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Research Article

THE ROLE OF PUBLIC ADMINISTRATIONS AS REFERENCE CENTERS IN DIGITAL LITERACY

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Abstract

Educational legislation reforms in Spain over the past 50 years have led to the adoption of new training models. These models integrate education in formal institutions with training in workplaces to enhance essential practical skills and competencies that cannot be acquired solely within the academic environment (González, 2021; Martínez *et al.,* 2019; Pérez, 2018). Historically, public administrations have not positioned themselves as complementary training centers, meaning they have not sufficiently facilitated the integration of students into their structures to improve and consolidate practical knowledge acquired through formal education. This integration would allow students to better understand time management, task execution, and decision-making in a real professional setting (López & Fernández, 2020; Ruiz, 2017). With the implementation of the Organic Law Modifying the Organic Law of Education (*LOMLOE*) in 2020 and the subsequent modification of curriculum decrees for vocational training, baccalaureate, and university studies (Royal Decree 822/2021), the conduct of internships, both curricular and extracurricular, in workplaces has been strengthened (Government of Spain, 2020). However, despite these reforms, workplaces have shown reluctance to host students for internships. This resistance is partly due to regulations requiring workplaces to insure students under Social Security (Royal Decree 1493/2011), which covers both common and professional contingencies (Rodríguez, 2022; Sánchez, 2019). Additionally, workplaces must bear the cost of a specific accident and liability insurance to protect students during their internship period (Martínez *et al.,* 2019). Moreover, workplace staff face two main barriers to acting as student mentors: a lack of specific training in both the students' academic fields and the competencies required to be guide-mentors, and a shortage of staff, leading to a workload and role overload that often results in a reluctance to take on student mentorship (García & Pérez, 2021; López & Fernández, 2020). In light of this context, an analysis has been conducted on the impact of hosting student interns in public administration. This study is based on the historical experience of internships in a workplace in the municipality of Cambados, in the province of Pontevedra, Spain, which has a population of 13.000 inhabitants (Ramírez, 2016; Pérez, 2018).

Keywords: Practical training, Educational legislation, LOMLOE (Law for the Improvement of Educational Quality), Educational competencies, Workplace mentoring, Dual system education.

INTRODUCTION

In recent years, Spain has undergone a continuous series of reforms in educational legislation. Among these reforms, the Public Instruction Act of 1857, commonly known as the Moyano Law, stands out as a fundamental change in the educational system of the Kingdom of Spain and its territories. This law was pioneering in its aim to establish a comprehensive framework for public education, designed to standardize and democratize a system that had predominantly favored the affluent classes until then (Pérez Gómez, 2005; Fernández, 2010). The Moyano Law was notable for its focus on inclusion and equity, setting precedents for future reforms (López, 2014). A significant example of this evolution is the General Education Act and Financing of Educational Reform of 1970, known as the Villar Palasí Law, named after the Minister of Education who promoted it. This legislation continued the trend of modernizing the educational system, reflecting a shift towards a more organized and accessible structure (González, 2011). The Villar Palasí Law was a milestone in Spanish educational reform, aiming to address the needs of a transforming system (Martínez, 2012). Historically, the Spanish educational system was characterized by a strong influence from religious institutions and centralization of power, which used education as a tool for social control (Ruiz, 2008). However, with the establishment of democracy in Spain, educational legislation has experienced a series of fluctuations, driven by political changes and the partisan orientation of different governments (García, 2015). Spain's accession to the European Union and its participation in international organizations such as the OECD, along with the influence of UNESCO, has spurred a series of reforms aimed at improving the educational system. These reforms have promoted a competency-based approach, with the goal of enhancing students' skills and capabilities to facilitate their integration into the labor market (Delors, 1996; UNESCO, 2015). This shift towards a competency-based model reflects an effort to align Spanish education with international standards and respond to the demands of the 21st century (Bover, 2018).

Contextualization

Recent educational reforms promoted by Spanish legislators have emphasized the need to align educational policies with the guidelines set by the European Union, in line with organizations such as the OECD and UNESCO (Delors, 1996; OECD, 2015). In this regard, the reforms have adopted active methodologies as a fundamental axis for conducting teaching and learning processes, shifting the teacher's role from its previous character (Escudero, 2009). One of the key points of these legislative changes is the move away from rote learning methodologies used in previous legislations, which relied on

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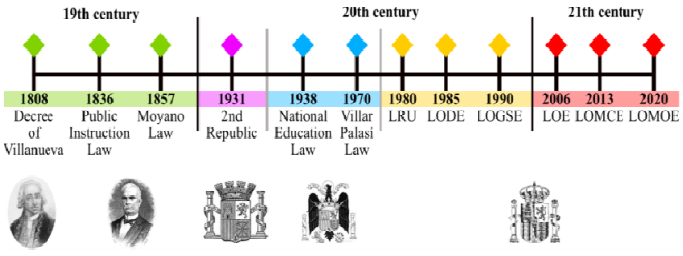
lectures and strict adherence to the teacher's directives, who was the main actor in these processes (Pérez Gómez, 2005). At the same time, there is a recognized need to adapt education to societal requirements, as education is considered a formative step towards students' transition to adulthood and, consequently, to the labor market (González-Sanmamed, 2014), which requires a skilled workforce. In this context, the focus on competency-based education is reinforced, which has been a long-standing objective. Competencies were already included in the Organic Law of Education, LOE (Government of Spain, 2006). This legislation established eight educational competencies: Linguistic Communication Competence; Mathematical Competence; Knowledge and Interaction with the Physical World Competence; Information Processing and Digital Competence; Social and Civic Competence; Cultural and Artistic Competence; Learning to Learn Competence; Personal Autonomy and Initiative; which were to be developed at the levels of compulsory education, i.e., primary and secondary (López, 2014). With the legislative change in 2013 following the enactment of the Organic Law for the Improvement of Educational Quality, LOMCE (Government of Spain, 2013), the basic competencies defined in previous legislation were maintained but slightly reorganized with some specific additions. Thus, the eight pre-existing competencies were retained, though their nomenclature and focus were adjusted to establish the seven new key competencies. These new competencies were defined as follows: Linguistic Communication Competence; Mathematical Competence and Basic Competencies in Science and Technology; Digital Competence; Learning to Learn Competence; Social and Civic Competences; Sense of Initiative and Entrepreneurship; and Cultural Awareness and Expression. Among them, Digital Competence gained greater importance and relevance, partly driven by societal and labor market demands (Cabero & Marín, 2017). The most recent legislative change, which remains in effect, is determined by the enactment of the Organic Law that Modifies the Organic Law of Education, known as LOMLOE (2020), which introduced a new shift in educational competencies. The number of competencies was increased from seven in LOMCE to eight to align with European Union directives and the European educational framework. The new distribution of competencies is as follows: Linguistic Communication Competence; Plurilingual Competence; Mathematical Competence and Basic Competencies in Science and Technology; Digital Competence; Personal, Social, and Learning to Learn Competence; Citizenship Competence; Entrepreneurial Competence; and Cultural Awareness and Expression Competence (Government of Spain, 2020; European Commission, 2018).

