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Young Scientists in Ukraine: Digital Competences and Grant Programmes for Continuing Research during Wartime

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Abstract

The role of digital competencies of young scientists is presented in this paper. Furthermore, there is an analysis of current grant programmes for Ukrainian researchers.It is confirmed that remote scholarships have become important for Ukrainian scientists during wartime.

Keywords: grant programmes, digital competences, young scientists, wartime, research in Ukraine

JEL Classification: A20

Introduction

Today, all of us can observe the incredibly rapid development of the world. Globalisation, international cooperation, ubiquitous access to information, and cross-border partnerships have become key features of the planet's growth in the 21st century. Young scientists must stay aware of these global trends and implement them in education. Qualitatively recent changes in economic processes marked the first quarter of the 21st century. According to the vivid expression of Drucker, most resources still need to be specific. "The most important resource that distinguishes business and provides decisive competitive advantages is the specific production and management knowledge used in doing business" (Druker, 2022). Toffler mentioned: "The illiterate of the 21st century will not be those who cannot read and write, but those who cannot learn, unlearn, and relearn" (Mykhats, 2018). We can conclude that time is rushing forward. The power of human intellectual potential is changing society and living conditions because information technologies and the digital sphere have become an integral part of today. Digital technologies, above all, give us access to a wealth of different information and the ability to process it quickly. In the conditions of the rapid development of high technologies, which have been reflected in every branch of society, higher education institutions need to change two aspects of their training specialists' activity: to review the content of education and teaching methods (Dorosh, 2015). Meanwhile, international projects participation allows young scientists to find new opportunities for cooperation in the global market and improve their professional skills. The objective of the article is to analyse the needed digital competences and the grant programmes for Ukrainian scientists, which will help them continue research during wartime.

Results and discussion

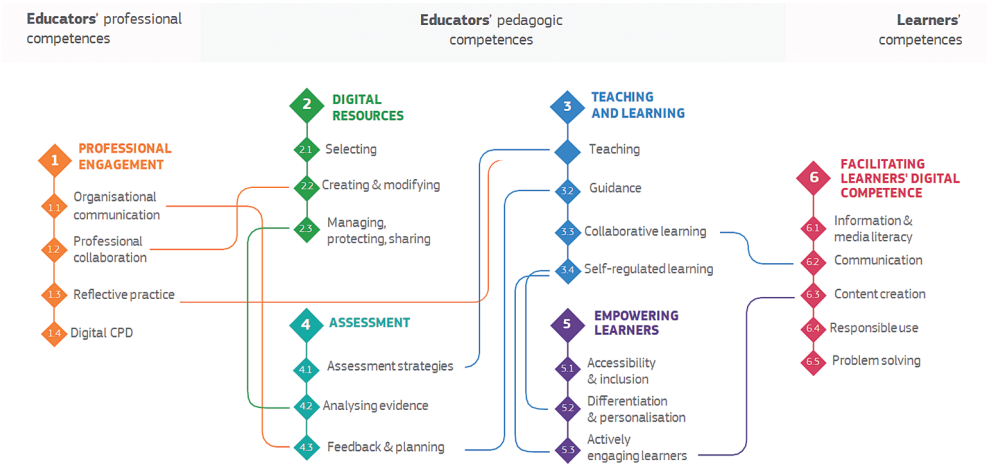
Nowadays, the digital industry is in the process of being formed. Nevertheless, this process intensifies: about 99% of the population between the ages of 12–24, 25–44 years: 94%, and the age of 45+: 54% are using digital technologies. On average, one user owns 2–3 types of gadgets, and the average user spends 138 minutes daily on a desktop and 107 minutes on mobile Internet (Dorosh, 2015).

According to the dictionary of the modern Ukrainian language, *Myslovo*, the word 'digitalisation' became the word 2019 (*Myslovo*, 2019). Digitalisation is a significant change in social life in all its manifestations related to digital technologies. The definition is closely related to 'digital transformation' and manifests the global digital

revolution. The main task of modern Ukrainian education and science is to ensure the introduction and development of digitalisation to catch up with developed countries. Digitalisation is the means of increasing the speed of gathering and disseminating information and the efficiency of producing and selling goods and services.

The European Digital Competence Framework, also known as DigComp, offers a tool to improve citizens' digital competences. Today, being digitally competent means that people need to have competences in all areas of DigComp. Meanwhile, there is a European Framework for the Digital Competence of Educators. Digital competences can be classified into three categories: educators' professional competences, educators' academic competences, and learners' competences (Figure 1).

Figure 1. The DigCompEdu Framework



Source: Bejinaru (2013).

