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LOS RECURSOS EDUCATIVOS EN ABIERTO (REA) Y LA COMPETENCIA DIGITAL DOCENTE.

OPEN EDUCATIONAL RESOURCES (OER) AND TEACHER'S DIGITAL COMPENTENCE

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Abstract

The development of students' digital competence has become a pedagogical principle in our current education system. For this purpose, educators can make use of a variety of digital tools in their daily teaching practice. Following international trends and in order to make this task easier and develop teachers' digital competence, education authorities have fostered the use and creation of digital Open Educational Resources (OER) through online repositories, such as *Procomún* or the *EDIA* project. However, the study presented in this article shows that, although educators would be willing to use these tools, they are not aware of their existence, which brings to light the lack or inefficiency of teachers' training programs.

Keywords: *ICT, digital tools, digital competence, OER, open education*

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1. Introductión

The incursion of technology has substantially changed the way in which we relate to each other and how we function in any personal, educational or professional environment. It has even transformed the way in which we experience our leisure time (Redecker, 2017). We live connected to the web and we need to be digitally competent to perform simple everyday tasks such as checking a restaurant menu with a QR code or carrying out a bank transaction. In fact, studies have already shown that digital literacy among children and young people is essential to improve their living conditions and employability in the future (Council of the European Union, 2018). As a result, today's society cannot remain on the sidelines of these changes and must necessarily adapt to them and control the new codes of knowledge (Ocaña, Valenzuela and Garro, 2019). Since schools cannot remain oblivious to this circumstance, digital competence has become one of the key competences for learning, so it must be developed in all educational contexts.

The aim of this article is to describe and analyze the potential of Open Educational Resources (OER) as digital products that can be easily implemented in the classroom in order to develop not only students' digital competence, but also teachers' digital competence. It also intends to assess the knowledge of non-university education teachers about the existence of these resources and of the public repositories developed by education authorities. To this end, firstly, a definition of digital competence will be provided as well as its evolution in the different Spanish education laws. Secondly, the concept of Open Educational Resources will be described, and the main repositories available for teachers of any educational stage will

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be presented. Thirdly, the notion of open digital licences, which allow the use of copyrighted works without requesting permission from the author,

will be briefly explained. Finally, the study carried out to find out the teachers' perception of OER and other digital educational resources will be presented, and the results will be analysed.

2. Digital competence

The first Spanish education law to incorporate a definition of digital competence was the Organic Law on Education (LOE) 2/2006 of 3 May. For the first time, a competence-based approach was developed; in fact, it was regulated that, by the end of primary, secondary and baccalaureate education, students should have acquired a certain degree of the eight basic competences established. In this sense, the objectives and contents of all subjects had to guarantee the development of these competences. One of these competences was the treatment of information and digital competence, which referred to the ability to search for, obtain, process and communicate information and transform it into knowledge. This included different aspects ranging from access to and selection of information to its use and transmission through different media, prioritizing the use of Information and Communication Technologies (ICT) as an essential element for information and communication.

This law has recently been amended by the Organic Law 3/2020 of 29 December Amending the Organic Law of Education (LOMLOE), which goes a step further in this respect and makes digital competence, in its articles 19 and 24, a pedagogical principle: "Without prejudice to its specific treatment in some of the areas of the stage, reading comprehension, oral and written expression, audiovisual communication, digital competence, the promotion of creativity, the scientific spirit and entrepreneurship will be worked on in all areas of study". Furthermore, in the Royal Decrees establishing the

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organization and the minimum teaching standards for primary, secondary and baccalaureate education, digital competence is defined as follows:

> Digital competence involves the safe, healthy, sustainable, critical and responsible use of digital technologies for learning, at work and for participation in society, as well as interaction with them. It includes information and data literacy, communication and collaboration, media literacy, digital content creation (including programming), security (including digital well-being and cybersecurity skills), digital citizenship issues, privacy, intellectual property, problem solving, and computational and critical thinking.

Furthermore, this new regulation establishes the cross-curricular and integrating nature of these competences and the need, therefore, to contribute to their acquisition from all subjects in the curriculum. In the case of digital competence, it should not be confused with teaching about "technology" and "digitalization" in all subjects but should be integrated as a tool for teaching and learning. As a result, digital competence should be cross-curricular, developed in all areas or subjects so as to achieve an increase in academic and personal performance (Guillén-Gámez et al., 2018).

