Economic education in the digital era

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Abstract. *Digital era brought a revolution in both business and education areas. The creation of World Wide Web (www) platform back in 1989 shortened the distance between knowledge and individual, enabling an easier access to the economic culture. In the contemporary era, developed countries worldwide use digitization as a progression strategy in education, in general, and in economic education, in particular. The digital era plays a crucial role in spreading and developing economic education to individuals enabling the increase of economic welfare for stakeholders by development of skills, knowledge and capability. The economic education in the digital era offers alternatives on how to develop the capacity of the current education systems to adapt the economic culture of individuals to the continuous changes in the economic environment. In the current study, the impact of digitization on economic education will be outlined highlighting the challenges and opportunities in developing new strategies for the economic education.*

Keywords: digital era, economic education, economic culture, economic environment, economic welfare.

Introduction

The access to information and, implicitly, to education was restricted before the digital era to paper documents that were difficult to obtain mainly due to their physical distance. In what economic education concerns at primary and/ or secondary level in some countries, as it is the case of Romania, for example, this knowledge was included, in the majority of cases, only in the Political Economics subject taught during one academic year during high school. Moreover, from here, we have derived the question whether this theoretical background was sufficient to prepare an individual on how to take decisions at both personal and professional levels. This taking into consideration the option that the individual was not interested in pursuing either further a graduate diploma in economics or the individual chooses to study at graduate level another domain different from the economic one. In this sense, the creation of the World Wide Web platform in 1989 enabled individuals to complement their economic education by providing the access to information from both national and international sources. However, this free access to the economic information presents the shortcoming that sometimes the information found by the individuals using search motors, for example, on internet is not properly understood or correctly interpreted by them as it is often not well structured or revised by professionals from the academic environment.

One important aspect to consider is that digital era has triggered economic welfare for countries that used digitalization in their favor as the dissemination of concepts related to economic education and culture between researchers, academia and private sector has led to the creation of platforms where people could interact and share ideas for progression. The result of this interaction turned into a competitive advantage for the nations as individuals could better understand the economic environment and anticipate the downturns of the economic cycle, either for their personal purposes or for their businesses. Moreover, the digitalization of

¹ *The information and views set out in this article are those of the author and do not necessarily reflect the official opinion of her employer*

communications and interactions between stakeholders cut the physical boundaries and offered real-time solutions to complex issues, encouraging the exchanges of best practices. Furthermore, these developments constitute the engine for creating new strategies for disseminating the economic education including knowledge and skills in a more structured and methodological manner following a harmonized method in order to adapt the individuals to the changes happening in the economic environment.

From the perspective of education, developed countries use digitalization to establish an interaction between learners and teachers in schools, by facilitating materials to study in digital format and enabling the access to electronic libraries to consult books and articles. In addition to the knowledge received in schools, the information should be also complemented with the information gathered from other sources, which is also to be carried out under the supervision of professionals to enable the coherence of information received already in school and to complement it accordingly. This is to say, the digital era offers a solid base for economic development of countries to understand that their educational methods should converge to adapt to the development and transformations of technology. Nevertheless, educational methods should evolve in the same speed technology evolves, and, from this perspective, this article proposes to analyze the evolution of economic education from two perspectives. The first one is the economic education received up to secondary school and, the second one is the complementary economic information that individuals have at their disposal when confronted with various alternatives for selection in the economic environment. Moreover, this article provides a brief overview of the state of play of the current educational methods in acquiring economic knowledge followed by considerations for future research and developments of the economic education in the digital era.

Literature review

Peer-reviewed economic literature considers the use of digital technologies as beneficent in acquiring education by development of school curriculum and expansion of innovative approaches outside classroom, which creates the opportunity to further explore the role of economic education in the digital era. Meanwhile some study state that students and teachers must learn “how to work with machines, not against them, and not in ignorance of them” (Fullan, 2013), some other authors complement this idea by considering the important potential of digital transformations in the development of the teaching methods. Therefore, we have to consider technology not only from the passive point of view of students and teachers that access electronic digital platforms with the aim to search for information, but also we have to take into consideration how school curriculum should be further adapted in order to face the challenges of the economic education in the digital era. Whereas information about the use of digital technologies in education exists, there is however little information on whether this use determines changes also in the teaching methods or whether it creates new alternatives of teaching.

