NOVATEUR PUBLICATIONS
INTERNATIONAL JOURNAL OF INNOVATIONS IN ENGINEERING RESEARCH AND TECHNOLOGY
[IJIERT] ISSN: 2394-3696 Website: ijiert.org
VOLUME 9, ISSUE 11, NOV. -2022

DEVELOPMENT OF SCIENTIFIC POTENTIAL IN PUPILS OF A GENERAL EDUCATIONAL SCHOOL

Toshpulatova D.S.
lecturer at the Department of Biology, KSPI, Uzbekistan

ANNOTATION
The article discusses ways to solve the problem of developing the scientific potential of the student's personality. These paths are in line with the general objectives of student development. The peculiarity of the development of the scientific potential is connected with the solution of the problems of the scientific substantiation of the training course and the criteria for selecting the content for its construction.

Key words: Scientific potential, fundamentals of biology, didactic principles, selection criteria, educational content.

Biology is mainly an experimental science. Until recently, the main theoretical constructions and laws in biology were based mainly on observations of nature and experimental studies. Recently, however, mathematical methods have begun to penetrate much more widely into all branches of biology: molecular biology, genetics, the theory of evolution, and ecology.

Under the scientific potential, we will understand the ability of the student to use the formed scientific baggage to explain and predict the facts that are in the subject area of the theory. “The concept of personality,” as the psychologist Arthur Reber said, “is a term so difficult to define and has such a wide scope of use that a wise author uses it as the title of a chapter and then freely writes about it without assuming any responsibility for definitions, if they are presented in the text".[1] We believe that it is this situation that we use. By the concept of "personality" we will understand a person (student) as a subject of relations and cognitive activity.

Thus, we will talk about the formation of theoretical scientific knowledge among schoolchildren and its application to explain and predict new facts.

From a methodological point of view, the formation of knowledge is a path consisting of three main stages.

Without a formed image, obtaining theoretical knowledge about an object or a set of such objects is impossible due to the non-objectivity of the mental structure being formed.

At the same time, a certain model representation of the object is formed in the student's mind, which is simplified to a model that can be compared with similar models of other objects.

It is known that models can be material and symbolic. They differ in the degree of abstraction, remoteness from reality. In the process of studying the phenomenon, as well as in training, such models are often used, replacing the real object. The substitution of a real object by a material model and the study of this model on the basis of a sign model we call visualization of the second kind. Often, the study of theoretical material in grades 8-9 ends with such formed knowledge.

With the help of sign models, conditional visibility, or visibility of the third kind, is realized.

As you can see, the understanding of the scientific nature of the course as a reflection of true knowledge in it is unconstructive. If we teach biology, then, of course, we cannot introduce facts or theories unknown to science. Therefore, the principle of scientificity in this sense does not provide clear guidelines for the selection of content and the design of courses.

Content prepared in this way, the peculiarity of which is that that each subsequent concept is based on its own signs of content and the signs of the content of already introduced concepts is a necessary condition for the formation of scientific knowledge in schoolchildren - knowledge on the basis of which they can think, as

well as explain and predict facts.

It should be noted that if teaching takes place in such a way that students are only required to reproduce educational material (the 2nd level is formed, according to V.P. Bespalko), [2.] then we will not get any improvement in the scientific potential of students. It is necessary at least to bring students' knowledge to the third level (the ability to apply knowledge in a familiar methodological situation). To do this, first of all, it is necessary to show the methods of applying knowledge themselves. To this end, in the process of explanation, pay attention to the methods of classification, comparison, concretization, etc., regularly offer schoolchildren tasks, during which students would have to perform any actions with the knowledge gained, explain the known and predict the still unknown them facts. This is seen as a way to develop the scientific potential of schoolchildren.

When using information technology, the greatest degree of visibility is provided by the use of not video clips, but computer simulation of biological processes and phenomena.

Lessons with the use of computer systems do not replace the teacher, but, on the contrary, make communication with the student more meaningful, individual and active. Pedagogical software packages make it possible to bring a huge flow of information to students. At the same time, schoolchildren develop visual memory, focus on important objects due to the fragmented presentation of the material.

Among the important goals facing the sphere of education is the adoption of additional measures to create a unified and effective system of work with gifted youth, support their initiatives to realize the talent and potential of the younger generation, publish textbooks and teaching aids, including in electronic form, on the basis of the requirements of advanced foreign experience, as well as to ensure the training of highly demanded specialists capable of adequately representing the interests of our country in the international arena at a high professional level. Of great importance was the work aimed at raising to a qualitatively new level the work of identifying, selecting, training and educating gifted youth, further supporting and stimulating young talents, creating a system for managing and organizing the activities of specialized and creative schools.

