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Young people, social workers and social work education: The role of digital skills

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Abstract: This paper addresses a key issue in the development of youth-focused social

work: the role of digital skills in the relationship between young people and social

workers who work with these native digital users. To this end, we analysed data from

the International Digital Economy and Society Index 2019 and Eurostat. Information

from the sixth European Working Conditions Survey and a survey conducted by the

Social Care Institute for Excellence and the British Association of Social Workers

supported the empirical analysis. The main findings reveal a gap between the level of

digital skills required in the labour market and the actual level of digital skills in both

young people and social workers, despite efforts by both groups to improve their skills.

Initiatives to foster digital skills are therefore recommended to bridge this digital

divide. Lastly, it was concluded that both groups could act as mutual drivers of digital

transformation.

Keywords: e-social work, young people, digitalisation, digital skills

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1. Introduction

The COVID-19 pandemic has accelerated digitisation and digitalisation processes in all spheres of society, including social services. Organisational transformations that would normally have taken decades are now being implemented in a matter of weeks. In the field of education, many universities have closed their doors and online teaching has become widespread in an effort to guarantee continued learning for students. The International Federation of Social Workers (IFSW) has organised its 2020 conference online, and online congresses and webinars have been launched in various countries. For example, during the lockdown in Spain in April 2020, social work professors from the UNED and the Universities of Zaragoza and Malaga created a YouTube channel on digital social work³ and convened the First International Conference on Digital Social Work using a video presentation and video poster format.

Strategies aimed at coping with these processes of change in the social work field must take into account users' digital skills, especially those of young users, as well as the digital skills of social workers. Our welfare states, particularly those in southern Europe, are targeted at the protection of the elderly and other at-risk groups and have not yet developed a welfare model targeted at young people (López Peláez & Gómez Ciriano, 2019). However, the new pandemic, and the social and economic crisis it is has brought with it, will significantly affect young people's careers in the near future.

Digital skills are a key tool for fostering young people's career advancement, given that they have a positive effect on psychosocial well-being and self-esteem (Martinovic et al., 2019). However, they can also have a negative effect on key elements of

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¹ See http://www.socialserviceworkforce.org/resources/blog/social-service-workers-mitigating-impact-covid-19.

² See https://www.ifsw.org/ifsw-2020-online-conference-launched/.

³ See https://www.youtube.com/channel/UCcAObaBXhjB4CM-Q3XyPddw/videos.

⁴ See https://congresos.uned.es/w22392/.

superdiverse societies: the tolerance of diversity and the ability to communicate across cultures. For example, although digital skills have been shown to promote self-esteem, 'establishing relations and reaching social capital, which allows reaching more diverse information, does not imply being more tolerant to diversity' (Castillo de Mesa et al., 2020: 7). In order to work with young people, it is essential that social workers be trained in new technologies, and become both proactive and critical in order to strengthen their digital skills in an increasingly diverse environment (López Peláez & Gómez Ciriano, 2020).

2. E-social work: a meeting ground for young people and social workers

Digital transformation has had a significant impact on our daily routines. Technology has changed social relationships, communication, education, consumer habits, and even entertainment. In today's society, digital skills are essential to succeed and should therefore be a requirement in all professions. Given that technology can complement face-to-face professional practice, information and communication technology (ICT) is transforming social work (Mishna et al., 2017) and is especially important in social work targeted at young people at risk (Helsper and Deursen, 2015; Pienimäki, 2019). In fact, technology is transforming the nature and practice of all professions; a phenomenon that requires social workers to remain especially vigilant.

In recent years, many articles have been published on technology and social work and although a relatively new phenomenon, the topic has attracted much research attention. To reflect this changing reality, the term *e-social work* was coined to refer to an upcoming area of specialisation in the field, digital social work (López-Peláez et al., 2018; López-Peláez and Marcuello-Servós, 2018). Indeed, the vast body of literature

published over the last few years confirms scholars' interest in the impact of technology on social work. A Google Scholar search using the terms 'ICTs', and 'social work' yields around 21,300 results for papers published in the last three years.

