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EXPERIENCE OF ICT IMPLEMENTATION IN PRIMARY CURRICULUM IN UKRAINE AND THE UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND

Abstract. The study was formulated within the context of an increasing recognition of ICT as curriculum priorities in primary schools of many European countries. The implementation of ICT-centered curriculum is a step towards realizing the goals of the new Law of Ukraine "On Education" (2017), National Strategy for the Development of Education in Ukraine until 2021, European strategic programme "Education and Training 2020". Actuality of approaches to ICT implementation in present-day primary schools is caused by the substantial development of digital technologies and requirement of digital literacy for people's work, social, and personal lives. The unique opportunity of primary education as a large sub-sector of any education system is to contribute to the renewal of societies through education of the young. The paper aims to study implementation of Computer science into national standard of primary education in Ukraine and the UK. In the recent years, many European countries have seen some changes of the content one of which relates to the area of computer science education that resulted in implementing an ambitious new curriculum in this subject. The author gives a comparative analysis of primary ICT within national standards in term of the Computer science development from the initial stage to present day situation. The comparative analysis specifies areas of similarities (aims, objectives, approaches to implementation, priorities of developing digital skills, teaching hours) and differences (programme topics, characterization of learning outcomes) in the study of ICT covering the subject content, expected learning results and general principles of ICT in education, as well as examples of ICT implementation.

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The paper is also focused at discussing the role of the ICT curriculum in modern-day primary classroom; advantages and disadvantages of ICT integration at primary stage.
Much attention is paid to how it is integrated into daily learning modes to allow and encourage active learning. In primary education there are two main models of ICT implementation into curriculum, these are: ICT integrated across the curriculum; ICT (or Informatics, Computer Science and Computing) as a discrete subject within national standard.

Keywords: ICT-centered curriculum; digital skills; primary school; national standard; comparative analysis.

1. INTRODUCTION

Statement of the problem. The ability to use information and communication technology (ICT) in order to find, analyse, present and assess ideas and information in an ICT-rich world is becoming an increasingly important learning competency. The implementation of ICT-centered curriculum is a step towards realizing the goals of the new Law of Ukraine "On Education" (2017) [1], National Strategy for the Development of Education in Ukraine until 2021, European strategic programme "Education and Training 2020".

Increased emphasis on ICT literacy in national standards is considered as one of the priorities in primary school development in many European countries. According to European Qualifications Framework for lifelong learning, digital competence is defined as one of 8 key competencies, which everyone needs to develop to increase his or her employability. ICT is important in primary education because it enables pupils to search for the information they need and to organize the materials they have found.

Actuality of approaches to ICT implementation in present-day primary schools is caused by the substantial development of digital technologies and requirement of digital literacy for people's work, social, and personal lives.

It actualizes comparative studies in order to outline achievements of European education and to define opportunities of their use in an innovative and efficient way in Ukrainian education. The experience of the United Kingdom of Great Britain and Northern Ireland in modernisation of computer science education in primary school is of great interest. Since 2014 England has seen some changes one of which relates to the area of computer science education that resulted in implementing an ambitious new curriculum in Computing.

Analysis of recent research and publications. In the last two decades, ICT has been recognized and is going to be recognized as the important tool to foster learning and teaching all around the world. The issue of ICT establishment as a learning course is outlined in the studies of Ukrainian researchers V. Bykov [2], M. Zheldak [3]. The appearance of the term "computer technologies" caused numerous discussions on the role of informatics and information technologies in education.

In their researches, educators M. Shishkina, O. Spirin, Y. Zaporozhchenko [4] put forward the idea to use computers as tools to solve tasks, and as a result, one can observe a wide spread development of software. According to their opinion, development of a national standard that improves pupils' skills for working with information and prepares them to professional activities within information community has become a priority object of education.

The experience of the first steps of computers implementation into the learning process is described by American researcher B. Hunter in his book "My pupils are working on computers", that had a significant influence on the process of computerization of education in Ukraine in 1980s [5, p. 13].

The purpose of the pilot course on computer science was for pupils to obtain computer literacy, in other words, to develop knowledge and skills of a hands-on working experience in using computer [5, p. 13].

