

AN OVERALL PICTURE ABOUT ACADEMIC LITERATURE FOCUSED ON ONLINE LEARNING IN PRISON

UMA PANORÂMICA DA LITERATURA ACADÊMICA SOBRE A APRENDIZAGEM ONLINE EM CONTEXTO PRISIONAL

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ABSTRACT

Digital competency – which is indicated by the European Framework of Reference as one of the key competencies for Lifelong Learning – has been increasingly important in the international policy agenda as well as in the studies and academic publications. Taking into account that Adult Education mediated by a virtual environment may be an opportunity for knowledge acquisition and digital inclusion, there are, however, some contexts in which access, usage and participation are particularly obstructed or even precluded. Prisons are one of those contexts. Aiming to map trends in academic literature about Adult Learning supported by digital resources in prisons, we resorted to *Education Source* and ERIC databases to perform a literature review – published between 2010 and 2019 – and using the keywords *prison, education, technology*. The analysis of the 20 identified articles made it possible to know when and where they have emerged, as well as their objectives and the focus of the studies. With worldwide representation – although mainly European – and with particular expression in the last 5 years, the studies are mainly focused on prison education resources, learning results, educational staff and cultural aspects and policies.

Keywords: Lifelong Learning. Adult Education. Prison Education. Online Learning.

RESUMO

A competência digital, indicada pelo Quadro de Referência Europeu como uma das competências-chave para a Aprendizagem ao Longo da Vida, tem vindo a ganhar um crescente interesse quer nas agendas políticas internacionais, quer nos estudos e publicações académicas. Considerando-se que a Educação de Adultos, mediada por um ambiente virtual, pode constituir uma oportunidade de aquisição de conhecimentos e de inclusão digital, há, no entanto, contextos nos quais o acesso, o uso e a participação são particularmente dificultados ou mesmo impossibilitados. As prisões constituem um destes contextos. Com o objetivo de mapear tendências da literatura académica sobre aprendizagem de adultos em ambiente prisional, apoiada por recursos digitais, foi feita uma revisão de literatura publicada entre 2010 e 2019, recorrendo às bases de dados *Education Source* e ERIC e usando como palavras-chave prisão, educação, tecnologia. A análise dos 20 artigos identificados permitiu conhecer a sua dimensão espacial e cronologia, assim como os objetivos e os focos dos estudos. Com representação mundial mas, sobretudo, Europeia, e com maior expressão nos últimos 5 anos, os estudos focam sobretudo os recursos digitais utilizados, os resultados de aprendizagem, as pessoas envolvidas na formação, o *staff* dos estabelecimentos prisionais e aspectos culturais e políticas de atenção a esta problemática.

Palavras-chave: Aprendizagem ao longo da vida. Educação de adultos. Educação em prisões. Aprendizagem online.

1 INTRODUCTION

According to the European Parliament and to the European Council of 18 December 2006 (2006/962/EC), digital skills and learning to learn are key competencies for Lifelong Learning, that is, a basic set of knowledge, skills and attitudes, which all individuals need for personal fulfilment and development, active citizenship, social inclusion and employment. Furthermore, academic literature has been arguing that adult learning in virtual environments not only promotes skills for the use of technology, but also provides opportunities for learning and developing digital literacy (ARGHODE; BRIEGERAN; MCLEAN, 2017; SEALE; DRAFFAN; WALD, 2010). According to Pillera (2015, p. 354)

[...] ICTs have proved important tools for learning (learning management system, Internet / intranet access, simulation), with interesting prospects for the involvement of young people and individuals from stories of failure in learning (gamification, cooperative learning, promote reading by new devices).

In prison settings, learning conditions supported by digital resources jeopardise the right to access, use and participate in digital environments (WARSCHAUER, 2004). In addition, digital learning environments can be classified regarding the potential of inclusion – depending on the pedagogical situations for their usage and participation, the technical conditions to access, the learners' characteristics, the production of resources designed to be used in a specific context and the level of interaction, action, and reflexion that guides learning processes (MONTEIRO; LEITE, 2016). So, those who are digitally excluded, like the majority of prisoners, will be socially and economically excluded and unable to develop their potential. As mentioned by Steen & Knight (2017, p. 258), "while digital has become the 'new normal' outside, prison services are still struggling to shape and use digital space to fit their needs and enable it for the offenders inside."

In order to remove barriers to inclusive digital learning environments, and facing the urgent need for internet access and learning experiences supported by digital resources, it's very important to have an overview of learning with digital mediation in prison settings. Taking these questions into account, this paper presents a review of peer-reviewed publications of the last decade (2010-2019) and aims to map trends on academic literature about online learning in prison. This literature review was guided by the following research questions:

- When and where has scientific research regarding online learning experiences and learning supported by digital resources in prison environments emerged?