Young people's digital skills have also been examined extensively in the literature (Middaugh, 2017). As a consequence, several initiatives aimed at improving young people's digital skills across Europe have been implemented (e.g. Youth on the Move, An Agenda for New Skills and Jobs and the Opening up Education initiative to foster digital skills in schools and universities).⁵ In addition, 'the Council of the European Union has included digital skills as an integral part of newly adopted conclusions regarding the importance of media skills acquired through education and training. The conclusions highlighted the digital skills gap and discussed the importance of digital skills in the employment market' (Council of the European Union, 2016).

Technology, youth and social work are closely linked. Because several social work practices focus entirely on young people, the enhanced digital skills of both collectives could facilitate online services (Aguilar-Tablada et al., 2020). However, social workers need to increase their efforts in this regard with young people (Gómez-Ciriano et al., 2020). Furthermore, young people are society's future adults, and their skills will determine future social needs. This relationship warrants our interest in analysing both groups in this study.

This paper studies the role of ICT in young people's lives and its impact on social workers. By studying both collectives in parallel, the paper contributes to the previous literature on e-social work, young people, and technology (Castillo de Mesa, et al, 2020; López-Peláez et al., 2018; López-Peláez and Marcuello-Servós, 2018). To this end, data

⁵ https://europa.eu/youthonthemove/docs/communication/youth-on-the-move EN.pdf

⁶ https://www.ics.ie/news/importance-of-digital-skills-highlighted-by-council-of-the-european-union

from the International Digital Economy and Society Index 2019 and Eurostat were used for the analysis. Information from the sixth European Working Conditions Survey and a survey conducted by the Social Care Institute for Excellence (SCIE) and the British Association of Social Workers (BASW) supported the empirical analysis. Based on the findings, several recommendations are provided.

The paper is structured as follows. The next section describes the theoretical framework on the use of ICT by social workers and young people. The empirical analysis and results are then presented. Lastly, the manuscript ends with a discussion and conclusion.

3. Youth and technology

Although the use of digital media presents new challenges for young people, as elearning and social networks are transforming social relationships, the use of ICT also provides several advantages, such as the elimination of physical barriers, access to less costly training, or increased cooperation and communication.

However, technology also has a darker side. The negative effects of ICT on young people range from inequality and social exclusion (Pagani et al., 2016) to cyberaggression (Mishna et al., 2018), technology addiction (Lachmann et al., 2018; Wang et al., 2018), and poorer learning and academic outcomes (Hawi and Samaha, 2016).

As digital natives, advanced ICT skills can give young people (aged 16–29) a competitive edge over the rest of society in terms of employment opportunities (De Castro, 2016). In this context, young people are expected to have better digital skills than the rest of the population. Nevertheless, there is evidence that socioeconomic factors affect the level of young people's digital skills (Scheerder et al., 2017), thus creating a digital divide among them.

From an intrapersonal perspective, ICT is changing social interactions. Social media involves creating a digital life and personality which can affect young people's well-being (James et al., 2017). To respond to these challenges, digital skills now form part of the curriculum of schools and higher education institutions.

In summary, technology is particularly important for young people, as they need digital skills for their future employment, but ICT can also have a very negative effect on their personality development.

4. ICT and social workers: e-social work

As mentioned above, technology has had an impact across professions; a digital transformation that must also be addressed in social work. Although digitalisation presents important ethical challenges for social workers (Reamer, 2013), the use of technology in social work has become a valuable tool in the field and its advancement is inevitable.

López-Peláez et al. (2018) used the term e-social work to refer to the adoption of digital procedures in social work practices. As a new area of specialisation, e-social work involves introducing digital skills as part of future social workers' training. However, according to Cwikel and Friedmann (2019) and Aguilar-Tablada et al. (2020), the digitalisation of social work practices remains in its early stages. In this regard, the COVID-19 pandemic has sped up the digital transformation process, which, in turn, has accelerated the development of e-social work.

In similar lines, Raya (2018) defines e-inclusion as the programmes and projects that promote social inclusion through the use of ICT, while Cwikel and Friedmann (2019) make reference to the integration of e-therapy in social work practices. Both studies

highlight the advantages of technologies for reaching a large number of participants, and the benefits they bring to underserved populations.

