

TRENDS AND INNOVATIONS IN SCHOOL EDUCATION OF THE UK

The author highlights major trends and innovations in school education of the UK. The author describes certain factors shaping the trends in education, in particular there are three factors that affect UK education. Different official documents and reports of the UK have been analyzed and major outcome have been written. The Department of Education of the UK created the conditions that the impact of the development of the major trends and innovations on education standards is varied, reflecting different levels of investment, access to high quality broadband and teacher support. Innovative education and training is focused on the formation of a person's social and adaptive readiness through the development of creativity, different forms of thinking, the ability to cooperate. Specific features of innovative education are openness to the future, the ability to predict on the basis of constant reassessment of values, orientation to constructive actions in new situations, which is ensured through the development and implementation of educational innovations. The main trends and innovations in the UK described in the article are: crowdsourced classes, cultural immersion, environmental impact, appreciating the arts, human intelligence, digital responsibility, life skills and workforce preparation, innovating pedagogy, computational thinking, student-led learning, collaborative classrooms, connecting guardians and schools, emerging technologies. STEM education has also been described as one of the main trends in school education of the countries in the UK. The author describes STEM subjects as a central plank in developing the UK's skills base. STEM in education begins with the early development of mathematical and scientific ideas in pre school education which are built upon in primary and post primary education. The pupils in the post primary sector all study mathematics to age 16 while they may choose from a variety of inter-related science/technology courses providing pupils not only with knowledge of the subjects, but also develop investigative and problem-solving skills

and an understanding of their application in the real world and their impact upon society.

Key words: trends, school education, innovations, UK, development.

Тищенко М. М.

ТЕНДЕНЦІЇ ТА ІННОВАЦІЇ У ШКІЛЬНІЙ ОСВІТІ ОБ'ЄДНАНОГО КОРОЛІВСТВА

Автор висвітлює основні тенденції та нововведення у шкільній освіті Великобританії. Автор описує певні фактори, що формують тенденції в освіті, зокрема, є три фактори, які впливають на освіту у Великобританії. Були проаналізовані різні офіційні документи та звіти Великобританії та були написані основні результати. Департамент освіти Великобританії створив умови, що вплив розвитку основних тенденцій та інновацій на стандарти освіти різноманітний, що відображає різні рівні інвестицій, доступ до високоякісної широкосмугової та підтримки вчителів. Інноваційна освіта та навчання орієнтовані на формування соціальної та адаптаційної готовності людини через розвиток творчості, різних форм мислення, вміння співпрацювати. Специфічними рисами інноваційної освіти є відкритість до майбутнього, здатність прогнозувати на основі постійної переоцінки цінностей, орієнтація на конструктивні дії в нових ситуаціях, що забезпечується шляхом розробки та впровадження освітніх інновацій. Основними тенденціями та інноваціями у Великобританії, описаними у статті, є: масові заняття, культурне занурення, вплив на навколишнє середовище, оцінювання мистецтва, інтелекту людини, цифрової відповідальності, життєвих навичок та підготовки робочої сили, інноваційна педагогіка, обчислювальне мислення, навчання під керівництвом студентів тощо. спільні аудиторії, що з'єднують опікунів та школи, нові технології. Освіта STEM також описується як одна з основних тенденцій шкільної освіти країн Великобританії. Автор також описує STEM предмети як центральну основу розвитку навичок у Великобританії. STEM в освіті

починається з раннього розвитку математичних та наукових ідей у дошкільній освіті, які ґрунтуються на початковій та після початкової освіти. Учні в первинному секторі вивчають математику до 16 років, тоді як вони можуть вибирати з різних взаємозалежних курсів з науки / техніки, що дають учням не лише знання предметів, а й розвивають навички розслідування та вирішення проблем та розуміння їх застосування у реальному світі та їх вплив на суспільство.

Ключові слова: тенденції, шкільна освіта, інновації, Великобританія, розвиток.