- How has the scientific research been developed and what have been the specific targets of research when the focus is online learning experiences and learning supported by digital resources in prison environments?

The article's structure starts with the background, which justifies the theme's actuality and relevance and presents the international and European projects, as well as the world scenario concerning digital technologies in prisons. After this framework, we present the methodological options and procedures of the exploratory literature review. The results and analysis section present and interpret the findings. It is followed by the final considerations, in which the research questions are answered, limitations are listed, and clues for future research are presented.

2 BACKGROUND

According to the Report Review of European Prison Education Policy and the Council of Europe Recommendation (89)12 on Education in Prison (KING, 2019), politics must invest in technology and secure Internet services or alternative "Intranet" systems in prisons in order to ensure equity in the access to learning activities, and to promote digital skills – understood as one of the transversal competencies / transferable skills (essential skills in jobs and occupations such as communication or critical thinking, that can be transferred to other contexts). In a knowledge society, digital skills allow to communicate effectively in a variety of ICT influenced situations, and offer the opportunity to understand and critically evaluate digital media and media contents. In addition, the access to Information Technology and Internet is crucial in contemporary educational practices. However, access to the internet in prisons remains an issue in many jurisdictions (FARLEY; PIKE; DEMIRAY; TANGLANG, 2016; STEENE; KNIGHT, 2017) and some initiatives focused on digital literacy are restricted, shaped and limited by the criminal justice system (GOSLING; BURKE, 2019). In fact, prisons are generally restrictive about ICT and internet access, considering the obvious safety issues (BROWN; RIOS, 2014; HAWLEY; MURPHY; SOUTO-OTERO, 2013; MONTEIRO; MOREIRA; LEITE, 2016; SELLERS, 2016). Nevertheless, when one thinks about prisoners Lifelong Learning, educational offer and availability of digital resources and internet access become important factors to the future social reintegration (MERTANEN; BRUNILA, 2018; ROCHA; SILVA, 2016). This happens regardless of the restraints and of the justice and education policies underlying the guidelines of educational services in prisons.

A great number of prisoners have a low education level and lack Lifelong Learning key-competencies (PIKE; ADAMS, 2012). The majority of prisoners doesn't take part in training programs and reveal low

motivation to participate (BROSENS; CROUX; DE DONDER, 2018; LOCKITT, 2011). The dropout rates are also high. Aiming to revert these patterns, some projects are increasing internet and ICT access as tools to promote online learning and the development of digital skills – demonstrating that it is possible to learn online inside a prison.

2.1 PROJECTS RELATED TO ONLINE EDUCATION IN PRISON

In the European context, a set of projects funded by Lifelong Learning European Programs, have been implemented in the last years. Some of the most relevant projects are listed in table 1:

Table 1 – Projects funded by Lifelong Learning European Programs

Project Title	Brief Description
The Virtual European Prison School (VEPS) (https://www.epea.org/portfolio/veps-project/)	Developed in 2007 by the European Prison Education Association, the project aimed to increase inmates' participation in Lifelong Learning, in order to facilitate their future return to society. Looking for benchmark best practices, inform constructive policy, harness innovation in Internet, eLearning and distance learning technologies, and facilitate greater contact and cooperation among prison educators internationally, the project included the interchange of prisons' teaching materials in different areas, including eLearning.
PriMedia ICT & Multimedia Tools for Prison Education (https://www.epea.org/pri-media/)	Developed between 2012 and 2015, the project aimed to foster research, identification and dissemination of good practices about ICT and multimedia tools in correctional education.
PIPELINE - Partnerships in Prison Education: Learning in Networked Environments (https://www.epea.org/wp-content/uploads/CaseStudyNorway.pdf)	The project, launched in 2005, aimed to enable learners and teachers in prison environments to make active use of secure-ICT facilities. The project also aimed to reduce the likelihood of recidivism by bridging the gap between life inside and outside of prison.
REALLIFE: serious gaming and virtual reality to develop 21st century and employability skills (http://reallifeproject.eu/)	Developed between 2015 and 2018, the project aimed to develop an innovative tool – the Reallife game – with a certificate that validates prisoners' informal learning.
FREE THE - school FROM BARRIERS project (https://www.up2europe.eu/european/projects/free-the-school-from-barriers-in-edu-vim-sde-larisas_66192.html)	Developed between 2016 and 2018, the project aimed to promote the use of ICT in shaping modern, 'open' adult detention facilities.
LICOS - Learning Infrastructure for Correctional Services - European Transfer (https://www.irks.at/forschung/social-inclusion/licos/)	Developed between 2008 and 2010, the project aimed the cooperative development of a European e-learning framework for prison education.

