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**THE ESSENCE OF THE CONCEPT “INFORMATION AND
COMMUNICATION TECHNOLOGIES” AND THE VALIDITY OF THEIR
USE IN LEARNING MATHEMATICS**

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The Essence of the Concept “Information and Communication Technologies” and the Validity of Their Use in Learning Mathematics

Through the analysis of scientific and technical literature of the essence of the concept “information and communication technologies”, to justify their appropriateness of the use on the lessons of mathematics in secondary school. The concept of “information and communication technologies” (ICT) is not clear. General ICT can be defined as a collection of various technological tools and resources used to support the process of communication and creation, dissemination, storage and information management, when these technologies are referring to computers, the Internet, radio and television, and telephone. Usually used typification of ICT on technical grounds – software and hardware. ICT is one of the learning tools that facilitate the implementation of educational ideas. Any learning tool has a specific teaching opportunities according to the educational objectives determine its didactic function. According to most researchers, to harmoniously combine and complement traditional and modern information and communication medium of instruction. Defined the concept of ICT can be argued that the use of ICT in teaching mathematics in schools provides an opportunity to study it to a new level. It should be emphasized that the incorporation of ICT in the learning process should be based on their pedagogically grounded conjunction with traditional teaching and learning systems with the necessary pedagogical justification of the appropriateness of use that is education at the present stage is to meet new needs and yet maintain their traditional strong side.

Key words: information and communication technologies, education system, education.

The Law of Ukraine “On the Fundamentals of the Information Society in Ukraine in 2007 – 2015” one of the most important features of our time says transition developed countries of the post-industrial to an information society, which necessitates the introduction of information and communication technologies (ICT) in

all spheres of life activities” [5]. One of the main conditions for the success of this transition is to provide training, education, training people to work in the information society [5]. As a characteristic feature of modern education, part of a single educational space educational systems of foreign countries and an integral part of the educational process of secondary schools have information and communication technologies.

In the Ukraine’s entry into the stage of development of information society in research pays special attention to the use of ICT in the educational space, namely the introduction of ICT in the educational process in schools (N. Apatova, R. Gurevich, M. Zhaldak, V. Zabolotniy, M. Kademiya, N. Kirilenko, S. Kizim, O. Smith, L. Shevchenko), the use of educational opportunities on the Internet (L. Breskina, R. Gurevich, M. Kademiya, N. Morse, A. Spivakovky).

Through the analysis of the scientific and technical literature reveal the essence of the concept of “information and communication technology” to determine the feasibility of their use in mathematics lessons in secondary school.

Powerful stream of new information, advertising, application of computer technology in television, distribution gaming consoles, electronic toys and computers give great attention to the education of the child and his perception of the world. Varies significantly and the nature of his favorite practice – the game are changing and his favorite characters and admiration. Earlier information on any subject child could get for different channels: a textbook, reference books, teacher lecture, lesson outline.

But today, given the current realities, the teacher should make the learning process of new methods of presenting information. The question arises, why it is needed. The brain child, is set to gain knowledge in the form of entertainment programs on television, it is easier to accept a proposed class information using media tools.

It has long been proven that each student differently develops new knowledge. Previously, teachers were hard to find an individual approach to each student. Now,

with the use of computer networks and online tools, schools were able to provide new information so as to meet the individual needs of each student.

It is necessary to teach every child in a short period of time to develop, transform and use in the practice of massive amounts of information. It is important to organize the learning process so that the child is active, with interest and enthusiasm for working class, saw the fruits of their labor, and could assess them.

Assist teachers in dealing with this complex task can combine traditional learning methods and information technologies, including computer. Because computer use in the classroom can make learning mobile, strictly differentiated and individual.

The concept of “information and communication technologies” (ICT) is not clear. General ICT can be defined as a collection of various technological tools and resources used to support the process of communication and creation, dissemination, storage and information management. When these technologies are referring to computers, the Internet, radio and television, and telephone V. Zakharov meant by ICT “a particular way of working with the information: it is a body of knowledge about the ways and means of working with information resources, and ways and means of collecting, processing and transmitting information to gain new information about the object being studied” [6, p. 22].