LITERATURE

1. Ponamareva I.N., Solomin V.P., Sidelnikova G.D. General methodology for teaching biology / Ed. I. N. Ponomareva. - M .: Publishing house. Center "Academy", 2003. - 272 p.
2. Bespalko V. P. Terms in pedagogical technology in the modern bourgeois school / / sov. Pedagogy 1991 No. 9-st 123-124 c .
3. M.M. Isabayeva. " Innovatsion ta'lim muhitida sog`lom turmush tarzi ko`nikmalarini tarkib toptirish texnologiyasi". Journal. Sovremennoye obrazovaniye . (Uzbekistan), 2016. Nomer 10. Stranitsi 46-51.
4. M.M. Isabayeva. ZP Okazova, Sh.A Kushaliyeva, MS Kelexsayeva “ Razvitiye idei izucheniya ekologii gorodav pedagogicheskix issledovaniyax ”. Material i konferentsii Youth of XXI Century in a Scientific, Cultural and Educational Environment: New Values, Challenges, Perspectives. Data publikatsii 2017. Stranitsi 397-399.
5. Dilrabakhon Toshpulatova. " Opportunities for developing creative activities of students in biological education". Journal NEWS OF THE NATIONAL UNIVERSITY OF UZBEKISTAN, 2022, [1/5] ISSN 2181-7324. Stranitsy 135-136
6. Mashkhura Mukhiddinovna Isabayeva, Dilrabakhon Sobirjonovna Toshpulatova, Sanjarbek Sidiqovich Umarov " Methodology of developing students' independent work skills ". Journal Scientific progress. Number 2. Data publication 2021. Pages 1122-1125
7. Toshpulatova Dilraboxon Sobirhonovna “Development of students' creativity” Jurnal ASIA PACIFIC JOURNAL OF MARKETING & MANAGEMENT REVIEW ISSN: 2319-2836 Impact Factor: 7.603.

No. 06 Data publikatsii 2022/6/19. Stranitsi 18-22

8. Dilrabo Sobirjanovna Toshpulatova "Development of creative connections of students in biology lessons." Journal Education, Science, Career. Publication of data on 12/17/2021. Number 4. Pages 16-19.
9. MM Isaboeva MM, Akhmedova. " Forms of organizing the cognitive activity of students in the process of solving problems and exercises in biology **".** Jurnal Web of Scientist: International Scientific Research Journal . Data publications 2022/7/5 . Number 7. Stranitsi 68-76
10. Ruzimatov RY, Makhkamov GM, Otajonova SR, Tursunova SH ., Industrial development in Kokand, causes of environmental problems (1956-1975) ., 2017., Higher school, 77-78
11. Makhpuza Numanovna Yusupova, Mastura Makhmudovna Akhmedova. Harmonized control measures against pests of fruit trees . Journal JOURNAL AGRO PROCESSING. Data publication 2020. Number 8.
12. KhM Rustamovna Ispolzovanie informatsionno-kommunikatsionnyx tekhnologii na urokax biologii Life Sciences and Agriculture 1 (1), 149
13. ZJ Isomiddinov, Kha Ma'murov., BIODIVERSITY CONSERVATION AND THE SIGNIFICANCE OF PROTECTED AREAS . Nauchnaya discussiya: voprosy mathematic, physics, chemistry, biology, 89-93
14. MM Azimov, KhN Urmanov, SO Usmonov, RYO Ruzimatov ,. TEACH THE MODULE "NUCLEIC ACIDS, DNA AND RNA MOLECULES" FROM THE CASES . Interscience, 54-55
15. SS Artykov, MR Halimova, DS Tashpulatova . HOUSE PLANTS AND ECOLOGY IN THE HOUSE . YOUTH AND SCIENCE: SHAG K USPEHU, 138-140
16. SS ARTYKOV, MR KHALIMOVA, DS TASHPULATOVA ., PROTECTION OF RARE AND DISAPPEARED BIRDS YOUTH AND SCIENCE: A STEP TO SUCCESS, 140-141
17. DS TASHPULATOVA, MR KHALIMOVA ., Rare and endangered plants . Future science -2017, 330-331
18. Zokirjon Isomiddinov., ON ANALYSIS OF CHEMICAL ELEMENTS IN THE SOIL-ONION SYSTEM: https://doi. org/10.47100/conferences. v1i1. 1343., RESEARCH SUPPORT CENTER CONFERENCES. 18.06 /.2021/8/18.
19. Isomiddinov Zokirjon Jaloldinovich., Absolution Capacity of Irrigated Gray-Brown Fulvous Soils., INTERNATIONAL CONFERENCE ON MULTIDISCIPLINARY RESEARCH AND INNOVATIVE TECHNOLOGIES/ 2., 2021/12/4. 267-268.
20. Murodjon Tuychiboevich Isagaliev, Zakirjon Jaloldinovich Isomiddinov., CHANGES MORPHOLOGICAL AND AGROCHEMICAL PROPERTIES OF IRRIGATED GRAY-BROWN SOIL ., Scientific Bulletin of Namangan State University/2., 2020. 28-33 .
21. Murodjon Isagaliev Tuychibaevich, Isomiddinov Zakirjon Jaloldinovich., BIOGEOCHEMISTRY OF THE ONION (Allium cepa L.) IN IRRIGATED SOILS ., Journal of Natural Remedies.,21-12(2), 2021/4/15 ,9-17.
22. Yusupov Ibragim Mirsaydalievich., SCIENTIFIC AND METHODOLOGICAL BASES OF ECOLOGICAL EDUCATION OF SCHOOLCHILDREN., INTERNATIONAL JOURNAL OF SOCIAL SCIENCE & INTERDISCIPLINARY RESEARCH ISSN: 2277-3630 Impact factor: 7.42.11-06/2022/6/19, 102-106.
23. Ibragim Yusupov., METHODS OF DETERMINING THE MINERALIZATION OF THE SOIL., Конференции., 2021/7/5.
24. Yusupov Ibragim Mirsaydaliyevich., HISTORY OF BIOINFORMATICS., INTERNATIONAL JOURNAL OF SOCIAL SCIENCE & INTERDISCIPLINARY RESEARCH ISSN: 2277-3630 Impact factor: 7.429/11-07., 2022/7/1. 72-76.