<p>ELBEP - Eliminating Language Barriers in European Prisons Through Open and Distance Education Technology (https://www.eden-online.org/eden_project/elbep-eliminating-language-barriers-in-european-prisons-through-open-and-distance-education-technology/)</p>	<p>Developed between 2007 and 2009, the project aimed to clarify a range of supportive possibilities in European prisons to design Open and Distance Learning environments to provide second language education, and to develop and deliver Second Language eLearning Portals via Open and Distance Learning media to European Prison staffs.</p>
<p>EEPP - E-Learning Education for Prisoners and Prisoners Professionals (https://www.up2europe.eu/european/projects/prison-education-basic-skills-blended-learning_116163.html)</p>	<p>Developed between 2009 and 2011, the project aimed to establish and develop a dialogue among organizational and managerial staffs of prisons and teachers from educational organizations engaged in working with prisoners, on issues, dynamics and experiences related to the use of ICT and distance learning for those at risk of social exclusion – particularly prisoners –, and prisoners professionals. The project aims also to create a community of trainers able to talk continuously on these issues and to sponsor new learning opportunities and reintegration into society of people at risk of exclusion.</p>
<p>PEBBLE project - Prison Education: Basic skills Blended LEarning (https://epale.ec.europa.eu/en/resource-centre/content/pebble-prison-education-basic-skills-blended-e-learning)</p>	<p>The project aimed to improve the education provided in the correctional institutions across Europe by increasing the pedagogical use of ICT in learning and by providing more opportunities for the acquisition of basic skills.</p>

Source: Authors

Other key milestones established at national level in different European countries were also relevant. Some of them are mentioned at table 2.

Table 2 – Key milestones established at national level in different European countries

European country	Brief description of the key milestones
UK	<p>The Virtual Campus, in UK, was the first to experience ICT within prisons. It was developed by UK Open University, with the involvement of more than one hundred prisons in England and Wales.</p> <p>The UK's Prisoners' Education Trust (PET) has created an on-line toolkit – which includes academic courses, mentoring programs, seminar series and reading groups – for developing a range of prison–university partnerships (REYNOLDS, 2018). In 2017, PET launched the PUPiL network (prison–university partnerships in learning) to map, promote and support community –corrections partnerships fostering distance learning in prisons.</p>
Finland	Finland was a pioneer in legislation for ICT use and provision in national prisons (North Europe countries have specific legislation on this topic).
Sweden	The Net Centre – a Learning Centre and a computerized platform – is present in all Sweden prisons.
Norway	The IFI project – “Internet for inmates”, in Norway, was set up as a follow-up to the European project PIPELINE, aiming to create a national network to facilitate access to the internet, considering security requirements of the prison settings (all inmates in open prisons could access the internet as a digital tool to learn, even inside their cells).
Belgic	PrisonCloud – digital in-cell provision, was a Belgian project (2016-2020) that provided minicomputers installed in cells and a digital platform.
Swiss	The service provided by BiSt, a competence centre funded by the Swiss Labour Assistance (SAH Zentralschweiz), offered a provider server equipped with useful software and offline versions of websites and web services.
Spain	UNED's e-learning platform results from a partnership between the General Secretary Penitential Institutions and the UNED (National University Distance Education), that made Spain pioneer about university students in southern Europe prisons.
German	The Adult Education Association (DVV), with its online portal www.ich-will-lernen.de [“I want to learn”] provides a supplement and extension for web-based basic education in German prisons, since 2007 (EICHEN, 2014).

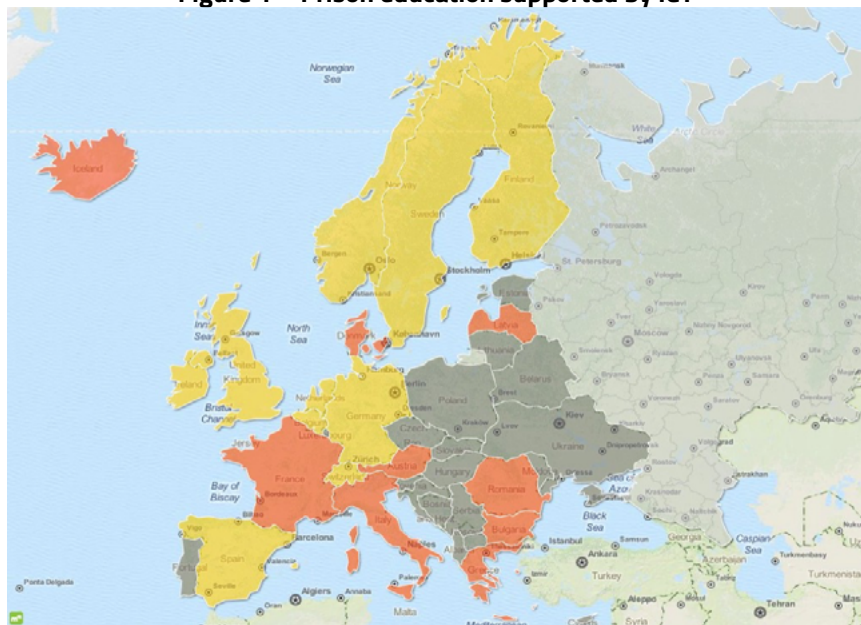
Source: Authors

Taken together, the projects carried out at national level, while involving several European countries, demonstrate that it is possible to develop educational projects based on digital technologies in prisons.