A recent study (Vincent-Lancrin et al., 2019) highlights that innovation in the classroom triggers, for example, “positive changes for students using the digital devices to acquire knowledge such as mathematics” in some countries within the European Union such as Latvia, Denmark and Sweden. Furthermore, (Jappelli, 2010) demonstrates that education, specially, mathematics education is essential to increase the “dexterity on the financial markets, as factors that determine the economic environment are better known”. Therefore, there is a positive

correlation between digital technologies, economic knowledge and economic welfare. At European level, there is however, a large disparity across countries in the use of digital resources to acquire digital skills since many countries are lagging behind in having computer devices and internet access in schools as a recent report highlights (European Parliament, 2018). There is however, one important aspect that should be considered in the analysis of the educational systems nowadays. This aspect is linked with the high percentage of early school leavers, which from the perspective of recipients of economic education, represents a significant number. Thus, two key factors are to be considered in analyzing the process of dissemination of economic in schools in the digital era. The first one is related to the process of internet connectivity in schools and the second one is linked to the number of recipients of economic education. The use of digital technologies in disseminating economic knowledge in schools enables teachers to reach more students, attracting and retaining them, creating a platform of interactions where ideas are put together. According to (Altass et al., 2017), “technology is changing communication, collaboration and knowledge creation”. As mentioned earlier, concepts as economic education are reaching the individual from both academic level, which is initially, the primary and/ or secondary school, but also through a lifelong learning process, which is moved forward by the use of digital technologies, as time constraints orient the consumer towards an easy access to information. Economic education includes financial education and literacy. As some studies indicate, low financially literate individuals are less likely to plan for their retirement (Lusardi et.al, 2007, 2009, 2011) and, moreover, they tend to borrow at higher rates (Lusardi et.al, 2009).

However, the specific literature review reveal the gap between economic knowledge and technology, pointing out that without an adequate level of digital literacy, the relationship between knowledge of the economic environment and economic welfare could not be strengthen. Therefore, in the subsequent sections are described several of the key elements identified as starting points of attention and possibilities for dissemination of economic knowledge and skills inside and outside the academic environment.

Methodology

The methodology of this study follows the combination of the theoretical analysis of economic literature review together with the practical analysis derived from the use and interpretation of statistical data. This first step determines the prospective approach of education in the digital era. Furthermore, a brief analysis of the school curriculum in secondary education in some countries from the European Union was carried out, although some limitations related to the availability of relevant data still exist. The use of the statistical instruments of quantitative research such as the number of individuals using internet by place of use (school) and the number of individuals using internet for information related to education and training was considered as starting point in this study. Firstly, we analyzed the capacity of the schools in providing broadband access for education and, secondly, the determination of individuals in lifelong learning outside classroom. However, it is important to retain the number of individuals that attained at least upper secondary education, as they are the objective of the current study, which has the aim of identifying current methodologies related to the dissemination of economic knowledge, at least from secondary level. From this perspective, the analysis of early leavers from the secondary education is fundamental. This target group represents the individuals that could not only benefit from the economic education to enable them to take better decisions, at least at short term, related to the

economy of their households or businesses, but also bring their contribution to the further development of the economic education as a subject pertaining to the school curriculum. The objective of this analysis was to identify opportunities to create more simplified methodologies inside and outside school in order to disseminate economic education in the digital era.

Results and discussions

We started our analysis by considering the statistics available from the International Telecommunication Union (ITU, 2019) concerning the number of individuals using internet worldwide. From the Figure 1 we observe that in 2019, the percentage of internet users based on ITU estimations reached 53.6% registering a positive progression since 2005. Nevertheless, it is important to correlate this information with the computer use at place of education for the same period within the countries of the European Union. There are, however, some limitations in availability of data concerning the computers use at place of education. Based on recent data (Eurostat, 2019) regarding the percentage of individuals that use computers at place of education, excluding countries for which data was not available at the time of their study, we observe that the Nordic countries were at the top of the hierarchy back in 2011.

Figure 1. Individuals using internet (2005-2019)

Source: ITU Statistics (2019)

Therefore, as indicated in Table 1, during 2011 in Denmark and in Sweden 16% of individuals used computers at place of education, followed closely by Netherlands with 14%. This information related to the place of education includes also the tertiary education (university). From here, we draw the conclusion that if we have to report ourselves to the percentage of

individuals using computers at place of education up to the secondary school (included), these percentages would be lower than the ones presented in the information gathered from the sources indicated above. Therefore, we draw the conclusion that there is still significant room for improvement in this area in order that schools count with more computers and adequate access to internet.