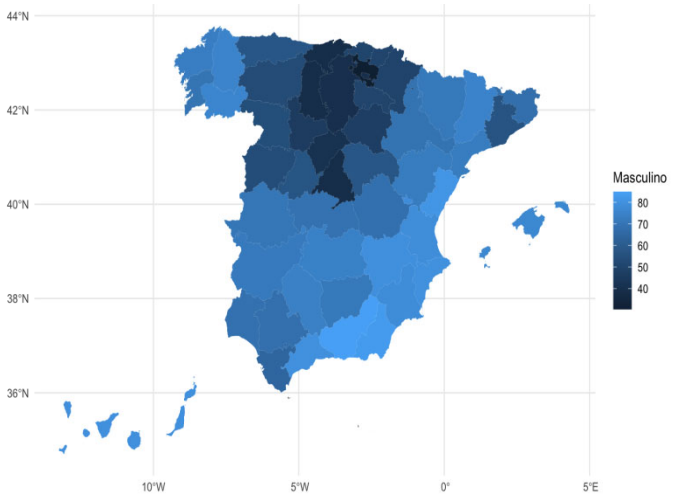


Note: The green color represents the monarchical period, purple the republican period, blue the Francoist regime, and orange and red the post-Francoist constitutional periods. Source: Author's elaboration (2024).

Figure 1. Timeline of Spanish educational legislation from the 19th to the 21st century

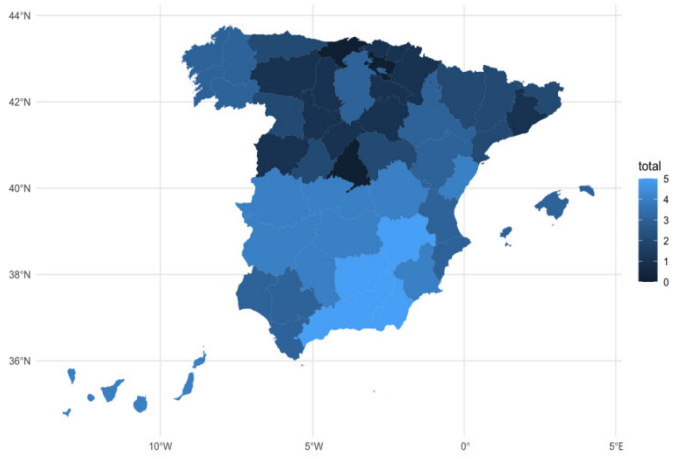
Secular (a)literacy

Regarding the situation in Spain, it is noteworthy that the literacy rate throughout the 16th century was not inferior and, in some cases, might be considered superior to that of other countries in Northern and Central Europe, as stated by Hernández Díaz (2004). However, from the late 16th century and more specifically during the 17th century, the prevailing situation began to change. In this sense, literacy and schooling levels stagnated and even regressed (Maravall, 1973). It was not until the latter half of the 18th century that an increase in educational demand and the materials necessary for teaching and learning to read became evident, impacting the production of such materials (Nieto, 1997). Nevertheless, the increase observed in Spain was not as significant as that experienced by Northern and Central European countries. For instance, Scotland, Sweden, Prussia, the Netherlands, England, France, Denmark, Switzerland, and Norway saw considerable improvements in literacy levels driven by the Protestant Reformation, commercial development, the strengthening and expansion of state bureaucracy, and the demands of a modern army. These factors acted as catalysts for literacy and the dissemination of written culture (Eisenstein, 1979). The intellectual stagnation experienced during the 16th to 19th centuries led Spain, along with Portugal, to become some of the least literate countries in Europe (Boyd, 1997). Additionally, the specific situation of women during this period must be considered. Female illiteracy rates reached approximately 87% by the mid-19th century, resulting in both the loss of human and cultural potential and a denial of social mobility through cultural means for nearly a century and a half (Gómez-Ferrer, 1987). Between 1620-1640 and 1777, six or seven generations experienced intellectual sterility, which some authors, such as Cabrera (1995), describe as the intellectual castration of Spain over many decades. In the 19th century, education in Spain was in such a state that it required profound reform due to the prevailing illiteracy rates of the time. As Viñao (1984, p. 151) notes, the illiteracy rate was 75% in 1850, decreasing to 50% by 1900. These figures are closely approximated by Vilanova and Moreno (1992, p. 167), who report a 59% illiteracy rate in 1900, nearly half a century after the implementation of the Moyano Law, as depicted in Figures 2 and 3, respectively.