The DigCompEdu Framework aims to capture and describe these educator-specific digital competences by proposing 22 elementary competences organised in 6 areas (Figure 1): Area 1 is directed at the broader professional environment, i.e., educators' use of digital technologies in professional interactions with colleagues, learners, parents, and other interested parties, for their individual professional development and the collective good of the organisation. Area 2 looks at the competences needed to use, create, and share digital resources for learning effectively and responsibly. Area 3 is dedicated to managing and orchestrating digital technologies in teaching and learning. Area 4 addresses the use of digital strategies to enhance assessment. Area 5 focuses on the potential of digital technologies for learner-centered teaching and learning strategies. Area 6 details the specific educational competences required to facilitate students' digital competence (Bejinaru, 2013).

The impact of digitalisation on young scientists' outlook are the following:

1. *Changing the methods of teaching.* Introduction of new formats of educational process organisation by educational institutions. Visualisation of information, constant communication with educators, and digital tools help make e-learning better and more effective. Modern students are the representatives of Generation Z. They do not know the world without technology (Lepeyko, 2016): smartphones, Internet access, and social networks. It is the first generation that did not grow up in the age of the Internet but was born in it. Most 'Z' students are still studying, but many are already involved in social movements, launching their start-ups and social projects, and undergoing internships in companies. For them, comfortable learning conditions are the basic expectations from the educational process. Generation Z representatives, unlike Generation Y, are not team players and are not interested in relationships with their colleagues. Therefore, they will have a more attractive opportunity for blended learning and distance learning with a flexible schedule. If teamwork is unavoidable, it is necessary to provide individual tasks to students. Generation Z can filter information rigidly. In this regard, they must be given tasks as briefly and concisely as possible. Generation Z can switch their attention quickly so that they can be given several tasks in the short term. Generation Z has already entered university classrooms. And what they will acquire depends mainly on understanding this generation's risks and benefits by their parents, teachers, and future employers (Lumpieva, 2013).
   Smart learning is the best option for Generation Z, flexible learning in an interactive educational environment with content from all over the world freely available. The goal of 'smart learning' is to make the learning process effective by transferring the learning process to the electronic environment, which in turn provides an opportunity for everyone to access and expand the number of applicants from anywhere and at any time. Therefore, the most effective modern educational interaction mechanism is blended learning, which combines the best experience of traditional learning and the latest interactive developments on the Internet. This system works in constant correlation and forms a whole. Students can independently study courses using e-materials, watch lectures online or offline, test, and participate in online projects. A prerequisite for the smart platform is creating an integrated, intelligent virtual learning environment with the educational content being developed and improved by all participants in the learning process. It should be noted that smart technologies are creating new requirements for teaching staff. Teachers must not only be well-versed in the professional field but also have a broad outlook and be able to use modern technologies to work with information resources and young people. Smart approaches follow the concept of 'smart education'. The teacher's function is

quality content navigation, not translating ready truths and knowledge transfer (Ozhevan, 2011).

2. *A world of 'thousands of opportunities'*. The rapid development of science and technology and the informatisation of society lead to the growing role of the Internet in public life. The spread of social networks has become one of the modern means of communication. If, at the beginning of its creation, social networks provided only opportunities for users to communicate with each other and with friends and acquaintances, today, social networks' functionality is expanding. New business opportunities are created, which allow studying the needs of potential consumers, forming communication channels, and promoting products; using social networks in politics, medicine, etc. According to recent research, 52% of Ukrainian Internet audiences visit social networks, and only about 8% of Ukrainian university students are not registered in social networks, necessitating modern Internet technologies in education. In the context of meeting the requirements of the Bologna Process, the organisation of students' educational work involves strengthening the role of independent extracurricular work of students, which necessitates its effective organisation and control. For example, the organisation of the classroom and extracurricular work of 5th-year students involves providing for the preparation and presentation of group project results, case studies, and participation in discussions, which can be partially implemented using social network tools. The use of social networks in educational activities allows network members to create online educational content, provides an opportunity to perform group tasks, using such additional options as forums, comments, polls, voting; simplifies the process of information exchange and provides for the implementation of the principle of continuing education. Prerequisites are created for the formation of students' professional competences as future managers: skills of interaction, self-organisation, and the formation of the ability to think creatively. In this approach, the teacher acts not only as a 'controller' or 'mentor', but as a moderator. Of particular note is the ability to create virtual communities on social networks (open and closed access) that bring together users with common interests. In this format, the teacher can organise and coordinate the work of sections and groups. Unlike desktop PCs, the ability to connect to social networks with laptops, smartphones, and tablets removes space and time constraints. Virtual communities should also be considered a 'virtual platform' for accumulating and formalising implicit knowledge, which expands the possibilities of social networks in the context of knowledge management. Along with the advantages of using social networks in the learning process, some disadvantages must be considered. After all, social networks should be considered an additional tool for the effective organisation of

the educational process, which should be in the teacher's – a young scientist's – arsenal.