Problem statement. At the present stage, improving the quality of Ukraine's secondary education system has been a top priority. To achieve this goal, the content of education, forms and methods of organizing the educational process, improvement of the monitoring of the results are being updated. The appearance of new trends and innovations in education is caused by the fast development in digital and technological spheres and the need to develop necessary skills and resilience.

Innovation in education is the process of creation, implementation and extension in the educational practice of new ideas, tools, pedagogical and management technologies, as a result of which achievement indicators (levels) of structural components of education are increased and a transition to the system of a higher level quality is made. Significant positive experience in the development of innovations in schools has been accumulated in developed countries and in the UK in particular.

Analysis of recent research and publications. The development of innovative processes in the UK secondary education system has been the subject of research for domestic scientists for several decades, driven by the status of the country as one of the leading and highly developed countries in the world. The study of domestic studies showed that the subject of analysis of scientists has become a wide range of aspects of the British education system. The subject of our scientific research involves the analysis of research in the field of pedagogical innovation

(L. Vashchenko, L. Vozniuk, L. Danilenko, I. Dychkivska, V. Zagvyazinsky, M. Karamushka, O. Kiyashko, O. Kozlova, V. Kremen, M. Lazarev, V. Lutai, I. Matiyuk, S. Nikolaenko, V. Palamarchuk, O. Pehota, N. Poghibna, L. Podimova, O. Popova, V. Ryabenko, G. Sazonenko, A. Zbrueva, G. Selevko, V. Slastonin, L. Sohan, V. Khiminets. , V. Zikin and others), and in the field of British pedagogical science (N. Voskresenskaya, K. Garashchuk, M. Guriy, I. Ivanyuk, O. Lokshina, G. Marchenko, O. Matvienko, O. Milyutina, etc.).

Formulation of the purposes of the article. The author has a goal to highlight and describe major trends and innovations in education of the UK

Main material. Education in the beginning of the XXI century is characterized by the activation of trends aimed at innovative development, which will improve the efficiency of the educational process. The beginning of the XXI century is characterized by the emergence of studies that characterize the features of the development of innovative processes in specific subject areas. Authors of dissertation researches, monographs, separate articles focus their attention on problems of civic education; environmental education; labor training; multicultural and language education.

Innovative education and training is focused on the formation of a person's social and adaptive readiness through the development of creativity, different forms of thinking, the ability to cooperate. Specific features of innovative education are openness to the future, the ability to predict on the basis of constant reassessment of values, orientation to constructive actions in new situations, which is ensured through the development and implementation of educational innovations.

Cooperation in innovation in the context of the development of a network society is particularly relevant. There is an urgent need for public and public support for new organizational forms of dissemination of innovative experiences, one of which is innovations in schools of the UK [4].

Education in the UK is highly valued – among the 36 countries that make up the OECD, the UK spends the highest proportion (6.6%) of its gross domestic product on education. Technology is increasingly seen as a tool that can be harnessed

to improve education, and The Department for Education's 2019 report: 'Realising the potential of technology in education', actively promotes the value of technology in the classroom. In 2018, 25% more educators and school leaders selected front-of-class technology as a key growth area in the next 1-3 years compared to 2017.

As a British scientist, J. Lowry states: "In a knowledge economy, remembering facts and procedures is not enough to succeed. Educated workers need a conceptual understanding of complex concepts and the ability to work creatively with them to generate new ideas, new theories, new products and new knowledge. They must be able to critically evaluate what they read, be able to express themselves clearly orally and in writing, and understand scientific and mathematical thinking, they need to acquire integrated and useful knowledge, not a set of facts. They need to be able to take responsibility for the future all life "(J. Lowry, 2015)[5]