There is a strong tendency in the work of some educators to implement computational technologies into education. American scientist S. Papert provides evidence to support the claim that children can learn to use computers in a masterful way, and that learning to use computers can change the way they learn everything else [6, p. 28]. The researcher gives an account of computer as an educational tool. In the Logo Programming Language, designed by S. Papert and his colleagues as a tool for learning, powerful ideas from physics or mathematics or linguistics are embedded in a way that permits the player to learn them in a natural fashion, similar to how a child learns to speak. The computer's "holding power," so feared by critics, becomes a useful educational tool.

The implementation of ICT literacy education as a compulsory part of primary and secondary national standard is a significant characteristic of school systems in countries around the world. Information technology literacy is considered the 21st century form of literacy, in which researching and communicating information are as important as reading and writing. Ukrainian researcher O. Ovcharuk argues that emphasizing ICT competence as a discrete component of general modern people's literacy is caused by computer technology implementation into all areas of people's activities [7].

The purpose of the article is to make a comparative analysis of primary ICT within national standards in terms of its implementation in Ukraine and the UK. The comparative analysis specifies areas of similarity and differences in the study of ICT covering the historical background, the aims and general principles of ICT in education, models of ICT implementation according to the following standards:

- normative documents defined primary education in Ukraine and the UK in terms of ICT development as a subject within the national standards;

- the aims and objectives of ICT in Ukraine and the United Kingdom;

- the main approaches to ICT implementations in national standards of above-mentioned countries.

2. THE THEORETICAL BACKGROUNDS

The theoretical backgrounds of the article are:

– methodological concepts of comparative pedagogy which define the algorithm of the systems analysis, comparison and evaluation in the context of economic, political and social processes (N. Lavrichenko, O. Lokshyna, L. Puchovska, A. Sbrueva, O. Zabolotna) [8];

– basic concepts of using computer technologies in learning; and informatization of education (V. Bykov, M. Zhaldak) [2], [3];

– innovative ideas as for education reforming in terms of informatization of educational content; raising the information and communication competence in Ukrainian and European educational systems A. Gurzhiy, O. Ovcharuk [9], O. Spirin [10].

3. METHODS

The following steps can be comprised in the study:

– working out the algorithm for the analysis of ICT integration into the national standard in Ukraine and the UK;

– collection of information from Curriculum Orders and other relevant documentation issued by the Curriculum Agencies (Ministry of Education and Science in Ukraine, UNESCO,

DFES – Department of Education and Skills, CCEA, Learning and Teaching Scotland and SQA – Scottish Qualification Authority);

– review of the subject development and its place within national standards of primary education in Ukraine and the UK;

– designing comparative tables showing ICT in national standards of Ukraine and England, Wales;

– analysis of the data and preparation of the comparative study;

– outlining areas of similarities and differences in ICT implementation in Ukraine and the UK.

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4. THE RESULTS AND DISCUSSION

The content of the primary education (its aims, skills and knowledge pupils should be equipped with) are defined by the national standards of each country. The research has shown that in Ukraine this function is fulfilled by the State Standard of primary education; in England and Wales – by the National Curriculum, in Northern Ireland – by Curriculum of Northern Ireland, and in Scotland – by "Curriculum for Excellence". Computer science as a learning discipline refers to different terms within curriculums: in Ukraine, it is "Informatics", in England – "Computing" (since 2014), in Wales, Northern Ireland and Scotland – ICT.

Speaking about the historical background, it is necessary to outline some significant stages of the ICT development in national standards. As a comprehensive subject Informatics appeared in the state standard of Ukraine in 1985 [11, p. 169–176]. Prior to 1990, computers were used only in secondary schools, and in the early 1990s they were introduced in primary schools. The necessity of Information and Communication Technology (ICT) within schools became recognized in the late 1990s in the UK. And in Ukraine in the period of 1991-1995 the discipline "Informatics" was implemented in programmes of study for Grades 7–9.

In the early 2000s ICT (UK) and Informatics (Ukraine) were recognised as a subject. within the national standards, which meant that pupils learnt to use computers and applied the basics of word processing and spreadsheet software. In both countries, much attention was paid to developing pupils' practical skills. Implementation of the subject within curriculum caused great changes in teaching techniques of almost all subjects.

