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Do Video Learning Objects Develop Digital Competence in Teacher Training?

¿Desarrolla el video como objeto de aprendizaje la competencia digital en la formación del profesorado?

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Although some studies have been carried out on the use of technology in the classroom to facilitate the acquisition of competences (Vinagre, 2016), results that ratify the acquisition of the digital competence or DigComp in higher education according to the report for the development of basic competences for lifelong learning (EC, 2007) with virtual Learning Objects following a CLIL approach (De Graaf, Koopman & Westhoff, 2007) are still scarce. This project investigates if student teachers acquire the DigComp (INTEF, 2013) through the use of video as an appropriate Learning Object according to a specific taxonomy (Wiley, 2002). The results of the study will provide the necessary empirical data required for a more detailed proposal for adequacy.

Keywords: *virtual objects; video; digital competence; student teachers; CLIL.*

Si bien se han realizado algunos estudios sobre el uso de la tecnología en el aula para facilitar la adquisición de competencias (Vinagre, 2016), son aún escasos los estudios que ratifican la adquisición de la competencia digital en la formación del profesorado según el informe para el desarrollo de competencias básicas para el aprendizaje (EC, 2007) con objetos virtuales de aprendizaje siguiendo un enfoque AICLE (De Graaf, Koopman & Westhoff, 2007). Este proyecto investiga la adquisición de la citada competencia según INTEF (2013) a través de la utilización del vídeo como objeto de aprendizaje apropiado siguiendo una taxonomía específica (Wiley, 2002). El estudio trata de evaluar los resultados obtenidos a fin de proponer nuevas propuestas de adecuación.

Palabras clave: *objeto de aprendizaje; video; competencia digital; formación del profesorado; AICLE.*

1. BACKGROUND

According to Pennock-Speck (2013: 179) one of the latest changes in European higher education has been the introduction of the concept of competences, which constitute one of the key building blocks of the European convergence. Besides the development of competences, the attainment of digital knowledge also comprises one of the most remarkable advances in education as it enables the acquisition of further competences. Innovation at university level should, therefore, focus on the appropriate advance of educational technology and key competence acquisition (European Union, 2010). This paper analyses how the use of video as an appropriate usable digital Learning Object (henceforth LO) for its capacity to enhance social interaction and construct knowledge between students (Vygotsky, 1978) may develop digital competence in a teacher training degree.

1.1 Digital competence for lifelong learning

The Organisation for Economic Co-operation and Development's Definition and Selection of Competences Project (DeSeCo), states that individuals require an inclusive variety of competences in order to face the evolving challenges of today's society and economy (OECD, 2005). Apart from the European Commission's Framework of Reference (European Commission, 2007), many other studies such as the *Tuning Educational Structures in Europe* project (González & Wagenaar, 2003) and reports (Villa & Poblete, 2008; González-Lloret, 2013, etc.) have provided frameworks with descriptions of key competences for lifelong learning. However, we agree with Vinagre (2016: 172) that research on key competence development in educational environments has shown that only a limited number of these fundamental competences have been assessed; among them the digital competence.

According to Vuorikari, Punie, Carretero Gomez and Van den Brande (2016) almost half of the adult EU population has insufficient digital skills. The Digital Competence Framework for Citizens, also known as DigComp, was published by the European Commission as a tool to improve citizens' digital competence, support digital competence building, and plan education and training initiatives of specific target groups. This key competence also provides a common language on how to identify and describe the five key areas of DigComp, which as outlined by Vuorikari et al. (2016) comprehend: 1) information and data literacy; 2) problem solving; 3) communication and collaboration; 4) digital content creation; and 5) safety. Nowadays, being digitally competent involves having competences in each of the five areas. The benefits of digital technologies depend on the knowledge, skills and attitudes to be able to use them in a critical, collaborative and creative way as indicated by the *Instituto nacional de Tecnologías educativas y formación del profesorado* or INTEF (2013). According to this institution, training in digital competence is a curricular imperative since it is still underdeveloped and diverse. Developing digital competence in the education system therefore requires that educators have the necessary training in that competence.

Tammaro and D'Alessio (2016) have taken these data into account to focus specifically on teachers' digital competence, which appears to be more complex than in other occupations (Hooper & Rieber, 1995). This requires an awareness of the way in which teachers experience and carry out the pedagogical use of technology depending on their high or low digital competence. We agree with Tammaro and D'Alessio (2016) that teachers need support to develop a wide range of digital skills that ensure young people leaving school have the skills required by the labour market and by an increasingly digitised society. The goal, therefore, is to guide student teachers in developing digital competence with the appropriate resources available to them. Teachers should be aware of a range of digital skills and make use of innovative tools to assist their own and their future students' work in this area. This report revises how primary education student teachers develop the key areas of DigComp as strategic support following INTEF (2013).

1.2 Video learning objects

Within the wide range of resources currently offered in the digital era, the video seems to fit adequately for teaching English as a foreign language (TEFL) as we cannot ignore the fact that the visual predominates over the text (Cabero, Marín & Barroso, 2015). As described by Parselis (2007), in today's society the abundance of audio-visual materials is also a powerful practical reason to use them as raw resource materials for students to develop their own work.

As coined by the Learning Technology Standards Committee (2002: 4-5), most definitions of LOs describe them as digital resources used as a support for learning to be

applied in various educational contexts "following specific instructional strategies and criteria for their application" (Wiley, 2002: 9). According to this author, there are a number of existing instructional design theories that provide explicit scope applicable to most LOs such as Reigeluth's Elaboration Theory (1999), Van Merriënboer's Component Instructional Design model (1997) and Gibbons, Nelson and Richards´ Work Model Synthesis approach (2000).