When it comes to incorporating new technologies in the classroom, teachers at all educational stages can find it difficult and tedious not only to implement methodologies that integrate the use of technology, but also to find and create digital resources. Although more and more publishers are offering digital supplements to their textbooks, these are not always adapted to the teaching-learning style of teachers or are insufficient. In this sense, Open Educational Resources (OER) can be valuable tools to include digital and curriculum-based learning materials in the daily teaching and learning practice.

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3. Open Educational Resources (OER)

Open Educational Resources (OER) are freely accessible products or activities, which are available to users through a virtual environment. UNESCO defines OER as "teaching, learning and research materials in any format and medium that reside in the public domain or are under copyright that have been released under an open license, that permit no-cost access, re-use, re-purpose, adaptation and redistribution by others." (UNESCO 2012). OER are therefore characterized by their educational purpose and by their open and free accessibility. Moreover, the licences employed allow them not only to be utilised, but also to be modified and adapted to the final needs of each user. As Downes (2007) indicates, OER follow the 4R model: reuse, redistribute, revise and remix, which allows for the dissemination of knowledge and generates a greater impact on the teaching-learning process (Glasserman Morales and Ramírez Montoya, 2014).

This concept of open education implies a firm commitment to lifelong learning and sustainable development in education, as well as to the search for educational equity at all stages, regardless of the socio-economic level and geographical location of students. It is rooted in goal number four of the United Nations 2030 Agenda for Sustainable Development (2015), which aims to "ensure inclusive and equitable quality education and promote lifelong learning opportunities for all."

This commitment towards OER became a reality at the second World Congress on OER, held in Ljubljana in 2017, where an OER Action Plan was developed to support open and participatory education. Subsequently, at the General Conference of the United Nations Educational, Scientific and Cultural Organization, held on 25 November 2019, member states committed to fostering the creation, promotion and dissemination of OER by signing the document "Recommendations on Open Educational Resources (OER)". In order to make this agreement effective, both the Spanish Ministry of Education and some Autonomous Communities, as well as various

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international educational entities, have started the creation of online repositories of OER. Some of them, such as Procomún, have gone further and also added features of social networks, such as the possibility of rating the different resources available or following users or communities based on a specific topic.

3.1 Platforms promoted by the Ministry of Education: Procomún and EDIA Project.

The Ministry of Education, through the National Institute of Educational Technologies and Teacher Training (INTEF), has developed the Procomún platform which, as mentioned above, serves as a resource bank for all educational stages and as a social network for teachers. It has an intuitive search engine that allows easy filtering by type of resource, area of knowledge and educational context (stage, age, level, etc.). All the resources have a Creative Commons licence and are available for download, so users can insert them in their virtual platforms as well as modify or adapt them according to their needs. In addition, Procomún periodically publishes the so-called learning itineraries, which consist of more complete work units that have been elaborated based on the contents, competences, objectives and evaluation criteria of the current official curriculum.

Although there are different types of resources: interactive multimedia activities, documents or pdf files with activities or games created with digital tools, the platform also includes a large bank of resources created with the open-source software eXeLearning.

Another OER platform created by the Ministry of Education, this time through the National Centre for Curriculum Development in Non-Proprietary Systems (CEDEC), is the EDIA Project (Educational, Digital, Innovative and Open). This project offers resources in eXeLearning format for the educational stages of primary, secondary and postsecondary education (both baccalaurete and vocational training). It consists of a collection of

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highly-developed resources because they include all the necessary materiales to be used in the classroom (templates, evaluation rubrics, among others). In addition, most of them not only aim to develop digital competence, but also to promote active methodologies. The project has an advanced search engine which allows filtering by level, discipline, language and even type of methodology.

3.2 Other repositories and platforms

Within the framework of their autonomy, some Spanish Autonomous Communities have also opted for the creation of their own OER platforms. In this sense, the CREA project (Creation of Open Educational Resources), promoted by the Education and Employment Office of the Regional Government of Extremadura, is noteworthy. This platform offers two complementary modalities that include the creation of educational resources and their application in the classroom. Similarly, the REA/DUA project of the Regional Ministry of Education and Sport of the Regional Government of Andalusia was launched at the end of 2020 (Resolution of 20 November 2020, of the Directorate General for Teacher Training and Educational Innovation, BOJA no. 236). For this purpose, the government recruited Andalusian teachers to create Open Digital Educational Resources that help cater for diversity in the classroom and promote the acquisition of students' digital competence, according to the European framework. The first resources of the project are already available, as well as more than a thousand exercises and activities. All of them can be downloaded and inserted into any virtual learning environment.