2.2 DIGITAL TECHNOLOGY IN PRISONS' SCENARIO

The scenario in 2015 regarding digital technology in European prisons is presented at figure 1. Countries marked in yellow had a national strategy, countries marked in red had local experiences but no national projects and countries marked in grey had no experiences.

Figure 1 – Prison education supported by ICT



Source: Pillera (2015, p. 348)

The implementation of those projects made it easier for others to develop similar initiatives, due to the recommendations they led to – not only in terms of technical and pedagogical issues, but also in terms of personal impact, including the prisoners' increased confidence in their own learning capacities. In Portugal, for example, 2013 legislation has been stressing the importance for prisoners to attend training courses with special focus in distance University Education, even though there can only be observed slight progresses yet (MOREIRA; MONTEIRO; MACHADO, 2017a; MOREIRA; MONTEIRO; MACHADO, 2017b). Anyway, a Digital Campus (EDUONLINE@PRIS) conceived to promote training and education in Portuguese prisons is already implemented (MOREIRA; MACHADO; DIAS-TRINDADE, 2018), as well as the EPRIS – an e-learning project developed with female prisoners. This last one is focused on non-formal education and professional training (BARROS; MONTEIRO, 2015).

Other experiences conducted outside Europe validate the encouraging results and the effectiveness of the strategies that allow online learning in prisons while taking precautions concerning safety issues. For example, in Australia, the PLEIADES (Portable Learning Environments for Incarcerated Distance Education Students) was conceived to allow mobile technologies and safe internet access to prisoners (FARLEY; MURPHY; BEDFORD, 2014). In the United States, since 2011, the Prison Education Project (PEP) is the largest prison education program (it includes 7,000 inmates in 14 correctional facilities in California), and since 2014 it has framed courses in prisons in Uganda, England, and Scotland (REESE, 2019). Although

the project's objective is to provide academic and life skills, as well as career development programming in order to educate, empower, and transform the lives of prisoners, learning with digital resources is not mentioned. Nevertheless, other prison programmes supported on online educational training, such as JCESC-EOCC Oil and Gas Certification Training Program, have demonstrated its effectiveness (DILORETO; ASH; JOHNSON; SHOPE; KOKIKO, 2017).

In the opposite position, for example, in Africa, access to digital technologies in prisons is narrow or inexistent. In Nigerian prisons, for example, internet access is totally forbidden, and the access to computers is restricted to prisoners who attend programmes from the National Open University of Nigeria (FARLEY *et al.*, 2016). In Ethiopia, prison services are focused on security and control issues – not on prisoners' rehabilitation – and usually adopt a defensive / resistant position regarding any training in information technology, as pointed by Meseret (2018). Recently, Adebayo and Babalola (2019) have developed a study with female prisoners at Nigeria. They noticed that ICT was absent in the study areas and reported the lack of infrastructures and facilities for these training programmes. In sum, education experiences were unsubstantial and learning with digital tools is out of mind. The situation is even more serious when it is known that, in Nigerian prisons, there are high levels of illiteracy. Also, according to Joseph (2012), about 93.5% of the prisoners can't operate a computer system and about 91% don't know how to use a browser. In addition, about 92% of prisoners attested the nonavailability of a computer system. However, the inmates were interested in ICT and the introduction of a reformatory program in inmates training is needed. In general, African prisons lack basic services, namely those regarding educational programmes. Facilities conditions are a huge problem, overcrowding is clearly visible, and there is no economical support to innovate in the educational area – much less in programmes supported by digital tools.

Alongside the lack of economic conditions, justice policies are extremely punitive and without any rehabilitative logic. It is possible that the punitive policies also justify the lack of literature on the subject of learning supported by digital resources in Asian prisons. Regarding some Asian countries, like China, despite their highly technological development, we failed to find examples of education interventions with digital resources in prison contexts. In other countries, as Uzbekistan, the prison services' punitive rationale restricts prisoners' rights, including the possibility to learn. It is surprising that the "Youth and Adult Education in Prisons: Experiences from Central Asia, South America, North Africa and Europe" (CZERWINSKI; KÖNIG; ZAICHENKO, 2014) only mentions the digital component when it comes to Europe.

We are supported by the idea that the fewer the restrictions of the penal system, the greater is the observance of the human rights, the levels of liberalization of legislation and of democratization of

society are also greater, as well is the possibility to learn in prison with digital resources. Thus, framed on the presented world scenario and taking this idea into account, the literature review presented in the next section was developed.