25. F Kushanov, U Shapulatov, H Urmonov, O Turaev, SE Shermatov, ...Molecular mapping of photoperiodic flowering in cotton., Proceedings of the International Cotton Genome Initiative 2010 Conference. Canberra
26. Ibrokhim Y Abdurakhmonov, Abdusttor Abdukarimov, Alan E Pepper, Alisher A Abdullaev, Fakhriddin Kushanov, Z Yu John, Johnnie N Jenkins, Khurshid Urmonov., Genetic diversity in Gossypium genus., IntechOpen/338., 2012/3/14,313.
27. MJ Madumarov, AE Kuchboev, HK Abdunazarov, OO Amirov Development of the parasite nematode Echinuria uncinata (Nematoda: Acuariidae) in the intermediate host Daphnia magna, in Uzbekistan ., Egyptian Journal of Aquatic Biology & Fisheries 25(6), 2021. , 43-48
2 8. MZH Madumarov MORPHOLOGICAL AND ECOLOGICAL FEATURES OF THE PARASITIC NEMATODE ECHINURIA UNCINATA IN DAFNIAS . The current state of aquatic bioresources, 2021., 159-16
29. OM TURDIEVA, SKH TOZHIBOEVA, SHA TURSUNOVA ON THE PREVENTION OF FATIGUE IN SCHOOLCHILDREN ., FUTURE OF SCIENCE-2015, 422-426
30. MG Mamurovich., The importance of environmental education in the development of ekotourism ., Asian Journal of recerch in social sciences and humanitics 3 (12), 2022/4/4 ., 165-168
31. GM Mahkamov, RY Ruzmatov., About the practice of using excursions in natural lessons ., ACADEMICIA: An International Multidisciplinary Research Journal 11 (3), 2021., 2066-2070.
32. SA Tursunova, ST Mamasoliev.,ALGOFLORA OF TYPICAL GRAY SOILS FOR CONTINUOUS TILLAGE.,Chief Edito.,2016.,181-186
33. M Usmonova., PROFESSIONAL COMPETENCY BUILDING FUTURE BIOLOGY TEACHER. European Journal of Research and Reflection in Educational Sciences Vol 7 (12)
34. SM Umarova., Protecting the Environment of Uzbekistan from Environmental. Emergencies Journal of New Century Innovations 3 (4), 130-135
35. Ibragim Mirsaydalievich Yusupov., Scientific and practical experience in studying ecological problems., Asian Journal of Multidimensional Research/10-5. 2021, 563-568.
36. AM Sadriyevna., Science of Genetics and a Brief History of Its Creation. the Creation of the Laws of Heredity. European Scholar Journal 1 (3), 14-15
37. TT Meliboyev, DA Ibragimova., Technology for Introducing a Healthy Lifestyle Into the Minds of Young People. European Journal of Research Development and Sustainability 2 (2), 56-58
38. S. M. Umarova., The Impact of Mental Disorder on Childrens' Health. EURASIAN JOURNAL OF ACADEMIC RESEARCH 2 (5), 528-531
39. MS Akhmadzhanova , THE USE OF MENTAL MAPS IN TEACHING THE TOPIC OF EPISTASIS . Actual scientific research in contemporary world , 9-11
40. TS Xayrullaevna., THE IMPORTANCE OF USING THE SCIENTIFIC HERITAGE OF IBN SINA IN THE TEACHING OF BIOLOGY IN GENERAL SECONDARY EDUCATION . European Journal of Research and Reflection in Educational Sciences 8 (12), 146
41. AM Mansurovich, AD Gayratovna., Theoretical foundations of the organization of the agency for youth affairs . Asian Journal of Research in Social Sciences and Humanities 12 (4), 510-511
42. AM Gapparov, SF Aripova., Alkaloids from the aerial part and roots of Convolvulus pseudocanthabrica indigenous to Uzbekistan . Chemistry of Natural Compounds 47 (4), 673-674 77.
43. Sevara Khairullayevna Tojiboyeva. " Methods of using Abu Ali ibn Sina's views on nature and human health in biology classes". Journal Sovremennoye obrazovaniye (Uzbekistan) Data publication 2018. Number 12. Stranitsy 42-47
44. Mashkhura Mukhiddinovna Isabayeva, Sarvigul Ravipjonovna Otajonova . " Pedagogical factors of