Only a few researchers such as Damari (2017) have identified that multimedia tools, such as the video, appear to accomplish the characteristics of LOs as described by Garcia Aretio (2005: 5-6). According to this author, they can be considered standalone units of instruction designed to assist learners with the maintenance and development of content knowledge as well as with their pre-existing proficiency in the target language. The core of each video LO may be regarded as an authentic target language segment when accompanied by pedagogical activities designed to challenge the learner's language skills and cultural knowledge. Video LOs should be, therefore, supported by complementary comprehension tools and a list of resources to enrich any area and learning experience tailed to a specific LO taxonomy which, depending on the attributes, may vary from Fundamental to Combined (open/closed) or Generative (presentation /instructional) as defined by Wiley (2002: 21).

1.3 Video LOs for content and language integrated learning

Despite educators increasingly using available video applications or apps (i.e. YouTube) as a pedagogic resource in TEFL varying from instructional videos to online spaces that permit the sharing of student-authored contents, there is still scarce research on the didactic value of video as an appropriate LO following a specific TEFL approach.

In 1968, Allen and Eve proposed a technique to work with video as a form of digital content in microteaching practices. Following their proposal, some other authors (i.e. Abendroth, Golzy & O'Connor, 2011) focussed on the promotion of video for TEFL and the development of the four skills in pre-service teacher education programmes (He & Yan, 2011) with the participation in forums in order to engage students in motivating desirable practices such as collaborative content creation (Cabero, 2004; Duffy, 2008; Bueno Alastuey & García Esteban, 2016, etc.). Also, De Graaff, Koopman and Westhoff (2007) proposed endorsing video to existing specific approaches such as content and language integrated learning (CLIL) for teaching subjects through a foreign language. In their opinion, this effective teacher pedagogy can heighten second language acquisition (SLA) by facilitating exposure to input, meaning-focused processing, form-focused processing and output production. In line with Westhoff´s (2004) postulation, a teacher is expected to encourage content-processing of oral or written input by giving special tasks that may involve learners in handling meaning, which can be facilitated with a video-enhanced curriculum.

In this study we follow Hodgins definition in Jacobsen (2002) who considers LOs as any digital resource that can be used as a support for learning because of their potential for generativity, flexibility, and scalability (Gibbons et al. 2000; Urdan & Weggen, 2000). The focus will be put, more specifically, on the video as an applicable LO which comprises the above-mentioned characteristics due to its adaptability and usability for content and (English) language integrated learning as proposed by De Graaff et al. (2007).

2. METHOD

2.1 Aim of the study and research questions

This preliminary study was designed to analyse the impact that video as an LO might have on the development of student teachers' digital competence in order to evaluate whether this resource, when taught following a specific taxonomy, could be beneficial for the development of this specific key competence in higher education. The review will also help us determine if the video can be considered as an appropriate LO for content and English language integrated learning.

2.2 Participants

This project was carried out at the University of Alcalá (Spain) with two groups: one of 35 students (core group) and another of 29 (experimental group) doing their second year in a degree in Primary Education. The participants, between 21 to 25 years old, were studying the subject *English as a foreign languag*e following a CLIL approach, which had 48 hours contact time and 102 of autonomous work. The pilot study was designed so that students in the core group could foster their digital competence with traditional means (textbook and SLA assignment) and the experimental group could improve their digital competence using the textbook and carrying out a video SLA assignment.

2.3 Instruments

The instruments consisted of a pre- and a post-task questionnaire "Measuring level of Digital Competence" based on INTEF (2013), which included the five different areas that comprehend DigComp and their corresponding 26 indicators. This survey consisted of a structured dichotomous rating scale of two possible response options enquiring about students' involvement with digital content. The scale construction was based on the settled old-school of psychometricians´ argument that increasing the number of scale point options does not affect test-retest reliability or validity (Preston & Coleman, 2000). Participants were required to justify their answer before and after carrying out the required assignment (see Appendix 1).

2.4 Procedure

Quantitative data were collected from the answers to the survey of both groups to analyse and compare general trends. While the core group (CG) specified their performance in digital competence without using video LOs, the experimental group (EG) marked their digital competence after having worked with this audio-visual resource.

Although both groups used the core book *New English File: Intermediate Plus Student's Book* (Oxenden & Latham-Koenig, 2012) proposed in the subject program, the CG was asked to conduct an assignment consisting of a research paper and a related oral presentation in class on a given historical topic for SLA based on De Graaff et al. (2007). Apart from the book and the tutor´s feedback, the core group counted on the support of the institutional (UAH) *Blackboard* virtual learning environment and was encouraged to use any resource of their choice for their task performance. The assignment was designed to reinforce the contents of the subject, which had been previously explained in traditional on-campus lectures. In order to be able to observe the attainment of the digital competence in both

groups, the EG was required to carry out the same assignment but with the use and management of an LO, namely a video, for the development of activities that would favour second language and content acquisition. The task was done in groups of three students following the tutor´s instructions as detailed below.

The video LO experience consisted in watching a video concerning the historical evolution of the English language and in developing some related activities for primary school students. The project was aimed at developing not only the digital competence, but also at enhancing the respondents' knowledge of English history and language skills (reading, writing, speaking and listening) in a constructive, motivational and technological setting. The line of action was carried out in different phases:

1) Phase one consisted of the selection of the video LO and clarification of the activities and groupings in *Blackboard* course management system. It also implied an explanation of the appropriate use of virtual and multimedia environments and the use of specific digital didactic resources and websites. The selected LO was the video "The History of English in 10 Minutes", published by The Open University (OpenLearn, 2011) in YouTube.
2) The second phase required a written analysis of the different periods mentioned in the video indicating their historical background following an academic writing rubric provided by the tutor.
3) Phase three involved the creation of real communicative activities following Rábano´s (2015) microteaching techniques for competence acquisition in order to teach specific English language and the previously revised historical contents to primary children (e.g. *Elizabethan Shakespeare, American settlements*, etc.)
4) Phase four consisted of an oral microteaching including activities related to the selected topic from the LO previously watched, which involved group and autonomous research.
5) The final phase consisted of the assessment, reflection and analysis of the activities carried out with proposals for improvement. Specifically, this phase involved an auto-evaluation considering classmates SWOT[1] analysis and a written reflective discussion paper about its possible adaptation in the primary classroom taking into account the learning competences.