As it is mentioned in the official document by the House of Parliament "Trends in compulsory education", there are certain factors shaping the trends in education. It outlines three factors that affect UK education. These are: population growth (population growth is raising demand for school places in urban areas. This is due a rise in the birth rate, which is primarily caused by an increase in the number of children born to non-UK-born women (accounting for 78% of the increase in the number of births). A study by the University of Bristol found that higher levels of educational attainment in London schools may be explained by the larger proportion of pupils of relatively recent immigrants.), levels of inequality (in most OECD countries over the past 30 years, the gap between the income of the rich and poor has been rising. In the UK, different measures of inequality reveal varying patterns) and the changing labour market. Population growth is raising demand for school places in urban areas. This is due a rise in the birth rate, which is primarily caused by an increase in the number of children born to non-UK-born women⁸⁶ (accounting for 78% of the increase in the number of births). A study by the University of Bristol found that higher levels of educational attainment in London schools may be explained by the larger proportion of pupils of relatively recent immigrants [2].

There is a trend in the English school system towards greater autonomy and diversity. In Wales there is a trend towards greater accountability. School autonomy refers to the level of control given to schools from local authorities (and central government in the case of curriculum). Individual schools can be given control over their curriculum, expenditure and resourcing decisions. Education systems can also contain a number of different types of school categorised by ownership, source of funding and responsibility for admissions. Schools in England have more autonomy from local authorities than in other UK nations, and there is a greater diversity of types of school. The English system now includes maintained schools, sponsored academies, converter academies, grammar schools, independent schools and free schools. There is high diversity in terms of timetabling, delivery and beliefs about the purpose of education and learning. In comparison, Wales has a stronger centralised education system with local authorities retaining a high degree of control. In recent years the Welsh system has seen a focus on accountability in order to improve school standards, and the introduction of four regional Consortia to oversee the local authorities. There are also differences in curriculum and assessment between the UK nations, which has led to debate about what a good education system looks like and discussions about the purpose of education [1].

Concerns have been raised about the extent that schools are providing children with the right knowledge and skills for the labour market of the future. This has led to changes in curriculum in both England and Scotland. The English National Curriculum is the first country in the world to have mandatory computer programming at primary and secondary level (in maintained schools). The UK has a long-standing problem with skills: one in five children leave school without basic maths and literacy. Basic literacy and numeracy are necessary to develop digital skills and increasing numbers of jobs now require a high level of digital competency.

As such, basic skills will be essential in maintaining the UK's competitive advantage which depends on its capability to produce relatively high value added goods and services [11].

In the UK report, Rachel Wolf, founder of the National Schools Network, says: “You cannot introduce tech successfully by disrupting the relationship between the teacher and the student. The introduction of tech will have to take place in the context of the fundamental human interaction in the classroom.”[6]

Three of the key trends explored in further detail in the UK version of the report are: digital responsibility (99% of teachers think online safety should be part of the curriculum); life skills and workforce preparation (91% of CEOs globally say that they need to strengthen their organization’s soft skills to sit alongside digital skills); innovating pedagogy (88% of teachers say that educational technology enables pedagogical innovation and improves educational quality) [7].

A British scientist Chris Kreinczes said: “Education is evolving at a faster pace than any other period in recent history. Because of this, it’s more important than ever to understand how and where it’s changing so that educators and schools can properly support students.”[10]

Rachel Wolf, Founding Partner of Public First and Founder of the National Schools Network states: “If we’re in the era of automation, it’s even more important that we prioritize people’s EQ not their IQ, that we make them adaptable.” The research “future of the classroom” suggests that higher levels of emotional intelligence are linked to better leadership and the ability to cope with pressure. In fact, these qualities are being prized more highly than the traditional measures of success – 53% of UK teachers believe soft skills are more important than academic qualifications to students’ success, and 72% believe their school should increase the teaching of them. 15 Students agree – 88% of young people report that life skills are “as important” or “more important” than academic qualifications. It’s also a way of future-proofing students for the unknown. As technology can be used to automate aspects of jobs - the Office for National Statistics expects 1.5 million jobs in England to be automated in the future - more value will be placed on human skills such as empathy and creativity [8].