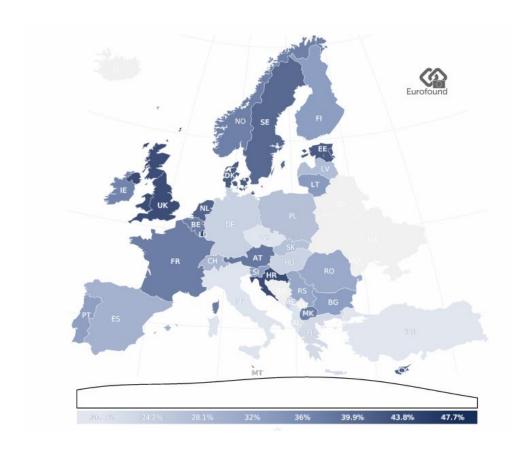
According to the authors, there are various ways to integrate ICT in social work practice: (1) e-practices (e.g. emails, videoconferences) jointly with face-to-face interventions; (2) web-based programmes, that might or might not be developed by an IT technician, and (3) programmes supported by robots, gaming, or 3D virtual environments, usually without the intervention of an IT technician. In addition, technology can support social services (e.g. by using mobile phones to find a lost child) and is also important in interactions involving people with disabilities.

Scholars also agree on the importance of digital skills for both service users and social workers to ensure successful interventions (Atkinson et al., 2009; Barak and Grohol, 2011; Grady et al., 2011), as well as the importance of attitudes towards the use of IT data (Zhang and Gutierrez, 2007).

5. The use of ICT in the workplace

In order to analyse the role of technology in young people's lives, we first examined the use of ICT in the workplace as most jobs will need digital skills in the future (ECORYS, 2016); a circumstance that may foster the acquisition of digital skills. Figure 1 shows the percentage of young workers that use ICT almost all of the time in the workplace across Europe in 2015. As can be observed, less than 50% of young workers use technologies with this frequency.

Figure 1. Percentage of workers (under 35) who work with laptops, computers, and other ICT devices almost all of the time



Source: Eurofound. European Working Conditions Survey (2016)

As a result, the use of ICT is expected to increase in the workplace and, consequently, the need for basic digital skills.

6. The use of ICT by young people

Statistical data from Eurostat, the European Commission and Eurofound complement our analysis. Specifically, the International Digital Economy and Society Index from 2019 and Eurostat data for ICT use in households and by individuals were used.

As mentioned, young people are digital natives and live in both real and digital worlds. The use of ICT by young citizens can be analysed using the European Working Conditions Survey (Eurofound, 2016) and data provided by Eurostat, among others. The previous section includes Eurofound data that show differences in the use of technology

by young workers across Europe (Figure 1), whereas the following analysis complements these data with the use of ICT by all young citizens (not just workers) based on Eurostat data. The situation of digital skills and the use of ICT in Europe is first analysed for both the population as a whole and young people in particular, and then specifically for Spain.

6.1. The European framework

In recent decades, EU countries have all improved their digital performance to some extent. According to the Digital Economy and Society Index (DESI) ranking, several countries such as Finland, Sweden, the Netherlands, and Denmark are global leaders in digitalisation (Figure 2). In this context, most Spanish indexes are above the European average, although the human capital dimension presents below average results.