Besides using the library for extensive reading about specific topics (e.g. *The Anglo-Saxons, Global English*, etc.), students took advantage of multimedia and social media to develop language skills, as well as the web to access online dictionaries (e.g. www.wordreference.com) and websites with texts and articles of interest (e.g. National Geographic, Britain Project, etc.) with didactic teaching proposals.

The next section presents the results of the usability of the video as an appropriate LO in content (history) and (English) language integrated learning for the development of digital competence.

[1] SWOT analysis is an acronym for Strengths, Weaknesses, Opportunities, and Threats. This matrix was used as a structured planning technique to discuss the students' performance and content teaching after each oral presentation.

3. RESULTS

The analysis of the learners' responses on their development of DigComp following INTEF (2013) is illustrated by the data below. Respondents had to choose from a standard two-alternative forced-choice and were required to explicitly justify their answer on each indicator. Tables and figures were created to present the data collected. Since the number of students that participated in this is study was quite low, statistical analyses have not been carried out, although it would be interesting to do so in further studies on this topic including multi-option rating scales that might provide more accurate consistencies.

Table 1 illustrates the differences between the control and the experimental group, before and after the study. According to the questionnaire results, the experimental group showed an overall positive upgrade over the control group in all indicators – except one – that conform the digital competence.

Table 1: ***Test-retest progress per group and area***

Area	Indicator	Yes %		No %	
		CG	**EG**	**CG**	**EG**
Information & Data Literacy	Finding digital information	**60.0**	**85.0**	40.0	15.0
	Obtaining information from public webs	26.0	37.0	74.0	63.0
	Reading or downloading online	9.0	26.0	91.0	74.0
	Copying or moving a file or folder	26.0	**75.0**	74.0	25.0
Communication & Collaboration	Sending/receiving emails	0.0	0.0	100	0.0
	Telephoning over the internet	17.0	48.0	83.0	52.0
	Posting messages to chat sites	**87.0**	**100**	13.0	0.0
	Uploading self-created content	44.0	**100**	56.0	0.0
Content Creation	Using copy and paste tools	25.0	**100**	75.0	0.0
	Using formulae in spread sheet	43.0	46.0	57.0	54.0
	Creating electronic presentations	**100**	**100**	0.0	0.0
	Creating websites or blogs	6.0	14.0	94.0	86.0
	Writing a computer programme or app	7.0	21.0	93.0	79.0
Safety	Protect my devices & digital content	**52.0**	**86.0**	48.0	14.0
	I protect personal data and privacy	**46.0**	**88.0**	54.0	12.0
	I protect health and well-being	2.0	18.0	98.0	82.0
	Environmental technological awareness	2.0	9.0	98,0	91.0
Problem Solving	Solving technical problems	*27.0*	**23.0**	73.0	77.0
	Connecting and installing new devices	**78.0**	**85.0**	22.0	15.0
	Installing/replacing old operating system	2.0	12.0	98.0	88.0
	Verifying apps configuration parameters	31.0	41.0	69.0	59.0
	Identifying needs & technological responses	0.0	0.0	100	100
	Use of Internet as a bank of data	**60.0**	**89.0**	40.0	11.0
	Buying or ordering over the internet	4.0	38.0	96.0	62.0
	Selling online	0.0	0.0	100	100
	Appointment via a website	0.0	0.0	100	100

As can be observed in the table above, the control group revealed a positive increase of 60% between their pre- and post- test in the first indicator (Finding digital information)**,** whereas the experimental group manifested an improvement of 84% between the initial and the final questionnaire, which infers an upgrade of 24% of the EG over the CG.

Following this instance, it must be highlighted that both groups presented over a 50% difference in improvement between the pre- and post- tests in half of the 26 indicators, which involved further development in: copying or moving a file or folder (EG 75%); posting messages to chat sites (CG 87%/EG 100%); uploading self-created content (EG 100%); using copy and paste tools (EG 100%); creating electronic presentations (CG 100%/EG 100%); protecting devices & digital content (CG 52%/EG 86%); protecting personal data and privacy (CG 46%/EG 88%); connecting and installing new devices (CG 78%/EG 85%); verifying

applications (apps) configurating parameters (CG 51%); and use of internet as a bank of data (CG 60%/EG89%). There was only one indicator, solving technical problems (CG 27%/EG 23%), which, in spite of the progress between initial and final tests in both groups, the control group showed a higher expertise over the experimental group.

Despite the general evolution observed between the initial and the final test, the experimental group succeeded in working with video LOs in all the indicators as detailed below. The overall positive results of the EG´s improvement compared to the CG´s in each of the 5 areas that conform the DigComp framework are presented in percentage graphics in order to better illustrate their attainment. Explicit instances of each indicator made by the students have been inserted to clarify the interpretation of the data.

3.1 Information and data literacy

Regarding the area of information and data literacy, results (see Figure 1) show that the EG revealed a higher tendency over the CG to search and find digital information (24%) related to the video LO assignment, in order to obtain information from instructional public authority websites (11%) such as UAH or other official websites (Cambridge ESOL sites, British Council, Educamadrid, etc.) and to read online journals (17%) concerning education (i.e. National Geographic, BBC). The EG revealed a significant increase in comparison with the CG in the action of copying or moving files (48%) to carry out the written assignment.

