The Self-Perceived Digital Competence of Social Educators in Spain: Influence of Demographic and Professional Variables

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Abstract—In 21st-century society, Information and Communication Technologies establish the ways of communication and socialization. The way we live, study, work, entertain ourselves, etc. have changed, and the patterns of social and economic development demand new skills from citizens. In Spain, the scientific and professional career called Social Education and their social educators, are responsible for promoting and facilitating the adaptation of people to society. Nowadays, these professionals must be aware that one of the fundamental competencies, along with others, is digital competence, and its development is a requirement to agree with contemporary society. This article presents the findings of a research that aims to be a pioneer in the field of study of Social Education in Spain and whose objective is to analyze the self-perceived digital competence of 452 working social educators and determine if demographic variables and professionals influence it. A quantitative, non-experimental, and descriptive method was used, with an ex-post-facto methodology, of a descriptive type in which no kind of treatment was applied to the object of study. The electronic survey technique was used to collect the information. For the analysis of the data, descriptive, inferential and regression tests were carried out. The main results obtained allow us to conclude that neither gender, nor age, nor the Autonomous Community influence the dimensions of management and attitude towards Information and Communication Technologies. On the contrary, professional variables do have an influence on the self-assessment of digital competence.

Keywords—information and communication technologies; digital competence; social education; social educators.

I. INTRODUCTION

In 1997, Castells [1] stated: “For the first time in history, the human mind is a direct productive force, not just an element of the production system” (p.62). I was thinking about a type of society in which the processing and transfer of information were to be the fundamental basis of productivity and power, being knowledge the basis of production processes. Nowadays, known as the Information and Knowledge Society (SIC), known by its complexity, and increasing expansion; In which knowledge and knowledge are the principles ruling and making the social structure as instruments of welfare and progress of nations.

The start of the Internet and its widespread adoption all over the world produced a deep social change. In the new interconnected world, Information and Communication Technologies (ICT) determine the ways of communicating and socializing [2]. The way of living, studying, working, entertaining, etc., have changed drastically [3]. We live in a world of profound changes [4] and of lightness [5] of evanescent modernity, where everything is fast and outdated [6].

In the manhood of the 21st century, the guidelines of social and economic development demand new social and digital competences to citizens, to live in it and so that they can develop their professional activity in an effective way actively contributing to economic growth [7]. The quick scientific and technological advances, as well as economic and cultural globalization, drive the activity of today’s society and cause a rapid gap in knowledge, in addition, they lead to continuous transformations in cultural, economic, and social structures, demanding from the citizens a constant change to adapt to the new circumstances.

In Spain, there is a scientific and professional area called Social Education whose workers, social educators, as educational agents, are responsible for promoting and facilitating the adaptation of people to society. Since ICTs influence personal relationships, participation as citizens, personal and professional development, and community and social development [8], at present, social educators should be aware that one of the fundamental competencies, along
with others, is digital. Therefore, training for the development of the digital competence must be a “must”, a non-avoidable requirement for any social educator who aims to be updated. First, because he or she needs the knowledge, procedures, and attitudes necessary to favor the socialization of the citizens of the Information and Knowledge Society, and, secondly, because digital competence is a right and a duty of a person who aims his or her work to be useful in society [9]. It is necessary not to forget that ICT offer great possibilities, but also strong challenges for freedom and equality.

The issue of self-perceived digital competence has been researched, especially in the field of formal education in its different stages and levels, both in Spain [10]–[12], as in other countries [13]–[20]. However, the scientific field on digital competence in the field of Social Education has not been developed yet. Some research has been carried out with university students of the Degree in Social Education [21]; [22], but really none with social educators who are working, developing their career. Therefore, this article presents the results of a research that aims to be a pioneer in the area of study of the digital competence of Social Education professionals in Spain.

A. The Profession of Social Educator

Social Education is a science whose purpose is to help people and social groups to shape an optimal way of life, in addition it facilitates the processes of socialization and integration of one culture into another. It explores the essence of social phenomena and deals with the influence of education in the social context on the lives of people and social groups [23]. The General Council of Schools of Educators and Social Educators (CGCEES), public law corporation integrated by all the professional associations existing in Spain and joint representative of them in the national and international scope, defines Social Education. It is defined as “the right of citizenship which is the recognition of a pedagogical career, which generates educational contexts within a frame of formative actions, which are the professional competence of the social educator, enabling:

- The inclusion of the subject of education to the diversity of social networks, understood as the development of sociability and social development; and
- The cultural and social promotion, understood as an opening to new possibilities for the acquisition of cultural goods, that broaden educational, labor, leisure, and social participation perspectives” [24].

The social educator is a professional who carries out standardized or specialized socio-educational actions, prevention, and intervention, with individuals and groups in order to originate changes to improve and transform society [25]. Its educational practice corresponds to three categories or organizing criteria, in which it analyzes situations, designs, plans, carries out and evaluates socio-educational projects.

Their professional competences are structured in five types of skills: communicative, relational, analysis and synthesis, reflexive critic, and for the selection and management of knowledge and information [24]. The professional profile of these professionals is broad, since they can work in very diverse contexts, a fact that characterizes this profession due to its heterogeneity. Taking into account different researches [26], we can conclude that the profession of social educator is polyvalent and is mainly assigned to work related to projects and services aimed at: childhood and youth; care for people with disabilities; primary care social services; social services for the elderly; community invigoration; community insertion; labor insertion; prison services; gender violence; etc.

B. The digital competence of the social educator

“Among other things, digital competence consists of managing and keeping abreast of different digital devices and their software in order to use the Internet and digital technology in an educational and critical approach” [39].

Last years, Social Education has faced challenges that technological issues have originated in societies, both globally and locally, and nearly everything has yet to be done, because technology has not yet been adapted to its professional practice. It is necessary that this work environment evolves and integrates ICT in its development. Must reflect deeply on the educational use of them, on their adaptation to different professional fields, on the impacts they cause, on new didactics and the effects that new virtual educational environments have on educational relationships. But you should also reflect on the possible risks and dangers that technology originates. [27].

ICTs are present in all sectors, from large multinationals to small and medium enterprises, governments, administrations, universities, educational centers, social organizations, professionals, and individuals [28], and the social educator as a professional of the socio-educational field cannot be apart. You can find in them a technical potential for continuing education, as well as new paths and alternatives for socio-educational action, education, and citizen participation. And it is obvious that if these professionals want to use them in their professional development, they must be digitally competent, to have "success in a complex and interconnected world that faces a rapid change of technological, cultural, economic, informative and demographic type" [29].