3 METHODS

To carry out the literature review, some steps were followed. The first step of the review narrowed the search to journal papers published in the last decade. Considering their relevance, the search was conducted in the Web of Science Core Collection and the EBSCOhost databases (Education Source and ERIC). The Web of Science Core Collection, which allows us to explore the deep citation connections in the sciences, social sciences, arts and humanities, is the world's original citation index for scientific and scholarly research. It is a guarantee for high-quality scholarly journals published worldwide, in over 250 sciences, social sciences, as well as arts and humanities subjects. In turn, EBSCOhost is an intuitive online research platform used by thousands of institutions and millions of users worldwide. With quality databases and search features, EBSCOhost offers high-quality articles licensed from reputable publishers and recognized by library professionals. Two databases were chosen: Education Source and ERIC. Education Source contains indexes and abstracts for more than 2,850 academic journals and includes full text for more than 1,800 journals, covering all levels of education. Subject matters include Adult Education, Continuing Education and Distance Learning. ERIC, the Education Resource Information Center, sponsored by the Institute of Education Sciences of the U.S. Department of Education, is an online resource for education literature and research. The database provides access to information from journals included in the Current Index of Journals in Education and the Resources in Education Index.

Based on these information sources, we searched for scientific articles with peer review, published in indexed journals over the last decade, combining the keywords identified in the title, abstract or keywords, and ranked as follows:

Prison AND

Education OR Learning AND

Technology OR Digital OR e-learning OR online OR computer

To be considered for inclusion in the review, the study's title, abstract or keywords were required to contain at least one of the keywords of each level.

In a second step, the articles' eligibility for the study followed these inclusion criteria:

- articles in which education and learning were a central goal and DT was a considered factor;

- studies in which the focus was the prison population;
- all types of study design were considered (e.g. literature review/empirical studies, cross-sectional/longitudinal, descriptive, analytic, observational or experimental/quasi-experimental);
- articles published from January 1st, 2010 to December 31st, 2019;
- articles written in English;
- articles published in full text;
- interview articles, editorials or articles published in Conference Proceedings format were not considered.

A total of 66 papers were identified at the end of this step.

After the initial search, different stages were followed to select the studies for analysis, namely: i) removing all duplicates; ii) screening and removing articles based on the title and abstract. When doubts emerged, or when there was insufficient information, the full text was retrieved for further analysis in order to make a proper judgement; iii) screening and removing articles based on full text articles selected on the previous step.

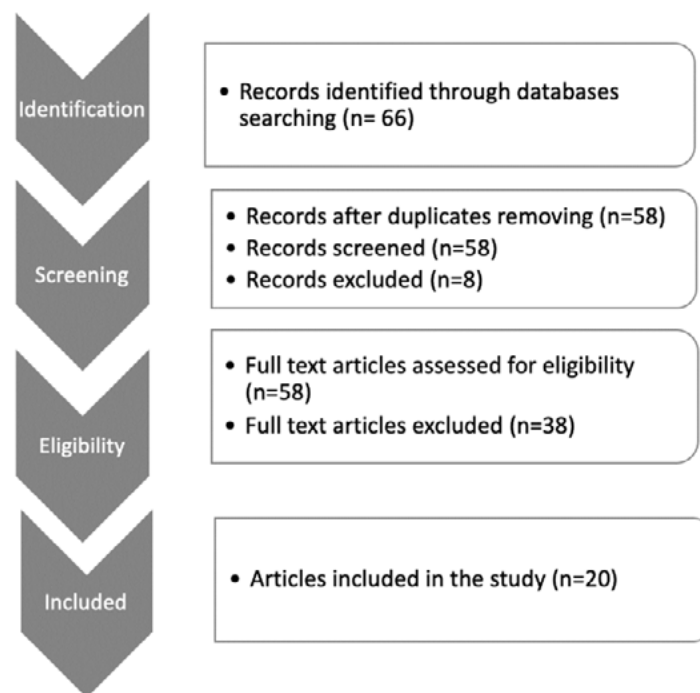
Eight duplicated articles from the two databases were removed and a full review of the remaining 58 articles' abstracts was conducted. The exclusion criteria defined for the study were applied, in order to discard the articles that:

- focused on other areas of activity (for example, clinical and therapeutic areas);
- used the word "prison" for other semantic purposes (for example, "society as a prison" or "the school experienced as a prison");
- although referring the terms "Technology", "Digital", "e-learning", "Online" or "Computer", were used outside of the context and meaning of the research;
- focused on juvenile populations – namely juvenile delinquency – in a prison context, considering that the study is restricted to the adult prison population;
- focused on professionals who work in prisons, or on students who do internships in a prison context, and not the inmates themselves.