In comparison with Ukraine where "Informatics" was taught as a discrete subject, in the UK ICT gradually started to integrate into wide range of subjects within the curriculum. ICT implementation in the primary classroom was seen in the light of such curriculum subjects as mathematics, languages, social studies, arts, life skills. It should be emphasised that the use of

ICT in the primary classroom was integrated in any activity, in the teaching and learning of any aspect of the National Curriculum [12].

In 2014 in the UK primary national curriculum a new subject "Computing" has replaced ICT. Computing is concerned with how computers and computer systems work, and how they are designed and programmed [13, p. 4]. The government introduced a computer science curriculum that includes the basics of algorithms, coding and programming, as, it is argued, will support and train children's logical thinking skills so that children will benefit across all subjects.

Since the launch of the State Standard of Primary School in 2018 in Ukraine there have been significant changes in the use of ICT in education. Support for the use of ICT by the Ministry of Education and Science in Ukraine has resulted in the increased availability of ICT in present day schools, as well as the increased usage of ICT as an effective tool for teaching and learning.

It should be noted that the Ukrainian New State Standard is focused on achieving basic competencies by pupils, more than on obtaining certain knowledge. It is based on forming the competencies essential for successful self-fulfilment in the community [14].

The integrated use of Information and Communication Technology in teaching and learning significantly expand teachers' capabilities.

In Ukraine State Standard of primary education is presented in 9 learning areas comprising 10 subjects; in England – 7 curriculum areas and 12 subjects.

The defined countries have different phases within primary education. In Ukraine, for example, a new primary school consists of two cycles: the first cycle of adaptation and games (Grades 1–2) and the second cycle of mainstream (Grades 3–4) [14, p. 21].

In England, five-to seven-year-olds are in primary Key Stage 1 (KS 1), as for Key Stage 2 (KS2), in the curriculum papers it is presented as that for Lower Key Stage 2, ages 7–9 and Upper Key Stage 2, ages 9–11. In Wales, the Foundation Phase curriculum (ages 3 to 7) covers the pre-school stage and the first two years of compulsory primary education [15, p. 7]. In Northern Ireland, primary curriculum includes Foundation Stage which covers Primary 1 (P1) and Primary 2 (P2) (ages 4–6). Key Stage 1 covers P3, P4 (ages 6–7), and Key Stage 2 covers P5, P6 and P7 (ages 8–11) [16].

Curriculum for Excellence in Scotland is unique in comprising primary age ranges from 3 to 18, but even here national standard for the primary years consists of early, first and second blocks.

In primary level education, not all countries teach ICT as a discrete subject, but it is a tool to be used as appropriate throughout the curriculum.

Ukraine introduced the study of Informatics for pupils at the first cycle in Grade 2. In England, pupils start learning computing at KS1 age year groups 5–7. Across the national curriculum in England computing is specified as a foundation subject.

The method to group and name the subjects vary across the education system of Ukraine and all parts of the UK. Ukraine teaches primary ICT across Informatics learning areas, which focuses on forming information and communication competence and other key competencies, developing the ability to solve problems using digital devices, information and communication technologies and critical thinking in order to develop creative self-expression, personal and social well-being, skills of safety and ethics in the information society [17].

In England since 2014 computing is taught from ages 5–16 with a strong focus on computational thinking [18]. In primary school it is taught under curriculum area "Social, environmental and scientific education" in addition to history, geography, science and design and technology across the primary school. This approach is close to Wales where this subject

is taught in the form of "ICT". The remaining parts of the UK integrate the study of ICT into "technology" field (Scotland) and "science and technology" (Northern Ireland).

It should be noted that the "Social, environmental and scientific" field is the curriculum area which is constantly changing and upgrading in the formulation of the curriculum. For example, Northern Ireland introduced the similar area of learning which is called "The world around us".

The idea to prepare pupils to ICT-rich world significantly influences the defining the purpose and aims of ICT in educational systems of both countries. According to the New State Standard of primary school in Ukraine the main purpose of the study is introducing pupils to information and communication technologies and forming their key competencies to realise their creative potential and their socialisation in society [19].