Competence implies knowledge, procedures, attitudes, and values to improve problem solving in a specific context. Digital competence refers to a conceptualized reality under a heterogeneity of terms. Some authors use digital literacy [30], while others prefer digital literacy [31]. However, both terms are often used as synonyms because, to a greater or lesser extent, they overlap [32].

This competence encompasses the safe and critical use of Information Society Technologies (IST) for work, leisure and communication; and from the point of view of a social educator, it can be understood as the set of knowledge, procedures, skills, values and attitudes on the ICTs that one should have to be able to: technologically literate his or her students, collaborate to end the digital divide, contribute with citizens not to be left out of the Information and Knowledge Society (e-Exclusion), work for the sake of e-inclusion and make possible the empowerment of people and social groups [22] by means of Technologies for Empowerment and Participation (TEP) [33].
The professional documents were set to articulate the culture and identity of the figure of the social educator in Spain. The collection of a catalog of function and competency of the profession based on the description of the skills that this professional has are for their development [24]. The importance of digital competence is not enough. Only, within the "Competencies related to communication skills", is the "knowledge and management of information and communication technologies, to increase the possibilities of coding and expand the knowledge and information necessary in the professional practice, enriching the forms of expression and communication."

After a systematic review of the literature on the digital competence of Social Education professionals, it has not been possible to identify by no means any research in this regard. With the intention of opening study line, this article presents the results of a work on the self-perceived digital competence of Spanish social educators, as well as the influence of demographic and professional variables in it

II. MATERIAL AND METHOD

A quantitative, non-experimental, and descriptive method was used, with an ex post-facto methodology, of a descriptive type in which no type of treatment was applied to the object of study.

A. Objective and research questions

Analyze the self-perceived digital competency of active Social Education professionals and determine if demographic and professional variables influence it.

The research questions to be answered are:
- Do social educators think that they have sufficient knowledge about ICT to carry out their work and develop their professional skills?
- What ICT do they have to handle in their professional tasks?
- Do they show a positive attitude towards ICT as tools that contribute to their good professional development?
- Are there differences in self-perceived digital competence based on demographic and professional variables?

B. Sample

We worked with a sample of Social Education professionals who, freely and voluntarily, wanted to participate in the research, being well informed of the objectives of the study. The type of sampling used was non-probabilistic and intentional, obtained through the network technique, using Twitter to request the participation of social educators in the research. This social network, in addition to allowing us access to this professional group, exercised a snowball effect making it possible to reach the largest number of participants, as in Table 1.

| TABLE I | SAMPLE DISTRIBUTION: DEMOGRAPHIC VARIABLES |
|---------|-------------------------------------------|
| Gender  |                                          |
| Male    | 154                                       | 36.5 |
| Female  | 268                                       | 63.5 |
| Age     |                                          |      |
| 18-28   | 95                                        | 22.5 |
| 29-39   | 169                                       | 40   |
| 40-51   | 121                                       | 28.7 |
| 52-62   | 32                                        | 7.6  |

The sample was made by a total of 452 social educators who worked in Spain. The corresponding homogeneity contrast showed that the distribution was not homogeneous at the different levels (p-value = 0.000). In relation to the most representative demographic variables of the participants (table I), 163 are men (36.1%) and 289 women (63.9%), with ages between 18 and 62 years, belonging to 18 different Autonomous Communities (territorial administrative Spanish entities).

Regarding the professional variables (table II), the most common academic degree is the Diploma of Social Education (81.3%), although there are professionals who in their starting training have fulfilled other degrees such as: Pedagogy, Psychology, Fine Arts, Social Work, Criminology, Philology, Biology, Mathematics, among others. The professional areas in which they work are diverse, highlighting some as: Social services, socio-educational actions with children and youth, social vulnerability to minors, socio-educational actions with adults, training and information for employment, education for health and additions, education for leisure and free time, animation and socio-cultural management, attention to disability, socio-educational intervention and mediation for social integration, socio-educational intervention in the regulated and adult sphere, and emerging and cross-cutting areas. Most have a professional experience between 1 and 10 years.

| TABLE II | SAMPLE DISTRIBUTION: PROFESSIONAL VARIABLES |
|----------|---------------------------------------------|
| Autonomous Community in which one works | f | %    |
| Cataluña | 76 | 18.0 |
| Asturias | 3  | 0.7  |
| Castilla la Mancha | 7 | 1.7 |
| Cantabria | 9 | 2.1 |
| Comunidad Valenciana | 22 | 5.2 |
| La Rioja | 1  | 0.2  |
| Ceuta | 1 | 0.2 |
| Navarra | 8  | 1.9  |
| Aragón | 3  | 0.7  |
| Canarias | 11 | 2.6 |
| Andalucía | 88 | 20.9 |
| Galicia | 15 | 3.6  |
| Murcia | 19 | 4.5  |
| Extremadura | 19 | 4.5 |
| Castilla y León | 53 | 12.6 |
| Madrid | 45 | 10.7 |
| País Vasco | 22 | 5.2 |
| Islas Baleares | 20 | 4.7 |
| Academic qualification | f | %    |
| Grade Social Education | 343 | 81.3 |
| FP ASC | 11 | 2.6  |
| Degree in Pedagogy | 16 | 3.8  |
| Degree in Psychology | 19 | 4.5  |
| Degree Fine Arts | 1 | 0.2  |
| Grade Magisterium | 11 | 2.6  |
| Degree in Sociology | 1 | 0.2  |
Degree in Psychopedagogy 4 0.9
Degree Social Work 8 1.9
Degree in Criminology 1 0.2
Degree in Philology 1 0.2
FP Administrative 1 0.2
Degree in Geography and History 1 0.2
Degree in Biology 1 0.2
High-school 1 0.2
Degree Business Administration 1 0.2
Degree in Mathematics 1 0.2