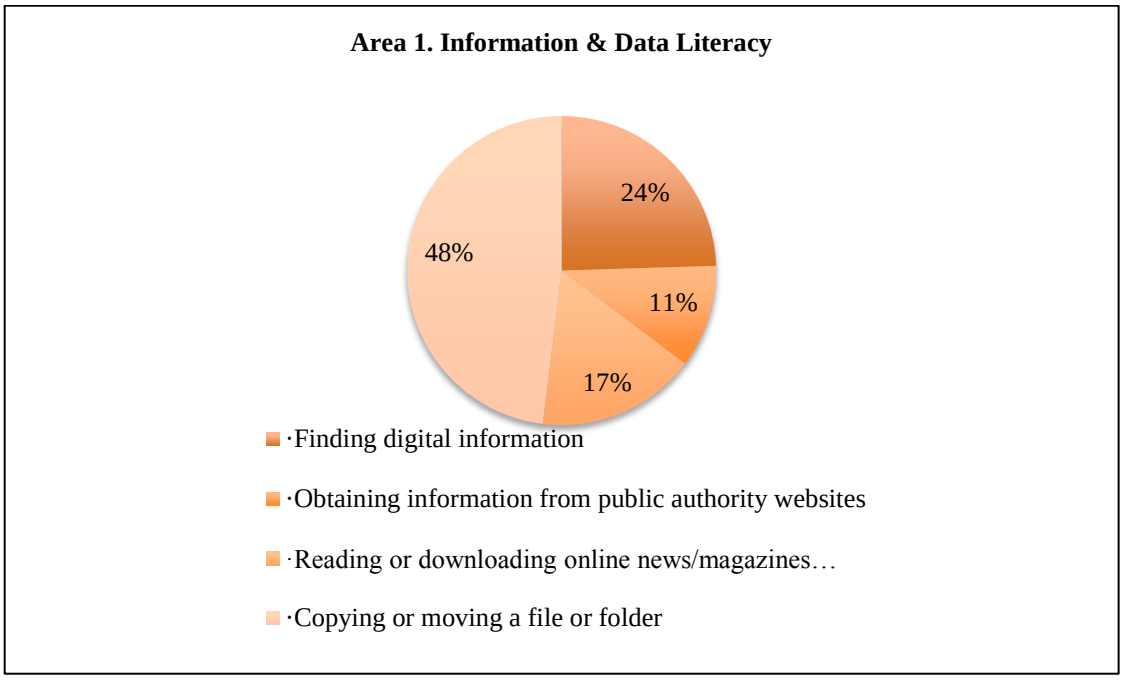

Figure 1: ***Improvement of Information & Data Literacy using VOs***

This growth may be due, according to Hodgins (2000: 17), to the subjective attributes or metadata of LOs that enable users accede to different perspectives. We agree with this author that using video as an LO to generate learning and build content using further objects deriving from it, may permit participants to discover and find meaningful information, which enhances the processes of learning and knowledge creation.

3.2 Communication and collaboration

Concerning communication and collaboration (see Figure 2) both the core and the experimental group admitted not using the email (i.e. Outlook) with their classmates. The EG showed a higher tendency than the CG to text messages (13%) in chat sites (i.e. WhatsApp). This may confirm Blehch´s (2014) idea that universities and higher education mobile communication based text instant messaging (i.e WhatsApp) is prevalent over asynchronous communication (i.e. e-mail).

Some EG participants acknowledged an increase in telephoning or video calls over the Internet (31%) with Skype or Facetime to solve some course doubts. Greater improvement (56%) was noticed when uploading self-created content (i.e. videos) to be shared in social media such as YouTube in order to perform the task requirement.

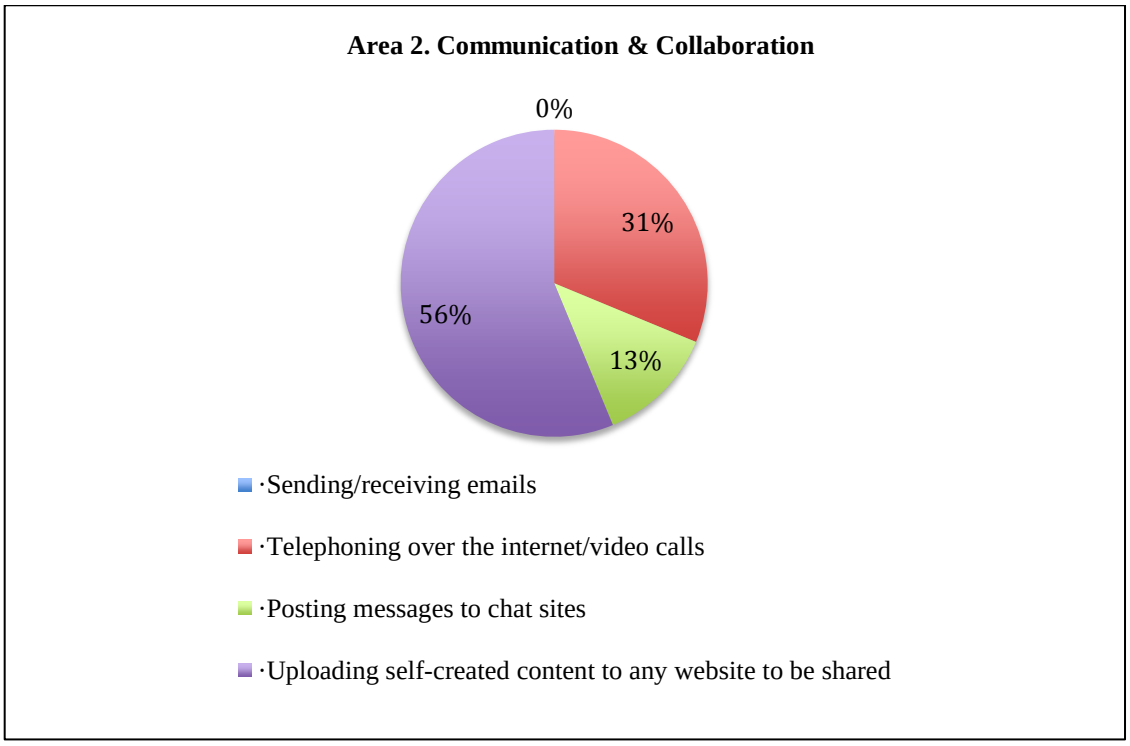

Figure 2: ***Improvement of Communication & Collaboration using VOs***

As stated by Wiley (2002), LOs are generally understood as digital entities deliverable over the Internet, meaning that any number of people can approach and use them simultaneously anytime. Instructional media that incorporates or relates to LOs allows communicating, collaborating and benefiting immediately. In accordance with Prensky (2011), current digital native students are used to the Web 2.0 or social networks where they can exchange bits of content, create new content and collaborate in digital spaces.