In order to build a scientific career, it is enough for young scientists to have an original idea (scientific or research), basic knowledge of the topic and patterns of the existence of the educational market, and ways to find stakeholders to check and implement all ideas.

3. *Create and work in an 'entrepreneurial organisation'.* In the context of a globalising post-industrial economy, modern higher education institutions with a high level of bureaucracy and centralised decision-making need to meet the challenges of the 21st century. Increasing flexibility and dynamism require organisations to develop entrepreneurial orientation and form strategic foresight. At the same time, high staff turnover, the dissatisfaction of teachers with working conditions, and a lack of motivation stimulate the university's management to take into account the requirements of its staff and promote the maximum realisation of the potential of employees. The introduction of academic entrepreneurship will allow employees to show their abilities and skills, develop competences and meet the needs of the work content and self-actualisation. Entrepreneurial organisations are defined as an organisation for which the core characteristics are innovation and opportunism, which allows you to generate economic and social value. In particular, to determine whether an organisation is entrepreneurial, it is advisable to analyse its activities in four main areas: leadership, organisational culture and structure, teamwork, and employee profiles. Consider in more detail the above-mentioned components. In business organisations, informal leadership prevails over the formal one. There is a clear differentiation between the functions of the manager and leader. In our opinion, in such organisations – universities, there is an opportunity to realise employees' potential to the maximum. However, this does not mean that only one leadership style is the most effective, such as delegation or coaching. Leadership in business organisations involves a comprehensive combination of different leadership styles focusing on applying situational leadership. Organisational culture and structure in business organisations should ensure the implementation of the business function. According to McGuire (2003), entrepreneurial organisational culture is a system of shared values, beliefs, and norms of the organisation's members based on innovation and market opportunities for employees. It determines the appropriate proactive behaviour to address the survival and development of the company. The main features of entrepreneurial organisational culture are the emphasis on intellectual capital, generating value through innovation and change, personal responsibility for the result, and the freedom to grow and fail. The realisation of employees' potential can contribute to the entrepreneurial organisational culture and, simultaneously

limit the organisational structure. Thus, the organisational structure's choice should consider the maximum potential realisation of new opportunities.

Entrepreneurial organisations are impossible without entrepreneurial teams. Such teams are characterised by a small number of participants working together to innovate and seize opportunities. The function of entrepreneurship is fulfilled by creating teams, the participants of which have a set (combination) of competences with entrepreneurial characteristics. These include creativity,, proactivity, and vision. Thus, the profile of team members' competences (projects, departments) forms the organisational competence as a whole. First of all, the development of personal initiative and independence is vital for business organisations. In today's competitive environment, business organisations can be private companies and government agencies. In particular, a significant challenge for modern universities is creating an active business environment where young scientists communicate and implement their business projects. Thus, encouraging young people's entrepreneurial thinking by transforming knowledge-based educational institutions into business organisations and developing academic entrepreneurship is an urgent problem. In our opinion, such a transformation will contribute to the maximum realisation of the potential of young scientists.

4. *Continuous self-improvement and self-education.* To be successful means to be aware. Various online courses, conferences, and e-marathons on the Internet come to help. They are the basis of the self-education of young scientists. Communicating with colleagues living worldwide allows young scientists to share experience, ideas, and knowledge in education to develop and socialise.

Nowadays, young scientists have many opportunities to study, work, and research internationally. The number of scholarships all over the world is incredibly huge. Let us consider the most popular scholarships in Europe for young Ukrainian scientists.

1. The DAAD is the world's largest funding organisation for the international exchange of students and researchers. The DAAD supports German universities' internationalisation, promotes German studies and the German language abroad, helps developing countries establish influential universities, and advises decision-makers on cultural, education, and development policy matters. The DAAD's scholarship database contains numerous scholarship offers for study or teaching visits and research projects in Germany. The most important responsibilities of the DAAD include the following:
   - granting scholarships;
   - promoting the internationalisation activities of German universities and research institutions;
   - strengthening German cultural and language studies abroad and helping developing countries establish productive higher education institutions.

The DAAD is also the National Agency for EU Higher Education Cooperation (DAAD, 2022).