In England, Programme of Study for computing covers three main aspects: computer science, information technology and digital literacy. These aspects are closely connected in the purpose of computing study, which aims at equipping pupils to use computational thinking and creativity in their life. In computer science pupils are taught the basis of digital system work, how to use obtained knowledge in practice creating computer programmes. Computing also ensures that pupils learn to develop their ideas through information and communication technology at the level, which suits a digital world [13, p. 5].

Like all European educational projects, the content of primary education in Ukraine is competence-based. Much attention in new Ukrainian State Standard is paid to forming pupils' competence that is considered as dynamic combination of knowledge, practical skills and habits, ways of thinking [20].

It is similar to the UK, where most curriculum subjects define particular skills, aspects of knowledge and development that are important for pupils' educational needs. Partly they comprise academic skills necessary for navigating the curriculum successfully and personal qualities and attitude. The term "competence" is not used in education system of the United Kingdom, though basic skills are considered as its main components. In addition to obtaining knowledge, pupils at all stages of learning should use it in practice and in this way forming their practical skills.

Table 1 highlights the main components of Informatics Programmes of Study in Ukraine (2018) [19] and Computing Programmes of Study in England (2014) [21, p. 178].

Table 1.

The main components of the Programme of Study for Informatics (Ukraine) and Computing (England)

Ukraine	***England***
Informatics	***Computing***
Purpose of study	
To familiarize pupils with information and communication technologies and to form children's key competencies to realize their creative potential and socialization in society.	To teach pupils the principles of information and computation, how digital systems work and how to put this knowledge to use through programming. Building on this knowledge and understanding
Aims	
Programmes aims at forming pupils' skills to use information and communication technologies; basic skills to work with varies devices to learn other subjects and to solve practical communicative problems;	Programmes of study for computing aims to ensure that all pupils can: understand and apply the fundamental principles and concepts of computer science (abstraction, logic, algorithms

developing initial ideas about computer data, its characteristics, data processing, storage and transmission; forming skills to use data with learning purpose; algorithmic, logic and critical thinking.	and data representation); analyse problems in computational terms, and have repeated practical experience of writing computer programs; evaluate and apply information technology; they are responsible, competent, confident and creative users of information and communication technology.
Key and subject ICT-competence	**Computing key skills**
Subject skills demonstrate pupils' ability to realize own information needs; find the sources of information and search it; to carry out the analysis and evaluation of information quality; to organize and structurize the information; to use information effectively; create and exchange the information	Knowledge, Skills and Understanding breakdown for Computing Algorithms and Programs Data Retrieving and Organising Communicating

In both countries, educational aims to turn for succeeding in lifelong learning, developing knowledge and skills of every pupil and preparing them for work in society. It proves the idea of J. W. Meyer about the global character of the curriculum at the primary level, where national or local features seem less important. According to J. W. Meyer, the similarity of different national systems of education proves the idea that school curriculum reflects a global culture of the whole world independently of national policies [22, p. 86].

Speaking about competences, along with other 8 key competences (based on the Recommendations of the European Parliament for lifelong learning, 2006), ICT and digital competencies were recognised as essential combination of personal qualities necessary successful professional activities. According to Ukrainian New State Standard of primary education information and communication competence implies the mastery of the basis of digital literacy for personal development and communication, is capable of safer and ethical use of information and communication competence in teaching and other life situations [23]. Within the learning "Informatics" key competences embrace subject ICT-competence, cross-curriculum, communicative and social competences. In the context of learning in primary school, subject ICT-competence turns to pupils' ability to perceive, exchange and use the data in a certain real-life or learning situation. Activity dimension of subject ICT competence is connected with the following skills: technological (to perceive information from teachers, textbooks and other resources), telecommunication (to understand their own information needs and their fulfilling with the help of searching); algorithmic and logic (how to create algorithms according to sample) [19].