Within the university environment, there are also some OER repositories such as MERLOT, designed by California State University, which have both theoretical papers and articles as well as practical learning strategies and activities shared by both the university's teaching staff and

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students. In the Spanish university system, as shown in the study developed by Santos-Hermosa et. al (2020), the repositories with the largest volume of resources are the Digital Document Repository of the Autonomous University of Barcelona and the Zaguán of the University of Zaragoza. In addition, UPCommons, designed by the Polytechnic University of Catalonia, includes a bank of exams and courses, and both Riunet (Polytechnic University of Valencia) and RUA (University of Alicante) repositories have an important variety of audiovisual materials and educational resources,

4. OER AND THE FRAMEWORK FOR THE DIGITAL COMPETENCE OF EDUCATORS

The development of a Framework for the Digital Competence of Educators in Spain has its origin in the Organic Law of Education 2/2006, of 3 May, amended by the LOMLOE). This law, in its article 111.bis on ICT in public schools, established that a framework of reference for digital teaching competence had to be drawn up in order to promote the continuous training of teachers and the development of a digital culture in the classroom. In October 2017, the National Institute of Educational Technologies and Teacher Training (INTEF) published the first version of this framework, adapting the European Digital Competence Framework for Citizens v2.1 (European Commission, 2016) and the European Framework for the Digital Competence of Educators (DigCompEdu) (Redecker, 2017).

After that, the European Council Recommendation of 22 May 2018 on key competences for lifelong learning included digital competence as a basic skill and identified the appropriate use of digital technologies in education, training and learning contexts as an essential skill to facilitate the acquisition and development of key competences. It also supported the European Commission's initiative to promote the development of specific competence frameworks. These recommendations were set out in the Resolution of 2 July 2020 of the Directorate General for Evaluation and

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Territorial Cooperation, which published the Agreement of the Sectoral Conference on Education on the framework for the digital competence of educators as an instrument for the design of education policies. The aim was to improve teachers' digital competence and subsequently contribute to the acquisition and development of pupils' key competences and to a better functioning of schools.

One year later, the arrival of the European Next Generation EU funds, following the global pandemic caused by COVID-19, led to the Resolution of 10 September 2021, issued by the Secretary of State for Education, which regulated the distribution of funds allocated to the Program for the improvement of educational digital competence #CompDigEdu. The aim of this plan is to improve the development of students' digital competence through the transformation of educational institutions into digitally competent organizations, and the development of teachers' digital competence.

On 16 May 2022, the updated Spanish version of the Framework of Digital Competence for Educators (Marco de Referencia de la Competencia Digital Docente) was published. This framework incorporates six areas related to teachers' professional activities as well as the digital competences required. Among these areas, two of them are directly related to OER. On the one hand, the first area 1 (professional engagement) refers, among other competences, to the "use of digital technologies for communication, coordination, participation and collaboration within the school and with other external professionals". On the other hand, area 2 is devoted entirely to digital contents, as it is stated that:

> One of the key competences any educator needs to develop is to come to terms with this variety, to effectively identify resources that best fit their learning objectives, learner group and teaching style, to structure the wealth of materials, establish connections and to modify, add on to and develop themselves digital resources to support their teaching. (Punie, Y., ed. y Redecker, C., 2017, p. 20).

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In this sense, the framework distinguishes between digital content and digital educational content. The former refers to any file with digital content that may have an educational purpose, whereas the latter refers to content specifically designed to be developed for an educational purpose, such as OER (INTEF, 2022). Furthermore, the three competences framed in this area (i) search and selection, (ii) creation and modification and (iii) protection, management and sharing of digital content are directly related to OER. For all these reasons, the acquisition of digital competence in teaching involves the knowledge and use of this type of digital resources.