3.3 Digital content creation

With regard to the area of digital content creation (see Figure 3), the experimental group showed an increase of 75% when using copy and paste tools to duplicate or move information within a document. Content creation was also developed by the EG when using computer apps with specialised language (14%) to design some related video LO activities such as Quizzlet, which may result from Hodgins´s (2000: 7) idea of "using Learning Objects

according to the predictability and need" of attaining motivation, and when creating websites or blogs (8%) to upload their video LO activities.

However, little difference between both groups was noticed for the use of basic arithmetic formulae in spread sheets maybe due to the fact that these types of tasks are not usually required in the language classroom; nor when creating electronic presentations (e.g. slides), including e.g. images, sound, video or charts as both groups were used to Power Point or Prezi as stated by the students.

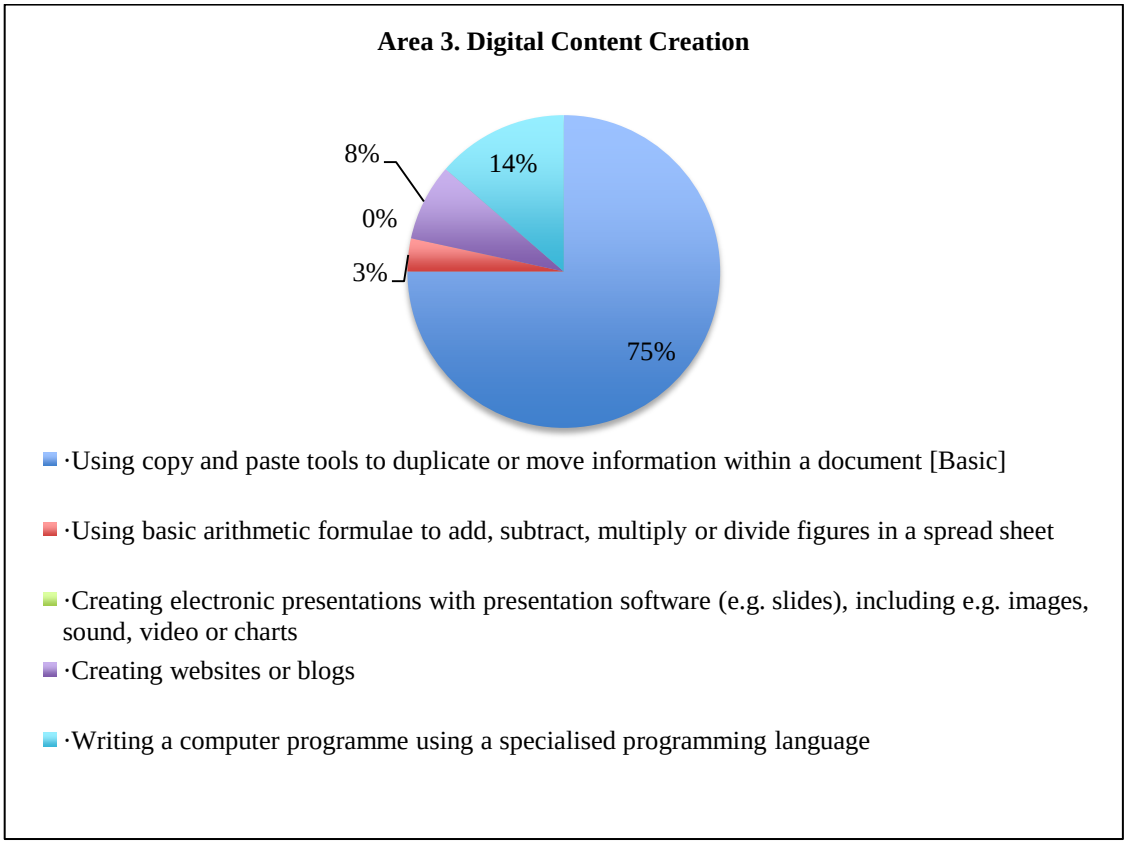

Figure 3: ***Improvement of Digital Content Creation DigComp using VOs***

According to Hodgins (2000: 13), the skill to apprehend knowledge so that it can be examined, reused, and shared with peers for further new knowledge creation is one of the most prevailing potentials that technology –and, therefore, video LOs– can provide. His statement is based on Dahl and Nygaard's (1966) idea that object-orientation instruction highly develops the creation of components that can be reused in multiple contexts.

3.4 Safety

Considering safety (see Figure 4), participants showed some differences in trends when protecting their devices and digital content (34%) and health and well-being (16%) in contrast to personal data and privacy safeguarding (42%). These attributes are not part of the metadata but rather "the further implications of working with a Learning Object for a specific use" (Hodgins, 2000: 17).

Student teachers have shown a low awareness towards the environmental impact of digital technologies and their use in order to contribute to its protection (7%). These outcomes might be addressed to the fact that the type of assignment required did not involve

sharing or spreading personal data nor contents, but to work and upload them to the protected university platform (Blackboard).