preparation of future teachers of biology for professional-pedagogical activities " Jurnal ACADEMICIA: An International Multidisciplinary Research Journal. Data publikatsii 2021. Nomer 6. Stranitsi 48-51

45. TSH Ruzievna, "Today's problem of biodegradation is an important problem within the framework of human activity" "Prospects of development of science and education" 4 (www.openscience.uz), 157-160 p.
46. M.M. Isabayeva. “Problemi proforiyentatsionnoy raboti v sovremennoy shkole”. Materiali konferentsii Nauchn y y potentsial molodeji v reshenii zadach modernizatsii Rossii. Data publikatsii 2014. Stranitsi 345-346.
47. Odinakhon Mamirovna Tudiyeva, Dilfuza Ahmadovna Ibragimova . “Use of innovative teaching methods to improve “reproductive health”. Jurnal Scientific Bulletin of Namangan State University. Data publikatsii 2019. Nomer 5. Stranitsi 294-299.
48. Mastura Mahmudovna Ahmedova. “ Zararkunandalarga qarshi foydalanadigan yirtqich entomofaglar”. Jurnal Internauka. Data publications 2018. No. 23-2. Stranitsi 43-44
49. TS Ruzievna ., " Students to the profession direction pedagogical basics " Namangan state university scientific newsletter 8 (Namangan state ...
50. R Inoyatkhon, A Mohiyatkhon., A HEALTHY LIFESTYLE IS A KEY FACTOR IN THE EDUCATION OF DEVELOPED PERSONS. Innovative Technologica: Methodical Research Journal 2 (05), 147-150
51. AM Gapparov, NA Razzakov, SM Abdullabekov, SF Aripova., Alkaloids from Convolvulus lineatus and C. olgae growing in Uzbekistan. Chemistry of Natural Compounds 44 (2), 270-271
52. DSh Yusupova, MM Isabaev a., TEACHER'S ATTITUDE TO INCLUSIVE EDUCATION IN KAZAKHSTAN: CASE OF COMPREHENSIVE SCHOOLS IN ALMATY CITY . Central Asian Economic Review, 76-89
53. SR Toshmatova, SO Usmonov., Biological aspects of human adaptation to environmental conditions . ACADEMICIA: An International Multidisciplinary Research Journal 11(3), 2185…
5 4. IE Ravshanova , STUDENTS PSYCHOLOGICAL HEALTH PROVIDE MAIN CRITERIA YOS Shermatova Internauka , 87-89
5 5. TS Tojiboyeva ., TECHNOLOGY OF CONSTRUCTING THE DOCTRINE OF AVICENNA IN THE LESSONS OF BIOLOGY PEDAGOGICAL SCIENCES 101 (2), 12
56. AE Kuchboev, EK Najmidinov, MA Mukhamediev, RR Karimova, K Yildiz ., Morphological and ecological features of some nematodes of the genus Rhabdochona in marinka obtained from Fergana Valley, Uzbekistan . Journal of Parasitic Diseases 45(4), 2021., 1084-1089
57. XX Abdinazarov, MJ Madumarov, SM Haydarov Zooplankton of Sarikamish Lake (Uzbekistan) ., Open Access Library Journal 6 (3), 2019., 1-8
58. KD Oblaberdieva, GM Makhkamov, Rya Ruzmetov, Kha Abdupattoev ., Education of information and moral culture among modern youth on the Internet ., Collection of conferences of the National Research Center Sociosphere, 2016., 116-118
59. Ravshanova Inoyatkhon Erkinovna., INTERNATIONAL JOURNAL ON INTEGRATED EDUCATION SYS. Natural emergencies 3 (e-ISSN : 26203502), 170-171
60. U Muxayyoxon, U Xilolaxon., KASB BU-HAYOT . Yosh Tadqiqotchi Jurnali 1(5), 327-333
61. S Otajonova., PESTS OF FRUIT ORCHARDS IN THE TERRITORY OF KOKAND: https://doi. org/10.47100/conferences. v1i1. 1318 RESEARCH SUPPORT CENTER CONFERENCES
62. NS Ramazanov, ID Bobayev, UY Yusupova, NK Aliyeva, FR Egamova, Phytoecdysteroids-containing extract from Stachys hissarica plant and its wound-healing activity. Natural product research 31 (5), 593-597