**Professional field**

| Field                     | f | %  |
|---------------------------|---|----|
| Social Services           | 140 | 33.2 |
| Socio-educational actions with children and young people | 97 | 23.0 |
| Social unprotection of underage | 39 | 9.2 |
| Socio-educational actions with the elderly | 25 | 5.9 |
| Training and information for employment | 17 | 4.0 |
| Education for health and prevention of addictions | 22 | 5.2 |
| Education for leisure and free time | 10 | 2.4 |
| Animation and sociocultural management | 7 | 1.7 |
| Attention to disability | 20 | 4.7 |
| Socio-educational intervention and mediation for social integration | 10 | 2.4 |
| Socio-educational intervention in the regulated and adult spheres | 4 | 0.9 |
| Emerging and transversal fields. | 10 | 2.4 |
| Other | 21 | 5.0 |

**Education professional experience**

| Time          | f  | %  |
|---------------|----|----|
| 1-10 years (junior A) | 242 | 57.3 |
| 11-20 years (junior B) | 125 | 29.6 |
| 21-30 years (senior A) | 31 | 7.3 |
| 31-40 years (senior B) | 8 | 1.9 |

**C. Data collection**

To collect the information, the electronic survey technique was used, by means of a direct response questionnaire, adapted from the instrument called CODIEU, used to measure the digital competence of university students, whose psychometric characteristics can be consulted [34]. The questionnaire includes 54 items, distributed in three dimensions (knowledge, management, and attitude) and structured in four blocks: identification, knowledge, management, and attitude (table III). To answer, we chose a (yes / no) scale in the knowledge dimension and a Likert type scale of 1-5 in the management and attitude dimensions. The initial instrument was improved through the application of a pilot test and validated by the method of judges, specialists in the subject of study. It is proved its high reliability and internal consistency through the Cronbach α statistic (α = 0.89).

**TABLE III**

| Dimensions | Definition | Items |
|------------|------------|-------|
| Identification data (ID) | Variables that allow the sample to be identified by means of demographic and professional characteristics (gender, age, working “Autonomous Community,” academic qualifications, years of experience and professional field). | 1-7 (7 items) |
| Knowledge (KN) | Knowledge of ICT-related concepts and technological devices. | 8-27 (20 items) |

**Usage (US)**

| Usage (US) | Description | f  | %  | σ  | Asymmetry | Kurtosis |
|------------|-------------|----|----|----|-----------|----------|
| ICT usage in their professional performance. | 28-45 | (18 items) |

**Attitude (A1)**

| Attitude (A1) | Description | f  | %  | σ  | Asymmetry | Kurtosis |
|---------------|-------------|----|----|----|-----------|----------|
| Value and attitude towards ICT according to the need and importance for the Social Education professional. | 46-54 | (9 items) |

**D. Data Analysis**

The statistical organization, treatment and analysis of the data was carried out with the statistical program Statistical Package for the Social Sciences (SPSS v.24). For the study of the dimensions of knowledge, management and attitude, descriptive analysis was carried out and for the identification variables (demographic and professional), inferential.

In this inferential analysis, once the parametric assumptions of normality (Kolmogorov-Smirnov and Shapiro-Wilk test) and homoscedasticity (Levene’s test) were verified, it was decided to use parametric tests, of hypothesis contrast (T of Student, for two samples and ANOVA> 2 samples), to check if there were differences depending on the demographic and professional variables. In addition, they were completed with the Lambda regression test, to verify the existing differences.

**III. RESULTS AND DISCUSSION**

Next, we present the main results obtained structured according to the analysis.

**A. Descriptive Analysis**

Regarding the knowledge dimension (KN), self-evaluations are very high, highlighting that professionals know most of the concepts presented (table IV). The least known are mashup (13.7%), b-learning (28.7%), m-learning (30.8%) and Massive Open Online Course (MOOC) (34.6%).

**TABLE IV**

| Knowledge (KN) | f  | %  | σ  | Asymmetry | Kurtosis |
|----------------|----|----|----|-----------|----------|
| Web 2.0. | 333 | 78.9 | .408 | -1.422 | .023 |
| Wikipedia | 418 | 78.9 | .097 | -10.161 | 101.725 |
| Blogosphere | 295 | 78.9 | .459 | -.871 | -1.247 |
| Podcast | 288 | 78.9 | .466 | -.787 | -1.388 |
| Social Signs | 204 | 78.9 | .500 | .067 | -2.005 |
| Mashup | 58 | 78.9 | .345 | 2.114 | 2.479 |
| WebQuest | 208 | 78.9 | .501 | .029 | -2.009 |
| Tablet | 418 | 78.9 | .997 | -10.161 | 101.725 |
| Smartphone | 421 | 78.9 | .049 | -20.543 | 422000 |
| eBook | 421 | 78.9 | .049 | -20.543 | 422000 |
| Interactive Digital Whiteboard | 412 | 78.9 | .152 | -6.285 | 37.683 |
| Videoconference | 420 | 78.9 | .069 | -14.474 | 208481 |
| Information search engine | 420 | 78.9 | .069 | -14.474 | 208481 |
| Learning object | 360 | 78.9 | .354 | -2.002 | 2.017 |
| e-learning | 359 | 78.9 | .357 | -1.975 | 1.911 |
| m-learning | 130 | 78.9 | .462 | .834 | -1.310 |
| b-learning | 121 | 78.9 | .453 | .947 | -1.109 |
| MOOC | 146 | 78.9 | .476 | .650 | -1.585 |
| Network | 418 | 78.9 | .097 | -10.161 | 101.725 |
| Cloud Storage | 398 | 78.9 | .232 | -3.840 | 12.809 |
Regarding the management dimension (US), the average results are very low regarding to the use of ICT devices (table V). Social educators only recognize using the computer (\(\bar{x}=4.5, \sigma=0.84\)) and the smartphone (\(\bar{x}=3.61, \sigma=1.52\)) in their professional development. Regarding ICT tools, they self-assess with the highest scores in the use of documentation search tools (\(\bar{x}=4.44, \sigma=0.86\)), communication (WhatsApp, email, videoconference, chat, forums, etc.) (\(\bar{x}=4.30, \sigma=1.07\)) and administration and management (\(\bar{x}=4.13, \sigma=1.13\)). With slightly lower scores, the use of social networks such as Facebook, Twitter, LinkedIn, Instagram, YouTube, etc., stands out (\(\bar{x}=2.97, \sigma=1.52\)). Only 24.25% of these professionals have ever enrolled in a MOOC and only 17.8% of those enrolled have completed it.

The results in both dimensions (KN and US) are different from those found in other research, such as that carried out by [21] with apprentice social educators.