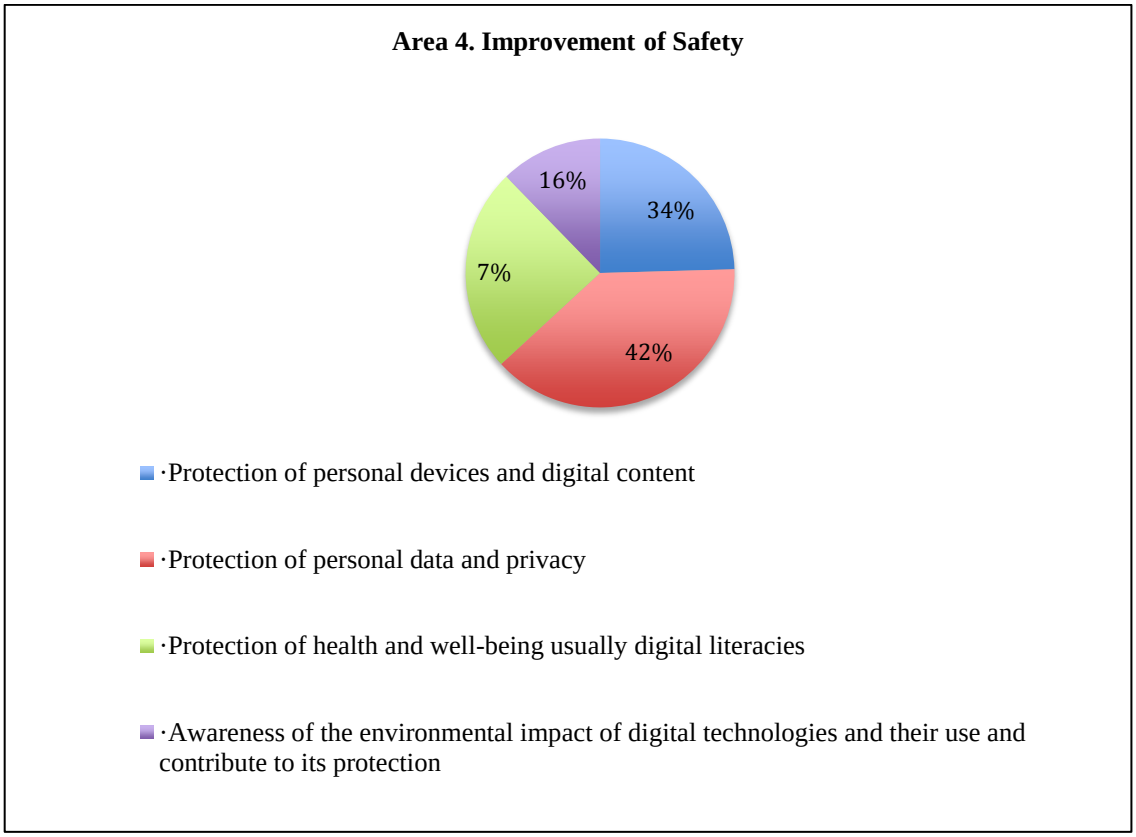

Figure 4: ***Improvement of Safety DigComp using VOs***

3.5. Problem Solving

Finally, the control group manifested an unexpected improvement (4%) over the experimental group in technical problem solving (see Figure 5). However, it was again the EG who revealed an upgrade over the CG when connecting and installing new devices, such as specific TEFL programmes, apps, or the printer (7%) or when installing or replacing an old operating system (10%), as well as when modifying or verifying the configuration parameters of software applications (10%) or identifying needs and technological responses (10%).

This low advance could be addressed to the fact that technical standards are not established well enough in this educational context. In order to foster learning, technological use should be guided by instructional principles (Wiley, 2002: 15) or follow a generative-instructional LO type, which may permit practice of any type of procedure (Merrill, 1999).

The EG admitted a major use of Internet as a bank of data (29%) with resources such as the Cloud that permit buying or ordering goods, services or programs over the internet (34%) that would help participants carry out their LO assignment. This fact "sets the stage for Learning Objects to be used to support online instruction" (Wiley, 2002: 11). None of the groups acknowledged actions consisting of selling online (0%), identifying needs and technological responses (0%) or making an appointment via a website (0%) related to university.