Usually used typification of ICT on technical grounds – software and hardware.

B. Traynev [8] of ICT relates a set of methods and software and hardware tools that combine the technological chain that provides collection, processing, storage and display of information in order to reduce the complexity of its use, and to increase its reliability and efficiency.

A. Dziubenko ICT training defines as a combination of software, technical, computer and communication equipment, as well as ways and innovative methods of their use for high efficiency and informatization of the educational process [3].

ICT is one of the learning tools that facilitate the implementation of educational ideas. Any learning tool has a specific teaching opportunities according to the educational objectives determine its didactic function.

According to most researchers, to harmoniously combine and complement traditional and modern information and communication medium of instruction.

Thus, O. Gudyreva described ICT as “... a new dimension in the area of education. This required an assistant teacher, a tool for reaching the educational goals, but not a panacea for all traditional. Your computer is not in any way replace live communication with the teacher, the impact of individual teachers. The computer – a tool that improves the teacher, but first teacher must work hard to master the instrument, it is necessary to carry out creative selection of material for lessons, review teaching methods in terms of the use of ICT in the classroom” [2, p. 27].

Thus, defined the concept of ICT can be argued that the use of ICT in teaching mathematics in schools provides an opportunity to study it to a new level. It should be emphasized that the incorporation of ICT in the learning process should be based on their pedagogically grounded conjunction with traditional teaching and learning systems with the necessary pedagogical justification of the appropriateness of using education at the present stage is to meet new needs and yet maintain their traditional strong side.

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Ходирєва Ю. Г.

Сутність поняття „інформаційно-комунікаційні технології” та доцільність їх використання на уроках математики

Через аналіз науково-методичної літератури розкрити сутність поняття “інформаційно-комунікаційні технології”, визначено доцільність їх використання на уроках математики у середній загальноосвітній школі. Поняття “інформаційно-комунікаційні технології” (ІКТ) не є однозначним. Узагалі ІКТ можна визначити як сукупність різноманітних технологічних інструментів і ресурсів, які використовуються для забезпечення процесу комунікації та створення, поширення, збереження та управління інформацією. Під цими технологіями мають на увазі комп’ютери, мережа Інтернет, радіо та телепередачі, а також телефонний зв’язок. Визначив поняття інформаційно-комунікаційних технологій можна стверджувати, що використання ІКТ у навчанні математики в школі надає можливість вивчати її на якісно новому рівні. Але слід підкреслити, що вбудовування ІКТ у навчальний процес має базуватися на їх педагогічно обґрунтованому поєднанні з традиційними методичними системами навчання та при обов’язковому обґрунтуванні педагогічної доцільності такого використання, тобто освіта на сучасному етапі має задовольняти нові потреби й водночас зберігати свої сильні традиційні сторони.

Ключові слова: інформаційно-комунікаційні технології, система навчання, освіта.

Ходырева Ю. Г.

Сущность понятия “информационно-коммуникационные технологии” и обоснованность их использования на уроках математики

Через анализ научно-методической литературы раскрыта сущность понятия “информационно-коммуникационные технологии”, обоснована их целесообразность использования на уроках математики в средней школе. Понятие “информационно-коммуникационные технологии” (ИКТ) не является однозначным. Вообще ИКТ можно определить как совокупность различных технологических инструментов и ресурсов, которые используются для обеспечения процесса коммуникации и создания, распространения, сохранения и управления информацией. Под этими технологиями подразумевают компьютеры, сеть Интернет, радио и телепередачи, а также телефонная связь. Определив понятие информационно-коммуникационных технологий можно утверждать, что использование ИКТ в обучении математике в школе предоставляет возможность изучать ее на качественно новом уровне. Но следует подчеркнуть, что встраивание ИКТ в учебный процесс должен базироваться на их педагогически обоснованном сочетании с традиционными методическими системами обучения и при обязательном обосновании педагогической целесообразности такого использования, то есть образование на современном этапе должно удовлетворять новые потребности и одновременно сохранять свои сильные традиционные стороны.

Ключевые слова: информационно-коммуникационные технологии, система обучения, образование.

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