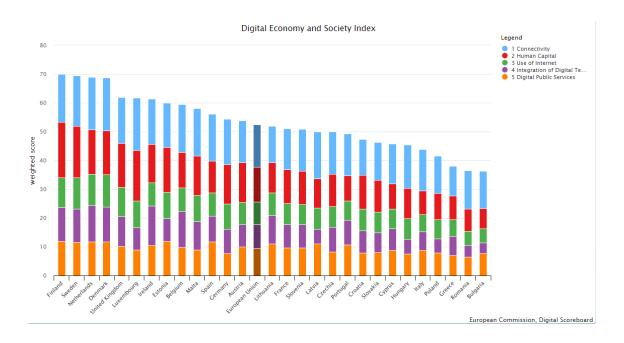


Figure 2. The Digital Economy and Society Index ranking

Source: International Digital Economy and Society Index 2019

Specifically, digital skills are measured through the human capital dimension, which takes into account 'basic Internet user skills' and 'advanced skills and development'. In this regard, Spain is below the European average in terms of digital skills. Conversely, Luxembourg, the Netherlands, and Sweden present the highest values in terms of Internet user skills, whereas Finland, Sweden and Estonia are the top performers in advanced skills and development. In contrast, Bulgaria, Romania, Italy, and Greece present the lowest scores in this dimension (Figure 3).

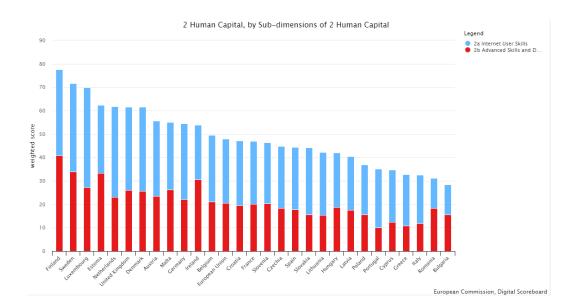


Figure 3. Human capital dimension (digital skills)

Source: International Digital Economy and Society Index 2019

According to the DESI Report (2019), almost half of European citizens need to improve their digital skills (43% of the EU population in 2017). This situation and the need for skills in the future justify the promotion of EU citizens' digital skills, particularly among young people.

Following the above overview of each country's global situation in the Digital Economy, we now turn to digitalisation in young people. Young people's digital skills differ across Europe. Although there are no significant variations, the frequency of

computer and Internet use and computer use in the workplace and in education differs from country to country. Finland, Czechia, Poland, and Luxembourg lead in some of the items whereas countries in the periphery (as Turkey or Romania) fall behind (Table 1). Nevertheless, the number of citizens with digital skills is increasing in all the countries analysed (Table 2).

Tables 1 and 2 show Eurostat data on ICT use in households and by individuals, which were collected by the corresponding country's national statistical institutes based on the Eurostat's model questionnaires on ICT. Data were collected on households and individuals. The population of households consists of all private households with at least one member aged 16–74, whereas the population of individuals consists of all individuals aged 16–74. Our study focuses exclusively on young citizens.

Regarding the data collected, respondents were asked questions regarding their frequency of Internet access and computer use such as 'When did you last use the Internet?' and 'How often on average did you use the Internet in the last 3 months?'. The survey also contained similar questions on frequency of computer and ICT use, such as 'For which of the following activities did you use the Internet in the last 3 months?' (with the possible response options 'storage space to save pictures, music and other files').

Lastly, the data on individuals who have above basic digital skills are based on a derived variable and estimated according to the definition provided by Eurostat. For example, if the response to the question 'Which of the following computer related activities have you already carried out?' is affirmative in one of the options, then digital skills are considered to be above basic.

These data are relevant because they allow us to determine the evolution of digital skills in young people across Europe, and, in particular, the use of ICT by young people in Spain. It can be observed that although young citizens are continually improving their digital skills, greater effort is required in this direction.

Table 1. Digital skills and ICT usage (Internet and computer use) by individuals in Europe

