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CURRENT EXPERIENCE IN THE USE OF DIGITAL EDUCATIONAL RESOURCES: FUTURE PRIMARY SCHOOL TEACHERS' TRAINING

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Abstract. The article presents theoretical insight into thorough analyses of the outstanding experience and best practices in using digital educational resources by educators. We attempt to integrate these findings into training students who obtain a Master's degree in Primary Education. Intensive use of information and communication technologies has proved efficient in preparing a new generation of innovative highly skilled would-be teachers for primary school in recent years. Although Ukrainian practice in this context is significant, however, huge accomplishments of the best world researchers still produce a noticeable impact on education advancement in many countries. The author draws attention to the relevant issue of training future educators in primary school to use digital open educational resources in their professional activities. The best practical experience of eminent Ukrainian and foreign scholars and teachers was analyzed. The suggested digital resources are examined on the field, purpose, and efficiency of their application with primary school children. The article highlights the educational potential of the popular tools for interactive online and offline communication and assessment of learning outcomes; vivid presentation of the educational content; creative thinking and soft skills development in the classroom as well as automated writing evaluation. Frequent challenges and hardships that educators have to deal with while using digital tools in the classroom are singled out and some solutions to the problem are suggested. The author points out the urgent necessity for young educators to gain new knowledge and skills for not only personal growth and self-development but also, for greater opportunities to be competitive in the contemporary labor market.

Keywords*:* digital competence, professional training, masters of primary education, ICT tools, open educational resources.

1. INTRODUCTION

The issue of using digital educational resources has become noticeably relevant since the COVID-19 pandemic and the growing introduction of blended learning worldwide (Estrada-Araoz, Gallegos-Ramos, et al., 2020; Xu, 2021). Numerous international projects have been launched aimed at disseminating best-world practices on how to better integrate technology into classrooms of educational institutions ranging from primary school to higher education establishments. Many official documents have been issued that help regulate these processes, and efficiency in methodology. The scientists in different countries who work on this problem, constantly present their approaches to its solution identifying future primary school educators' readiness to use digital educational resources in their professional activities (Ferrari, 2012; Graham, 2005; Goodfellow, & Lea, 2007; Kashora et al, 2016; Fransson, Holmberg, & Westelius, 2020).

According to the 2030 Agenda for Sustainable Development, adopted by the UN General Assembly, ICTs are crucial for progress in the achievement of all 17 Sustainable Development Goals (SDGs). In

particular, "ICT-related targets are addressed in: Quality education (Goal 4), Gender equality (Goal 5), Infrastructure (Goal 9)", and others. UNESCO, in partnership with industry leaders and global subject experts, has created an international Framework that sets out the competencies required to teach effectively with ICT: the UNESCO ICT Competency Framework for Teachers (ICT CFT). This manual has become a guide that aims at creating a favorable environment for using digital tools in schools by all kinds of education providers. Thus, to train a properly qualified teacher the university academic staff must possess a sufficient level of digital literacy and be encouraged to use ICT to improve teaching. This is proved by T. Blyznyuk "*The universal application of digital devices, in particular, requires from educators themselves to develop their digital competence*" (2019). Accordingly, would-be teachers have to acquire skills and implement student-centered teaching strategies based on innovative methodologies by taking over advanced foreign practices.

2. THEORETICAL FRAMEWORK

Numerous official documents, in particular in the Laws of Ukraine "On Education" (2017), "On Higher Education" (2014), National Strategy for the Development of Education in Ukraine for 2012-2021 (2014); Concepts for the Development of Pedagogical Education (2018), Orders of the Ministry of Education and Science of Ukraine "On Amendments to the Regulation on the Procedure for Implementing Innovative Activities in the Education System of Ukraine" (2015), "Strategies for the Development of the Information Society in Ukraine" (2013), "Digital Agenda of Ukraine – 2020" (2016), "Regulations on electronic educational resources" (2018), State program "Information and communication technologies in education and science" (2018), and many others is a sufficient proof of the relevance of the issue of the use of digital educational resources by contemporary educators. Thus, we consider it meaningful to analyze the most recent experience and practice found in the highlight of Ukrainian and foreign scholars. According to our review Ukrainian researchers who actively work in this plane and describe their experience of using digital tools in the classroom are T. Blyznyuk, S. Bobrovytska, O. Budnyk, T. Kachak, M. Kryshtanovych, O. Kokhanovska, O. Khudenko, M. Kotyk, O. Kuzminska, O. Osypova, I. Zhorova, O. Trotsenko, O. Tsiuniak, S. Yatsiv, and others). Theoretical and practical aspects in this line are emphasized in scientific periodicals by researchers from different foreign countries (J. Crawford, G. Fransson, I. Farida, J. Holmberg, M. Perdana, M. Rahman, C. Westelius, R. Zhang, Zh. Zhang, D. Zou, and more).

