LIBrary as online Educational Repository Techniques in European Community pre-schools.
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DIGITAL DOCUMENTATION FOR 0 TO 6 EDUCATIONAL SERVICES

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Abstract

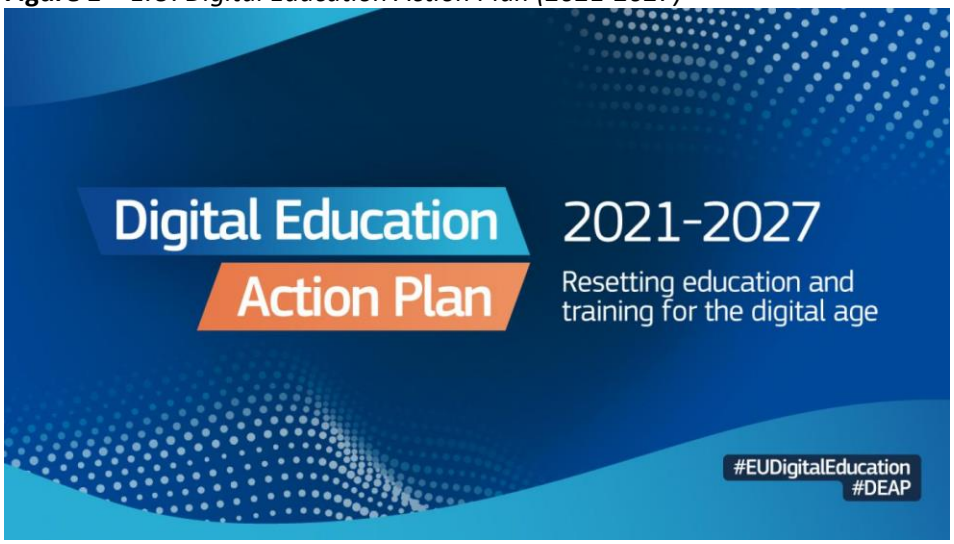
Researchers from the Joint Research Centre (JRC), European Commission Department to develop evidence-based knowledge and science, are since 2010, developing studies about the importance of digital transformation in schools starting by elaborate an initial document entitled “Digital Competence Framework for Citizens” [1]. Following up this study, in 2017, the JRC Published the document “European Digital Competence Framework for Educators” (DigCompEdu) where it frames the meaning of being digitally competent in the teaching profession. In 2018, the final version of DigCompEdu was translated to portuguese and published by the Aveiro University [2].
Based on this framework, in 2022, a partnership of four countries began the implementation of the LIBERTEC project, under the ERASMUS+ programme KA220SCH which defines, as a line of development, to provide a concrete response “through the development of a digitized pedagogical documentation system aimed to raise digital readiness, quality of educational and organizational services’ work, as well as their external relations’ efficacy” [3].
In this article, we present the results obtained from educators and teachers perceptions about digital tools that can be applied in pedagogical environments for children from 0 to 6 years old.

Key words: ECEC, Digital skills, Digital contents, DigCompEdu, Selfie tool.

Introduction

Since 2010 that the “Joint Research Centre”, representing the European Commission, has been developing the so-called "Digital Competence Framework for Citizens", known throughout the European Union as *DigComp*, and which has been implemented based on guidelines for the development of action plans to be applied in all Member States. This document attempts to identify a common digital skills framework so that, in the European Union, policies can be advanced for the classification and development of the digital competence of the Member States citizens [1].
This competence framework is one of the pillars for the establishment of a Digital Education Action Plan 2021-2027 (figure 1), a challenge launched by the European Commission (EC) on the document “Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions on the Digital Education Action Plan” [4].