In the education system of the UK, the term "competence" is unengaged but in addition to the basic knowledge at all stages of primary school the pupils have to use the obtained knowledge in practice forming in this way practical skills. Knowledge, skills and understanding breakdown for computing cover algorithms and programs (can pupils create a simple series of instructions?); data retrieving and organising (can pupils capture images with a camera?); communicating (do pupils recognize what an email address looks like?) [24]. Computing is incorporated into the planning of all subjects and is planned with particular emphasis on differentiation. The Computing curriculum will make cross-curricular links wherever possible. Skills taught in Computing will then be transfered into other curriculum areas.

In Ukraine the Programme is designed in accordance with linear and concentric principles. The use of linear principle involves gradual increase in level of tasks complexity based on the previous material. The Concentric principle covers the repetition of the learning content in every grade of primary school [19].

The Programme also provides the sequence of topics that allows to combine the knowledge and skills gained through studying the previous topic with newly obtained ones. The teacher can change the order of topics to learn, learning hours for every topic, revising and self-studies adopting to the level of a certain group of pupils.

In all parts of the UK the programme of study is only recommendation not a scheme to follow, it is the school that determines which content to cover, in what order and what resources to use [13, p. 14]. For example, in Rivington Primary School examples of unit titles include: an introduction to modelling; using a word bank; the information around us; representing information graphically: pictograms; understanding instructions and making things happen [25].

Implementation of the competence-based learning approach is to include clear definitions of learning outcomes. In Ukraine, expected outcomes are formulated in terms of general expected outcomes, which refer to the level of skills development at the end of each cycle; and specific expected outcomes that reflect the core knowledge gained by every pupil. The latter provides specific statement of what should they know and are able to do [20].

There is no common format for determining learning outcomes, that is a very important component of state standard of primary education. In England, attainment target set out the knowledge, skills and understanding the pupils are expected to have at the end of each stages. They are outlined in 8 level descriptions. By the end of each key stage, pupils are expected to know, apply and understand the matters, skills and processes specified in the relevant programme of study.

Attached please find the table that presents informatics subject content and learning outcomes in Ukraine and expected learning outcomes in England.

Table 2.

ICT subject content in Ukraine and England

Subject content		
Ukraine		**England**
Content	**State requirements to pupils' learning outcomes**	**Attainment targets**
Information The concept of information. The content and objectives. Man's perception of information. Its main characteristics. Types of information perception: visual. Private and public information. Protection of private information. Safety of	A pupil has an idea about information; understands how it is perceived; understands how a human being perceives information; distinguishes private and public information; a pupil gives example*s*; follows the instructions; uses the terms in practice.	**Key Stage 1.** Pupils should be taught to: understand what algorithms are, how they are implemented; create and debug simple programs; use logical reasoning to predict the behaviour of simple programs; use technology purposefully to create, organise, store, manipulate and retrieve digital content; recognise common uses of information technology beyond school; use technology safely and respectfully, keeping personal

information use. Working with information devices.		information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies
Subject time allocation (per year)		
Grade 2 – 35 hours Grade 3 – 35 hours Grade 4 – 35 hours		KS1 – 33 hours KS 2 – 33 hours KS 3 – 33 hours

The time allocated to Informatics in Ukraine and Computing in England includes a lesson or a session of 45 minutes and from at least 30 to 50 minutes per week relatively. In England, there are no statutory time allocation for national curriculum subjects. In Rivington Primary school, for example, each class is timetabled to use the Computing suite at least 2 times a week. There is practice of single-sex group lessons: when a teacher notes different interests and involvement in lessons among boys and girls [26].

In England, every school is free to decide how school curriculum will be organized. National Curriculum is used to give a support in designing school curriculum. For example, the Computing in St. Mary's school covers a wide range of disciplines from basic word processing to creating simple computer games and apps. In each classroom there is an Interactive whiteboard, and children have access to class laptops. ICT is taught discretely, with opportunities for integrating those skills into all subjects across the curriculum [27]. It is common for all primary schools to have well-equipped classes with Interactive Whiteboards, CD ROMs, Roamer/Bee Bots, Internet, Laptops, iPads, Digital cameras, Digital video cameras, Walkie Talkies, Visualisers to support the teaching of Computing as a discrete subject or across the curriculum [25].

Computer science is not taught as a distinct subject in all parts of the UK. Under the Northern Ireland Curriculum, ICT is considered to be a powerful tool used throughout the curriculum. Computing needs to be from 3 to 5% of teaching time.