63. TO Mamirovna., PM Komiljonovich, MR Rasuljonovich., HEPATOPROTECTIVE POTENTIAL OF POLYPHENOLS IN CCL4-INDUCED HEPATIC DAMAGE. European science review, 3-8
64. ID Adxamovna, MT Turgunovich., REPRODUCTIVE HEALTH IS THE GUARANTEE OF A HEALTHY FAMILY. Modern Journal of Social Sciences and Humanities 4, 374-377
65. IE Ravshanova, MS Ahmadjanova, YS Shermatova., Role of physiological and psychological characteristics of a person in life safety . European Journal of Research and Reflection in Educational Sciences Vol 8(1)
66. NZH Khodjaeva, HT Boymurodov, XX Abdinazarov , BH Aliyev, . INFLUENCE OF ABIOTIC FACTORS ON THE ARRANGEMENT AND DENSITY OF SPECIES OF THE FAMILY UNIONIDAE, PISIDIDAE, EUGLESIDAE AND CORBICULIDAE IN THE HIGH-MOUNTAIN REGIONS OF THE COASTAL ZONE ... Bulletin of Science and Practice 7 (11), 28-33
67. DSh Vakhobova, DA Ibragimova, YaS Shermatova ., DEVIATION AS A SOCIAL AND PEDAGOGICAL PROBLEM . Study of the innovative potential of society and the formation of directions ...
68. SO Usmonov, AA Mirzarakhmonov ., ELECTORAL SYSTEM OF THE REPUBLIC OF UZBEKISTAN." ELECTION CODE" AND ITS SIGNIFICANCE Scientist of the XXI century, 21-25
69. GM Makhkamov, RYa Ruzmatov ., Pedagogical and psychological problems of teaching children with visual impairments ., 2020., Science and the world 2 (4), 84-86
70. Ibragim Yusupov ., METHODS OF DETERMINING THE MINERALIZATION OF THE SOIL: https: //doi. org/10.47100 conferences. v1i1. 1393 ., RESEARCH SUPPORT CENTER CONFERENCES ., 18.06., 2021/8/18 .
71. Manzura Avazbekovna Askarova, Sarvigul Ravibjonovna Otajonova, Mavrudakhon Bakhodirovna Alimova, Ma'murakhan Djurayevna Irmatova " READING-INTELLIGENCE AS A CAPACITY-BUILDING TOOL". Journal Scientific Bulletin of Namangan State University. Data publication 2020. Number 7. Stranitsi 398-402
72. ZJ Isomiddinov, MT Isagaliev, Gyu Yuldashev., BIOGEOHIMChESKIE OSOBENNOSTI SERO-BURYX POChV I LUKA ., 2022. 22.
73. SX . Tojiboyeva ." Pedagogical aspects and specific features of using Ibn Sino's teaching in biology lessons " Journal Sborniki conference NITS Sotsiosfera. Data publication 2020. Number 8. Pages 64-68
74. AM Gapparov, II Okhunov, SF Aripova, A Nabiev, VU Khuzhaev., Derivatives of the alkaloid convolvine and their pharmacological activity . Chemistry of Natural Compounds 47 (4), 608-611
75. H _ K _ Алиева Distribution of the Pulicario salviifolia, P. gnaphalodes, P. uliginosa in the Fergana Valley . International Journal of Botanical Studies, 1234-1238
76. SM Umarova, X Murodova., DUDUQLANISHNING KELIB CHIQISH SABABLARI OF THE OLD OLISH . Literature, 57-58