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Shaping Students' Creative Talents through the Study of Information Technology

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Abstract: The challenge of increasing students' creativity in the study of information technology is addressed in this article. The importance of the topic is stressed in the introduction. The section on relevant literature reviews studies on the development of creativity conducted by international and Uzbek researchers. The Research Methodology Unit has created a methodology for encouraging students' creativity in information technology courses while also providing accurate information on how to address difficulties.The findings of pedagogical studies to test the application of teaching methods based on theoretical study and practical development were given, as well as the effectiveness of student learning. The third portion discusses how studying information technology might help students enhance their creativity.

Keywords:innovative technologies, educational process, ability, creativity, pedagogical abilities, information technology, information and communication technology, model, experiment.

Introduction.

Teachers must be trained not only in the use of information technology, but also in the transfer and processing of information, as well as in the development of an information culture in pupils, in order to apply innovative technologies in the educational process.

In the last few decades, many countries have expanded their use of English in education in general and teaching in English as a medium of instruction (EMI) in particular (Tsui 2018). In EMI classes, instructors teach academic subjects in English to students whose first language is not English (Chang 2010) [1].

Modern methods and technology have resulted in a massive proliferation of mass media, information sources, and information providers (library, archives, the Internet, and so on), allowing citizens to access and share tremendous volumes of data. As a result, citizens can evaluate the

information's credibility and fully enjoy their right to freedom of expression. As a result, media and information literacy among kids is a serious problem. [2].

In this regard, students in today's information society must possess creative abilities in order to effectively carry out their professional and instructional activities, as well as to adapt actively and dynamically to societal changes.

Self-education, self-development, and self-awareness are more important to the creative person. As a result, creating the required conditions for the training of creative employees in higher education institutions is one of the most essential jobs in the lifelong learning system.

Analysis of the relevant literature. The problem of developing creative abilities has been considered in various scientific fields: in the field of philosophy developed by Russian scientists N.A. Berdyaev, I. Kant, A. Bergson, F. Schelling, M. Scheler, B.S. Gershunsky and others, as well as the ancient scientists Plato and Aristotle; in the field of pedagogy from Russian scientists – K.D. Ushinsky, V.A. Slastenin, V.I. Slobodchikov, N.V. Martishina, M.M. Potashnik, G.M. Kodjaspirova and others. [3].

Representatives of the Russian scientific school for the study of creative phenomena in the context of psychology: D.A.Leontyev, E.P.Ilyin, L.S.Vygotsky, B.G.Ananiev, A.Ya.Ponamarev, D.B.Epifaniya, V.V.Davydov, A.V.Zaporozhets, N.N.Poddyakov and others were engaged.

Representatives of humanistic psychology, in particular, consider the individual as a unique integrated system capable of self-expression, creativity, freedom, value-based behavior, responsibility: K. Rogers, G. Allport, G. Myurray, E. Fromm , R.May et al.

Theory of computerization of education and the use of information and communication technologies (ICT) in teaching, the unique didactic potential of ICT tools S.A. Beshenkov, V.P. Bespalko, A.P. Ershov, A.A. Kuznetsov, M.P. Lanchik, E.S. Polat, I.V. Robert, E.C. Henner, S.V. Panyukova, E.A. Barakhsanova, A.V.Khutorsky, I.G. Semakin, I.G. Zakharova and others [3].

In Uzbekistan Sharipov Sh. S. and Turakulov Kh. A. Development of Creative Abilities of Students, Davlatshin M. G. Formation of Skills in Students, Rustamova M. M., Technology of Formation of Creative Abilities of Students in Labour Education (on the Example of Elementary School Students), E. E. Sultanov dealt with the development of students' creative abilities in the system of continuous education (on the example of fine arts classes), H. Norpulatova dealt with creativity and creative abilities in contemporary pedagogy.[4].

The article raises the problem of developing students' creative abilities in the process of studying information technology.

Research methodology.

All humans have some level of ability, which is not uniform; some people have a high level of ability, while others have a low or medium level of ability.

Every teacher must possess pedagogical abilities in order to be successful. The master of pedagogical skills puts forth a lot of effort and gets wonderful outcomes. Ability emerges and grows as a result of activity.