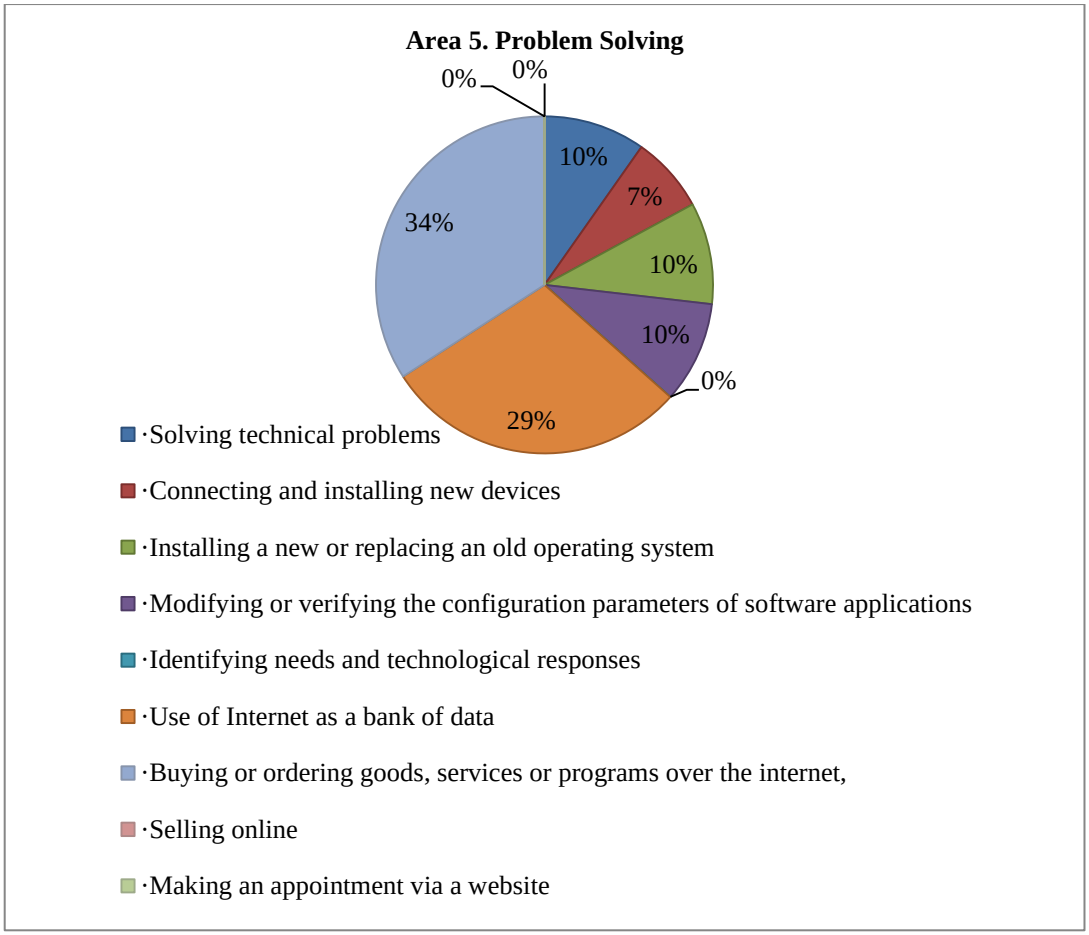

Figure 5: ***Improvement of Problem Solving DigComp using VOs***

As indicated by Hodgins (2000: 7), LOs are emulated in the learning context by metadata criteria, which require standardization. According to this author, "interoperability and usability of Learning Objects can only take place if there is a set of fundamental standards universally in place for this to work" (2000: 15).

Overall, as depicted in Figure 6, data have revealed an advance of the experimental group in the attainment of the digital competence working with video LOs over the control group in 5 areas and 25 indicators except for 1 (solving technical problems). Further improvement of 50% difference between the EG over the CG has been observed in several indicators or sub-areas, which means that the EG students have got additional training in certain actions such as copying or moving files, uploading self-created content to digital platforms or using copy and paste tools. Upgrading between 20% and 40% can be attributed to the learning of tasks such as finding digital information, telephoning over the internet, protecting personal data and devices and using internet as a bank of data. Lower learning in the EG (10% to 20%) occurred in actions such as obtaining information from institutional webs, reading or downloading online information, participating in forums and managing operation systems, apps and ICT devices. The less developed sub-competences by the EG students appeared to be sending e-mails, using spread sheets, creating presentations/wikis/blogs, designing apps, managing to protect their well-being online, installing old operating systems, identifying the environmental impact and needs of information and communication technologies, commercialising online, and getting formal appointments via internet. As it has been observed, using video LOs for the development of

the DigComp has not resulted in the global enhancement of a particular area, but in the heightening of different sub-competences.

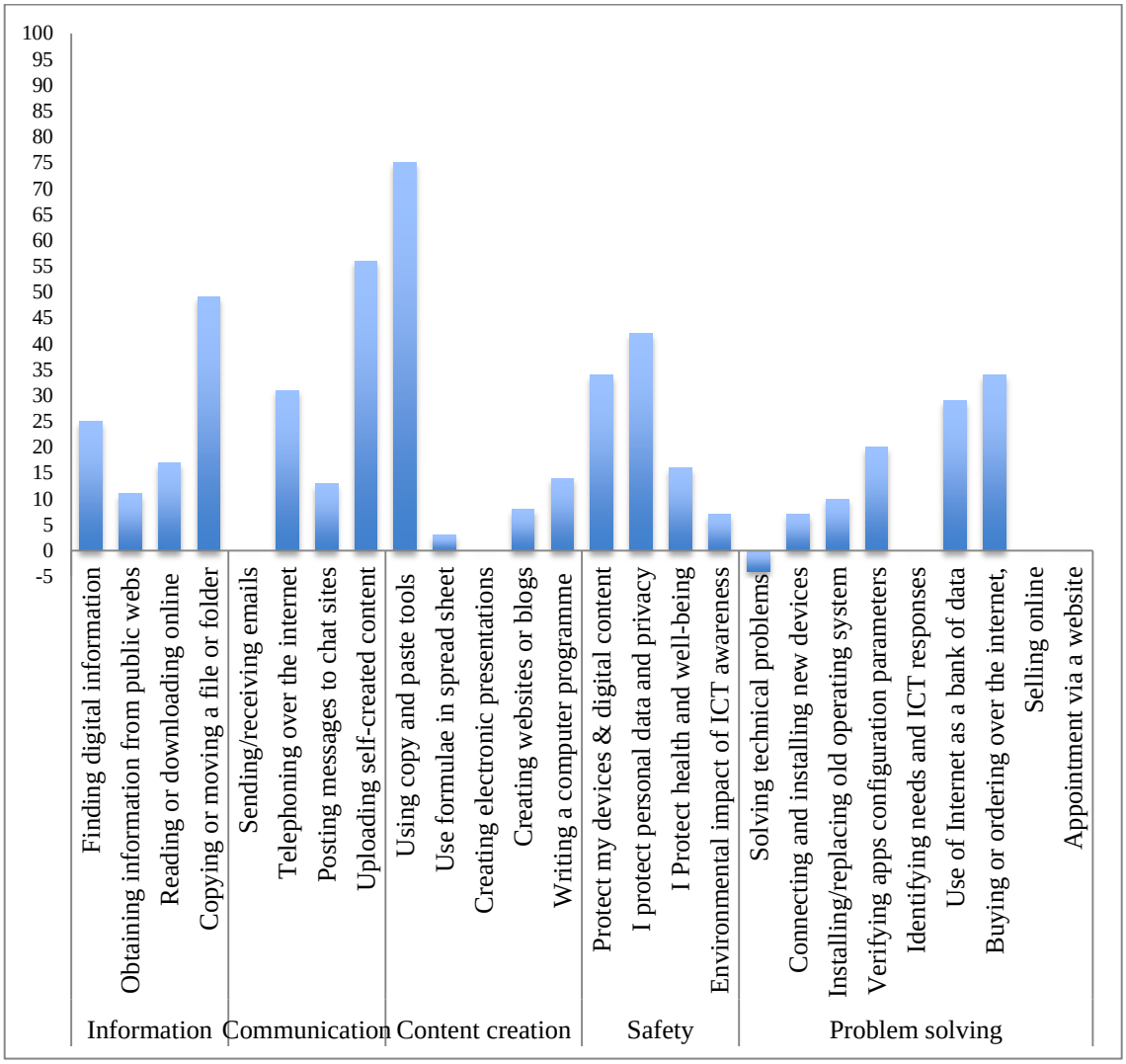

Figure 6: ***% Global improvement of EG vs. CG per area and indicator***

4. DISCUSSION

The outcomes of the present study indicate that working with video LOs has a high positive impact on the attainment of the digital competence of the participants. Except in a few specific cases, the arithmetic means of the experimental group are higher than the ones of the control group despite the fact that they were allowed to use any resource of their choice in their task assignment.