*Source:*Reddit.com (2022). Author's elaboration (2024).

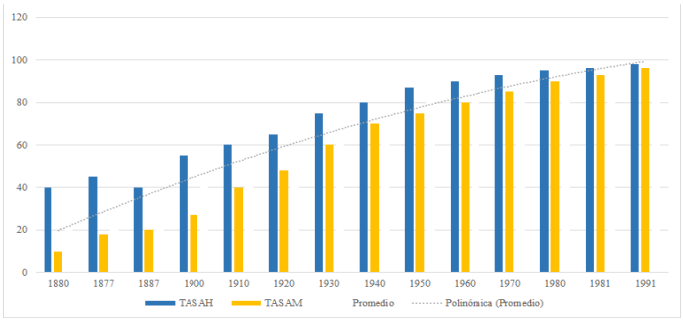
Figure 2. Percentage of illiteracy in the total population of Spain (1887)



Note: Illiteracy intervals: 0 = [20%-30%), 1 = [30%-40%), 2 = [40%-50%), 3 = [50%-60%), 4 = [60%-70%), and 5 = [70%-80%). Source: Reddit.com (2022). Author's elaboration (2024).

Figure 3. Illiteracy Rate in Spain in 1920

As a result of these circumstances, Spain entered the latter half of the 20th century with illiteracy and education levels characteristic of the 19th century, necessitating a new educational reform. This reform had to await the Villar Palasí reform (1970), which left the educational changes initiated by the Moyano Law and some modifications made during the Second Republic in obscurity. Figure 4 illustrates the transition to literacy in Spain from 1880 to 1991, segmented by gender and showing the average value of the population.

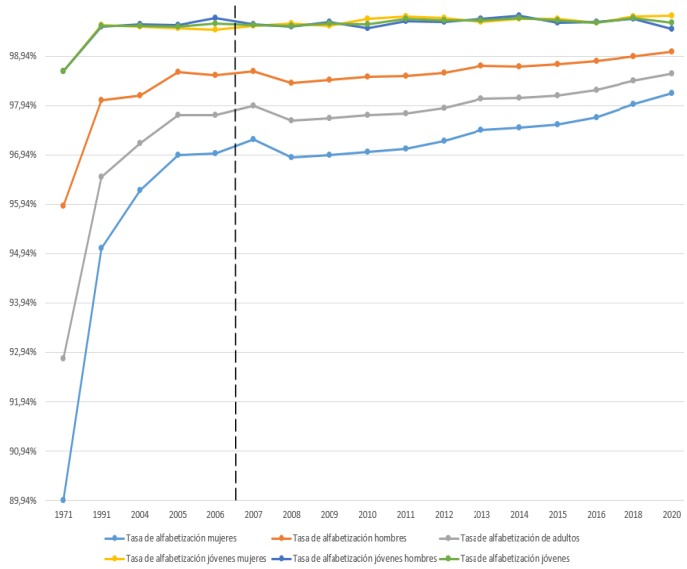


Note: The graph shows the literacy rate disaggregated by gender as well as the average value in Spain for the period 1880-1991. Source: González Fonseca, J. Author's elaboration (2024).

Figure 4. Transition to Literacy in Spain from 1880 to 1991

Digital Literacy

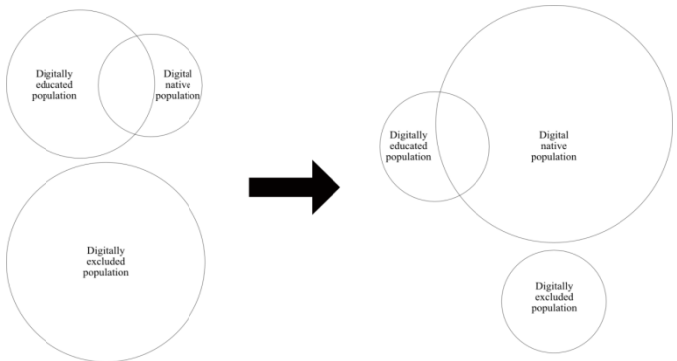
The emergence of digital technologies at the end of the 20th century, largely due to their democratization as they moved from research centers into homes and schools, gave rise to a new educational gap characterized by the advent of the concept of digital literacy. Digital literacy should be understood as the ability to use digital technologies, communication tools, and networks to effectively and efficiently access, manage, integrate, evaluate, and create information. According to UNESCO (2018), digital literacy "encompasses a range of skills and competencies from the technical ability to operate digital devices to the critical ability to evaluate and manage digital information, as well as the ethical and effective participation in digital environments." This competency includes not only technical skills related to device management but also the critical capacity to discern and handle information to understand and participate in digital environments, thus adapting to any technological changes that may occur.



Note: The dotted line represents the interface between traditional literacy and digital literacy. Source: Red.es (2023). Author's elaboration (2024).

Figure 5. Traditional Literacy vs. Digital Literacy Rates in Different Segments of the Spanish Population

In the academic context, it should be acknowledged that new technologies are an essential component of and for contemporary education, as they shape and prepare students to live in an increasingly technology-dominated society and, simultaneously, to engage effectively in the labor market. Thus, digital literacy is viewed as a means to promote social inclusion, reduce the digital divide, and foster informed and active citizenship, as Rheingold (2012) asserts. In this context, a new literacy gap emerges. On one side, there are individuals who were born before the advent of digital technology, known as digital immigrants. On the other side, there are those who have received training based on digital technology despite being born after its emergence. A third group consists of individuals who neither were born during the digital age nor had access to technology-based education, as illustrated in Figure 6.



