Actions of social and labour inclusion with ICT: an assessment of the Velez-Malaga urban area

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Abstract

In the framework of knowledge society, information and communication technologies, the digital divide is still a determining factor for social inclusion and access to employment processes. In the interest of an inclusive and equitable development of digital competencies, governments and public policies should propose and enhance development programmes and initiatives for different groups of disadvantaged people, as well as the possibility of adult professional reorientation for those who run the risk of not having appropriate qualifications for their jobs. Consequently, it is necessary to ascertain the real situation of different urban areas in order to diagnose existing deficits in digital matters and develop integrated strategies to facilitate the inclusion and improvement of access to employment. The present study describes this reality in the municipal context of Velez-Malaga (Spain) and analyses the effectiveness of the measures put in place to improve the social and labour inclusion of its citizens.

Keywords: Inclusion, ICT, employment, digital competency, citizens.

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1. Introduction

Health, education and employment are the fundamental foundations of people's quality of life as they ensure their advancement and personal and professional development. In the international context, and in reference to the key elements that occupy us in this study, information and communication technologies (hereinafter ICT) and socio-labour inclusion, the 2030 Agenda and its sustainable development goals represent a significant step forward towards inclusion as a necessary process for public policies to be implemented by the member countries of this agreement. The objectives and goals proposed are integrated and indivisible in nature and combine the three dimensions of sustainable development: economic, social and environmental. As it appears in the text of the General Assembly of the United Nations (2015), the aim is to create the necessary conditions for sustainable, inclusive and sustained economic growth, shared prosperity and decent work for all, taking into account the different national levels of development and capacity [...]. The expansion of ICT and global interconnection offers great possibilities to accelerate human progress, overcome the digital divide and develop knowledge societies [...] (p. 1 & 6).

Regarding the community level, the 'European Framework of Digital Competencies for Citizenship', also known as DigComp, is presented as a tool designed to improve the digital competences of citizens. The DigComp was developed by the Joint Research Center (JRC) as a result of the scientific project commissioned by the Directorates General of Education and Culture together with that of Employment. The first publication of DigComp was in 2013 and since then, it has become a benchmark for the development and strategic planning of initiatives in the field of digital competence, both at European level and in the member states. In 2017, the JRC published DigComp2.1, updating the terminology, the conceptual model and the levels of competence development, as well as the case examples in its implementation at the European, national and regional levels. According to this model, there are five areas of competence development: (1) Information and data; (2) Communication and teamwork (cooperation); (3) Creation of digital content; (4) Security and (5) Resolution of technical problems. Each of the five areas of competence includes four aptitude categories and two levels: basic (levels 1 and 2), intermediate (levels 3 and 4), advanced (levels 5 and 6) and highly specialised (levels 7 and 8).

In addition to this strategic framework, there is a need for the intensive development of these competencies expressed in European Commission 'Europe's digital progress report 2017', which shows that 40% of companies have difficulties in hiring ICT experts and by 2020 there will be million jobs for ICT specialists not covered, a figure that companies and experts estimate could exceed 750,000 vacancies, according to the study.

At the national level, the 'Digital Agenda of the Government of Spain', launched in 2012, has as one of its strategic objectives the promotion of digital inclusion and the training of new ICT professionals, prioritising a 'Plan for digital inclusion and employability' through public-private collaboration and with the participation of civil society. In addition to this, it proposes to bring the Information Society to the poorest sectors of the population and groups with the lowest level of Internet use. In the last follow-up report carried out in 2016, and as a result of the actions put in place to fulfil the objective of promoting inclusion and digital literacy, 74.7% of the population, almost three out of every four citizens, have often used the Internet, compared to 61.8% at the beginning of the Agenda.

Furthermore, and now focusing on the local context, the 'EDUSI BIC VELEZ', Strategy for Sustainable and Integrated Urban Development, is a project co-financed by the European Regional Development Fund, within axis 12: Urban, Integrated and Sustainable Development, FEDER Sustainable Growth Operational Program 2014–2020 and by the Velez-Malaga City Council. It is articulated in response to the challenges and problems of its urban area, which have been detected through knowledge and analysis of different local plans and planning and diagnostic instruments that have been carried out on the city and its area of influence. It is based, therefore, on the convergence of global objectives with local interests, with an emphasis on several of the thematic objectives (TO) formulated by Europe for

the 2014–2020 period. Two of them represent a fundamental part of this study: OT2, improve access, use and quality of ICT and OT9, promote social inclusion and fight against poverty and any form of discrimination. As part of these objectives, various actions have been developed from 2017 to the present to reduce the digital divide and fight against social exclusion through the development of digital competence and its direct application to the socio-labour insertion of people in a more disadvantaged situation.