5. OPEN LICENSING OR CREATIVE COMMONS

A relevant aspect of OER is the use of open licenses, which allow sharing and reusing materials while protecting the intellectual property of creators (Causse, M. D. A., & López, C. V., 2021). Most of the resources available in the repositories mentioned above use Creative Commons (CC) licenses, which permit the use of copyrighted works without the need to seek permission from the creator of the work. CC licenses belong to a non-profit, non-governmental organization [NGO] that pursues to restore a balance between the rights of authors, cultural industries and the public access to intellectual works, culture and knowledge (Vercelli and Marotias, 2007, p. 1). Its purpose is to facilitate forms of licensing in order to share creations on the Internet (Rodriguez, 2007, p. 14). In this sense, there are six types of licenses depending on the level of restriction that the author wishes to apply, as shown below (see figure 1):

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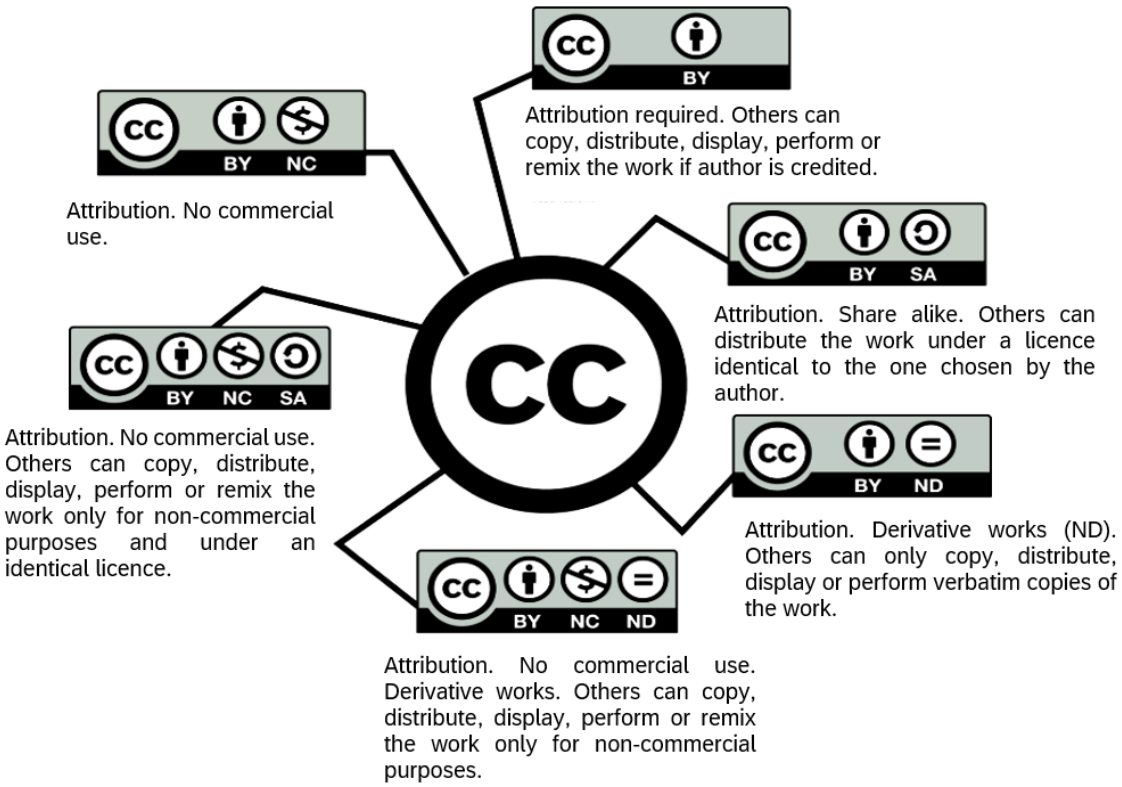
Figure 1

Licences_CC. Image designed by Oriana Robles Muñoz under a CC licence By, based on contents from Creative Commons Colombia published in: http://co.creativecommons.org



In any case, the legal mechanism and the most appropriate way to ensure the integrity of the resources produced as well as the recognition of their authorship is assigning a license to the resources created and/or verifying that the materials used have one (González Alcaide et al., 2015). A clear benefit of these licenses is that they do not entail a loss of rights over the work and are not lucrative, so they are easy to access and simple to use.

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6. METHODOLOGY

In order to find out the way teachers perceive the digital educational resources that they know and use in their teaching environments, a 20-question survey was conducted. This survery, developed on the Google Forms platform, was addressed to 100 teachers from different educational settings (primary, secondary and university education).

