastery of science. Today, everyone is interested in technology of the younger generation. So, in this system, they learn with curiosity.

REFERENCES

1. Abdullayeva N. Disturbing the use of integrated technologies in education: Pedagogical fan. fals. Dokl. (PhD) diss... the abstract. - Manga, 2020. – 58 p.
2. Akhmedova N. On the basis of an integrative endowment, the curriculum of a professional pilot of the Development League: Pedagogical fan. buicha fals. doc. (PhD) diss... the abstract. – Tosh Kent, 2020. – 53 b
3. Abdusamatova N.J. There is a boarding school for spiritual and ethical education of shansiyatlari pedagogues on the basis of the integration ermashuv. Pedagogy of fanlari buich, Doctor of Philosophy (PhD) diss... the abstract. – Namangan, 2021. – 57.
4. Askarova M. Boshlangich The class studied the Uyghur text and traditional Uyghur art (PIRLS based on Talablari's oral guidance). – Namangan, 2020. – 130 b. 5. Dzhurayeva B.R., Umarova H.A., Tojiboeva H.M., Nazirova G.M. Pedagogical system of Taco– milization of the quality and effectiveness of the educational process in preschool educational institutions. - Arrangement: Lesson press, 2017. – 160 b.
6. Irisbaeva M.N. Pedagogicheskie technologii: integrasiya nasionalnix I sovremen Nix tradisiy // aktualnie voprosi sovremennoy pedagogiki: materiali mejdunar. nauch. conf. (G. UFA, June 2011 G.). - Ufa: Leto, 2011. - S. 134–136.
7. Komensky Ya.A. Selected pedagogical works. In 2 volumes. Vol. 1. – Moscow: Pedagogy, 1982. – 656 p.
8. Kostyuk, G.S. Selected psychological works. – Moscow: Pedagogy, 1988. – 301 p.
9. Kurbonova M.F. Boshlangich the class of in-depth study of the PIRLS competencies of the people in accordance with an independent textbook based on talablari formulates tirish: Ped. fan. buicha fals. doc. (PhD) dissertation – Tashkent, 2021. – 134 b.
10. Mavlonova R.A. Rakhmonkulova N.H. Boshlangich amurning integrationlashgan pedago gikasi. - Tashkent: Ilm-zie, 2005. – 195 b. 11. Mirzakarimova M. M. Modern conditions of general educational methodicacorlica yunaltirib ukitish tizimi / / Science and Education. - 2020. - Vol. 1. - No. 4. - pp. 216-222.
12. Tolipova T.K., Djurayeva Sh.E. STEAM approach to organizing natural science classes. - Samarkand: Publishing House” National Center for teaching educators of the Samarkand region to new methodologies", 2021. – 30 b.

13. Turdikulov E.A. Environmental education and education of students. – Toshkent: Shki tuvchi, 1991. – 192 p.
14. Ushinsky K.D. Pedagogical works. In 6 volumes. Vol. 1. – Moscow: Pedagogy, 1988. – 527 p.
15.Tojiboyev, M. U., & Uzoqjonova, M. D. Q. (2023). Farg'ona vodiysida tarqalgan ruderal shifobaxsh o'simliklar, ularning tarqalishi va ahamiyati. *Science and Education*, *4*(8), 101-107.