The findings have revealed that student teachers seem to increase the information and data literacy area of the DigComp working with video LOs as this type of learning practice involves an increase in the search, management and use of digital data. Video may not imply an enhancement of indicators or subareas that imply asynchronous digital communication (i.e. sending and receiving e-mails) as 'Net Generation' students are already used to instant social media. However, it must be stressed that participants showed a need in the improvement of standardised digital problem solving, which may involve, according to the OECD (2010), the use of digital technology, communication tools and networks with others

and the performance of practical tasks. Working with LOs has revealed to be positive for content digital program or app creation and the acquisition and share of educational resources.

In general terms, data have shown that DigComp can be enhanced with the use of video as an appropriate LO if it involves an instructional design theory, the development of a LO taxonomy, and "prescriptive linking material" that connects the instructional design theory to the taxonomy, thus providing guidance of the type of learning goal to be used with video used a specific LO following Wiley (2000).

However, we agree with Hodgins (2000: 9) that LOs must be used properly in terms of amount and time (one short video with extensive contents per course can be valid), following a specific learning approach (e.g. CLIL), in the relevant context and location (university student teachers acquiring contents and digital competence skills, knowledge and attitudes), with the appropriate medium of delivery (on-line YouTube asynchronous video).

The use of video as language LOs has consisted of authentic reading and listening to history passages accompanied by support materials such as script translations, audio narrations, the elaboration of a writing with a glossary of specific concepts and contents, and the review of pedagogical notes related to the English history. The action has been carried out with instructional components, such as didactic activities to develop the English history and language with instructive peer and tutor feedback.

In accordance with the results, video LOs permit student teachers develop their English language by carrying out activities consisting of reading and listening to specific TEFL video contents, writing related research papers, speaking in oral presentations or maintaining class discussions taking advantage of contextual digital resources due to its potential for inter-contextual reuse (Wiley, 2002: 22).

The current study supports Blehch´s (2014: 18) idea that learning in the classroom should go beyond the limits of the formal academic process used mostly to disseminate information, and be extended to practices that help develop social interaction between students. This methodology appears to be crucial to construct knowledge and to familiarize students with current educational technologies and approaches.

5. CONCLUSIONS

This project has helped to illustrate how the video can be considered an appropriate LO that helps participants improve their target language proficiency and develop content (history) knowledge and skills.

Despite the fact that the video has been proven to be an aid for the development of DigComp, the lack of significant improvement in certain indicators suggests the idea that this type of LO does not represent an essential tool to develop the DigComp on its own, but would have to be complemented by a set of fundamental standards and a combination of LOs (i.e. Fundamental and Generative-presentation types) such as webpages, a digital learning platform, telecollaborative virtual tools, and educational authoring programs, etc. It also underlines the need for a consistent instruction in digital protection techniques.

Students' reflection on and self-evaluation of their own digital competence can help them set learning goals and identify training opportunities. This would also imply a need in teacher coordination and clarification of the indicators that should be covered in each subject and course in order to better monitor learners' digital skills and assure the attainment of all sub-areas of the digital competence (problem solving, safety, etc.) in order to support curricula development.

Overall, results support Hodgin´s (2000: 1) idea that:

> Learning objects are not a passing fad, nor a new name for something old. Rather, learning objects represent a completely new conceptual model for the mass of content used in the context of learning. They are destined to forever change the shape and form of learning, and in so doing, it is anticipated that they will also usher in an unprecedented efficiency of learning content design, development, and delivery.

This study has represented an initial sample that will be extended to additional interdisciplinary subjects and further key competences with different LOs in future research.

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APPENDIX 1

Questionnaire **MEASURING LEVEL OF DIGITAL COMPETENCE (From DIGCOMP, 2013)** **Reflect, tick and discuss the following items:** **You carry out your SLA assignment…**				
Competence area:	**Indicator**	**Yes**	**No**	**Explanation**
Information	·Finding digital information			
	·Obtaining information from public authority websites			
	·Reading or downloading online news/newspapers/news magazines			
	·Copying or moving a file or folder			
Communi-cation	·Sending/receiving emails			
	·Telephoning over the internet/video calls (via webcam) over the internet			
	·Posting messages to chat sites			
	·Uploading self-created content to any website to be shared			
Safety	Protect my devices & digital content			
	I protect personal data and privacy			
	I Protect health and well-being			
	Environmental technological awareness			
Content creation	·Using copy and paste tools to duplicate or move information within a document [Basic]			
	·Using basic arithmetic formulae to add, subtract, multiply or divide figures in a spread sheet			
	·Creating electronic presentations with presentation software (e.g. slides), including e.g. images, sound, video or charts			
	·Creating websites or blogs			
	·Writing a computer programme using a specialised programming language			
Problem solving	Solving technical problems sub-dimension			
	·Connecting and installing new devices			
	·Installing a new or replacing an old operating system			
	·Modifying or verifying the configuration parameters of software applications			
	Identifying needs and technological responses sub-dimension			
	Use of Internet as a bank of data			
	·Buying or ordering goods, services or programs over the internet			
	·Selling online			
	·Making an appointment via a website			