Knowledge, skills, and abilities are all dependent on a person's abilities, yet these attributes do not relate to knowledge, skills, or abilities[5].

A person's abilities are only an opportunity to gain knowledge and skills. Whether or not this knowledge and skills are acquired depends on many factors. A child's musical ability does not

guarantee that he or she will become a musician. To be a musician, a child must have a special education, perseverance, good health, a musical instrument, notes and other conditions.

Students' creative abilities in the process of information and communication technologies (ICT) training in the context of using innovative methods of intellectual potential accumulation in the sphere of "creative information activity" (provided by the implementation of information processes of information collection, storage, transmission and processing) contribute to actualization. Informing the society, increasing its information capacity, creating resources for future educational information technologies are created as an integrated package.

Analytical studies show that for each component studied (knowledge, technology, information and communication, reflection-axiology) the creativity of future teachers in the field of information technology is underdeveloped. The weakest in this regard was the information and communication and reflexive axiological component. It is noted that students are not sufficiently aware of how to use emerging technologies in their academic and professional work, and that semantic recommendations for ICT development are not sufficiently reflected in the identity and self-identity of future teachers. This result shows a serious contradiction between the broad didactic potential of information and communication technologies in education and the extent to which they are integrated into students' creative information and learning activities.

While studying information technology, we developed a model based on the analysis of research conducted on the formation of the creative abilities of future teachers.

A model designed to develop students' creativity in learning information technology offers a way to address existing learning challenges.

The leading methodological approaches to the model are: systemic, activity-based, competence-based, person-centred and axiological.

An active approach focuses on the organization of creative activities, in which students are given the opportunity to consciously choose educational opportunities and contribute to the achievement of learning goals. The competency-based approach includes the development of an individual's ability to manage information flow, make effective decisions in professional and pedagogical activities, and solve educational and professional tasks using ICT. A person-centered approach to developing students' creative abilities in the study of ICT includes self-esteem, self-development, self-education, creative activity, and belief in socialization; taking into account individual characteristics; to develop the direction of education in the conditions of informatization; to establish an effective creative activity. An axiological approach to the formation of creative abilities determines the professional and personal-value orientation of students in the choice of educational content and how to master it in an informative environment.

Learning in the class is abstract and disconnected from real-life scenarios because schools ignore the interdependence of context, situation and cognition. Therefore, for learning to be meaningful and effective it should take place in authentic contexts. Students learn much better when they are immersed in real scenarios because their interaction with contexts has a profound impact on the way they interpret an activity. More importantly, authentic contexts reflect the way the knowledge will be used in real life. Such contexts can be found outside of school and they are meaningful, interesting, and related to students [6].

An essential part of the model is presented in terms of the development process (cognitive, technological, information and communication, as well as reflective axiological) of the components of students' creative abilities.

The cognitive component provides indicators: knowledge of the basics of computer science and their creative interpretation in the process of studying information technology; knowledge of hardware, software, and information technology techniques. The technological component includes: the ability to use information technology creatively; variability in the use of Internet technology. The information and communication component is based on the following indicators: development of e-learning resources, use of evolving information technology to update the content of the educational process.

Indicators of the reflexive-axiological component are: independent analysis of the results of students' information activities, important semantic instructions in the process of mastering information technology.

Information technology tools and methods for improving pedagogical practice and professional fulfilment. All of this helps to shape students ’target information skills.

The external and internal factors of the model ensure the normal functioning and implementation of the pedagogical conditions of the learning process, which confirms the learning hypothesis and provides the teacher with a high level of creativity when learning information technology.

Analysis and results.

The pedagogical direction "5110900 - Pedagogy and Psychology" was chosen for the pedagogical experiment. In the 2019 curriculum of the "Pedagogy and Psychology" direction, 28 hours are allocated for lectures on "Information Technology" and 40 hours for practical classes.

According to the State Educational Standard of Higher Education, the subject program "Information Technology in Education" taught in the field of "Pedagogy and Psychology" requires in pedagogical activities: information, information processing technologies, computer hardware and software, systematic and applications, computer networks, and Internet technology.

There are 3 academic groups in the 1st year of study at the Faculty of Pedagogy "5110900 - Pedagogy and Psychology". There are 3 academic groups in the 1st year of study at the Faculty of Pedagogy "5110900 - Pedagogy and Psychology".