Nord Anglia Education chief executive, Andrew Fitzmaurice distinguish five main trends in the school education. They are: 1) Crowdsourced classes (what is

taught in classrooms will be increasingly decided by pupils. They'll direct the exploration of subjects, drawing on topical issues affecting the world they live in, to inform questions and the development of discussions. The role of teaching becomes much more about coaching and helping pupils to not only build their knowledge, but to also make better sense of what they are learning. Lesson planning should be kept flexible and focused on garnering student input at the very beginning), 2) Cultural immersion, (There will be a growing rebellion against the many benefits of Google and the internet, as pupils crave real, first-hand experiences. It's widely acknowledged that younger generations value experiences and this is impacting their learning behaviours. They don't want to just read about something on the internet or see it on a screen, they want to actually get out, see things for themselves and talk with experts. More teaching needs to happen outside of the classroom and shouldn't be considered extracurricular. Activities such as visiting museums, libraries, parks, and places of worship and historic importance, are a key part of learning.), 3) Environmental impact (Sustainability ranks highly on political and corporate agendas. It's become much more of a public talking point, and of increasing concern for students that want to protect the world they're growing into. They're looking to schools and the education system to help them understand how and why everyday choices can have a lasting impact on the environment, and what they can do to be more responsible and sustainable. Education needs to better embrace international efforts, such as the UN's 2030 Agenda for Sustainable Development, to satisfy students' demand for a holistic understanding of addressing global issues such as climate change.), 4) Appreciating the arts (The arts have long lived in the shadow of STEM, with greater emphasis placed on high academic performance in these subjects. As Artificial Intelligence (AI) continues to evolve at pace, and machine learning processes larger volumes of data, skills – including emotional intelligence, creative problem solving, teamwork and self-confidence – will become increasingly important. These skills are fundamentally subjective and cannot be as effectively replicated by technology; they're all acquired through an understanding of the arts. This will see a shift in how society values the arts in education as people look at how

they can complement, and not compete with, AI.), 5) Human intelligence (Recent advances in technology have, rightly, seen a growing trend of AI-focused teaching and learning. However, this has often centred on the capabilities of AI. There's a growing realisation that workplaces of the future will be a hybrid of machine and human intelligence, and that education needs to prepare for this by also understanding the changing dynamic between people and technology. Teaching and learning are evolving to consider the role of human intelligence in a digital, automated world, and looking at human intelligence being defined by more than knowledge.)[14]

STEM is the acronym used in England for science, technology, engineering and mathematics. STEM subjects are a central plank in developing the UK's skills base. STEM in education begins with the early development of mathematical and scientific ideas in pre school education which are built upon in primary and post primary education. The pupils in the post primary sector all study mathematics to age 16 while they may choose from a variety of inter-related science/technology courses. Throughout, pupils are provided not only with knowledge of the subjects, but also develop investigative and problem-solving skills and an understanding of their application in the real world and their impact upon society. From post-16 through to tertiary level, young people are offered a wide portfolio of qualifications to meet their personal aspirations. STEM in society is concerned with equipping the public with sufficient knowledge and understanding of issues relating to STEM so that they are enabled to make informed judgments on the many technological challenges facing them. It is important that they understand the contribution of STEM to everyday life and to the local economy through a vibrant private sector which offers rewarding career opportunities for young people. Society needs to be well informed of the possible uses of new technologies and the accompanying ethical and moral issues. STEM in the economy is concerned with having sufficient people with the skills and knowledge required to grow STEM based businesses, leading to future economic growth and prosperity [13].

STEM skills are important across different career paths and other aspects of life. At the specialist end, the supply of high-skilled STEM graduates contributes to the competitiveness and productivity of the economy; but at other levels, elements of STEM skills are needed to take part in many aspects of life and society. STEM-related knowledge and skills are necessary across nearly all areas of employment and are crucial in many sectors. Schools and colleges have an important role in the STEM skills supply chain, both in nurturing enough students to the necessary attainment level (and with the necessary enthusiasm) to continue to study these subjects beyond school and college, and in developing a range of abilities in STEM-related areas more generally for all young people [13].