3. RESEARCH OBJECTIVE

Considering such close attention of the world's scholars to the problem of training future educators, namely, primary school teachers, it is obvious enough that this process should be traced from the university preparation and further. With this in mind, *the purpose of the research* is to characterize the major aspects of future primary school teachers' training to use digital OER as well as to outline which digital tools are appropriate for application in the primary school environment.

4. RESULTS AND DISCUSSION

4.1. Ukrainian Experience in the Use of Digital Educational Resources

The new generation of educators makes a huge difference in the advancement of the Ukrainian education system, and, therefore, the preparation of a new cohort of competent learners. Now, students but would-be teachers, have a unique opportunity to learn from university educators, informal practices, Internet resources, and more. Teachers' encouragement, support, and professional development are vital features for the successful integration of ICT in education (Bykov, 2011; Budnyk, Kondur, & Diakiv, 2020).

After analyzing numerous findings by Ukrainian researchers, it became obvious that most of them

indicated personal experience in the use of specific tools, online services, and platforms. Ukrainian scientists T. Blyznyuk and O. Trotsenko provided their practice based on the use of the following digital tools in cooperation with students – Kahoot, Mentimeter, Pear Deck, and Flipgrid. They proved that the mentioned resources are "*Using multimedia electronic educational resources, the primary school teacher will enrich the lesson with interesting and non-standard forms and methods of interaction with students, provide space for students' creative independent work and educational base for digital competence formation, alongside with the possibility of their research activities." (*Blyznyuk, & Trotsenko, 2020). The peculiarities of the use of mind maps in the process of teaching subjects of language and literary circles are also available in the discoveries of Ukrainian authors. For instance, T. Kachak and Kh. Kachak notes mind maps are the perfect means for performing independent work by students. They stress that in the form of mental maps, future primary school educators create presentations for visual acquaintance with the topic to be learned; build algorithms of the problem, provide thorough analysis; offer a quotation description of literary characters; create a scheme of analysis of the language of the work; make a detailed plan of the work, prepare explanations of literary terms and more (Kachak, & Kachak, 2022).

Equally, Ukrainian scholars substantiate the relevance of the problem of using information and communication technologies to deal with challenges of accessibility of education for certain categories of people with disabilities and improving the quality of educational services (Budnyk, & Kotyk, 2020). In their research, they outlined the pros and cons of using ICT in the inclusive process and offered independent strategies on how to support inclusive education by creating an effective computer-integrated learning environment with new forms and methods of working with children with special needs (Budnyk, Kondur, & Diakiv, 2020). It is worth noting S. Kryshtanovych and M. Kryshtanovych characterizes the features of the application of blended learning technologies in a higher education institution. The scholars state physical and psychological barriers caused by the war in Ukraine can be prevented when educators use blended learning. According to other researchers, this way of instruction allows higher education institutions to meet educational quality standards. Similarly, *"blended learning allows students to study at anytime and anywhere, change teaching methods and models, and increase students' ability to self-learn as a result of self-motivation" (*2023).

The research conducted by T. Blyznyuk and S. Yatsiv specified the tested advantages and peculiarities of using digital tools Flipgrid and Kahoot! in the process of teaching the English language to primary school students from their own teaching experience. The authors claim "*digital tools Flipgrid and Kahoot! analyze students' performance data to identify areas of strengths and weaknesses, enabling teachers to differentiate instruction and provide targeted support. As technology is continuously advancing, the integration of digital tools like these will likely play an increasingly crucial role in shaping the future of English language education*" (Blyznyuk, & Yatsiv, 2024). Accordingly, these resources promote student interaction, break barriers in communication in a foreign language, and add enjoyment to the process of learning.

As noted by S. Bobrovytska, organization of independent work, project activities with students, and setting additional tasks with the help of digital tools and other open educational resources strongly encourage future primary school teachers to create their own educational content, e.g. multimedia support to new topics, video creation to the material presentation, development of didactic, including test electronic supplies, educational interactive posters, diagrams, summary tables, maps, etc. (Bobrovytska, 2021).

Many findings are devoted to the OER and digital tools helping future teachers accomplish new platforms of formative and summative assessment. Most of them provide information even through video guidelines on such tools as Google Forms, Kahoot, Socrative, Plikers, Quizziz, and more (Zhorova, Kokhanovska et al., 2022). Apart from the mentioned OER there might be suggested others not less effective ones: Quizlet, GoFormative, EdPuzzle, LearningApps, Triventy and Classtime. Most of them provide an interface in the English language; however, they can be easily adaptable to the Ukrainian user. These and other tools are suitable not only for educators. They are a perfect drill for students themselves – their self-evaluation, reflection processes, and self-control. They inspire students to gain

the ability to carry out mutual evaluation and observation, to clarify goals, together with the teacher to work out the criteria to achieve expected learning outcomes, provide feedback, and much more. Technology in the classroom enables differentiated instruction of learning. The mentioned digital tools serve as an efficient technical support for formative assessment of the lessons in face-to-face, remote, and/or mixed formats.