After applying the aforementioned criteria, 38 articles were eliminated. The research focused on the remaining 20, which constituted the final corpus of analysis and were submitted to a full reading.

The process of screening and removing articles is shown in the flow of the articles' selection (Figure 2).

Figure 2 – Flow of articles’ selection



Source: Authors

At this stage, all the information concerning references (author, year, article title), study design, objectives, methodological approach, target group/sample, data collection/instruments, data analysis, and results and conclusions, was organized and will be presented in the next section. No instrument was used to assess the studies’ quality.

4 ANALYSIS AND RESULTS

Considering the temporal frame used for the articles’ selection, it must be noticed that the production was higher in 2014 and 2017, with 4 articles in each year. Between 2010 and 2014, 8 articles were found. In the last five years, the production increased, with 12 articles published, as can be seen at chart 1.

Chart 2 – Papers’ distribution per publication year

Year	Number of articles
2010	2
2011	1
2012	1
2013	0
2014	4
2015	3
2016	3
2017	4
2018	0
2019	2

Source: Authors

Studies come from various locations all over the world: 5 from USA, 5 from Australia, 3 from UK, 2 from Norway, 2 from Portugal, and 1 from New Zealand, Spain and Turkey, respectively. Taking a look per continent, we found 9 articles from Europe, 5 from Australia and 5 from North America.

In the 20 selected papers for this study, there are no longitudinal study designs. We found a single literature review and critical analysis. Most of the studies are descriptive: 4 papers either describe a program or intervention or are a Report/Project presentation; 8 papers, besides the descriptive design, also include an interpretative component. One paper is clearly an interpretative study. One paper regards a correlational, explanatory and comparative study and another one is a comparative pre/posttest and explanatory study. Finally, 4 papers present explanatory studies that integrate the construction of theoretical models. This data and the objectives of each study are presented at table 3. Each paper is identified with a code ID that will be used throughout the paper.

Table 3 – Papers’ identification, title, study design and objectives

ID	Authors / publication year	Title of the article	Study design	Objectives
01	Harlow; Jenkins; Steurer (2010)	GED holders in prison read better than those in the household population: Why?	Literature review and critical analysis	To understand why, according to the National Adult Literacy Survey (1992-2003), did prisoners with a GED (Certificate of High School Equivalency) score higher in reading skills than people in the community.

02	Hancock (2010)	Essential, desirable or optional? Making distance e-learning courses available to those without internet access	Descriptive - report on an action research project	To provide alternative approaches suitable for use in prison.
03	Bowe (2011)	Recent Trends in UK Prison Libraries	Descriptive-Interpretative	To explore and explain the significant developments and trends in prison libraries.
04	Pike; Adams (2012)	Digital exclusion or learning exclusion? An ethnographic study of adult male distance learners in English prisons	Descriptive-Interpretative	To highlight the value of institutions' and individuals' place on the role of further and higher distance education in a prison can affect technology-enhanced learning in that context.
05	Farley, Murphy; Bedford (2014)	Providing simulated online and mobile learning experiences in a prison education setting: Lessons learned from the PLEIADES pilot project	Descriptive-Interpretative	To report the preliminary findings, design criteria and lessons learned with PLEIADES (Portable Learning Environments for Incarcerated Distance Education Students), designed to provide prisoners access to internet-independent secure digital and mobile technologies.
06	Hopkins; Farley (2014)	A Prisoners' Island: Teaching Australian Incarcerated Students in the Digital Age	Descriptive-Interpretative	To explore the obstacles and constraints faced by prisoners in the light of the increasing digitization of materials and methods in higher education.
07	Brown; Rios (2014)	Can a Workplace Credentialing Program Improve Inmate Literacy?	Comparative pre/posttest study and explanatory study; model production.	To determine the impact of a computer-assisted workplace credentialing program on the learning gains (in reading, language, and math) of male inmates in one Florida work-release centre (WRC), considering the effect of race, age, prior incarceration, and total sentence length.
08	Seelig; Rate (2014)	The Role Distance Learning has to Play in Offender Education	Descriptive-Interpretative	To describe benefits and restrictions of digital education within the prison and to discuss a solution to give prisoners further opportunity for rehabilitation.
09	Barreiro-Gen; Novo-Corti (2015)	Collaborative learning in environments with restricted access to the internet: Policies to bridge the digital divide and exclusion in prisons through the development of the skills of inmates	Explanatory study with a model production	To explain prisoners' ICT skills in relation to social skills, general skills and attitude towards collaborative learning. To identify the key issues which should be focused by policy makers to avoid digital divide among prison population.
10	Hopkins (2015)	Ghosts in the machine. Incarcerated students and the Digital University	Descriptive-Interpretative	To discuss the obstacles faced by incarcerated university students for increasing eLearning in higher education.