A descriptive method was followed, which consists of the recording, analysis and interpretation of the current status and the composition or processesing of the data. The focus is on dominant conclusions or on how a person, group or thing functions in the present (Tamayo, 2004). In this sense, closed questions have been used in order to gather statistical data that allow a quantitative analysis.

7. RESULTS AND DISCUSSION

The first questions (1, 2, 3, 4 and 5) were aimed at obtaining a profile of the participants involved in the study and their educational context: to find out the age and years of experience of the teachers; to determine the educational stage at which they teach, as well as their area of knowledge and the type of institution in which they work. According to the data collected, 62.1% teach at secondary and baccalaureate high schools and 33% at primary schools. The remaining participants work in other types of institutions, both public and private. 95.3% responded that they use ICT in the classroom and 86% claimed that they make use of digital resources obtained from different sources. No significant differences were detected in any of the questions between the opinions of teachers of different educational stages.

Regarding teachers' attitudes towards the use of digital resources, the majority (79.1%) answered that they would use digital resources more frequently if they had a repository of digital curriculum-based activities,

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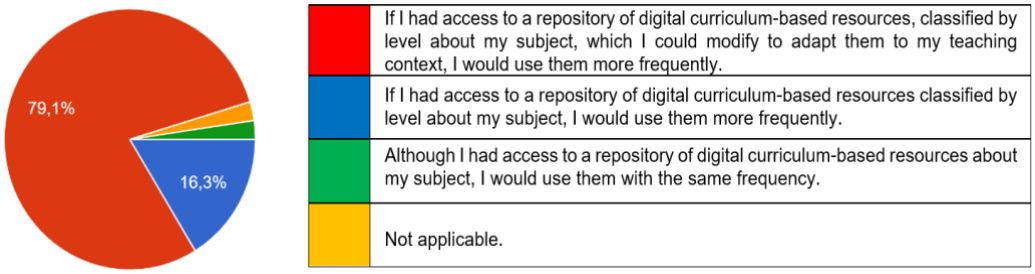
classified by levels and subjects, that they could modify and adapt according to their preferences. This last condition seems to be particularly relevant, as only 2.3% stated that they would not use them more frequently if there were repositories, and only 16.3% said that they would use them more frequently regardless of whether or not they could modify them (see Figure 2).

Figure 2

Participants' opinion about the use of digital learning resources, based on the survey results. Own creation.



Therefore, it can be stated that the fact that teachers can edit the resources available is a determining factor when it comes to influencing on the use or non-use of these repositories. With regard to the creation of resources, 41% of the teachers surveyed responded that they create digital resources despite the effort required, compared to 34.9% who admitted that they do not do so for the same reason.

The second part of the questionnaire intended to find out if teachers are familiar with OER, and the results were significant and conclusive. 76.6% recognized not knowing what OER are and, therefore, not using any repository to search for this type of resources. Along the same lines, 90.7% confirmed that they are not aware of the Procomún repository or the EDIA project, and 88.4% claimed that they do not share their resources in any public repository, although 76.7% admitted sharing resources with other colleagues (see Figure 3).

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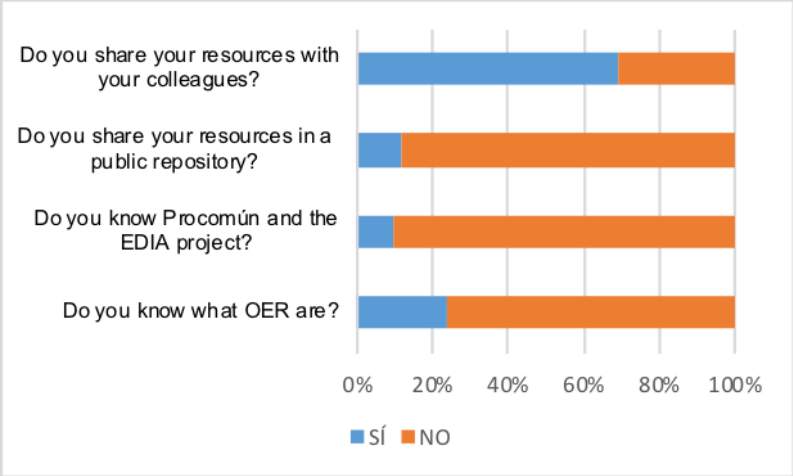
Figure 3

Use and creation of OER. Use of OER repositories, based on the survey results. Own creation.