	Frague	nov of	Fraguency of		Fraguency of		Fraguency of		Used internet	
	Frequency of computer use:		Frequency of computer use: daily		Frequency of internet access: daily		Frequency of internet access: daily		storage space to	
									save documents,	
									pictures, music,	
									video or other files	
	Percentage of individuals		Percentage of individuals		Percentage of individuals		Percentage of individuals		Percentage of individuals	
	20 to 24 years old		25 to 29 years old		20 to 24 years old				16 to 24 years old	
Year	2015	2017	2015	2017	2015	2017	2015	2017	2015	2017
European Union - 28 countries	81	78	77	76	90	92	87	90	40	49
European Union - 27 countries (2007-2013)	81	78	77	76	90	92	87	90	41	49
European Union - 25 countries (2004-2006)									41	51
European Union - 15 countries (1995-2004)	79	75	76	75	91	93	89	91	38	46
Euro area	81	76	78	73	91	92	88	90	46	52
Belgium	86	80	88	82	94	93	91	92	36	33
Bulgaria	79	78	77	74	80	85	76	79	39	47
Czechia	90	94	83	86	91	96	87	89	58	69
Denmark	77	85	87	86	94	98	98	99	33	41
Germany	88	83	88	86	95	95	94	94	51	56
Estonia	90	84	93	85	97	98	97	97	53	67
Ireland	82	80	79	73	92	90	88	89	36	37
Greece	86	82	81	85	90	91	85	90	49	60
Spain	76	70	61	56	91	90	86	89	34	40
France	75	72	73	64	88	90	86	85	29	48
Croatia	88	74	77	90	95	98	87	93	33	39
Italy	78	68	71	63	88	89	81	85	38	48
Cyprus	89	85	84	76	94	96	87	95	49	50
Latvia	87	89	86	85	94	96	93	94	35	51
Lithuania	85	88	83	87	85	93	83	92	51	66
Luxembourg	74	86	89	90	98	96	99	98	46	43
Hungary	85	87	79	85	89	94	81	90	56	71
Malta	85	87	83	83	96	98	90	96	50	68
Netherlands	82	86	86	82	95	99	96	96	37	50
Austria	84	82	82	75	93	96	91	93	34	31
Poland	92	90	83	85	92	93	84	88	47	52
Portugal	83	75	77	71	92	94	84	94	43	39
Romania	71	75	60	65	72	80	59	70	47	49
Slovenia	90	88	87	79	95	96	88	92	34	48
Slovakia	89	89	86	91	91	94	89	92	51	58
Finland	82	77	90	82	98	98	96	100	53	73
Sweden	78	88	71	88	93	100	91	100	53	68
United Kingdom	77	74	72	84	91	94	91	94		73
Iceland		86		96		98		98	58	59
Norway	76	86	76	79	97	97	94	98		46
Montenegro		77		65		95		91	45	40
North Macedonia	84	81		79	89	94		91	17	34
Serbia	91	88	87	82	90	95	87	95		17
Turkey	47	45	47	45	63	81	61	80		
Kosovo		30		40		96		89		50

Source: Eurostat (2019)

Table 2. Digital skills. ICT user profiles in Europe

	Individuals who have above basic overall digital skills Percentage of individuals 20 to 24 years old			s who have sic overall	Individuals who have copy or pasted a file or folder Percentage of individuals 16 to 24 years old		Individuals who have copy or pasted a file or folder Percentage of individuals 16 to 29 years old	
				l skills				
				ntage of iduals				
				years old				
Year	2015	2017	2015	2017	2015	2017	2015	2017
European Union - 28 countries	51	57	45	48	82	83	81	82
European Union - 27 countries (2007-2013)	51	57	44	48	82	83	81	82
European Union - 25 countries (2004-2006)	53	61	48	52				
European Union - 15 countries (1995-2004)	54	58	49	50	81	82	80	81
Euro area	51	46	49	45	84	82	83	81
Belgium	37	33	25	22	80	76	80	77
Bulgaria	56	57	41	47	73	66	72	65
Czechia	72	76	72	76	85	90	82	88
Denmark	63	66	60	63	91	86	91	86
Germany	70	72	64	54	87	84	88	86
Estonia	40	57	38	43	90	84	90	83
Ireland	34	46	35	47	58	66	59	61
Greece	65	64	50	47	93	91	92	90
Spain	51	60	43	41	89	86	83	83
France	75	62	67	41	81	83	81	81
Croatia	38		34		97	90	98	89
Italy	30	40	27	26	77		74	
Cyprus	49	55	46	52	86	82	81	76
Latvia	63	61	51	51	96	89	96	88
Lithuania	66	80	72	76	91	91	89	90
Luxembourg	45	45	35	41	81	91	83	91
Hungary	69	73	53	64	84	83	80	80
Malta	72	79	60	64	89	95	83	91
Netherlands	62	73	59	52	84	87	84	87
Austria	43	51	33	37	91	93	92	90
Poland	61	65	52	56	87	89	84	85
Portugal	22	23	15	19	91	87	88	86
Romania	64	62	49	55	82	84	79	82
Slovenia	49	63	47	56	94	86	88	87
Slovakia	67	71	68	69	88	86	87	86
Finland	50	70	44	72	89	85	91	89
Sweden	49	66	41	55	65	76	69	80
United Kingdom		73		73	70	84	68	81
Iceland	68	71		68		79		83
Norway		65		59	85	81	86	82
Montenegro		30		20		93		93
North Macedonia	35	24		25	79	68	79	65
Serbia	32	55		41	58	86	60	
Turkey	21	35		38	56		53	
Kosovo		12		9		37		42