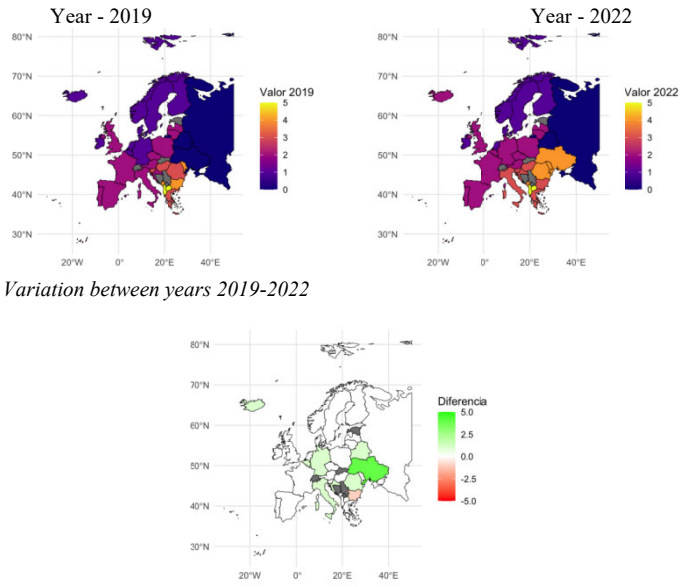
Note: The graph depicts three population groups based on their birth and education with respect to New Technologies. The left side represents the current situation, while the right side forecasts the situation in the near future. As observed, the proportion of individuals classified as Digital Natives increases, while the numbers of those in the Digital Learners and Digital Excluded categories decrease. Author's elaboration (2024).

Figure 6. Population Groups and Their Belonging to the Digital Society

At This Point

Given the coexistence of traditional literacy and technological literacy, it is essential to conduct a comprehensive analysis of the target population's performance in two fundamental

dimensions: literacy and the competence in using and handling ICT devices and tools. This analysis must not only address individuals' abilities to read and write in a traditional context but also their skills in navigating and effectively utilizing digital technologies, which are crucial in contemporary society where technology is deeply embedded across all aspects of life (Area & Pessoa, 2012). Furthermore, it is crucial that the analysis considers both interpersonal communication between users and interactions with public administrations, which increasingly rely on digital platforms to provide services and facilitate procedures. Evaluating competence in both forms of literacy will provide a better understanding of how individuals integrate into a society that demands both traditional and technological skills, and how these competencies impact access to information, civic participation, and social and labor inclusion in an increasingly technological and digital environment (Gisbert & Esteve, 2011). Expanding this analysis with a focus on the existing inequalities among different demographic groups such as age, educational level, and socioeconomic context is also essential for identifying the characteristics that define and differentiate them. These variables can significantly affect the population's ability to adapt to the demands of digital literacy, which, in turn, has important implications for the design of public policies aimed at reducing the educational digital divide and fostering a more equitable and accessible society for all citizens (Van Dijk, 2020).



Variation between years 2019-2022

Note: The graph shows the variation in the distribution of ICT competence levels across five groups between the years 2019 and 2022. Group 1 corresponds to countries with competence levels between [66-76], Group 2 between [54-62], Group 3 between [41-50], Group 4 between [31-39], and Group 5 between [20-25]. Group 0 indicates no information provided. Source: Open Society Institute. Author's elaboration (2024).

Figure 7. Population Groups and Degree of ICT Competence in Europe

METHODS

Context and Study Design

This study falls within the field of educational history and social sciences, with a particular focus on the evolution of literacy and the transition to digital literacy in Spain. The study design is descriptive-comparative, spanning a broad historical period from the 16th to the 21st century. This approach allows for a deep understanding of changes and continuities in literacy levels, as well as the socio-economic and political factors that have influenced these changes. The study is structured into two main phases: a historical phase and a contemporary phase. The historical phase analyzes literacy trends in Spain compared to other countries in Northern and Central Europe, with special attention to the impacts of events such as the Protestant Reformation, commercial development, and the expansion of state bureaucracy. According to Núñez (2016), "*literacy in Spain experienced considerable stagnation compared to other European countries during the Baroque period, influenced by adverse socio-political factors.*" The second phase focuses on digital literacy in the current context, examining how digital competencies have been integrated into the educational system and society at large. To address these objectives, a mixed-methods approach has been adopted, combining a review of historical literature with the analysis of contemporary data. This methodology allows for a triangulation of sources that enriches the validity of the findings and provides a comprehensive view of the phenomenon studied. Additionally, a comparison has been made between historical and digital literacy levels in Spain and other European countries, using both primary and secondary sources. As Green (2020) notes, "the history of literacy reveals a multifaceted evolution influenced by various internal and external factors that have shaped each nation's educational trajectory."

The study also includes data from students who have completed internships in public administration, including Basic Vocational Training, Intermediate and Higher Vocational Training, undergraduate studies, and various Public Workshop Schools. This data provides an updated and detailed perspective on the competencies acquired by students in practical contexts and their relation to digital literacy. According to Pérez-Tornero and Varis (2019), "*digital literacy is a sine qua non condition for the integration of youth into the labor market and their personal development in the digital age.*" In the context of digital literacy, a detailed statistical study has been conducted on the sample of students in internships. Inferential and descriptive statistical techniques have been applied to evaluate both the level of digital competencies and their application in real work environments. This approach not only identifies general patterns in the use of ICT but also allows for inferences about possible causal relationships and emerging trends. As Martín-Romera and Cabero-Almenara (2021) assert, "*quantitative assessment of digital competencies is essential to understand its impact on the educational and professional realms.*"