Cabero and Ruiz (2018, p. 17) point out that 'never throughout history, has humanity had so many ICTs at its disposal as at present, technologies that are duplicated at high speed, thanks to digitalisation [...]'. ICTs have become essential tools for the development of cities and their inhabitants, as a driver of economic, social and, of course, labour evolution. Internet, social networks, smartphones, computer applications, home automation and artificial intelligence are part of our daily lives and generate an unequal penetration in society as a whole as they offer a clear advantage for those who have integrated digital competence as part of their skills for social, personal and work development.

As indicated by UNESCO (2018), in the interests of an inclusive and equitable development of digital competencies, governments and public policies should favour and propose development programmes and initiatives for different groups of disadvantaged people, as well as the possibility of professional reorientation for adults who run the risk of not having appropriate qualifications for their jobs, as well as addressing the so-called digital divide. In the framework of the knowledge society and ICT, the digital divide is still a conditioning factor for the processes of social inclusion and access to employment as they establish a direct link between digital inclusion and social inclusion (Cabello, 2014). Likewise, Varela (2015) points out the following as the main reasons for the digital divide in Spain: the digital gender gap, reasons of age, training and education, functional questions (physical or mental disability), economic issues, matters of a geographical nature, urban-rural issues and educational-work problems.

In this article, we present the results collected in the context of the action called 'Meeting of Employment, Entrepreneurship and Talent Development' belonging to the 'EDUSI BIC VELEZ' project and which shows the status of the digital competence link to employment, as well as an approach to the training needs in this area of citizens of the municipality of Velez-Malaga (Spain) who participated in the study.

2. Objectives

The purpose of this research was to investigate the situation regarding digital competence linked to the employment of Velez-Malaga citizens participating in the study. There are two specific objectives: (a) to make a socio-demographic profile of the participants in the survey and (b) to ascertain the level of digital competence in certain tools as facilitators of access to employment, as well as training needs that are derived from the analysis performed.

3. Research methods

To carry out the study, we opted for a fundamentally quantitative, non-experimental methodology with the purpose of describing the existing reality in relation to socio-labour inclusion and digital competence as a facilitator of access to employment. Specifically, it is a survey study. As an instrument for the collection of information, an ad-hoc questionnaire was designed in which most of the items were closed questions, written in the form of a Likert-type rating scale (0–10, unlike the DigComp2.1 model which establishes a 1–8 scale in terms of levels of development). The short questions included helped respondents to give more nuanced answers.

3.1. Participants

The population or universe to which we referred our inquiry are citizens of the municipality of Velez-Malaga. For the selection of the sample, the participants of the 'Employment, Entrepreneurship and Talent Development Meeting' were invited to participate in the social and labour inclusion event linked to the 'EDUSI BIC VELEZ' project.

3.2. Instruments and procedure

In terms of data collection instruments, the technique most used in survey research was applied, that is, a questionnaire specifically prepared for this study based on a literature review on the subject (Aneas, 2003; Cernadas, Santos & Lorenzo, 2013).

The questionnaire, called 'New technologies and labour inclusion', was designed with the objective of investigating the situation regarding digital competence linked to the employment of citizens of Velez-Malaga, as well as their training needs in this regard. Following the guidelines proposed by Babbie (1998) for the drafting of questions or effective statements, the items have been prepared in a clear and simple way with questions relevant to the subject of study. Likewise, negative items and biased terms have been avoided. Questions were asked to gather socio-demographic information about the employment services provided by the municipality and those specifically related to digital competence linked to employment (Table 1).

Table 1. Sample of questions extracted from the 'new technologies and labour inclusion' questionnaire

Socio-demographic data	Training, employment and entrepreneurship services of the Business and Employment Area of the Velez-Malaga City Council. 0 = not satisfied, 10 = very satisfied	Rate your digital skills in general	What is your level in the following computer applications? 0 = no knowledge, 10 = expert level	What is your level of management of internet portals and social networks to find employment? 0 = no knowledge, 10 = expert level
Age	Training for Employment	No knowledge	Using the word processor	Job portals
Gender	Professional orientation	Basic user	Use of spreadsheets	LinkedIn
Nationality	Advice to entrepreneurs	Average user	Internet	Facebook
Training level	Advice to companies	Advanced user	Instant messaging	Twitter
Languages	Labour insertion program	Expert	Cloud storage	Employment blog
Current employment situation	Business incubation		Procedures with the public administration	Others. Indicate which one
Time looking for a job	Employment website		Applications to work collaboratively	
	Has taken a course at the City Council of Velez-Malaga. Indicate which one		Email	