As a result, it is clearly evident that, although teachers of these subjects are proactive in using digital resources in the classroom and in working collaboratively with their colleagues, they are unaware of the existence of public repositories created to facilitate these tasks. Similarly, although a significant number of teachers would be interested in having access to repositories of digital curriculum-based resources, classified by level and subject, and with open licenses that allow them to modify and adapt these resources to their preferences, most of them are unaware that they have two public repositories at their disposal. For example, the ones promoted by the Ministry of Education and some Autonomous Communities, such as Procomún or the EDIA Project.

Finally, with regard to open digital licences or Creative Commons, the results show that teachers are more familiar with them than with OER. 51.2%

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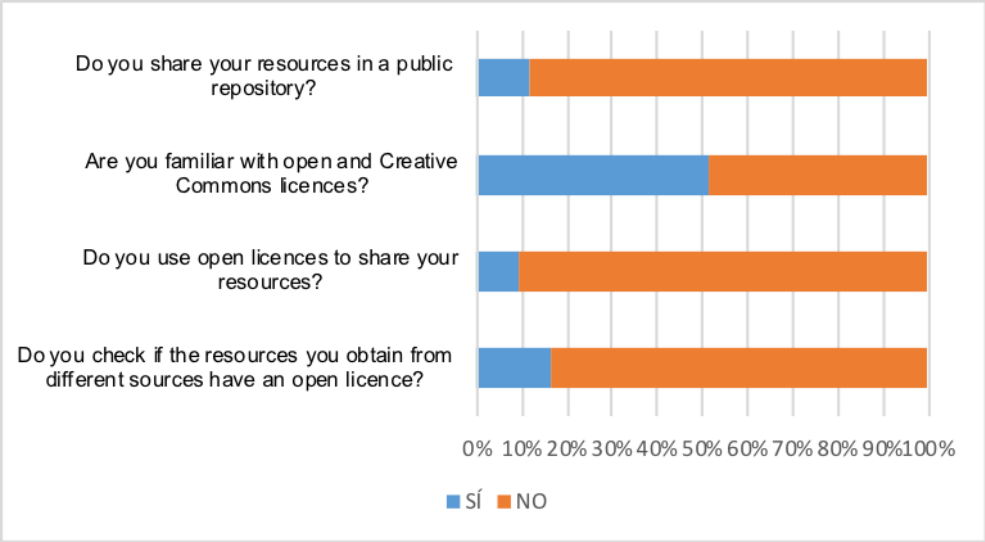
of the participants confirmed to have some knowledge about them. However, only 9.3% admitted using them with the digital resources they share. Likewise, only 16.3% of respondents recognised that they check that the digital educational resources that they obtain from various sources and use or modify have an open or Creative Commons licence. Nevertheless, these responses may be conditioned by the fact that, as mentioned above, a large majority (88.4%) stated that they do not share resources in public repositories (see Figure 4). Therefore, the fact that these resources remain in their personal sphere rather than being made public or used broadly may justify the lack of concern about this issue.

Figure 4

Knowledge and use of open and Creative Commons licences, based on the survey results. Own creation.



8. CONCLUSION

Digital competence has become a pedagogical principle of any educational context in today's society, as evidenced in the most recent European resolutions (Council of the European Union, 2018 and European

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Commission, 2021), as well as in current Spanish educational regulations (LOMLOE, 2020). Given that digital literacy is nowadays absolutely necessary for 21st century citizens (Silva, Usart and Lázaro, 2019), teachers and educational institutions must be digitally competent in order to adequately develop students' digital competence (INTEF, 2022).

To carry out this task, teachers can make use of the many digital tools available. Among them, OER are a valuable resource for sharing and creating digital materials that can be used in the teaching-learning process (Causse, M. D. A., & López, C. V. (2021). In this sense, following the proposals and recommendations of the UNESCO (2017), education authorities have opted for the creation of online OER repositories so that teachers have a common space for sharing resources, such as the EDIA project or the Procomún platform. Moreover, promoting the use and creation of OER has a double benefit, since, in addition to serving as a repository of free, open and accessible resources, it influences teacher training and the development of their own digital competence, as stated in the latest update of the Framework of Digital Competence for Educators (INTEF, 2022).