### TABLE V

**Descriptive Statistics on ICT Usage**

| Usage (US)          | \(\bar{x}\) | \(\sigma\) | Asymmetry | Kurtosis |
|---------------------|-------------|-------------|-----------|----------|
| Computers           | 4.502       | 8.406       | -1.888    | 3.612    |
| Tablets             | 2.322       | 1.533       | -0.678    | -1.096   |
| Smartphone          | 3.616       | 1.527       | -0.646    | -1.083   |
| eBooks              | 1.969       | 1.380       | -1.122    | -1.180   |
| Interactive Digital | 1.590       | 1.0477      | 1.690     | 1.800    |
| Whiteboard          |             |             |           |          |
| Digital camera      | 3.377       | 1.4581      | -0.383    | -1.200   |
| Digital video camera| 2.495       | 1.5396      | -0.480    | -1.285   |
| Communicati on tools| 4.303       | 1.0757      | -1.524    | 1.459    |
| Search/documen tation tools | 4.448 | 0.8669 | -1.619 | 2.214 |
| Tracking tools      | 3.367       | 1.4425      | -0.351    | -1.212   |
| Administratio n/managemen t tools | 4.130 | 1.1345 | -1.160 | 0.364 |
| Training tools      | 2.972       | 1.5208      | -0.401    | -1.471   |
| Time organization tools | 3.062 | 1.5025 | -0.412 | -1.422 |
| Collaborative work tools | 3.133 | 1.4691 | -0.150 | -1.351 |
| Cloud storage tools | 3.197       | 1.5509      | -0.208    | -1.455   |
| Social networks tools | 3.735       | 1.4704      | -0.809    | -0.809   |

Considering the attitude dimension (AT), they express a very unanimous opinion on the issues raised, with very homogeneous distributions (table VI). The same can be found in other works such as that of [35], which participants were practicing social educators. The standard deviations are, in many cases, less than 1, which indicates that they agree with the valuation of the variables. In general, they consider ICT very useful for training (\(\bar{x}=4.52, \sigma=0.76\)), although they do not believe they are sufficiently trained to use these technologies (\(\bar{x}=4.10, \sigma=0.76\)). They also consider them necessary and useful for their profession (\(\bar{x}=4.28, \sigma=0.92\)), they think that they save time and work (\(\bar{x}=4.25, \sigma=0.92\)), they consider them as professional development tools (\(\bar{x}=4.10, \sigma=1.00\)) and feel competent to use them in their work activities (\(\bar{x}=4.33, \sigma=0.86\)), although they think that they should improve their initial and continuous ICT training (\(\bar{x}=4.46, \sigma=0.78\)).

### TABLE VI

**Descriptive Statistics on Attitude Towards ICT**

| Attitude (AT) | \(\bar{x}\) | \(\sigma\) | Asymmetry | Kurtosis |
|---------------|-------------|-------------|-----------|----------|
| Addressees can use ICT | 3.675 | 1.2219 | -0.576 | -0.636 |
| ICT are necessary and useful for their profession. | 4.287 | .9277 | -1.317 | 1.275 |
| ICT save professional effort and work. | 4.258 | .9258 | -1.221 | 1.118 |
| ICT are useful for training | 4.521 | .7664 | -1.615 | 2.164 |
| Users have the adequate training to use ICT in their profession. | 3.467 | 1.1039 | -0.267 | -0.661 |
| ICT are a cold and distant communication media. | 2.668 | 1.0915 | .159 | -0.471 |
| ICT are professional development tools. | 4.109 | 1.0000 | -1.008 | .545 |
| Social Educator is competent to use ICT in their profession. | 4.334 | .8607 | -1.195 | .963 |
| Improve initial and continuous training of SE in ICT. | 4.464 | .7813 | -1.443 | 1.812 |

Asymmetry and kurtosis are distribution measures that allow us to identify how the values are grouped according to their graphic representation and if the data are distributed regularly around the average. Considering the results obtained, we can affirm that the positive asymmetries are since most of them are above the value of the arithmetic mean, and those that are negative (all the items minus one) to which the greatest amount of data are added to the values which are lower than the average.

#### B. Inferential Analysis of Demographic Variables

If we focus on the gender variable (table VII), there are significant differences in the knowledge dimension (KN) (\(t=4.97, p<0.05\)), but they are not observed in the other two dimensions evaluated: usage (US) (\(t=1.68, p>0.05\)) and attitude (AT) (\(t=0.88, p>0.05\)), with a very small effect size (\(d=0.2, d=0.08\) respectively), which corresponds to 2% and 1% of the variance explained. As in other research carried out with professionals in internships and training education, it is confirmed that gender is more powerful mainly in the knowledge dimension and less in usage and attitude dimensions ([36] and [37]).
In relation to the age variable (table VIII), no significant differences were found, neither in the management (US) (F=0.98, p>.05), nor in attitude (AT) (F=1.71, p>.05), with a very small effect size (d=0.0, d=0.0, d=0.1 respectively), which corresponds in all three cases to the 1% of the variance explained. Unlike in other studies in which it concludes the influence of age in favor of the younger [38].

Finally, in the variable Autonomous Community (CC, AA) (table IX), no significant differences were found in any of the three dimensions (KN, US, AT), in contrast to other studies [22].

C. Inferential Analysis of Professional Variable

Regarding the academic qualification (table X), there are significant differences in the management dimension (US) (F=1.69, p<.05) and attitude (AT) (F=1.65, p<.05). The differences show a medium size effect, according to the interpretation of Cohen (1988) (d=0.4, d=0.5, d=0.4, respectively), which corresponds to 4% and 5% of the variance explained. These differences in management are in favor of those professionals who studied the Diploma or Degree in Social Education compared to those who studied Teaching. In the attitude, those who studied Module of FP Teaching. In the attitude, those who studied Module of FP compared to those who studied the Diploma or Degree in Social Education.
TABLE X
DESCRIPTIVE STATISTICS AND ANOVA TEST RESULTS FOR THE ACADEMIC QUALIFICATION VARIABLE

| ES | SE | FP | VT | PE | PE | PS | PS | MG | TE | OT | ANOVA | d Cohen |
|----|----|----|----|----|----|----|----|----|----|----|--------|---------|
| N  | X (SD) | N  | X (SD) | N  | X (SD) | N  | X (SD) | N  | X (SD) | N  | X (SD) | F  | Sig. |
| KN | 343 | 0.74 (.14) | 11 | 0.75 (.14) | 16 | 0.68 (.16) | 19 | 0.70 (.15) | 11 | 0.65 (.15) | 22 | 0.73 (.14) | 1.23 | .23 |
| US | 343 | 3.30 (.81) | 11 | 3.26 (.54) | 16 | 3.01 (.77) | 19 | 3.00 (.96) | 11 | 2.78 (.59) | 22 | 3.44 (.81) | 1.69 | .04 |
| AT | 343 | 3.98 (.55) | 11 | 4.20 (.53) | 16 | 3.94 (.37) | 19 | 3.75 (.87) | 11 | 3.87 (.70) | 22 | 3.81 (.57) | 1.65 | .05 |