Discussion. There is a number of reasons for learning Informatics (ICT, Computing) in school. The use of ICT across the state standard helps pupils to gain necessary skills, knowledge and attitudes encouraging them to use this efficient tool in the future. Despite all disadvantages and merits of ICT integration into the classroom that have been proved, difficulties or challenges connected with its use still exist. The questions of great concern for Ukrainian educators include: the necessity of ICT implementation into primary school; lack of methodical support, new textbooks that meet the requirements of a new programme; lack of the oriented programme of study for primary school [28].

Some topics of the programme are difficult for pupils of primary classes (algorithm) and they are more or less similar to those pupils who study in Grade 6–9 [29].

More disadvantages refer to harmful influence of computers on pupils' physical and mental health. Pupils of primary school cannot spend a lot of time in front of the computers according to sanitary and hygienic norms.

Training of ICT teachers for working in primary school is the task of high priority in both countries. Lack of experience in ICT teaching in the conditions of the educational reform focusing on promoting the information communication technology (ICT) tools. Sometimes teachers don't understand clearly the goals of ICT integration in primary school.

The analysis of studies carried out by European researchers highlights the challenges facing teachers in school as follows: low level of their own Computing subject knowledge,

and in particular that of computer science and programming; pupils' lack of content understanding; technical problems in school; differentiation to meet different levels of ability; pupils' willingness or ability of problem solving [30]. They also express concern about low teacher expectations and a lack of clear goals for ICT use in schools [31, p. 112].

5. CONCLUSIONS AND PROSPECTS FOR FURTHER RESEARCH

In both countries, computer science greatly contributions to the teaching of other subjects, it makes the process of learning and teaching effective. As it was mentioned above, as a subject within the national standard of primary education it has gone the way from the initial stage when it was seen primarily as a tool for supporting teaching and learning throughout the national standard, to the stage when it is considered as a subject with its own rights. Primary education is the initial and important sub-sector of any education system which offers the unique opportunity to contribute to the transformation of societies through education of the young.

And now it may be taught in primary schools as a distinct subject (Ukraine, England, Wales) or be integrated into other learning areas (Northern Ireland, Scotland) of the national standard of primary education.

Many European countries agree that school (including its primary level) is to develop pupils' digital skills, digital literacy as the most essential 21st century skills.

The areas of similarities include implementation of computer science into primary education content as a discrete subject; clear orientation of primary education content for development of pupils' ICT literacy skills that in condition of informatisation of society get practical values; strong emphasis in the content on forming pupils' skills to create and store digital information, safe using of the Internet, creating their own computer programmes (England).

In both countries the aim of the subject is to support pupils in developing understanding and skills in using ICT, to encourage them to use their knowledge and skills in solving practical problems, to help them understand where and how they can use their knowledge effectively in the society; to use the subject potential to facilitate learning and teaching throughout the national standard.

As for the programme topics, schools in England are more free to design their own programme of study, to choose topics and to allocate teaching hours for the subject. The subject is called differently: in Ukraine, it is Informatics, in England – Computing.

To support the development of pupils' computational thinking, there are different strategies of implementation, with varied values and priorities. In a wide range of approaches two main models can be distinguished in primary education adopted in different combinations. These are: ICT integrated across the curriculum; ICT (or Informatics, Computer Science and Computing), as a discrete subject within national standard. As a discrete subject it aims at forming and developing pupils' knowledge, skills and habits necessary for lifelong learning and for adaptation to rapidly changing world successful life in the future. The use of computer science in all subjects of the national standard facilitates learning and teaching process and enables using computer science as an effective tool.