11	Roth; Asbjørnsen; Manger (2016)	The relationship between prisoners' academic self-efficacy and participation in education, previous convictions, sentence length, and portion of sentence served	Correlational, explanatory and comparative study	To examine Norwegian prisoners' academic self-efficacy, and ascertain the influence that current participation in education, previous convictions, sentence length, and portion of sentence served had on their academic efficacy beliefs.
12	Czerniawski (2016)	A race to the bottom – prison education and the English and Welsh policy context	Descriptive-Interpretative	To examine prison education arguing a disjuncture between the policy rhetoric of entitlement to education in prison at the European level and the playing out of that entitlement in English and Welsh prisons.
13	Crabbe (2016)	Education for Offenders in Prison	Descriptive-Interpretative	To develop the idea that an enquiry and skills-based approach to education, successful in schools and colleges, could be used in prison.
14	Demiray; Uca-Gunes (2016)	Usage of Technology for Prisoner Distance Learners: Anadolu University OEF Case	Descriptive	To report on distance education using technology into Turkish prisons.
15	Farley; Hopkins (2017)	The prison is another country: incarcerated students and (im) mobility in Australian prisons	Descriptive-Interpretative	To explore attempts to address digital disconnection of incarcerated students and identify where such interventions have been frustrated by movement issues within the prison.
16	Moreira; Monteiro; Machado (2017a)	Adult higher Education in a Portuguese Prison	Descriptive	To identify motivations, expectations and perceptions of Portuguese prison agents regarding the conditions of Higher Education (HE) in Distance Learning and e-Learning.
17	DiLoreto; Ash; Johnson; Shope; Kokiko (2017)	A Collaborative model for Innovative Facility-based educational Programming: the JCESC-EOCC Oil and Gas Certification training Program	Descriptive	To explore the effectiveness of an online educational training program.
18	Moreira; Monteiro; Machado (2017b)	Higher Education Distance Learning and e-Learning in Prisons in Portugal	Descriptive	To understand students', applicants to courses and senior rehabilitation technicians' points of view on the reality of HE in distance Learning and e-Learning in a Portuguese prison.
19	Manger; Eikeland; Asbjørnsen (2019)	Why do not more prisoners participate in adult education? An analysis of barriers to education in Norwegian prisons	Explanatory study	To examine what stops inmates from participating in education and how their perceptions differ depending on gender, age, educational level, learning difficulties, sentence length.
20	Renbarger; Rivera; Sulak (2019)	What predicts literacy, numeracy, and problem solving for incarcerated individuals? A PIAAC examination	Explanatory study with a model production	To investigate relationships between literacy, numeracy, and problem-solving ability with characteristics of individuals within the US prison system.

Source: Authors

From a methodological point of view, the majority of papers (12 papers) used qualitative approaches, 6 were quantitative and 2 opted for mixed approaches.

Sixteen studies mentioned samples' dimension. Sample sizes varied greatly – 3 papers used less than 10 prisoners; 5 papers referred samples between 10 and 100 participants; 2 papers reported 100 to 500 participants; 1 paper indicated a sample between 500 to 1000 participants; and 5 papers included more than 1000 participants.

The most used instruments for data collection are scales, tests, questionnaires or surveys (6 papers), followed by interviews, including focus groups (4 papers). Three papers collected data from data bases or official documents, and 3 resorted to mixed sources, namely (1) multi-method ethnographic approach with depth-interviews, participant observation, informal conversations and policy documents; (2) focus groups, surveys and field notes, and (3) focus groups and direct participant observation.

Regarding data analysis, 7 papers were supported on qualitative analysis (3 of them mentioned content analysis), 6 papers conducted quantitative analysis, 2 papers outlined documental analysis and 1 paper used a mixed analysis (both quantitative and qualitative). In the remaining 4 papers, data analysis is not applicable or not mentioned. This information is presented at table 4.

Table 4 – Papers' methodological aspects

ID	Methodological Approach	Target Group/ Sample	Data Collection/Instruments	Data Analysis
01	Qualitative	1200 prisoners GED holders	NAAL and GED data bases and survey leaders in correctional education regarding incentives for educational participation.	Documental analysis
02	Qualitative	6 offenders from 5 prisons	Formal interviews.	Qualitative analysis
03	Qualitative	Not applicable	Official documents (legislation, UK local authorities and other services).	Documental analysis
04	Mixed – Multi-method ethnographic approach	10 male inmates and 6 persons from staff	Depth-interviews; participant observation; informal conversation; policy documents.	Qualitative analysis (Content analysis)
05	Qualitative	7 prisoners	Notes and observations from project team members; emails between team members and stakeholders; 4 focus groups; surveys with students and education officers.	Qualitative analysis (Thematic analysis to identify key themes, challenges, successes and areas requiring improvement during the next phases of the study)
06	Qualitative	74 male inmates from 5 prisons	Focus groups and direct participant observation.	Qualitative analysis