Note: SE- Degree in Social Education. VT- Coming from VT. PE- Degree in Pedagogy. PS- Degree in Psychology. TE- Degree in Teaching. OT- Other degrees.
Note: N = sample number. (SD) = mean (standard deviation). Sig. = level of significance (0.05).

In relation to professional experience (table XI), there are no significant differences in knowledge (KN) (F=0.24, p>.05), nor in management (US) (F=0.24, p>.05) nor in attitude (AT) (F=1.00, p>.05); with a very small effect size (d=0.0, d=0.0, d=0.1 respectively), which corresponds in the three cases to 1% of the variance explained. Considering the professional field (table XII), there are significant differences that affect their value in two of the three dimensions of digital competence studied.

TABLE XI
DESCRIPTIVE STATISTICS AND ANOVA TEST RESULTS FOR THE PROFESSIONAL EXPERIENCE VARIABLE

|       | 0-10 years | 11-20 years | 21-30 years | 31-40 years | ANOVA | d Cohen |
|-------|------------|-------------|-------------|-------------|--------|---------|
| N     | X (SD)     | N           | X (SD)      | N           |        |         |
| KN    | 242 | 0.73 (.14) | 125 | 0.74 (.15) | 31 | 0.73 (.15) | 8 | 0.70 (.15) | 0.24 | .86 |
| US    | 242 | 3.24 (.82) | 125 | 3.29 (.79) | 31 | 3.25 (.88) | 8 | 3.43 (.85) | 0.24 | .86 |
| AT    | 242 | 3.94 (.59) | 125 | 4.03 (.52) | 31 | 3.99 (.49) | 8 | 3.77 (.94) | 1.00 | .39 |

Note. N = sample number. (SD) = mean (standard deviation). Sig = significance level (0.05).

The knowledge dimension (KN) (F=1.78, p<.05) and the usage dimension (US) (F=2.40, p<.05) are significantly influenced by the working field. With a small effect size in knowledge (KN) and attitude (AT) (d=0.2; d=0.1 respectively), and medium in usage (US) (d=0.4), which corresponds to 2% and 1% of the variance explained in the first case and 4% in the second case. The professionals who acknowledge having more knowledge about ICT are those who develop their work in the area of Attention to Disability and those who acknowledge not knowing a greater number of concepts are those who work in the area of Education for Health and Addictions. Those who carry out their professional work in Education for leisure and free time are those who say they handle ICT better than those who work...
in the field of socio-educational actions with children and young people. There are no significant differences in attitudes towards ICT.

D. Regression Analysis Demographic and Professional Variables

In order to corroborate the significant differences found, the Lambda regression test was applied to those variables whose data could be used, obtaining the following results: The gender variable has its greatest predictive power over the usage dimension (US) (table XV). With the knowledge (KN) and attitude (AT) dimensions it loses its predictive relevance (table XVI). In the discriminant analysis (table XVII) the gender variable shows its greater predictive power in the knowledge dimension (KN) (Wilks’ Lambda=.082, p=.001). With the age variable and the variable on the three analyzed dimensions: knowledge (KN), attitude (AT), and usage (US) (Wilks’ Lambda=.059, p=.000; AT, Wilks’ Lambda=.061, p=.001). All predictor variables acquire a significant degree of relationship to the equa-

The gender variable has its greatest predictive power over the usage dimension (US) (Wilks’ Lambda=.118, p=.000; AT, Wilks’ Lambda=.085, p=.001). All predictor variables acquire a significant degree of relationship to the equa-

The academic qualification variable shows further results on the three analyzed dimensions: knowledge (KN) (Wilks’ Lambda=.048, p=.000), usage (US) (Wilks’ Lambda=.047, p=.000) and attitude (AT) (Wilks’ Lambda=.041, p=.001) (tables XXII, XXIII and XXIV). The equations show a sufficient canonical correlation, with optimum goodness of fit in all cases.

The professional experience variable shows further results over the usage dimension (US) (Wilks’ Lambda=.058, p=.004) (table XXVI). The equation shows sufficient canonical correlation, with optimum goodness-of-fit. The dimensions knowledge (KN) (Wilks’ Lambda=.016, p=.30) and attitude (AT) (Wilks’ Lambda=.028, p=.259) (tables XXV and XXVII) do not show predictive power.

With respect to the Autonomous Community variable (CCAA), as can be observed in tables XIX, XX and XXI, it shows predictive power over the three dimensions (KN, Wilks’ Lambda=.055, p=.009; US, Wilks’ Lambda=.118, p=.000; AT, Wilks’ Lambda=.085, p=.001). All predictor variables acquire a significant degree of relationship to the equation.

| TABLE XIII | FIXING WITH WILKS’ LAMBDA STATISTIC (GENDER-KNOWLEDGE) |
|----------------|----------------------------------------------------------|
| Total structure matrix | T approx. | Wilks’ Lambda | Sig  |
| GE | 1.93 | .020 | .275 |
| KN | 1.93 | |

| TABLE XIV | FIXING WITH WILKS’ LAMBDA STATISTIC (GENDER-USAGE) |
|----------------|----------------------------------------------------------|
| Total structure matrix | T approx. | Wilks’ Lambda | Sig  |
| GE | 1.93 | .050 | .046 |
| US | 0.82 | |

| TABLE XV | FIXING WITH WILKS’ LAMBDA STATISTIC (GENDER-ATTITUDE) |
|----------------|----------------------------------------------------------|
| Total structure matrix | T approx. | Wilks’ Lambda | Sig  |
| GE | 1.41 | .026 | .107 |
| AT | 0.78 | |