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ДОСВІД ВПРОВАДЖЕННЯ ІКТ У ЗМІСТ ПОЧАТКОВОЇ ОСВІТИ В УКРАЇНІ І СПОЛУЧЕНОМУ КОРОЛІВСТВІ ВЕЛИКОЇ БРИТАНІЇ ТА ПІВНІЧНОЇ ІРЛАНДІЇ

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Анотація. Тематику статті сформульовано з урахуванням тенденції визнання ролі і значення ІКТ як пріоритетного напряму розвитку початкової освіти багатьох Європейських країн. Впровадження ІКТ-центрованого змісту освіти є кроком до реалізації ключових завдань та стратегічних напрямів розвитку державної освітньої політики, окреслених у Національній стратегії розвитку освіти в Україні на період до 2021 року, Європейській освітній програмі «Освіта та професійна підготовка 2020». Актуальність визначення ефективних підходів щодо впровадження ІКТ у сучасній початковій школі зумовлена стрімким розширенням сфер вживання цифрових технологій у сучасному суспільстві і необхідністю формування в учнів цифрової грамотності для подальшого успішного професійного, соціального і особистого зростання. Унікальна можливість початкової освіти як важливої ланки всієї освітньої системи полягає у внеску, який вона робить у напрямі оновлення суспільства через навчання молодого покоління. Стаття спрямована на вивчення досвіду впровадження інформаційних технологій до державного стандарту початкової освіти в Україні та Сполученому Королівстві. Зроблено порівняльний аналіз упровадження ІКТ у зміст початкової освіти двох країн у розрізі етапів становлення: від перших спроб ввести предмет до національного стандарту до необхідності інтегрувати ІКТ-знання до змісту інших дисциплін. Порівняльний аналіз охоплює окреслення спільних і відмінних характеристик процесу впровадження ІКТ до змісту початкової освіти; визначення мети і завдань навчального предмету; опис змістового наповнення; визначення очікуваних навчальних результатів. Наведено приклади підходів до впровадження ІКТ до змісту освіти у деяких початкових школах Сполученого Королівства.
Визначено роль ІКТ навичок у сучасному суспільстві; схарактеризовано переваги і перспективи використання ІКТ знань учнями і вчителями; окреслено проблеми щодо доцільності впровадження ІКТ до змісту початкової освіти.

Ключові слова: ІКТ орієнтований зміст освіти; цифрові навички; початкова школа; державний стандарт; порівняльний аналіз.

ОПЫТ ВНЕДРЕНИЯ ИКТ В СОДЕРЖАНИЕ НАЧАЛЬНОГО ОБРАЗОВАНИЯ В УКРАИНЕ И ОБЪЕДИНЕННОМ КОРОЛЕВСТВЕ ВЕЛИКОБРИТАНИИ И СЕВЕРНОЙ ИРЛАНДИИ

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Аннотация. Тема статьи сформулирована с учетом тенденции возрастания роли и значения ИКТ как приоритетного направления развития начального образования во многих странах Европы. Введение ИКТ ориентированного содержания образования является шагом к реализации ключевых заданий и стратегических направлений развития государственной образовательной политики, сформулированные в Национальной стратегии развития образования в Украине на период до 2021 года, Европейской образовательной программе «Образование и профессиональная подготовка 2020». Актуальность определения эффективных подходов внедрения ИКТ в современной начальной школе обусловлена быстрым развитием цифровых технологий и необходимостью формирования у школьников цифровой грамотности для дальнейшего успешного профессионального, социального и личного роста. Уникальная возможность начальной школы как важного этапа всей школьной системы состоит в том, что она вносит вклад в процесс модернизации общества через обучение молодого поколения.
Статья направлена на изучение практики внедрения информационных технологий в национальный стандарт начального образования Украины и Объединённого Королевства. Проведен сравнительный анализ внедрения ИКТ в содержание образования двух стран в разрезе этапов становления от первых попыток ввести предмет до национального стандарта до необходимости интегрировать ИКТ знания в содержание других дисциплин. Сравнительный анализ включает в себя описание общих и отличительных особенностей процесса внедрения ИКТ в содержание образования; определение целей и задач учебной дисциплины; содержания предмета; результатов учебной деятельности. В статье приведены примеры подходов к введению ИКТ в содержание образования в некоторых начальных школах Объединенного Королевства.
Обозначена роль ИКТ умений в современном обществе; охарактеризованы преимущества и перспективы использования ИКТ учениками и учителями; выявлены проблемы целесообразности внедрения ИКТ в образовательную среду начальной школы.

Ключевые слова: ІКТ ориентированное содержание образования; начальная школа; цифровые умения; государственный образовательный стандарт; сравнительный анализ.

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