Furthermore, potential differences in digital competencies according to sociodemographic variables such as age, gender, and previous educational level have been analyzed. This analysis has identified significant gaps in ICT access and use, which may have important implications for the design of educational and continuing education policies. As Claro et al. (2018) highlight, "*digital gaps reflect structural inequalities that require specific interventions to ensure equity in access to digital opportunities.*" The study design also considers contextual variables, such as the role of religious institutions, economic development, and educational policies implemented over time. These variables are fundamental to understanding differences in literacy levels and their historical evolution. As Eisenstein (2017) explains, "*printing technology acted as a catalyst in the transformation of literacy and the dissemination of knowledge in Europe.*" Therefore, this study not only offers

a detailed historical perspective but also provides a critical analysis of the challenges and opportunities associated with digital literacy in the 21st century. The descriptive-comparative approach adopted in this study is particularly useful for identifying patterns and trends, as well as for contextualizing data within a broader historical and social framework. This perspective allows for a more comprehensive and nuanced understanding of literacy in Spain, highlighting both advancements and limitations over the centuries. Ultimately, this study contributes to the field of educational history and offers valuable insights for future research and educational policies. As Bell (2019) notes, "*historical understanding of education is key to developing pedagogical approaches that respond to contemporary demands of the digital society.*"

Reviewed Sources and Data Analysis

To carry out the analysis of historical literacy, various secondary sources documenting the evolution of literacy levels in Spain and other European countries were reviewed and analyzed. These sources include books and academic articles such as "*Historia de la educación en España y América*" by Hernández Díaz (2004), "*La cultura del Barroco*" by Maravall (1973), and "*Analfabetismo en España, 1800-1950*" by Gómez-Ferrer (1987), which provide a contextualized and detailed framework about literacy from the 16th to the 19th centuries; as well as historical reports and statistical data on literacy and schooling levels, with a particular focus on female illiteracy and its evolution over time. For the contemporary part of the study, which analyzes ICT performance levels, data on digital literacy was collected from surveys and studies conducted by international organizations such as the OECD and UNESCO, which provided information on digital literacy and its impact on the population; academic sources and recent articles on digital literacy, its definition, and scope in the educational context (Gisbert & Esteve, 2011); and finally, the analysis of students who have completed Practicum courses and students from Public Workshop Schools, where studies were conducted on the level of digital competencies acquired following educational activities and ICT training. Data analysis was conducted in two phases: The first phase involved historical-descriptive analysis, performing a descriptive analysis of literacy levels in Spain and comparing these with other European countries. Historical analysis techniques were used to identify patterns and trends in the evolution of literacy. This phase determined the degree of literacy contextualized around two factors that marked significant changes, not only in education but also in social and economic terms: the impact of the Protestant Reformation and commercial development in 16th-century Central Europe. The second phase addressed comparative analysis of digital literacy, examining contemporary data. This phase evaluated the prevalence and impact of digital competency acquisition in society and how these competencies vary among different demographic groups, using comparative analysis to identify differences in digital literacy levels between Spain and other European countries, employing various descriptive statistical techniques.

Adopted Procedures and Study Limitations

The study presented in this article was conducted following the ethical guidelines of historical and educational research, respecting the copyrights of consulted sources, and giving credit to original authors through appropriate citations. Additionally, the contemporary data used in the study come from public and authorized sources, ensuring the integrity and reliability of the collected information and the obtained results. Regarding limitations, the study faced several challenges during the research and implementation phases. The first limitation involved the difficulty in ensuring accuracy and precision in historical data. This issue has affected the precision of the comparative analysis conducted. The second limitation stems from the methodological variability of sources related to contemporary results, which may affect the comparability of the obtained results.

RESULTS OBTAINED

In recent years, there has been an increased involvement of public administrations in the education of students from diverse backgrounds. This involvement is particularly evident in programs such as the "Escuelas Taller" and "Obradoiros de Emprego," which are directly promoted by public administration. Secondary to this are formal educational programs, meaning those educational initiatives that are curriculum-linked to various educational administrations, including the Ministry of Education and the Education Departments of the autonomous communities, following the transfer of educational competences in the 1980s and 1990s. This increase in institutional involvement is largely influenced by new educational policies, such as the Organic Law for the Modification of the Organic Law of Education (LOMLOE), which promotes the integration of both curricular and extracurricular practices for students at various educational levels. Recently, there has also been a growing trend of collaboration between public administration and business entities, as well as with training centers focused on labor market insertion, such as the Confederation of Entrepreneurs of Pontevedra. Table 1 and Table 2 present, respectively, the results related to the formative involvement of various administrations and organizations in the educational sphere. These entities, through established collaboration agreements, have played a crucial role in incorporating diverse training activities into the educational curriculum. Such activities are specifically implemented in workplaces that maintain direct links with local public administration, facilitating the practical integration of the theoretical knowledge acquired by students. This inter institutional collaboration not only enriches the educational curriculum but also strengthens the connection between academic training and the real needs of the labor market, thereby contributing to a more comprehensive and applied education. Furthermore, these initiatives allow administrations and organizations to adapt formative competencies to the changing demands of society, ensuring continuous and relevant training for the professional development of students.

Groupings vs. Qualifications

Regarding the groupings of students participating in training programs within public administrations, a significant change in participation trends has been observed. This change reflects a shift in the proportion of students coming from formal education compared to those from non-formal education, as illustrated in Figure 8. The analysis of student participation reveals differences in participation rates by gender and educational background. It is important to highlight that the analysis has been broken down by gender, which provides a more comprehensive view of educational trends based on the gender of the students analyzed.