However, despite the efforts of education authorities to develop repositories of this type of resources, according to the study carried out, these do not seem to be within the reach of most teachers. Despite the fact that the teachers participating in the study stated that this type of tools would facilitate their teaching practice and even encourage their use of digital resources, they claimed not to be aware of their existence. For this reason, the sharing of resources is limited to a personal sphere and the use of technology in the classroom is reduced. This fact, moreover, can be directly related to the lack of attention and concern that they pay to the use of open or CC licenses. All of this demonstrates the lack of dissemination of the platforms and tools developed by education authorities and the absence or deficiency of teacher-training programs that bring teachers closer and guide them in their use.

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Therefore, the arrival of the aforementioned Next GenerationEU European funds to encourage the development of digital competence in teaching (Council of the European Union, 2021) and the mandatory incorporation of digital plans in all publicly funded non-university education organizations (LOMLOE, art. 121, 2020) constitute an exceptional opportunity for education authorities. They should develop training programs in OER for teachers of these educational stages as well as to promote the use of the repositories available to provide them with greater content. Therefore, in subsequent studies, the impact of these plans should be analyzed in order to check whether the economic, human and material resources employed in the development and maintenance of these repositories have achieved the expected results.

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9. REFERENCES

Causse, M. D. A., & López, C. V. (2021). Dame un REA y cambiaré el mundo. *e-CO: Revista digital de educación y formación del profesorado*, (18), 290-320.

Comisión Europea (2021). Plan de Acción de Educación Digital (2021-2027). https://ec.europa.eu/education/education-in-the-eu/digital-education-action-plan_es

Consejo de la Unión Europea (2018) Recomendación del Consejo de Europa, de 22 de mayo de 2018 relativa a las competencias clave para el aprendizaje permanente. Diario Oficial de la Unión Europea, C 189/1. Obtenido de: https://eur-lex.europa.eu/legal-content/ES/TXT/PDF/?uri=CELEX:32018H0604(01)&from=EN

Consejo de la Unión Europea (2021). Plan de recuperación para Europa: NextGenerationEU https://ec.europa.eu/info/strategy/recovery-plan-europe_es

Downes, S. (2007). Models for sustainable Open Educational Resources. *Interdisciplinary Journal of Knowledge and Learning Objects, 3,* 29-44.

European Commission (2016). The European Digital Competence Framework for Citizens. https://bit.ly/2vxeWKn

INTEF (2017). Marco Común de Competencia Digital Docente – Septiembre 2017. http://aprende.intef.es/sites/default/files/2018-05/2017_1020_Marco-Com%C3%BAn-de-Competencia-Digital-Docente.pdf

INTEF (2022). Actualización del Marco de Referencia de la Competencia Digital Docente – Enero 2022. https://intef.es/wp-content/uploads/2022/03/MRCDD_V06B_GTTA.pdf

Glasserman Morales, L. D., & Ramírez Montoya, M. S. (2014). Uso de recursos educativos abiertos (REA) y objetos de aprendizaje (OA) en educación

Recepción: 10/10/2022. Aceptación: 20 /10/2022

básica. *Education in the Knowledge Society (EKS)*, *15*(2), 86–107. https://doi.org/10.14201/eks.11888

Guillén-Gámez, F.D., Álvarez-García, F.J.,& Rodríguez, I.M. (2018). Digital tablets in the music classroom: A study about the academic performance of students in the BYOD context. *Journal of Music, Technology & Education*, 11(2), 171-182. https://doi.org/10.1386/jmte.11.2.171_1

González Alcaide, G., Hernández San Miguel, F. J. (2015). Recursos educativos abiertos (REA): ámbitos de investigación y principios básicos de elaboración. *Opción*, vol. 31, núm. 1, pp. 338-354 Universidad del Zulia Maracaibo, Venezuela.

Ocaña-Fernández, Y., Valenzuela-Fernández, L., y Garro-Aburto, L. (2019). Inteligencia artificial y sus implicaciones en la educación superior. *Propósitos y Representaciones, 7(2),* 17 pp. Doi: http://dx.doi.org/10.20511/pyr2019.v7n2.274

Redecker, C. (2020) *Marco Europeo para la Competencia Digital de los Educadores: DigCompEdu*. (Trad. Fundación Universia y Ministerio de Educación y Formación Profesional de España). Secretaría General Técnica del Ministerio de Educación y Formación Profesional de España (Original publicado en 2017).