Nowadays both educators and students have and take opportunities to master new digital skills and learn new tools by attending numerous online advanced training courses provided by domestic and foreign institutions. However, even today during the full-scale war in Ukraine teachers try to improve their knowledge by meeting their counterparts rather offline and exchanging innovative experiences. Besides, many training courses that offer certified programs of qualification improvement teach trainees to use digital tools from Scratch. Their choice normally varies depending on the level of digital literacy of the target audience (pre-and in-service teachers) and their expectations and needs to meet students' interests in the classrooms.

As noted by O. Tsiuniak, N. Yaremchuk, and other scholars, pre- and in-service teachers should take into account digitalization prospects of education in Ukraine and beyond, be able to operate recent innovations (online services, tools, and platforms) to meet their own needs as well as requirements of primary school students. Nowadays educators have to work in a blended format creating text documents, polls, and video presentations; developing appropriate educational content like electronic methodological support - lesson plans, manuals, activity programs, etc. Thus, contemporary students of Pedagogy Faculty who aim to be educators for the young generation experience the necessity to gain new knowledge and skills that will eventually help them improve their work and become competitive in modern educational environment (Tsiuniak, Yaremchuk et al., 2024).

4.2. Foreign Experience in the Use of Digital Educational Resources

Foreign experience in training future primary school educators to use innovations is much wider than the Ukrainian one. Moreover, overseas developers constantly upgrade and update already existing tools and education resources, (mostly in English) adding up more options and making them easier and more accessible for users. On the other hand, educational institutions abroad have more possibilities to supply educators with innovative platforms and digital tools for both their professional advancement and creating a more engaging learning environment for their students. It is clear the more interesting the education process is the more motivated and open to new ideas the learners are. Thus, educational contents alongside technical support have a positive impact on student's motivation, interest in learning material, and eventually greater achievements.

As mentioned by researchers Zh. Zhang and J. Crawford's formative assessment does not demotivate learners if teachers use innovations, namely the digital tool Quizzis. The scholars analyze how interested young learners are in English classes and emphasize that motivation might be raised with gamification. Games and role-play are favorite activities for primary school students, thrill their emotions, and bring joy and pleasure even during tests if they are in gamified format. In learning English or any other subject, this innovation helps acquire new material (e.g. grammar and vocabulary) much easier than in a traditional way (Zhang, Crawford, 2024). According to the scientists, the conclusion can be drawn that future educators must be equipped with how to use gamification digital tools in university classes to be able to apply them later in their professional activities.

In terms of foreign language teaching/learning, AWE tools have become essential digital resources for future foreign language educators worldwide. They use various computer programs to check and improve their writing skills. These online tools provide many benefits for future primary teachers and their school students, e.g. saving time for educators, providing possibilities of personalized learning and self-assessment for students as well as adequate feedback in real time, and more. These resources help check and find mistakes in grammar, spelling, and even pronunciation. Among the most popular tools, M. Rahman and other scientists recommend as essential the following ones: Grammarly, ProWritingAid,

Ginger Software, PaperRater, and others (Rahman, 2023). Apart from the latter, other digital resources help improve students' reading comprehension. The application Hemingway Editor supplies the user with efficient visuals to master English reading skills. Here, certain colors mark particular reading issues: yellow goes for long or complex sentences and common errors, red shows sentences or their parts that are either hard to read or have complicated meanings, purple offers simpler words for confusing vocabulary units, weakening elements like Passive Voice or different grammar tenses are outlined with blue color. Similar studies suggested the practice of another useful tool, Slick Write. This free application makes it easy to check young students' writing skills for grammar or spelling errors, potential stylistic mistakes, etc. We attempt to propose online resources that can help learners make sure that their writing works make sense and that words fit together properly. In this context, eRevise and MI Write tools are recommended to would-be teachers.

Nowadays educators in many countries in various levels of institutions have to deal with the problem of plagiarism. To avoid and prevent cheating in essay writing online tools serving to find copied works are very helpful. Such digital resources are known as Plagiarism Checkers. To them belong the following – PlagScan, Turnitin, and Quetext. They not only identify plagiarism but also foster excellence in writing, build correct citations accurately, and resolve problems with writing assignments in the classroom. The point might be the cost and availability of these tools since not all of them are free of charge for users, however, many of them provide a free version with some limits (Perdana & Farida, 2019).