The survey could be accessed through three different modalities: a QR code to access from the mobile phone (providing support for those who need it), a web address with direct access to the form, and an e-mail message. The 250 people participating in the 'Meeting of Employment, Entrepreneurship and Talent Development' had access to the questionnaire, designed with Google Forms technology. Finally, 170 people completed the questionnaire. As pointed out by Lorenzo et al. (2017) and the Red de Bibliotecas Universitarias Espanolas (REBIUN) Research Group in its 'Science Report 2.0: application of the social web to research' (REBIUN, 2010), the social web offers a series of services that can be applied in an instrumental way to research, since they serve to carry out certain operations necessary in the planning phases, documentation, experimentation and conducting of sociological research. Through the web, one can perform different processes that can also be shared with other scientists, hence its participative nature. Thus, Google Forms allow for the conducting of surveys that can be used collaboratively through the web.

To evaluate the level of reliability, the internal consistency method called Cronbach's Alpha coefficient was used. Once this coefficient was applied to the results of the questionnaire, a value of 0.88 was obtained. The content validity of the questionnaire was carried out through an evaluation by judges; it was presented to a group of eight experts in educational research with the purpose of detecting possible failures or errors of understanding and interpretation and measuring the time of completion. Subsequently, we carried out timely changes, rectifications and improvements of some items.

Prior to the principal component analysis, information was obtained on two measures related to compliance with the criteria for applying said analysis (Table 2).

The Kaiser–Meyer–Olkin (KMO) sample adequacy measure provided information on sampling suitability. The value obtained in KMO was 0.70. This fact indicates that the factor analysis is practical and useful for this study.

Barlett's sphericity test contrasts the hypothesis of equality of the matrix of correlations with identity. In our analysis, the significance is adequate, since it obtains a value below 0.00005, so that this null hypothesis can be rejected considering the adjustment of the variables through the appropriate factor analysis.

Table 2. KMO indicator values and Bartlett test

KMO fit sample measure		0.70
Bartlett's sphericity test	Chi-square (approximate)	731.516
	Degrees of freedom	210
	Significance (less than)	0.000

After performing the analysis, four main components (factors) were obtained in view of their greater significance. These components (eigenvalues ≤ 1) explain 72.38% of the total variance (Table 3).

Table 3. Results of the principal component analysis

Component	Initial self-values		
	Total	**% of variance**	**% cummulative**
1	6.768	32.226	32.226
2	5.523	26.300	58.527
3	1.790	8.525	67.052
4	1.120	5.332	72.385

For the extraction of these factors, the Principal Component Analysis method was used through a Varimax normalisation rotation with Kaiser that converged in five iterations. The regrouping of factors was as shown in Table 4.

Table 4. Results of the principal components analysis (factors)

Factor 1. Training, employment and business services of the Velez-Malaga City Council	
Item	Factor load
Business incubation	0.934
Training for Employment	0.908
Employment Web of the Business and Employment Area. http://weetsi.velezmalaga.es	0.888
Labour insertion programs	0.875
Professional orientation	0.870
Advice to entrepreneurs	0.860
Advice to companies	0.661
Factor 2. Office and Internet (included in the area of competence 1. Information and data according to DigComp 2.1)	
Using a word processor	0.785
Internet	0.737
Instant messaging	0.707
Using a spread sheet	0.692
Factor 3. General social networks and employment portals (included in the area of competence 1. Information and data according to DigComp2.1)	
Facebook	0.847
Twitter	0.772
E-mail	0.669
Job portals	0.498
Factor 4. Actions of social and labour inclusion with ICT: an assessment of the Velez-Malaga urban area	
Employment blog	0.844
LinkedIn	0.752
Applications to work collaboratively	0.497

Factor 1 was called 'Training, employment and business services of the Velez-Malaga City Council'. This factor shows those dimensions that refer to specific services and support for the unemployed and entrepreneurs that are offered in the municipality and that respondents consider to have a significant relevance. Factor 2 was 'Office and Internet' in relation to those tools that allude to Internet browsing basic skills, use of e-mail, word processors and spread sheets. They can be included in the area of competence 1 (information and data of the model Dig.Comp2.1). Factor 3 was called 'general social networks and employment portals'. The items grouped in this factor can be included in the area of competence 1 (information and data of the model Dig.Comp2.1). Finally, factor 4 is called 'professional social networks and collaborative work applications' and corresponds to the competence area 2 (communication and teamwork of the European model DigComp2.1); the items that assess the level of development of applications such as LinkedIn and collaborative work tools and employment blogs, applications linked to employment and professional development are part of that dimension.

4. Results

The results obtained represent a fundamental contribution in terms of the relationship of labour inclusion and digital skills as facilitators of access to employment.