Table 1. Scheduling of Training Offered by Local Public Administration

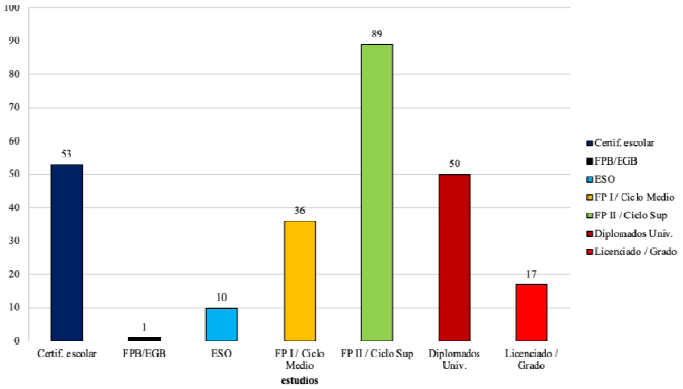
Organization	Target Audience	Duration (in months)
Universities	Undergraduate/Graduate/Master	3
Education Admin	Basic Vocational Training (BVT)	2
Education Admin	Medium Vocational Training (MVT) / Intermediate Level	2
Education Admin	Advanced Vocational Training (AVT) / Higher Level	2
Provincial Admin	*Plan Concellos I*	6
Provincial Admin	*Plan Concellos II*	6+6
Provincial Admin	First Experience	12
SEPE/INEM	Workshop Schools/Obradoiros	9-12
CEP	Dual Training	2

Note: Plan Concellos I is a condensed version of Plan Concellos II, maintaining one semester of full tutor support and another semester with partial support. Plan Concellos II consisted of a 6-month training period, with the possibility of extending for an additional 6 months. In the case of Plan Concellos I, the training duration is reduced to 3 months. Source: Own elaboration (2024).

Table 2. Distribution of Students by Training Plan, Gender, Educational Background, and Tutoring

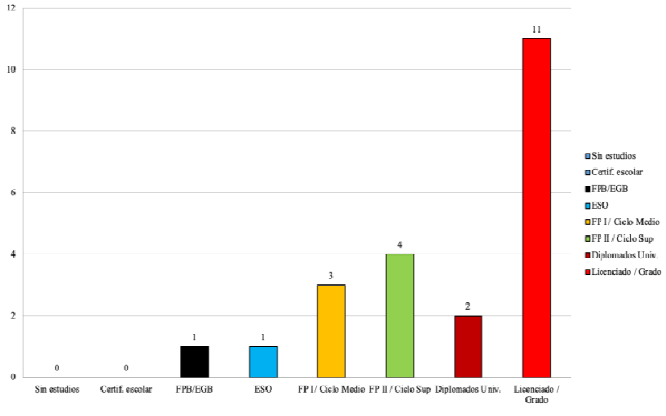
Training Plan	Number of Participants	Promoting Institution	Gender[1]	Educational Background[2]	Tutored[3]	Tutor's Educational Level[3]
LABORA	5	Government	3	7	0	0
LABORA	20	Government	3	5	0	0
LABORA	10	Government	3	5	0	0
LABORA	4	Government	3	4	0	0
LABORA	26	Government	3	4	0	0
LABORA	30	Government	3	6	0	0
LABORA	20	Government	3	6	0	0
LABORA	6	Government	3	1	0	0
LABORA	47	Government	3	1	0	0
TFM	4	University	2	7	1	6
TFG	8	University	3	7	1	6
Curricular Internships	1	University	2	7	1	7
Curricular Internships	3	University	3	7	1	7
FCT	4	Regional Educational Administration	3	5	1	7
Plan Concellos	20	Regional Educational Administration	3	5	1	5
Plan Concellos	30	Regional Educational Administration	3	5	1	5
Primeiro Emprego	3	Regional Educational Administration	3	5	1	7
OOE/EET	40	SEPE (Public Employment Service)	3	3	1	7
OOE/EET	40	SEPE (Public Employment Service)	3	3	1	7
OOE/EET	20	SEPE (Public Employment Service)	3	3	1	7
PFB	1	Regional Educational Administration	1	3	1	7
Intermediate Cycle	2	Regional Educational Administration	3	4	1	7
Higher Cycle	1	Regional Educational Administration	3	5	1	7
CEP	2	Business Administration	2	4	1	7

Note: The variable 1Gender is defined as: 1=male only, 2=female only, 3=mixed participation. 2Educational Background: 0=No education, 1=Certificate of schooling, 2=Basic Vocational Training/Elementary Education, 3=Compulsory Secondary Education, 4=Intermediate Cycle/Basic Vocational Training, 5=Higher Cycle/Advanced Vocational Training, 6=Intermediate University Studies, 7=Higher University Studies. 3Tutored: 0=not tutored, 1=tutored. Source: Own elaboration (2024) based on Rial et al. (2023).



Source: Self-Elaboration (2024)

Figure 8. Count of Students vs. Qualification for Internships



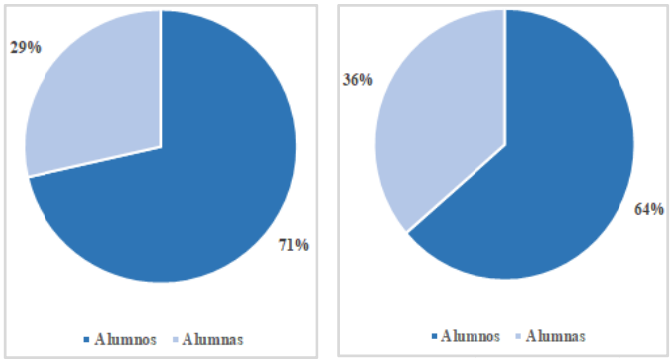
Source: Self-Elaboration (2024)

Figure 9. Tutor's Qualification at the Internship Center vs. Number of Supervised Actions

Figure 8 clearly shows how participation in both types of education is distributed by gender, offering a deeper understanding of the dynamics influencing students' choices regarding training programs. This information is crucial for identifying emerging patterns and potential inequalities in the supply and demand for training, and for guiding decision-making in educational policies aimed at balancing participation across different demographic groups.