2. The Erasmus Mundus Scholarships 2020, funded by the European Union, are exclusively awarded to students from EU and non-EU countries selected to attend one of the Erasmus Mundus Joint Programmes at the Master's or Doctorate level. The programme offers full-time scholarships and/or fellowships that cover monthly allowance, participation costs, travelling expenses, and student insurance costs. The Erasmus Mundus Scholarship amounts can vary according to the level of studies, the duration of studies, and the scholar's nationality (scholarships for non-EU students are higher than for EU students). Students worldwide can apply for a full-degree scholarship through an Erasmus Mundus Joint Master's Degree (EMJMD). Scholars and guest lecturers can also get involved; to be eligible to be considered for a scholarship, students must first have secured a place on the degree programme (unconditional or conditional) (Erasmus, 2022).
3. Another interesting scholarship programme is the Chevening Scholarships. These are fully-funded scholarships to undertake any Master's course at any UK university. Chevening Scholarships enable outstanding emerging leaders worldwide to pursue one-year Master's degrees in the UK. While there is no 'typical' Chevening Scholar, the programme is looking for people with passion, ideas, and influence to provide the solutions and leadership needed to create a better future. Because these scholarships are fully funded (flights, accommodation, and course fees are included), the students are free to focus on achieving their professional goals and maximising their lifetime experience. The scholars will live and study in the UK for a year, developing professionally and academically, networking extensively, experiencing UK culture, and building lasting positive relationships with the UK. After completing their studies, the students will leave the UK equipped with the knowledge and networks necessary to bring their ideas to life. Successful candidates tend to have ambition, leadership qualities, and a solid academic background. The programme encourages applications if the candidate meets the eligibility criteria and other requirements – regardless of gender, age (there is no upper age limit), religion, marriage or parenthood status, caste, class, or other attributes. What matters is the ability to submit a strong application that demonstrates that the candidates can excel in an intense master's course in the UK. The students have a clear vision for the future – and maybe even that of the sector or their own country. One of the most critical aspects of the application is selecting suitable courses at the right universities. According to the Chevening Programme, the application must list three courses, and they must be eligible for a Chevening Scholarship. The students will need to apply separately for the course via the university that runs the system.

4. One of the best scholarship programmes in Poland is The Lane Kirkland Scholarship Programme. It is a 9-month training scholarship for persons with at least two years of professional experience. For over 20 years, the Lane Kirkland Scholarship Programme has supported the individual development of young, ambitious, and active citizens of selected states in Eastern Europe, South Caucasus, and Central Asia. The group of over 900 alumni of the Programme includes government members, MPs, the managerial staff of large multinationals, heads of local authorities, and well-known social activists. The goal of the Programme is to share the Polish experience of political transformation and integration with the European Union.

   The Programme offers scholarships for two-term university training courses in Polish universities. Eligible candidates are young leaders and experts with higher education coming from the following 11 countries: Armenia, Azerbaijan, Belarus, Georgia, Kazakhstan, the Kyrgyz Republic, Moldova, Russia, Tajikistan, Ukraine, and Uzbekistan, who are interested in fostering democracy, free market economy, and civic society in their home countries and the region.

   The Lane Kirkland Scholarship Programme offers two terms of studies at Polish universities and two-week internships in state or private institutions. Potential candidates have resolved that following the completion of the scholarship, they want to return to their home country to implement the knowledge gained during the scholarship or a project prepared as part of it. The duration of the Kirkland scholarship is 9.5 months and starts with a preparation and orientation session. The event intends to prepare grantees for their stay in Poland by familiarising them with the local language and reality. Also, it is aimed at integrating persons from different countries with various experiences, education, and views. The programme's inauguration ceremony at the university hosting the grantees is a permanent element of the orientation session.

   After completing the orientation programme, grantees will study for two terms at one of five academic centres, pursuing their educational programme. The programme always involves a Polish language course organised in respective cities. During the academic year, grantees meet three to four times during integration and technical conventions organised in respective affiliation cities. The sessions aim to deepen relations between grantees, improving further cooperation between them and to make them familiar with various regions of Poland. Coordinators and scientific supervisors organise professional internships at the beginning of the second term of the programme. Most participants choose the 2- and 3-week internships. However, some take part in internships lasting over one month, occasionally in several institutions. The Kirkland Programme's culminating moment consists of drafting and defending a final project. The final project is

composed of two term papers which the grantees are obliged to write at the end of each semester. An agreement with each grantee stipulates the length of the project (at least 50 pages) and the deadline for submitting it to the scientific supervisor. Defense of the final project at respective universities is usually held at the end of May and in the first half of June. The Lane Kirkland Scholarship programme is an excellent opportunity for young scientists to grow professionally and personally in a multicultural environment.

Conclusion

Digitalisation has influenced not only business, trade, and policy development. It has done much more because it has become a significant part of daily life and has changed millions of people's outlook and way of thinking. For young scientists, it is crucial to improve digital competences and develop their grant activity. In our opinion, the complex projects based on the integration of the'business-education-science' aimed at digital transformation will enable the establishment of the future career of young scientists, help them gain new skills, and broaden their professional horizons. Considering the above-mentioned grant programmes for Ukrainian scientists, now the urgent problem is to provide remote scholarships for Ukrainian scientists at risk.

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