Table 1. Individuals using computer at place of education in 2011

GEO/TIME	2011
Belgium	10%
Bulgaria	5%
Czech Republic	11%
Denmark	16%
Germany	7%
Estonia	13%
Ireland	8%
Spain	9%
France	6%
Croatia	8%
Italy	6%
Cyprus	11%
Lithuania	12%
Luxembourg	12%
Hungary	12%
Malta	6%
Netherlands	14%
Poland	8%
Portugal	9%
Romania	7%
Slovenia	8%
Slovakia	12%
Sweden	16%

Source: Eurostat (2019)

The further analysis of these three countries (Denmark, Sweden and the Netherlands) in what economic education at primary and secondary level concerns reveals their advance in disseminating economic knowledge to individuals starting from an early age compared to the rest of the countries in the European Union. Therefore, Sweden is the country where economic

education is part of the school curriculum from first grade onwards as stated by the Financial Supervisory Authority of Sweden (Finansinspektionen, 2019). In addition, the Netherlands is the first country in the European Union that has incorporated the economic education in the school curriculum at primary and secondary levels as indicated in a recent study carried out by the Fundación PricewaterhouseCoopers (PWC, 2019). Nevertheless, according to recent data (Eurostat, 2019), adult participation in continuous learning in Sweden stands at 29.2%, whereas in Denmark stands at 23.5%, these two countries occupying the first and third places in the European Union countries ranking back in 2018.

We continued our analysis by highlighting the percentages of people aged 18-24 with at most lower secondary education and not in further education and training in the European Union countries during 2018. Figure 2 shows that the European Union countries that registered the highest percentages are Spain (17.9% versus 15% target), Malta (17.4% versus 10% target) and Romania (16.4% versus 11.3% target). If we compare these percentages to the EU 2020 targets per respective country, the above analysis shows still high discrepancies in reaching the target especially by Malta, followed closely by Romania. The percentage of early leavers from education and training represent people that not only decide not to continue with education in general, but also people that take decisions in the economic environment for their households and their lack of economic knowledge and skills makes them vulnerable. In addition, these people do not count with a sufficient level of financial literacy to understand the basic concepts of financial education such as, for example, basic notions like spending, saving or debts. Moreover, as indicated in previous sections, the early leavers do not represent only a loss for the education from the perspective of recipients of education, but also a loss for the economic environment, as they often do not know how to manage *inter alia* the social subsidies they receive from the governments.

Figure 2. Early leavers from education and training in EU-28 in 2018

Source: Eurostat (2019)

Figure 3. At least upper secondary education attainment in EU-28 in 2018

Source: Eurostat (2019)

Furthermore, if we analyze the information in Figure 3 for the three countries at the top of the hierarchy in Table 1, we see that these countries do not occupy the first positions in what most attainment of secondary education concern. From here, we draw the conclusion that the necessity of introducing in the school curriculum of economic education from early age (i.e. primary school onwards) is fundamental.

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A brief analysis on how economic education at early age is transmitted in Sweden, for example, reveals that the country counts with digital applications (i.e. pengalabbet) to teach primary school children basic notions of finances. In addition, other materials in digital format are disseminated to upper secondary schools through projects like “Keep you cash”, where materials have been adapted to the school curriculum in social sciences. Other countries, as for example, the Netherlands have created digital platforms such as “Money Wise”, a connection point transformed in national strategy, designed to teach financial behavior in the country. In this respect, Spain has put forward a National Plan of Financial Education, which included a dedicated website and developed a pilot school curriculum for the 3rd grade of secondary school. The analysis of school curriculum in terms of economic education in the United Kingdom show strong connections with teaching economics in school. The economic education is not only included in the national school curriculum at primary and secondary levels, but also transmitted to individuals via digital platforms as Money Advice Service, which has the objective to develop and co-ordinate a national strategy to develop people’s financial abilities. In the cases analyzed in the current study there is limited information on how these initiatives could merge with the creation of adequate school curriculum in primary and secondary schools in order to offer consistency and coherence of formal levels of economic education. Therefore, this aspect should be taken into consideration and further explored in the design of future strategies for economic education. In addition, the economic education curriculum should focus in solving out the current needs of individuals with the aim to empower them to take the right decisions in managing their personal finances. Investment in economic education and, more precisely, in financial education, it increases the financial knowledge and it influences decision-making later in life (Van Rooij et al., 2009). Nevertheless, negative experiences with financial institutions makes a hard task for educators to deliver financial knowledge to individuals (Beck et al., 2009). As the economic environment is linked to digital products and services, the economic education should also follow the development of technology to provide individuals updated economic knowledge, which allow them to upgrade their skills. Therefore, the economic education should be aligned to the development of the technology. Digital skills attainment for both teachers and students contribute to the dissemination of economic education in a more effective way, providing individuals the opportunity to acquire the skills that enable them to cope with the upward and downward movements of the economic cycle.