Acquisition of Digital Literacy Skills

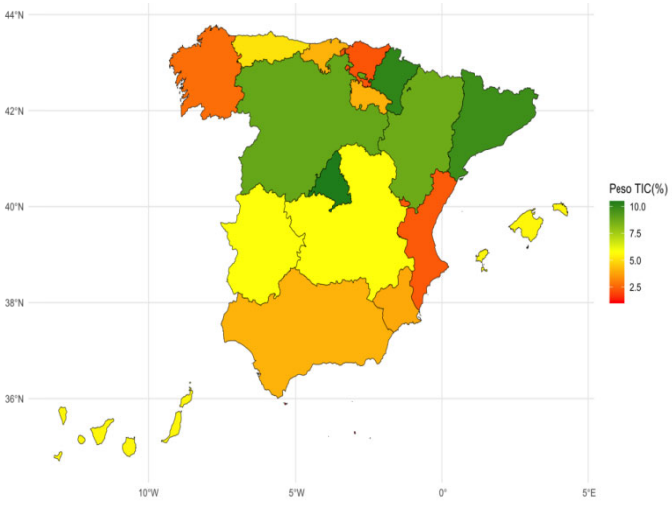
The acquisition of digital literacy skills by students participating in local administration training programs is essential for successful integration into an increasingly digitized environment.



Note: The graph on the left shows the percentages of students belonging to non-regulated training programs, i.e., programs promoted by administrations other than education. The graph on the right, conversely, depicts students from regulated training programs. As can be observed, there is little difference in gender participation across both types of programs. *Source: Self-Elaboration (2024)*

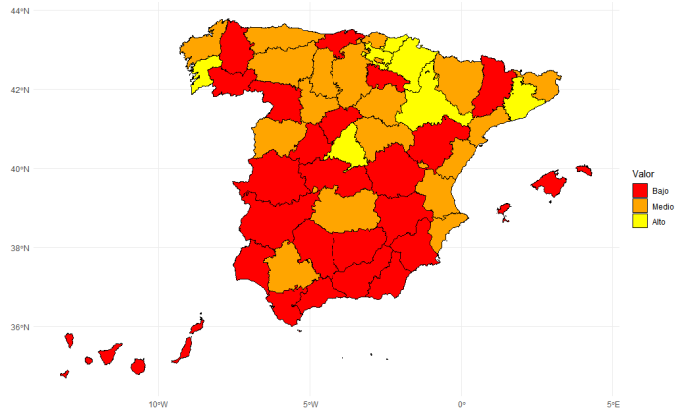
Figure 10. Distribution of Students by Training Programs vs. Gender

In the local administration programs, approximately 75% of the training is specifically designed to develop practical skills in handling and using devices and office software. This includes not only office tools and internet navigation but also advanced applications for managing files, which are fundamental for operating in modern administrative and professional settings (Van Deursen & Van Dijk, 2014). The focus on digital literacy addresses an urgent need: to equip citizens with the necessary skills to interact effectively with digital technologies, which are omnipresent in daily life and the workplace. Studies have shown that the ability to use and understand digital technologies is a critical factor not only for employability but also for active participation in contemporary society, highlighting the importance of these skills in reducing the existing digital divide (Eshet-Alkalai, 2004). Figure 11 illustrates the gap between autonomous communities and provinces in Spain regarding the implementation and application of digital tools by their populations, while Figure 12 provides a global perspective.



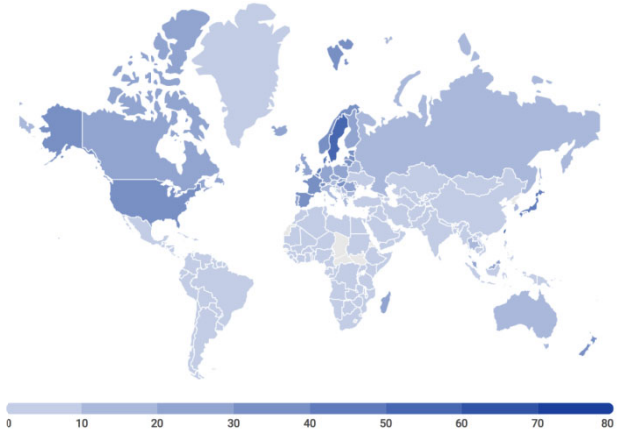
Note: This figure illustrates the varying levels of Information and Communication Technologies (ICT) deployment across different provinces in Spain, highlighting regional disparities in the adoption and application of digital tools. *Source:* Data taken from COTEC-Seguridad Social. Self-Elaboration (2024).

Figure 11. Impact of ICT vs. Autonomous Communities in Spain



Source: Data taken from COTEC-Seguridad Social. Self-Elaboration (2024)

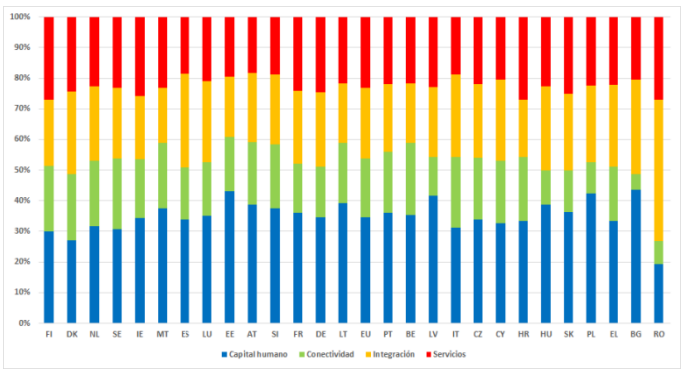
Figure 12. Weight of ICT vs. Provinces of Spain



Note: This figure illustrates the disparity in digital access and usage across various countries, highlighting differences in the level of digital integration and the extent of the digital divide globally. *Source*: Innovaspain based on data from Khan Academy (2024)