4.1. Socio-demographic data

Our research has verified that of all the people who responded to the survey, 65% are women and 35% are men. Regarding the distribution by age, 46% of women are between 40 and 49 years old, 23% are women between 20 and 29 years old, 24% are in the age group between 30 and 39 years old and

7% of the total of the surveyed women are between 50 and 60 years. With regard to men, 33% are between 40 and 49 years old. 27% of them, between 50 and 60 years, 23% are between 20 and 29 years old and finally, 17% of the participants are between 30 and 39 years.

With regard to the educational level of the people surveyed, 47.2% have completed higher education, 31.5% have secondary education, 20.2% have primary studies and only 1.1% do not have studies of any kind.

Regarding the employment situation of the people surveyed, 65% are unemployed and 17% are long-term unemployed. Only 10% are working part time and 8% are working full time.

About the time taken by the respondents in active job search, the results show that 45% of the participants have spent from 1 to 6 months looking for work, 18%, from 18 to 24 months, 16%, from 6 to 12 months, 12%, 6 years or more in the search, and finally, 8% from 12 to 18 months.

4.2. Influence of some variables on the level of development of digital competence linked to employment

Once the descriptive analysis was completed, we began to study the influence of certain variables such as gender, age, educational level and employment situation using statistical significance techniques, and correlating them with the levels of development of certain significant technological competences valued by the respondents.

In terms of global data, and according to the perception of the people surveyed and the level of general digital competence according to gender, the following results are observed (Table 5).

Table 5. Level of general digital competence of the people surveyed by gender

General level	Men (%)	Women (%)
No knowledge	0.00	0.00
Basic user	16.67	32.14
Average user	40.00	33.93
Advanced user	40.00	32.14
Expert	3.33	1.79

By correlating the age and employment situation variables, we can see that more than 50% of the unemployed people who carried out the survey are over 40 years old.

Both women and men have a higher level of development in office automation, or basic tools such as word processor management (7.69), e-mail (8.69) and a slightly lower score in the management of spread sheets with a score of 5.83.

The people who have been unemployed the longest have a higher obsolescence level in digital matters and a lower level of digital skills development in more current applications for job searching. In the dimension 'professional social networks and collaborative work applications', the results obtained were as follows: LinkedIn with a level of development of 5.13, applications to work collaboratively with a level of 6.16, and employment blog, which scored 5.80.

5. Discussion

Training in ICT, both in basic computer tools as well as in the use of the Internet and social networks is an inherent need for social and labour inclusion processes, both in terms of access to employment and in the processes of professional retraining for employability improvement. Good governance in this era of ICT requires the establishment of support programmes and active social and labour inclusion policies that incorporate ICTs as an inherent part of their strategic objectives.

The results of our research are in line with those obtained in the 2016 Monitoring Report of the 'Digital Agenda for the Government of Spain' in its inclusion objective, which shows a notable increase in Internet access for the promotion of socio-labour inclusion and digital literacy. Even so, we still have a long way to go so that citizens can continue advancing in the European framework of digital competence towards more complex areas of competence (creation of digital content, security and resolution of technical problems within the DigComp2.1 model). The acquisition of digital skills at a higher level will promote more effective insertion in jobs that require the intensive use of ICT and can meet those labour market needs reflected in the 'Europe's digital progress report 2017'.

Among the main conclusions that derive from this research and that show the level of digital competence in certain tools as facilitators of access to employment, we can highlight the following:

- The need to include ICT training as part of the training of people who want to access a job or need to improve their employment status.
- Another aspect to be highlighted is that those people who have been unemployed the longest, more clearly suffer from the digital divide due to outdated ICT skills, which means a situation of greater exclusion from access to a job.
- The computer applications in which there is a higher level of technological competence are the basic office tools: e-mail (8.69), word processor (7.69), with a slightly lower level of development in spread sheets with a mean score of 5.83. These tools correspond to the competence area of the model Dig.Comp2.1 information and data. Here, the people surveyed show a high level of development.
- The social networks in which a greater level of technological competence is observed are those more widespread such as Facebook, with a level of development of 7.71.
- The most pressing needs in terms of digital competence are focused on the management of professional social networks aimed at actively seeking employment and collaborative work applications such as LinkedIn or employment blogs. This means a result of an intermediate level of development in the area of communication and teamwork, according to the DigComp2.1 model.
- Another of the main conclusions of our research is the importance of working strategically in the 'EDUSI BIC VELEZ' project with two key TO: TO2 Improving access, use and quality of ICT and TO9 Promote social inclusion and fight against poverty and any form of discrimination. The conjunction of these objectives supposes an effective complement to the processes of social-labour inclusion and digital literacy of the citizens of the municipality.

We can conclude this contribution by underlining the importance of knowing the skills that subjects possess in the use of ICTs and formulating training plans and training in specific digital competences based on this knowledge (Cabero, 2015).

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