Thus, educators of creative writing in different countries frequently use the aforementioned innovative online tools. They explain how sentences can be composed appropriately, ease the word choices, and trace how the writing flows. It should be mentioned that young students intuitively, being representatives of digital generation Alpha, know how to use many of these tools and resources for their benefit. Undoubtedly sometimes educators have to guide them. However, the case with the teachers is completely different. Generally, they should be taught or instructed on how to apply them correctly. Current advanced training courses and effective online resources are always available to teachers to learn how to use digital devices in this context.

Nowadays, one can't help but mention digital technologies using immersive simulations in Augmented or Virtual reality (AR/VR). With these means, learners create a digital or virtual word in the education environment. Numerous practices show various virtual scenarios to use augment projections of different objects in a 2D or 3D space. In this context, a digital tool Nearpod is helpful as well. The educational potential of virtual reality (VR) and its impact on students' interest and motivation is the subject of research for many scholars, among them it is important to mention G. Fransson, J. Holmberg, and C. Westelius. They shared their experience of arranging a series of workshops held to acquaint the teachers with AR/VR educational applications. According to the scholars, it was found that VR use is appealing, and the potential for education is noticeable, as it adds significance in some educational instructions. The coaches and trainees observed the benefits for teaching and learning as simulations in augmented or virtual reality tools make it more interesting, effective, engaging, and fun. "*VR also increased opportunities to visualize complex processes and bring status to instruction and teachers' work. It was found that VR/AR apps in K-12 schools may be used to promote learning but cognitive overload with certain apps can be a challenge*" (Fransson, Holmberg, & Westelius, 2020).

Altogether, pre-and in-service teachers are partially prepared for the implementation of a digital program in the classroom. As for the students currently obtaining Master's degrees in Primary Education, they are not only aware of the benefit of different tools and online resources but also well equipped with the knowledge and skills to use them with the target audience – primary school students. This is chiefly due to two main conclusions: the technical readiness of educational institutions and the pedagogical readiness of educators.

5. CONCLUSIONS

Given a thorough analysis of the presented Ukrainian and foreign research, it can be concluded that the introduction of technology into the educational process in primary school contributes to a diverse and flexible teaching of content. The frequent use of numerous open educational resources increases personalized learning and inclusivity, equality and social responsibility by providing a learning environment that inspires young learners and prepares them for a digitally focused society. Significant experience and best practices within Ukraine and beyond show that students training who obtain Master's degree in Primary Education considering the use of digital educational resources is sustainable enough to raise a new competent generation of students.

The finding of the presented study advocates the availability of a wide range of digital tools studied, and the research papers are also quite diverse, providing insight into the ways that technology can be efficiently integrated into the classroom to meet a variety of intended outcomes. This process suggests that digital learning activities encourage fruitful collaboration between educators and their students.

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Близнюк Олександр. Сучасний досвід використання цифрових освітніх ресурсів: підготовка майбутніх учителів початкової школи. *Журнал Прикарпатського університету імені Василя Стефаника*, **11** (3) (2024), 91-98.

У статті запропоновано теоретичне осмислення та ретельний аналіз успішного досвіду й кращих практик використання педагогами цифрових освітніх ресурсів. Результати дослідження інтеґровано у процес підготовки студентів, які здобувають ступінь магістра за спеціальністю "Початкова освіта". За останні роки інтенсивне використання інформаційно-комунікаційних технологій довело свою ефективність у підготовці нової ґенерації інноваційних висококваліфікованих майбутніх учителів початкової школи. Хоча українська практика в цьому контексті є вагомою, досягнення найкращих дослідників світу все ж мають помітний вплив на розвиток освіти в багатьох країнах. Автор звертає увагу на актуальне питання підготовки майбутніх педагогів початкової школи до використання цифрових відкритих освітніх ресурсів у професійній діяльності з урахуванням цих здобутків. На основі аналізу практичного досвіду видатних українських і зарубіжних учених розглянуто запропоновані цифрові ресурси щодо сфери, призначення та ефективності їх застосування з дітьми молодшого шкільного віку. У статті висвітлено освітній потенціал цифрових інструментів для інтерактивного спілкування та оцінювання результатів навчання онлайн та офлайн; ментальні карти для представлення навчального матеріалу; ресурси для розвитку творчого мислення та навичок комунікації в класі, цифрові інструменти для автоматизованого оцінювання письмових робіт. Виокремлено найпоширеніші виклики та труднощі, з якими доводиться стикатися освітянам під час використання цифрових інструментів у класі, запропоновано деякі шляхи вирішення окресленої проблеми. Автор вказує на нагальну необхідність отримання молодими освітянами нових знань і навичок не лише для особистісного зростання та саморозвитку, а й для ширших можливостей бути конкурентоспроможними на сучасному ринку праці.

Ключові слова: цифрова компетентність, професійна підготовка, магістри початкової освіти, цифрові навчальні засоби.