On the subject of “Information Technology” In the 1st year, 28 hours for lectures and 40 hours for practical classes, in the 1st semester, 14 hours for lectures and 22 hours for practical classes, In the 2nd semester, 14 hours are allocated for lectures and 18 hours for practical classes.

In the 1st semester of the 2019-2020 academic year, the lessons in the PP102 group, selected as an experimental group, were organized based on the model.

The overall results of the midterm examinations on the subject of "Information Technology" gave the following results.

Table 1

General results of the midterm examinations in the subject of "Information Technology".

Nameofscience	Hour		Controlgroup PP101				Hour		Experimentalgroup PP102			
	Lecture	Practice	Course, group	Numberof studendts	Mid-term control	Finalcontrol	lecture	practise	Course, group	Number of students	mid-term control	Final control
Information Technology	16	26	101	31	76%		16	26	102	31	82%	

When analyzing the results of the pedagogical experiments, methods for calculating rating controls of mathematical-statistical methods were used. The pilot project was based on the "Regulation on the System of Monitoring and Assessment of Students' Knowledge in Higher Education Institutions" of the Ministry of Higher and Secondary Specialized Education of the Republic of Uzbekistan.

The results of the control in the subject "Information Technology" showed that the performance of the students in the experimental group increased by 6-7% compared to the control group.

We can see this in the diagram below.

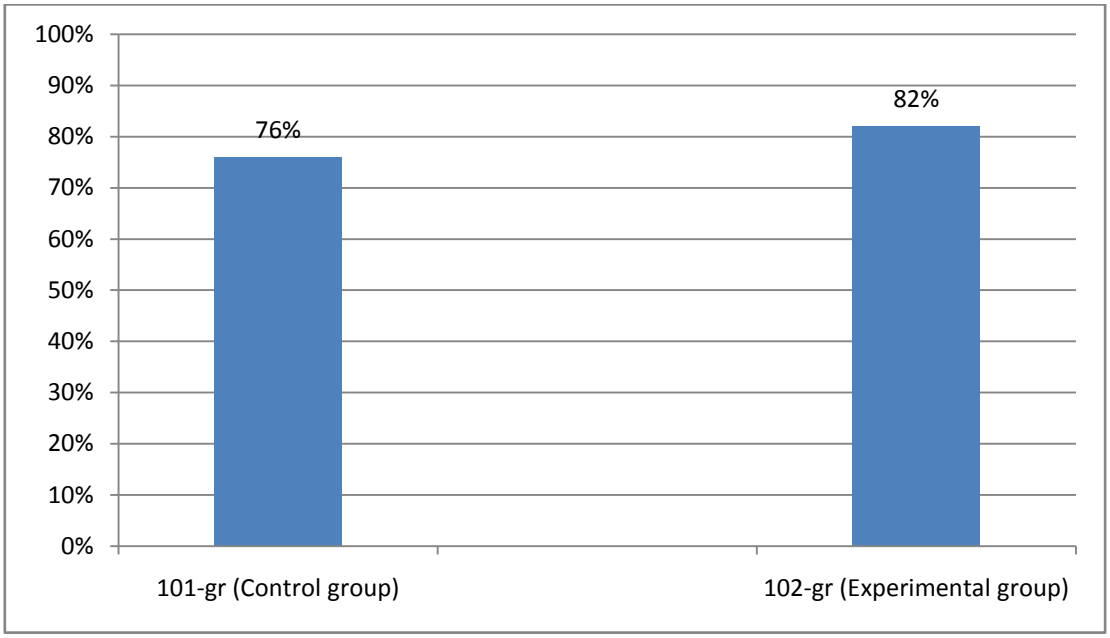

Figure 1. The results of the experiments on the subject of "Information Technology".

Conclusions and suggestions.

Based on the analysis of the research, a mechanism (model) for the formation of creative abilities of future teachers in the process of studying information technology has been developed.

In the study of information technology, the model for developing students' creativity is built on existing learning objectives.

The course on the development of students' creativity in the subject of information technology not only provided an opportunity to deepen students' understanding of the learning material, but also solved the problem of interconnectedness of lectures and seminars.

The results of the control in the subject "Information Technology" showed that the progress of students in the experimental group increased by 6-7% compared to the control group.

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