Source: Eurostat (2019)

6.2. The context of Spain

Focusing on the situation in Spain, the country displays a similar trend to the rest of Europe regarding young people's digital skills. As can be seen in Figure 4⁷, the number of young people (individuals aged 16–34) in Spain with above average digital skills increased over the period 2012–2016, peaked between 2012 and 2014, and subsequently dropped off.

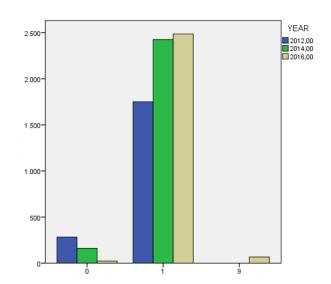


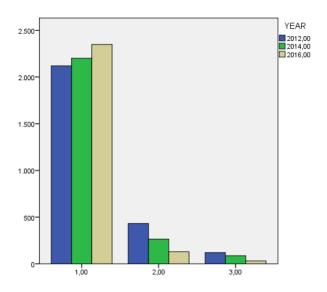
Figure 4. Young people with above average digital skills in Spain

Source: Eurostat (2019)

In addition, the frequency of Internet use is also increasing as more young people use Internet on a daily basis (Figure 5). In this case, there has been a steady rise in the years analysed. As digitalisation involves a growing number of new services on the Internet, new Internet use can be explained by the increasing number of young people who use Internet daily.

⁷ Figure 4 is estimated from Eurostat microdata.

Figure 5. Frequency of Internet use (from 1 = daily to 4 = less than once a week)



Source: Eurostat (2019)

In fact, the use of ICT by youth is on the rise in Spain and other European countries and young people are steadily improving their digital skills as a result. Nevertheless, several differences can be found between countries. For example, Luxembourg and Finland lead the digital changes, whereas other countries are improving their skills at a slower rate.

Digital transformation implies global competition, and the use of digital tools, in particular, could foster a global labour market. Nevertheless, young people in Spain do not currently lead in the use of digital tools. As a result, programmes to incentivise the use of ICT by young people need to be implemented and digital skills need to be incorporated in education.

7. The use of ICT by social workers

With the introduction of ICT, social work has experienced a shift which 'operates less on the terrain of the "social" and more on the terrain of the "informational", and has

moved 'from a narrative to a database way of thinking and operating' (Parton, 2008: 253). This change affects the relationship between service users and social workers (Steyert and Gould, 2009), which becomes over bureaucratised to such an extent that personal relations and narratives are progressively framed by the logic of a database mentality (Parton, 2008). Decisions that affect the fate of individuals are thus not the result of analysis based on contextualised knowledge, but rather on decontextualised algorithms.

Although this new context is very functional for a managerial understanding of welfare, particularly in social services (Di Rosa, Mordeglia and Argento, 2019), it can result in actions that exacerbate the situation of at-risk individuals in times of crisis, such as the COVID-19 pandemic. These actions include the careless implementation of the digital-by-default welfare state by some countries, such as the UK; the generalisation of database mentalities among social workers and the rise of 'front line' professional profiles (street level bureaucrats as they are referred to by Di Rosa et al., 2019); the absence or serious limitations of digital skills (according to the Lloyds Bank UK Consumers Digital Index (2020), around 12% of the population in the UK had no or very limited digital skills, while only 55% of those aged 16–76 in Spain had basic digital skills (Eurostat, 2019)); structural gaps (in the EU as a whole, 35% of the population aged 64–75 and 27% of individuals with no or little education have never used the Internet (Eurostat, 2019)); and the lack of accessibility to devices, broadband and sim eards.