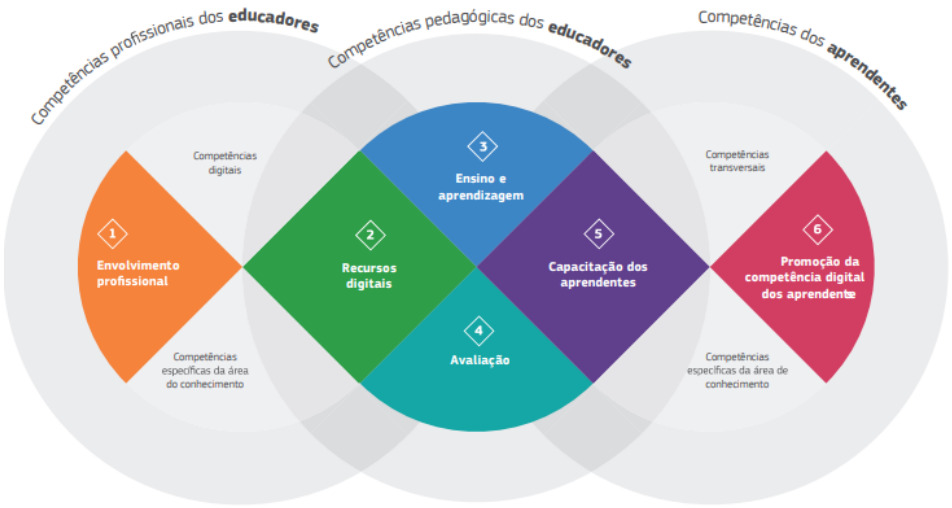
Figure 1 – *E.U. Digital Education Action Plan (2021-2027)*



Source: European Comission. European Education Area - Quality education and training for all.

This Commission document, in its point 4 (Priorities for action), focuses " on implementation and the need to stimulate, support and scale up purposeful use of digital and innovative education practices." ([4]p.4). Also at this point, 3 key priorities are defined: "(1) Making better use of digital technology for teaching and learning; (2) Developing relevant digital competences and skills for the digital transformation; (3) Improving education through better data analysis and foresight ([4]p.4).
One of the studies carried out in the spirit of this EC communication resulted in the drafting of a document known as DigCompEdu [5], which has evolved and has been translated into all the national languages of the Member States. The study aims to promote digital skills in educators in the common european space (figure 2), aims to boost digital education and innovation, in a common language and to establish a reference framework based on a logic of articulation, for educators, in the areas of their professional and pedagogical competences, as well as in their articulation with the development of skills in learners.

Figure 2 – *Integration of the 6 areas of competence in the professional functions of educators.*



Source: Areas and scope of DigCompEdu [2] p.15, fig. 2.

EU Member States are expected to be involved in the development of this common reference framework for the emergence of policies to develop digital skills across all European citizens.

Objectives

The LIBERTEC project, "LIBrary as online Educational Repository Techniques in European Community pre-schools" [2021-1-IT02-KA220-SCH-000031532], with ERASMUS+ funding KA220-SCH for the period 2022 to 2024, focuses on the development of digital skills applied to care services in children from 0 to 6 years old (ECEC).

It is coordinated by CEPISS − Società Cooperativa Sociale Onlus em Scandicci (Florence, Italy), having as partners the Associação de Jardins-Escolas João de Deus and Escola Superior de Educação João de Deus (Lisbon, Portugal), the Málaga University and CEIP Pinolivo (Marbella, Spain), The Centro Machiavelli, (Florence, Italy) and the Gradinita cu program prelungit Prichindel (Suceava, Romania).

To develop this project is to pay attention to some of the goals defined in the DigCompEdu document [1], namely the referred six areas of competence as the diagram of figure 2.

In summary, the partner entities have defined, for the LIBERTEC project, the following main objectives: (1) create a model of digitized pedagogical documentation focused on the standards and needs of educational centres for children from 0 to 6 years old − this model will present specific personalized digital skills guidelines (even in remote communication environments) for institutions to manage their documents, teamwork, educational activities and relationships with families; (2) share good pedagogical and management practices in nurseries and kindergartens in the countries of this partnership, as well as promote the development of a framework with guidelines developed from the analysis of daily practices. These guidelines identify pedagogical and management tools, activities and strategies using digital technologies and formats that can be applied in institutions by educators to improve their professional and digital skills.

Methodological framework

The LIBERTEC project is developed in five phases: first is about the theoretical framework and the organizational and pedagogical mapping of the partnership institutions; a second phase in which the document with the LIBERTEC Guidelines [7], prepared in group with partners, is designed and tested. This document lists the digital applications (Apps) known and used by the professionals of the partnership and recommended for use in the professional field; the third phase consists in implementing the pilot workshops for testing the Guidelines contained in the LIBERTEC document; the fourth phase contains the final considerations and validation of the LIBERTEC Guidelines by the consortium partners. The end of the project comprises a final phase for sharing documentation, promotion, dissemination and enhancement of the LIBERTEC Guidelines.