The age variable shows its greater predictive power in the dimensions of management (US) (Wilks’ Lambda =.082, p=.000) and attitude (AT) (Wilks’ Lambda=.043, p=.002) (tables XVII and XVIII). In the knowledge dimension it loses its predictive relevance (table XVI). The equations show a sufficient canonical correlation, with an optimum goodness of fit.

| TABLE XVI | FIXING WITH WILKS’ LAMBDA STATISTIC (AGE-KNOWLEDGE) |
|----------------|----------------------------------------------------------|
| Total structure matrix | T approx. | Wilks’ Lambda | Sig  |
| AG | 1.09 | .013 | .257 |
| KN | 0.33 | |

| TABLE XVII | FIXING WITH WILKS’ LAMBDA STATISTIC (AGE-USAGE) |
|----------------|----------------------------------------------------------|
| Total structure matrix | T approx. | Wilks’ Lambda | Sig  |
| Edad | 3.65 | .082 | .000 |
| AG | 1.40 | |

| TABLE XVIII | FIXING WITH WILKS’ LAMBDA STATISTIC (AGE-ATTITUDE) |
|----------------|----------------------------------------------------------|
| Total structure matrix | T approx. | Wilks’ Lambda | Sig  |
| AG | 3.28 | .043 | .002 |
| AT | 1.81 | |

With respect to the Autonomous Community variable (CCAA), as can be observed in tables XIX, XX and XXI, it shows predictive power over the three dimensions (KN, Wilks’ Lambda=.055, p=.009; US, Wilks’ Lambda=.118, p=.000; AT, Wilks’ Lambda=.085, p=.001). All predictor variables acquire a significant degree of relationship to the equation.

| TABLE XIX | FIXING WITH WILKS’ LAMBDA STATISTIC (CCAA-KNOWLEDGE) |
|----------------|----------------------------------------------------------|
| Total structure matrix | T approx. | Wilks’ Lambda | Sig  |
| CCAA | 2.10 | .055 | .009 |
| KN | 1.99 | |

| TABLE XX | FIXING WITH WILKS’ LAMBDA STATISTIC (CCAA-USAGE) |
|----------------|----------------------------------------------------------|
| Total structure matrix | T approx. | Wilks’ Lambda | Sig  |
| CCAA | 5.65 | .118 | .009 |
| US | 3.90 | |

| TABLE XXI | FIXING WITH WILKS’ LAMBDA STATISTIC (CCAA-ATTITUDE) |
|----------------|----------------------------------------------------------|
| Total structure matrix | T approx. | Wilks’ Lambda | Sig  |
| CCAA | 3.45 | .085 | .011 |
| AT | 3.22 | |

| TABLE XXII | FIXING WITH WILKS’ LAMBDA STATISTIC (ACADEMIC QUALIFICATION-KNOWLEDGE) |
|----------------|----------------------------------------------------------|
| Total structure matrix | T approx. | Wilks’ Lambda | Sig  |
| AQ | 3.46 | .048 | .000 |
| KN | 1.41 | |

| TABLE XXIII | FIXING WITH WILKS’ LAMBDA STATISTIC (ACADEMIC QUALIFICATION-USAGE) |
|----------------|----------------------------------------------------------|
| Total structure matrix | T approx. | Wilks’ Lambda | Sig  |
| AQ | 4.29 | .047 | .000 |
| US | 1.41 | |

| TABLE XXIV | FIXING WITH WILKS’ LAMBDA STATISTIC (ACADEMIC QUALIFICATION-ATTITUDE) |
|----------------|----------------------------------------------------------|
| Total structure matrix | T approx. | Wilks’ Lambda | Sig  |
| AQ | 3.22 | .041 | .001 |
| AT | 1.00 | |

| TABLE XXV | FIXING WITH WILKS’ LAMBDA STATISTIC (PROFESSIONAL EXPERIENCE-KNOWLEDGE) |
|----------------|----------------------------------------------------------|
| Total structure matrix | T approx. | Wilks’ Lambda | Sig  |
| PE | 0.57 | .016 | .301 |
| KN | 0.87 | |
Finally, the professional field variable indicates capacity on the three dimensions analyzed: knowledge (KN) (Wilks’ Lambda=.036, p=.011), usage (US) (Wilks’ Lambda=.10, p=.000) and attitude (AT) (Wilks’ Lambda=.065, p=.001) (tables XXVIII, XXIX and XXX). The equations show a sufficient canonical correlation, with optimum goodness of fit in all cases.

IV. CONCLUSION
This article analyzes the self-perceived digital competence of Social Education professionals in Spain, as well as it shows whether demographic and professional variables influence it. In self-perceived digital competence, self-assessments are very high in the knowledge dimension, very low in the skills dimension in relation to the usage of ICT devices and medium in relation to the use of tools. The attitude towards ICT is quite positive according to their necessity and importance for professional development.

As for the influence of demographic variables on self-perceived digital competence, in general neither gender, age, nor the “Autonomous Community” influences the dimensions of usage and attitude. Only significant differences were found in knowledge, in favor of the male gender. Male social educators claim to have more ICT knowledge than female social educators.

With regards to age, although this sample shows more predictive power in the dimensions of handling and attitude losing its relevance in that of knowledge, no significant differences were found. Finally, the “Autonomous Community” is the most powerful over the three dimensions, but no significant differences were found in this respect.

With respect to professional variables, results were found supporting the idea of the influence of some professional factors when assessing digital competence. Both academic qualifications, experience and professional field show predictive power over the three studied dimensions. However, the first has a significant influence, especially on the handling and attitude towards technology. Years of experience do not determine the valuation of digital competence by social educators. And the professional field influences knowledge and usage.

As the main constraint of this research, it should be noted that due to the limited nature of the sample, the results should not be generalized. However, such results are representative and may be useful for the professional community because the contribution of the self-assessment of the digital competence of active social educators may encourage reflection on their professional training and development. Given the lack of research on the subject, in the field of Social Education, studies are suggested in Spain and other countries to help developing the field of study of the digital competence of social educators.