Santos-Hermosa, Gema; Estupinyà, Eva; Nonó-Rius, Brigit; París-Folch, Lidón; Prats-Prat, Jordi (2020). Open educational resources (OER) in the Spanish universities. *Profesional de la* información, v. 29, n. 6, e290637. https://doi.org/10.3145/epi.2020.nov.37

Punie, Y., editor(s), Redecker, C. (2017). *European Framework for the Digital Competence of Educators: DigCompEdu*, EUR 28775 EN, Publications Office of the European Union, Luxembourg. doi:10.2760/178382

Rodríguez, M. (2007). *La difusión de las creaciones en la era digital: El Copyleft para distribuir creaciones en la era digital.* (Spanish). *ACIMED*, 15(1), 1. Recuperado de http://search.ebscohost.com/login.aspx?direct=true&db=lth&AN=24120347&lang=es&site=ehost-live

Recepción: 10/10/2022. Aceptación: 20 /10/2022

Silva Quiroz, J. E., Usart Rodríguez, M., & Lázaro Cantabrana, J. L. (2019). Competencia digital docente en estudiantes de último año de Pedagogía de Chile y Uruguay. *Comunicar: revista científica iberoamericana de comunicación y educación*.

Tamayo, M. (2004). *El proceso de la investigación científica (4th ed.).* México: Editorial Limusa.

UNESCO (2017) Plan de Acción sobre los Recursos Educativos Abiertos. II Congreso Mundial sobre REA de la UNESCO. Liubliana.

Vercelli, A. y Marotias, A. (2007). *Guía de licencias Creative Commons.* Recuperado de http://www.arielvercelli.org/gdlcc1-0.pdf

9.1 Legislative references

Ley Orgánica 2/2006, de 3 de mayo, de Educación. Boletín Oficial del Estado. 106, de 4 de mayo de 2006. https://www.boe.es/buscar/pdf/2006/BOE-A-2006-7899-consolidado.pdf

Ley Orgánica 3/2020, de 29 de diciembre por la que se modifica la Ley Orgánica 2/2006, de 3 de mayo, de Educación. (2020). Boletín Oficial del Estado. 340, de 30 de diciembre de 2020. https://www.boe.es/eli/es/lo/2020/12/29/3/dof/spa/pdf

Real Decreto 157/2022, de 1 de marzo, por el que se establecen la ordenación y las enseñanzas mínimas de la Educación Primaria. Boletín Oficial del Estado. 52, de 2 de marzo de 2022. https://www.boe.es/buscar/pdf/2022/BOE-A-2022-3296-consolidado.pdf

Real Decreto 217/2022, de 29 de marzo, por el que se establece la ordenación y las enseñanzas mínimas de la Educación Secundaria Obligatoria. Boletín Oficial del Estado. 76, de 30 de marzo de 2022. https://www.boe.es/boe/dias/2022/03/30/pdfs/BOE-A-2022-4975.pdf

Real Decreto 243/2022, de 5 de abril, por el que se establecen la ordenación y las enseñanzas mínimas del Bachillerato. Boletín Oficial del Estado. 82, de 6 de abril de 2022. https://www.boe.es/boe/dias/2022/04/06/pdfs/BOE-A-2022-5521.pdf

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Resolución de 20 de noviembre de 2020, de la Dirección General de Formación del Profesorado e Innovación Educativa, Boletín Oficial de la Junta de Andalucía, número 36, de 9 de diciembre de 2020. https://www.juntadeandalucia.es/boja/2020/236/BOJA20-236-00824.pdf

Resolución de 4 de mayo de 2022, de la Dirección General de Evaluación y Cooperación Territorial, por la que se publica el Acuerdo de la Conferencia Sectorial de Educación, sobre la actualización del marco de referencia de la competencia digital docente. Boletín Oficial del Estado. 116, de 16 de mayo de 2022. https://www.boe.es/boe/dias/2022/05/16/pdfs/BOE-A-2022-8042.pdf

Recepción: 10/10/2022. Aceptación: 20 /10/2022