The fourth phase of the project's implementation, under which we focus in this article some of the achieved results, includes, as well, the opinions of the professional testers of the LIBERTEC Guidelines document. It took place from December 2023 to May 2024 and we consider as well some final comments about the LIBERTEC Guidelines assessment.

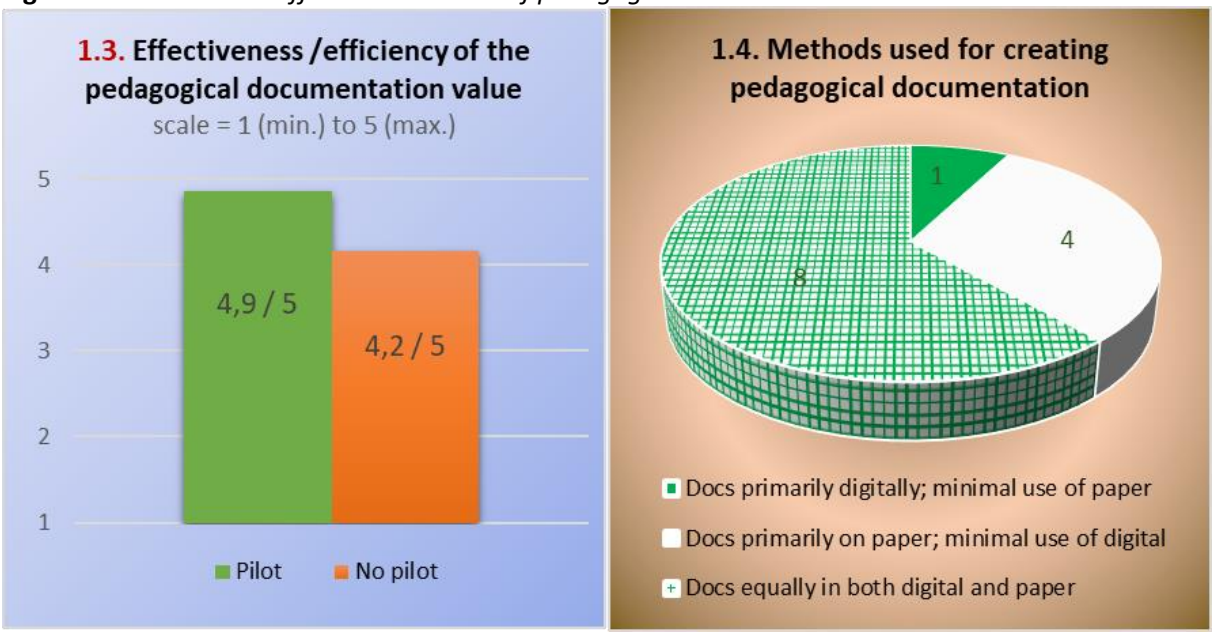
The AJEJD, partner from Portugal, tested this phase in three of its educational establishments located in Lisbon, by using a common questionnaire locally applied by each partner between the end of February and mid-April 2024. In two of these educational services, which together cover children from 0 to 6-year-old, work the seven tester educators, identified as **GROUP P (Pilot group)**; these professionals followed the guidelines recommended in the LIBERTEC document. In another kindergarten in Lisbon, the six educators, identified as **GROUP nP (no Pilot group)**, were participants who applied a set of apps referenced in the LIBERTEC Guidelines, but who used them freely, without following the guidelines of the same document. Three of the participants were school coordinators, one from each educational service.

To put into practice the use of digital tools, the 42 apps ([7], p.41-67) that appear in the LIBERTEC Guidelines were made available so that both groups P (with the methodological indications of the LIBERTEC Guidelines) and nP (use freely, without following the same guidelines) could choose some of them, apply and evaluate the impact of their use on their professional activities.