Figure 13. Digital Divide by Country

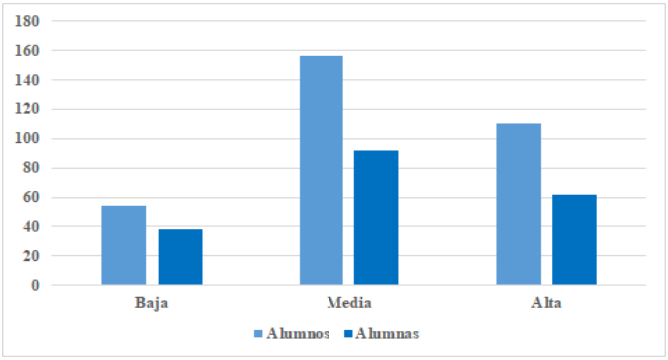
In contrast, at the European level, inequalities are displayed across three technological indicators: The first indicator refers to human capital interacting with new technologies, encompassing access, knowledge, and performance in using these technologies. The second indicator pertains to the connectivity available in various usage environments, such as homes, workplaces, and educational institutions. The third indicator addresses the integration of ICTs across different areas of users' lives, and lastly, the services accessed through their use. These indicators are presented in Figure 14, which illustrates them in a percentage diagram relative to the total for each analyzed country.



Source: Nominalia taken from escueladeinternet.com. Own elaboration (2024)

Figure 14. Analysis of the Digital Divide in Europe

The analysis of the results from the programs in which students have participated indicates that they have acquired, to varying degrees, the competencies required for handling these technologies. In this context, the learning not only facilitated their inclusion in the labor market but also allowed them to interact more effectively with public administrations, which increasingly rely on digital platforms for service delivery and management of procedures (Martin, 2008). The acquisition of these competencies also contributes to achieving social equity, as it ensures that a greater number of citizens have access to information and technological resources, which are essential in the 21st century (Van Dijk, 2020), a period marked by significant technological advancements. For this reason, the training programs provided by local administrations can be considered a crucial factor for both the administered and the participating students, as they play a key role in promoting and fostering a more inclusive society and preparing citizens to face the challenges and opportunities that await them in this digital era.



Source: Own elaboration (2024)

Figure 15. Distribution of Competency Acquisition Level vs. Gender

DISCUSSION AND CONCLUSIONS

This study has thoroughly explored the evolution of literacy in Spain, covering a period from the 16th century to the present, with a particular focus on the transition to digital literacy in the 21st century. The findings reveal patterns and trends that shed light on literacy dynamics across various historical and sociopolitical contexts. Comparison with other European countries has highlighted that, while Spain exhibited relatively high literacy levels in certain historical periods, it experienced a notable stagnation starting from the 17th century. This stagnation, influenced by the lack of educational reforms, resistance to change in socio political structures, and the limited penetration of printing technology in rural areas, contributed to a significant lag compared to Northern and Central European countries. This delay in literacy was a crucial factor in understanding the low literacy levels in Spain at the end of the 19th century (Núñez, 2016; Eisenstein, 2017). Regarding digital literacy, the statistical analysis conducted on the sample of students participating in public administration training programs has revealed significant findings about digital competencies in the current context. The evaluation of these competencies, using inferential and descriptive statistical techniques, has identified substantial gaps, particularly in relation to sociodemographic variables such as age, educational level, and gender. These results align with previous studies indicating that disparities in access to and use of information and communication technologies (ICT) remain a critical challenge for digital inclusion policies (Claro *et al.*, 2018; Martín-Romera & Cabero-Almenara, 2021). A concerning finding is that, despite efforts to integrate ICT into education and public services, digital divides persist, limiting the full participation of certain groups in the digital society. If these divides are not effectively addressed, they are likely to perpetuate existing inequalities in both educational and labor contexts. The ability of individuals to interact effectively with public administrations through digital platforms is crucial not only for the efficiency of the system but also for ensuring the inclusion of all citizens in the democratic process (Pérez-Tornero & Varis, 2019). This study has also emphasized the importance of considering the historical and social context when analyzing literacy. Factors such as educational policies, economic development, and the influence of religious institutions have played a determining role in shaping literacy levels over time. In this regard, the findings underscore the need for an integrated approach that encompasses both traditional and digital literacy dimensions, within a context where technology is increasingly central to daily life.

Based on the findings of this study, the following key conclusions can be drawn:

1. **Historical Evolution and Stagnation:** From the 17th century onwards, Spain experienced a significant stagnation in literacy levels, resulting in a delay compared to other European countries. This stagnation had lasting consequences, negatively impacting the country's cultural and socioeconomic development until the late 19th century.
2. **Relevance of Digital Literacy:** Today, digital literacy, as an extension of traditional literacy, has become an essential component for social and labor inclusion. However, significant digital divides persist and must be addressed through effective public policies that ensure equitable access to ICT.
3. **Digital Competency Inequalities:** Inequalities in digital competencies, influenced by sociodemographic factors such as age, gender, and educational level, represent a crucial challenge. These inequalities not only limit access to digital opportunities but also perpetuate existing educational and labor gaps among different social classes and geographic regions within Spain.
4. **Need for an Integrated Approach:** Understanding literacy levels in Spain requires an approach that considers both historical context and contemporary dynamics. The influence of political, economic, and religious factors has been key in shaping literacy levels over time.
5. **Implications for Public Policy:** The findings of this study highlight the importance of developing educational policies that integrate both traditional and digital literacy, with a special focus on reducing digital divides. These policies should be inclusive and tailored to the needs of different demographic groups to promote a more equitable and digitally competent society.

Future Perspectives

This study provides a nuanced understanding of the evolution of literacy in Spain from the 17th century to the present, highlighting both advancements and persistent challenges in transitioning to a fully literate and digitized society. The results have significant implications for the design of new public policies as well as for future research in the field of education history and digital literacy. It is recommended that future studies explore in greater depth the interactions between digital

literacy and socioeconomic factors to develop more effective and innovative strategies for reducing the existing digital divide.

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