With the current STEM job shortage costing the UK an average £1.5bn per year, STEM has taken its place as a must-have skill for today's students. As a result, classrooms and libraries are looking to new ways to incorporate STEM learning in 2020 [13].

Conclusion. Having analysed different sources of information we can identify eight key education trends in the UK. They are: digital responsibility, life skills and workforce preparation, innovating pedagogy, computational thinking, student-led learning, collaborative classrooms, connecting guardians and schools, emerging technologies. All innovations are ultimately aimed at changing the qualitative and / or quantitative factors of learning outcomes: qualitative: better knowledge, more effective skills, important competencies, character development, values, dispositions, effective employment and work efficiency; and quantitative: improved learning options such as test results, amount of information learned, number of skills or competencies developed, number of college admissions, measured student performance, retention, exhaustion, graduation rate, number of students per class, cost and time efficiency.

References:

1. ARD Data & Analytics Team Data Bytes February «Global trends in primary, secondary and post-secondary educational attainment». 2016. URL:

- <http://www.cambridgeassessment.org.uk/Images/global-trends-in-attainment.pdf>
2. Baily, T. Henry, L. McBride, J. Puckett. Report “Unleashing the potential of technology in education”. Boston Consulting Group. 2011. 45 p.
 3. Christopher Belfield, Luke Sibieta. Long-Run Trends in School Spending in England. IFS Report R115, April 2016. 59 p.
 4. David Morris (2012) ICT and educational policy in the UK. *RESEARCH IN TEACHER EDUCATION*. P. 3-8. October, 2012. URL: <http://roar.uel.ac.uk/1724/1/Article%20David%20Morris%20p3-8.pdf>
 5. Education Reform at the Open Directory Project. URL: www.dmor.org/Society/Issues/Education/Education_Reform
 6. Entry, Encyclopedia of the Social& Cultural Foundations of Education, EF Provenro, Jr.(Ed.). 2008 Thousand Oaks.CA: Sage. URL: www.macalester.edu/~Kurthschai/pdf//%20EVCYReform.pdf
 7. Future of the Classroom. URL: http://services.google.com/fh/files/misc/uk_future_of_the_classroom_country_report.pdf
 8. ICT and Computer Science in UK Schools. URL: file:///C:/Users/User/Downloads/ICT_and_CS_joint_statement.pdf
 9. Luckin R., Bligh B., Manches A., Ainsworth S., Crook C. & Noss R. Decoding learning. The proof, promise and potential of digital education. London, NESTA, 2016. 138 p.
 10. Newmann F., King B., Young S. Professional development that addresses school capacity: Lessons from urban elementary schools. *Papers of Annual Meeting of the American Educational Research Association*. New Orleans (USA): AERA, 2013. 35 p.
 11. Serdyukov P. "Innovation in education: what works, what doesn't, and what to do about it?" *Journal of Research in Innovative Teaching & Learning*. 2016. Vol. 10. Issue: 1. Pp. 4-33. URL: <https://doi.org/10.1108/JRIT-10-2016-0007>

12. Steve Furber. Report of computing in schools: key points of the report. Royal Society. URL: <https://www.computingschool.org.uk/index.php?id=cacfs>
13. Supporting STEM in schools and colleges in England. URL: <https://www.universitiesuk.ac.uk/policy-and-analysis/reports/Documents/2011/supporting-stem-in-schools-and-colleges.pdf>
14. Trends in compulsory education. Postnote №506, September, 2015. URL: [file:///C:/Users/User/Downloads/POST-PN-0506%20\(2\).pdf](file:///C:/Users/User/Downloads/POST-PN-0506%20(2).pdf)

Тименко Марія Миколаївна – кандидат педагогічних наук, науковий співробітник Інституту педагогіки НАПН України.
Marytym@ua.fm