Achieved results and discussion

In the questionnaire applied to the professionals of the AJEJD educational centres that were part of this study, were organized the following groups of questions: (1) pedagogical documentation in my school; (2) the experimentation of the LIBERTEC guidelines for digitised pedagogical documentation; (3) use and management of digital resources; and (4) self-assessment. In this article, we only address the collection of data related to the questions of group 1 and group 4, as they are the mains ones to demonstrate how the use of digital documentation in educational services from 0 to 6is evaluated.
So, we start by addressing group 1: pedagogical documentation in my school, topic **criteria for the creation of pedagogical documentation** in both tested groups (**P** and **nP**). Questions focused mainly on the organization of folders and the use of digital tools for the teaching service and the elaboration of pedagogical documentation for the covered children's groups (classes).
As the mainly **aspects of responsibility in the process of creating the pedagogical documentation that is carried out on the educational centre**, educators maintain a class paper folder with children's works and most documents saved in a digital personal support. As shown in graph 1.3 both P (4,9/5) and nP (4,2/5) testers give highly importance to pedagogical documentation value. Further, the P testers share more efficiently documents (P=4,9 e nP=4,2) when using LIBERTEC library folders /topics proposals. On those folders they put and share documents for educational activities development and for having institutional documents and rules coming from management and headquarters services.
On using digital documentation, both P and nP testers try to keep it mirrored in digital and paper folders and formats whenever it is possible. As shown in graph 1.4. Educators' opinions reveal that a quarter of testers use primarily paper than digital, although they better prefer maintain both paper and digital formats.

Figure 3 – *Process and effectiveness value of pedagogical documentation.*



Graph 1.3 and graph 1.4 scores: Pilot: #7; No Pilot:#6 :: Total P+nP #13

At last, we look at group 4 questions, about self-assessment results. Answers came out of the 13 professional testers (P=7; nP=6), and are shown on figure4. The self-assessment topics are the following:

4.1 I have acquired/improved my knowledge about possible digital resources (programs) useful for sharing content, promoting daily professional exchange with colleagues, and managing remote activities with them;

4.2 I have acquired/improved my knowledge about possible digital resources (programs) useful for managing work and educational activities within the scope of my daily duties/tasks.

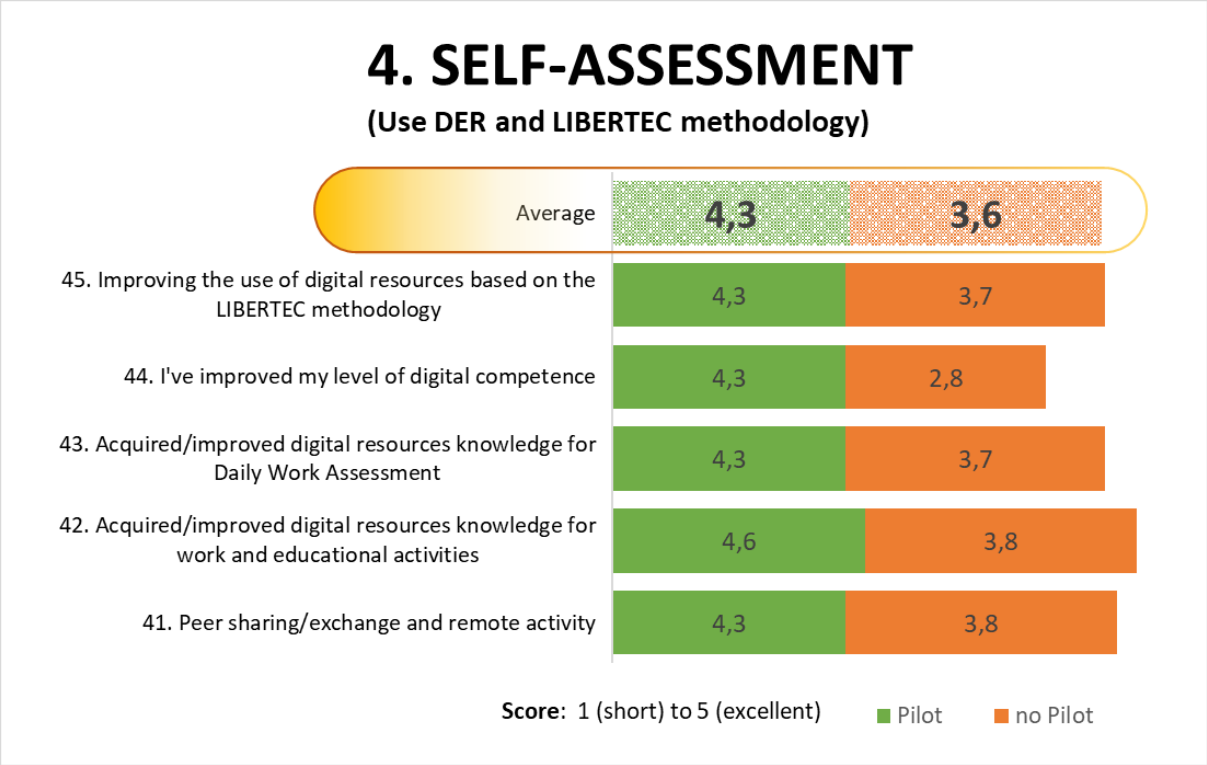
4.3 I have acquired/improved my knowledge about possible digital resources (programs) useful for conducting evaluation activities (educational and managerial) in my daily work.