TABLE XXVI
Fixing with Wilks’ Lambda Statistic (Professional Experience-Usage)

| Total structure matrix | T approx. | Wilks’ Lambda | Sig |
|------------------------|-----------|---------------|-----|
| PE                     | 2.52      | .058          | .004|
| US                     | 2.01      |               |     |

TABLE XXVII
Fixing with Wilks’ Lambda Statistic (Professional Experience-Attitude)

| Total structure matrix | T approx. | Wilks’ Lambda | Sig |
|------------------------|-----------|---------------|-----|
| PE                     | 0.98      | .028          | .259|
| AT                     | 0.85      |               |     |

TABLE XXVIII
Fixing with Wilks’ Lambda Statistic (Professional Field-Knowledge)

| Total structure matrix | T approx. | Wilks’ Lambda | Sig |
|------------------------|-----------|---------------|-----|
| PF                     | 1.26      | .036          | .011|
| KN                     | 2.23      |               |     |

TABLE XXIX
Fixing with Wilks’ Lambda Statistic (Professional Field-Usage)

| Total structure matrix | T approx. | Wilks’ Lambda | Sig |
|------------------------|-----------|---------------|-----|
| PF                     | 4.96      | .102          | .000|
| US                     | 3.03      |               |     |

TABLE XXX
Fixing with Wilks’ Lambda Statistic (Professional Field-Attitude)

| Total structure matrix | T approx. | Wilks’ Lambda | Sig |
|------------------------|-----------|---------------|-----|
| PF                     | 2.30      | .065          | .001|
| AT                     | 2.79      |               |     |

TABLE X
Fixing with Wilks’ Lambda Statistic (Professional Field-Knowledge)

| Total structure matrix | T approx. | Wilks’ Lambda | Sig |
|------------------------|-----------|---------------|-----|
| PF                     |           |               |     |
| KN                     |           |               |     |

TABLE XI
Fixing with Wilks’ Lambda Statistic (Professional Field-Usage)

| Total structure matrix | T approx. | Wilks’ Lambda | Sig |
|------------------------|-----------|---------------|-----|
| PF                     |           |               |     |
| US                     |           |               |     |

TABLE XII
Fixing with Wilks’ Lambda Statistic (Professional Field-Attitude)

| Total structure matrix | T approx. | Wilks’ Lambda | Sig |
|------------------------|-----------|---------------|-----|
| PF                     |           |               |     |
| AT                     |           |               |     |

REFERENCE
[1] M. Castells, La era de la información: economía, sociedad y cultura. La sociedad red [The information age: economy, society, and culture. The network society], Madrid, Spain: Alianza Editorial, 1997.
[2] M. Au-Yong, R. Gonçalves, J. Martins, and F. Branco, “The social impact of technology on millennials and consequences for higher education and leadership”, Telematics and Informatics, no 35, pp. 954-963, 2018. [Online]. Available: 10.1016/j.tele.2017.10.007.
[3] P. Turman, T.S. Meriam and K. Osman, “21st Century Skills Mastery Amongst Science Foundation Programme Students”, International Journal on Advanced Science Engineering Information Technology, vol. 9, no. 1, pp. 46-53, 2019. [Online]. Available: http://dx.doi.org/10.18517/ijasiet.9.1.6431.
[4] D. West, Megachange. Economic Disruption, Political Upheaval, and Social Strife in the 21st Century. Washington, United States: Brookings Institution, 2016.
[5] G. Lipovetsky, De la ligereza [Lightness]. Barcelona, Spain: Anagrama, 2016.
[6] Z. Bauman, Los retos de la educación en la modernidad líquida [Challenges of education in liquid modernity], Barcelona, Spain: Gedisa, 2007.
[7] C.S. Chai, L. Tan, F. Deng, and J.H.L. Koh, “Examining pre-service teachers’ design capacities for webbased 21st century new culture of learning”, Australasian Journal Education Technology, vol. 33, no. 2, pp. 129-142, 2017. [Online]. Available: https://doi.org/10.14742/ajet.3013.
[8] B.E. Sampedro, “ICT and social education in the twenty - first century”, Edmecic, vol. 5, no. 1, pp. 8-24, 2016. [Online]. Available: https://doi.org/10.21071/edmecetic.v5i1.4014.
[9] S. Carretero, R. Vuorikari, and Y. Punie, DigComp 2.1. The digital competence framework for citizens. Luxembourg: Publications Office of the European Union, 2017.
[10] A. Ibáñez, A. Kortabitarte, P. De Castro, and I. Gillate, “Digital competence using heritage theme apps in the DigComp framework”, Digital Education Review, vol. 22, no. 1, pp. 13-27, 2019. [Online]. Available: https://doi.org/10.6018/reifop.22.1.356231.
[11] P. Sánchez, C.A. Viloria, and J.P. Labra, “The role of the family in the development of digital competence. Analysis of four cases”, Digital Education Review, no. 34, pp. 44-58, 2018. [Online]. Available: https://www.raco.cat/index.php/DER/article/view/5348340.
[12] N. Torres, T. Pessoa, and M.J. Gallego, “Intervention and e-assessment with technologies of the competence in digital security”, Digital Education Review, no. 35, pp. 111-129, 2019. [Online].
[13] L. Gilbert, “Assassin’s Creed reminds us that history is human experience: Students’ senses of empathy while playing a narrative video game”, Theory & Research in Social Education, vol. 47, no. 1, pp. 108-137, 2019. [Online]. Available: https://doi.org/10.1080/00933104.2018.1560713.

[14] H.J. Kim, A.J. Hong, and H.D. Song, “The relationships of family, perceived digital competence and attitude, and learning agility in sustainable student engagement in higher education”, Sustainability, no. 10, 1-16, 2018. [Online]. Available: https://doi.org/10.3390/su10124635.

[15] O.J. Lindberg, A.D. Olofsson, and G. Fransson, “Same but different? An examination of Swedish upper secondary school teachers’ and students’ views and use of ICT in education”, International Journal of Information and Learning Technology, vol. 34, no. 2, pp. 122-132, 2017. [Online]. Available: https://doi.org/10.1108/IJILT-09-2016-0043.

[16] R. Lorenz, M. Endberg, and W. Bos, “Predictors of fostering students’ computer and information literacy-analysis based on a representative sample of secondary school teachers in Germany”, Education and Information Technologies, vol. 24, no. 1, pp. 911-928, 2019. [Online]. Available: https://doi.org/10.1007/s10639-018-9809-0.