With regard to the use of technology by social workers, our analysis yielded similar results to previous studies. In a survey conducted by the SCIE and the BASW in 2019, 89% of 647 respondents stated they had not received adequate social work training in digital skills. Regarding on-the-job training, 27% of respondents stated they had not

received any training in digital technology and several barriers were identified in the acquisition of digital skills (e.g. legacy systems, the impact of austerity measures).

Despite these barriers, and according to the survey, 47% and 31% of respondents rated their digital skills as 'good' or 'very good', respectively, which would seem to suggest that they are prepared to face the challenges of digitalisation.

In short, as regards the importance of digital skills for the social services workforce, greater commitment is needed to support the acquisition of these skills. To achieve this aim, programmes that foster digital skills and can be adapted to the current needs of social workers should be jointly developed by users and educators

The COVID-19 pandemic has brought to light the importance of facing these challenges and inspired a human-rights based approach for the provision of and access to benefits. Service users are now being remotely attended to by professionals working from their homes using digital platforms. However, this new scenario has further broadened the previously identified gaps, thus making the digital divide even more evident. To overcome these challenges, four actions or measures should be taken. First, introduce human rights principles and a gender perspective in digital-by-default welfare states. This would enhance accessibility by combining database data with real knowledge and real participation based on personal interaction. Second, support professionals in their acquisition of IT skills. Third, provide users with broadband and devices, if necessary, facilitate access to information on their social rights. And fourth, incorporate knowledge about the digital platforms used in welfare in social welfare curricula.

8. Discussion and conclusion

Following the analysis on the role of digital skills in the interactions between young people and social workers, the main findings reveal a gap between current needs and the actual level of digital skills in both groups. Although ICT use has increased, the labour market and future careers demand higher levels of digital skills.

To counteract this trend, both groups could act as mutual drivers of digital transformation. E-social work practices may help citizens to acquire digital skills, while the use of technology by young people promotes the use of digital social services. Furthermore, youth are society's future adults and their digital knowledge will determine the demand for digital services.

The current situation also calls for new programmes to foster the acquisition of digital skills in both collectives. Indeed, the importance of digital skills for professionals is now irrefutable, and young people and social workers are examples of this affirmation. Schools, universities, other institutions, and businesses are incorporating these skills in their practices and training (Picatoste et al., 2018). Higher education institutions are also including digital skills in their social work curricula. For example, the Council of the European Union has addressed digital skills in their conclusions relating to education and training, and the Europe 2020 strategy considers ICT a key element in education reform. Nevertheless, more initiatives are required in the field.

Moreover, it is important to measure digital skills in order to analyse their development, especially the digital skills of the social services workforce. Several professions have established the need for digital skills per role or function. To quote an example, the BMHI for Health Professionals has structured the required digital skills into a three-dimensional model (Mantas et al., 2010): professionals in healthcare; type of

specialisation in ICT (users or specialists); and the stage of career progression (bachelor, master, doctorate). This initiative can be extended to other collectives, such as social workers. In fact, from a practical perspective, the definition of a system to measure social workers' level of digital skills based on their roles and functions could be a useful practice to increase the digital skills required of the profession. Furthermore, the Health and Care Digital Capacities Framework and the Professional Capacities Framework could both be useful in this context. Both frameworks have been developed in the UK to highlight not only the importance of digital literacy, but also other key aspects of social work.

Technology has its dark side, too (Lachmann et al., 2018) and, therefore, there is also a need for further research into the negative effects of digital skills in social workers and Youth and strategies to control these negative effects of ICT.

In summary, if digital skills are to meet future needs, new training initiatives are required. Specifically, young people and social workers need to improve their digital skills and can act as mutual drivers in the process. Lastly, the evolution of digital skills should be measured accurately. Although several challenges lie ahead, there are also many future opportunities in the field.

9. References

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