4.4 Based on what you've learned about the European Framework for the Digital Competence of Educators (DigCompEdu), how do you assess your level of digital competence and its improvement?

4.5 How much has the methodology proposed by LIBERTEC contributed to increasing digital readiness and the use of digital resources in the educational and managerial work of your school/service?

The following figure shows the data resulting from the 5 topics in self-assessment. However, the result of the averages obtained between groups is noteworthy, with group P obtaining a score of 4.3 out of 5 points while group nP obtaining an average score of 3.6 points. It should be enhanced the biggest difference between groups in question 4.4 – (Based on what you have learned about the European Framework for Digital Competence for Educators (DigCompEdu), how do you assess your level of digital competence and its improvement?) – where the group that tested the apps freely (nP), without any methodological indication of the LIBERTEC Guidelines, obtains a score of almost half of the proposed evaluation scale (2.8/5), and the P group (used the LIBERTEC methodology) obtains more one third of improvement in their digital skills (4.3/5).

Figure 4 – *Self-assessment of DIGITAL Educational Resources (DER) using LIBERTEC methodology.*



Conclusion

The LIBERTEC Project is developed in five phases: construction of a theoretical, organizational and pedagogical mapping of the child care institutions of the partner countries; schematization and construction of a document with the *LIBERTEC Guidelines*, containing *Apps* recognized or used by child care professionals and recommended for use in the professional environment; implementation of pilot *workshops* for testing the *Guidelines*; final considerations and validation of the *LIBERTEC Guidelines*; sharing of all final documentation, promotion and enhancement of the *Guidelines*. The development of these project phases can be accessed in www.libertecproject.eu.

In the final phase of the project, partly addressed in this article, a questionnaire was applied between the end of February and mid-April 2024 and 13 educators from three AJEJD educational services, located in Lisbon, were tested. Seven testers identified as **GROUP P** followed the *LIBERTEC Guidelines*; another six educators identified as **GROUP nP**, applied a set of *apps* referenced in the *LIBERTEC Guidelines*, but used them freely, without following the same guidelines. Three of the participants were school coordinators, one from each educational service.

The results presented refer to the questions of group 1 (pedagogical documentation in my school) and group 4 (self-assessment) because they are the ones that best demonstrate how the use of digital documentation is classified in educational establishments from 0 to 6 years old.

In conclusion, the results allow us to consider that:

1. the tested educators use, on their work, paper primarily and only then digital format, preferring, when possible, to keep the documents on paper and digital (dossier mirroring);
2. the testers in Group P share documents more efficiently by using folders in accordance with the LIBERTEC Library proposals included in the Guidelines;
3. on the self-assessment of their digital competences the nP group that tested *the apps* freely obtained a score of −0.8 (out of 5 points) when compared with the P group than the P group (Q4.4: P=4.3; nP=3.6);
4. the largest difference between groups is reflected in about one-third (1.5 out of 5 points) of more improvement in digital skills for group P when compared to group nP (Q4.4: P=4.3; nP=2.8).

Finally, from conversations and doubts registered from groups participants, when applying the methodology of this project, it is also concluded that there is some insecurity in the use of ICT tools in a pedagogical context, either due to the lack of knowledge of digital competence procedures, or due to fears created from emerging news, such as the one referenced in 2023 [6], about the intention of Sweden in studying a setback on using screens and digital technologies at school.

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