The learning process is sometimes seen as a “complicated conversation” between teachers and students as stated by (Reeder, 2005), whereas the modern technology “embodies the values of a particular industrial civilization” (Feenberg, 2002). The digitalization is strengthen the gap between teaching and learning of economic education inside and outside the classroom. The changing environment in education due to digitalization creates new opportunities for teachers to update their knowledge and to employ innovative teaching practices in the area of education in

general and economic education, in particular. The dissemination of basic economic knowledge should focus on most relevant terminology and techniques to enhance the transmission to individuals of basic concepts related to the economic environment. Numerous studies indicate that individuals do not develop *per se* digital skills just because they were born or grew up in the digital era. Access to computers and experiences with computer use give both teachers and learners the possibility to interconnect and create an exchange between the offer and the demand of economic education. The digitalization has changed the way of teaching and learning processes have evolved over the years. By cutting the physical boundaries, the internet enable the access to information from more and diverse sources and the quick interaction with actors from public and private sectors.

The digital era promotes *inter alia* the lifelong learning of economic education for individuals and it creates the basis for partnerships and collaboration between academia and the private environment, which could further develop synergies in the dissemination of economic education. The digital era has enabled innovation in education and has transformed substantially the process of teaching and learning. The digital transformations allow the creation of new educational activities and methods, which accelerates the development of new teaching and learning practices. Making better use of digital technology for teaching and learning inside and outside classroom by developing the digital competences and skills allows the improvement of education to correlate with the changes from the economic environment. The digital era triggered the increase in the volume of materials (i.e. electronic textbooks, books, journals, etc.) and the transformation of methods of compiling and disseminating this information. Nowadays, a significant number of jobs face a high risk of automation and the individuals should be prepared to deal with these inherent changes from the point of view of consumers and producers. Therefore, economic education should be strengthen in support of economies and societies.

Taking into consideration the above, we strongly believe that it is essential to highlight and promote the key role the digital technology has had not only in the quick creation of internet platforms dealing with economic knowledge and skills dissemination, but also as a starting point of creation of national strategies in the area of economic education. Nations should establish infrastructure to bridge the digital fracture and promote the equitable access to individuals to computers and internet connectivity. Furthermore, the development of professional training programs and the facilitation of best practices exchanges strengthen the skills of educators in the use of digital tools.

Conclusion

Digital era represents a considerable opportunity for individuals to receive a meaningful economic education as internet platforms to disseminate economic education have been created in various countries in Europe. These platforms represent not only a first connection between the individual as recipient of economic education, but also ensure the further connectivity with the private sector, making economic education more adaptable to the inherent needs of an economic environment in continuous change. Although successful, these best practices initiatives should be oriented towards the lifelong learning of economic education, and they should not undermine the key role the economic knowledge and skills have in the progress of the modern society. Moreover, the economic education should start in the classroom from primary and/ or secondary

school, which establish the basis of solid knowledge and skills related to the economic environment. Therefore, the digital platforms should have to be perceived as a progressive starting point in the design and incorporation in school curriculum of the economic education starting from an early age. The disadvantage of the current set-up of economic knowledge is that it lacks consistency in delivery across schools, which represents a loss for the economic welfare of nations as money or opportunities are lost. Digital technology makes things move fast and it invites actors from the public and private sectors to come together and use the available digital opportunities to enhance the teaching and learning process of basic economic education. The design of manuals and teaching methods to provide economic knowledge and skills in order to support learners to develop their economic culture should be considered as basic tools to acquire the economic welfare of nations. Future research in this respect should focus towards the analysis of basic economic notions individuals are currently lacking and on the possibilities to shorten the gap between vulnerability and knowledge.

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