[17] E. Rolf, O. Knutsson, and R. Ramberg, “An analysis of digital competence as expressed in design patterns for technology use in teaching”, British Journal of Educational Technology, vol. 0, no. 0, pp. 0-0, 2019. [Online]. Available: https://doi.org/10.1111/bjet.12739.

[18] A. Shala and A. Grajcevic, “Digital competencies among student populations in Kosovo: the impact of inclusion, socioeconomic status, ethnicity and type of residence”, Education and Information Technologies, vol. 23, no. 3, pp. 1203-1218, 2018. [Online]. Available: https://doi.org/10.1007/s10639-017-9657-3.

[19] F. Siddiq and R. Scherer, “Is there a gender gap? A meta-analysis of the gender differences in students’ ICT literacy”, Educational Research Review, pp. 205-217, 2019. [Online]. Available: https://doi.org/10.1016/j.edurev.2019.03.007.

[20] S. Zakrajšek, “Possible education models for acquiring digital competence of students”, Didactica Slovenica, vol. 33, no. 3-4, pp. 94-106, 2018.

[21] M. Cabezas-González and S. Casillas-Martín, “Are Future Social Educators Digital Residents?”, REDIE, Revista Electrónica de Investigación Educativa, vol. 19, no. 4, pp. 61-72, 2017. [Online]. Available: https://doi.org/10.24320/redie.2017.19.4.1369.

[22] M. Cabezas-González and S. Casillas-Martín, “Social Educators: A study of digital competence from a gender differences perspective”, Croatian Journal of Education, vol. 20, no. 1, pp. 11-42, 2018. [Online]. Available: https://doi.org/10.1007/s40169-017-0865-3.

[23] L. Gulova and S. Strelec, “Social Education and Social Work as an Inspirational Resource of Teacher Training”, Czech-polish historical and pedagogical Journal, vol. 9, no. 2, pp. 21-30, 2017. [Online]. Available: https://doi.org/10.5817/cpbjp-2017-0010.

[24] CGCEES, Documentos profesionalizados [Professionalising documents], Barcelona, Spain: ASEDES, 2007. [Online]. Available: http://www.eduso.net/archivo/docow.php?id=143.

[25] E. Vázquez Cano, E. Fernández Márquez, and E. López Meneses, “The professional of Social Education and the mediating competence in the field of the elderly people”, RELATEC, vol. 16, no. 2, pp. 205-222, 2017. [Online]. Available: https://doi.org/10.17398/1695-288X.16.2.205.

[26] M. Castro, J. Fullana, and M. Palliser, “La inserción laboral de los Diplomados en Educación Social. Análisis de las características de los procesos de inserción y reconocimiento profesional” [The labour insertion of the Graduates in Social Education. Analysis of the characteristics of the processes of insertion and professional recognition], Bordón, no. 59, pp. 565-580, 2008.

[27] J.A. Pérez, Educación Social y Tecnologías de la Información y la Comunicación: impactos y retos. Reflexiones de un educador TIC [Social Education and Information and Communication Technologies: impacts and challenges. Reflections of an ICT educator], Revista de Educación Social, 2010. [Online]. Available: http://www.eduso.net/res/?b=14&c=129&m=375.

[28] M.J. Roblitz and R. Côté, “ICT skills and uses of would be Primary and Pre-School teachers: Towards areal technological literacy for educators”, Pixel-Bit, Revista de Medio y Educación, no. 47, pp. 23-39, 2015. [Online]. Available: https://doi.org/10.12795/revpixelbit.2015i47.02.

[29] P. Kampylis, Y. Punie, and J. Devine, “Promoting effective learning in the digital age. A European Framework for Digitally Competent Educational Organisations. European Union, 2015. [Online]. Available: http://dx.doi.org/10.2791/54070.

[30] D. Mioduser, R. Nachmias, and A. Forkosh-Baruch, “New literacies for the knowledge society”, In J. Voogt and G. Knezek (Eds.), International handbook of information technology in primary and secondary education, pp. 23-42, New York, United States: Springer, 2008.

[31] R.J. Krumsvik, “Situated learning and teachers’ digital competence”, Education and Information Technologies, vol. 13, no. 4, pp. 279-290, 2008. [Online]. Available: https://doi.org/10.1007/s10639-008-9069-5.

[32] A. Calvani, A. Cartelli, A. Fini, and M. Ranierti, “Models and instruments for assessing digital competence at school”, Journal of e-Learning and Knowledge Society, vol. 4, no. 3, pp. 183-193, 2008.

[33] D. Reig, Socionomia ¿Vas a perderse la revolución social? [Socionomy. Are you going to miss the social revolution?], Barcelona, Spain: Deusto, 2012.

[34] S. Casillas, M. Cabezas, M. Sanches-Ferreira, and F.L. Teixeira, “Psychometric Study of a Questionnaire to Measure the Digital Competence of University Students (CÔDIEU)”, Education in the Knowledge Society, vol. 19, no. 3, pp. 69-81, 2018. [Online]. Available: https://doi.org/10.14201/ekss20181936981.

[35] A. Martínez, “Uso y percepción de las TIC por educadores y educadoras sociales en su tarea profesional” [Use and perception of ICTs by social educators in their professional work], Revista de Educación Social, no. 20, pp. 1-11, 2015.

[36] G. Barrantes, L.M. Casas, and R. Luengo, “Competencias Tecnológicas de los profesores de Infantil y Primaria de Extremadura en función del género” [Technological Competences of Infant and Primary School teachers in Extremadura according to gender], Revista Iberoamericana de Informática Educativa, no. 19, pp. 33-48, 2014.

[37] N. Law, W.J. Pelgrum, and T. Plomp, Pedagogy and ICT use in schools around the world: findings from the IEA SITES 2006 study. Hong Kong, Chinese: CERC-Springer, 2008.

[38] E. Martos, P. Pérez, and J. Bernal, “The relationship between the age of music teachers in Andalucía and the development of the IT program Escuela TIC 2.0.”, Revista Complutense de Educación, vol. 27, no. 2, pp. 757-777, 2016. [Online]. Available: http://dx.doi.org/10.5209/rev_RCED.2016.v27.n2.48264.

[39] L. Amhag, L. Hellström, and M. Stigmar, “Teachers’ Use of Digital Tools and Needs for Digital Competence in Higher Education”, Journal of Digital Learning in Teacher Education, vol. 0, no. 0, pp. 1-18. [Online]. Available: https://doi.org/10.1080/21532974.2019.1646169.