07	Quantitative	53 male inmates	ABE Tracking Form (TABE-Test of Adult Basic Education).	Dependent paired-sample ttests; dependent and independent t-tests; multiple regression on the model and the distribution of learning gains
08	Qualitative	More than 1000 prisoners	Not mentioned	Not mentioned
09	Quantitative	380 inmates from 5 prisons	Questions about participants characteristics and opinion items, focused on the analysis of job skills, family relationships and self-perspectives.	Structural Equation Model (SEM) to evaluate complex relations between variables.
10	Qualitative	Not applicable	Not applicable	Not applicable
11	Quantitative	2439 prisoners	Academic self-efficacy questionnaire was designed (covering tasks in reading, writing, mathematics, ICT, and self-regulated learning). Demographic variables (gender, age, and level of education).	Bivariate and multivariate analysis, including exploratory factor analysis, Pearson's correlation analysis, multivariate linear regression analysis and independent sample t-tests were performed.
12	Qualitative	Not mentioned	Not mentioned	Not mentioned
13	Qualitative	Not mentioned	Not mentioned	Not mentioned
14	Quantitative	2196 male and female prisoners	Data-base of Anadolu University Distance Education programmes and attending to their higher education	Descriptive statistics (absolute and relative frequencies)
15	Qualitative	117 incarcerated university students	Focus group	Qualitative analysis
16	Qualitative	9 male inmates	Semi-directive interviews	Qualitative analysis (Content analysis)
17	Mixed	79 male inmates	Researcher-created questionnaire including 3 openended questions	Descriptive statistics. Openended questions analysed qualitatively.
18	Qualitative	26 participants (9 male inmates, 11 male High Education applicants and 6 senior rehabilitation technicians)	Interviews	Qualitative analysis (Content analysis)

19	Quantitative	838 inmates	Perceived Barriers to Prison Education Scale (PBPEES)	Confirmatory factor analysis. Mixed-model analysis of variance to examine differences between subgroups of prisoners.
20	Quantitative	1319 participants from 98 prisons	Prison supplement to the Program for the International Assessment of Adult Competencies (PIAAC) created by OECD.	Assesment of the theoretical model. Akaike's Information Criteria (AIC), Bayesian Information Criteria (BIC), and the sample-size adjusted BIC were used. Path analysis was used.

Source: Authors

The results and major conclusions of the papers under analysis refer to different contents, from which the following stand out: Prison Education Resources, Learning Results, Educational Staff and Cultural aspects and Policies. To support that, the papers ID's are mentioned according to the information available at table 3.

Table 5 synthesizes the main results concerning the resources.

Table 5 – Papers Results – Prison Education Resources

Domain	Meaningful Units
Prison Education Resources	<p>ID 1 - The creation of more resources and opportunities for reading is important for everyone, especially for prisoners.</p> <p>ID 3 - It's necessary to access to suitable and relevant ICT in UK prisons.</p> <p>ID4 - Technology-enhanced distance learning is heavily restricted in such prisons.</p> <p>ID 10 - Incarcerated students may not receive the time, space and technology needed for equitable or comparable participation in higher education.</p> <p>ID 15 - Lack of ability to move to the education rooms to access the computers; it is desirable to provide course-loaded notebook computers to participating students in prison, so they can study better in their cells.</p> <p>ID 16 - lack of access to the Internet, in particular to the University platform; they do not have any computer equipment or technology; limited access to Internet (or Intranet).</p>

Source: Authors

The revised papers, in general, mention equipment and technical solutions, virtual environments, digital technologies and educational resources, as well as conditions provided (or not) by prisons to learn online. The authors highlight the importance of the Internet access and digital resources (HARLOW et al., 2010), BOWE, 2011) and also report the lack of space, time, equipment, courses and Internet access (HOPKINS; FARLEY, 2014; BARREIRO-GEN; NOVO-CORTI, 2015; HOPKINS, 2015; DEMIRAY et al., 2016; FARLEY; HOPKINS, 2017; MOREIRA; MONTEIRO; MACHADO, 2017a; MOREIRA; MONTEIRO; MACHADO, 2017b; MANGER; EIKELAND; ASBJØRNSEN, 2019; RENBARGER; RIVERA; SULAK, 2019).

Learning results is another topic that appears repeatedly in several articles, including aspects relating to the inmates learning achievements, the quality of the learning experience, the benefits or difficulties associated with the learning process in digital environments, and improvements in self-transformation arising from learning processes inside prison. Table 6 synthesizes the main results concerning this topic.

Table 6 – Papers Results – Learning Results

Domain	Meaningful Units
Learning Results	ID 5 - Students reported both positive and negative experiences with the devices; 86% of prisoners have been well succeeded in the course. No issues were encountered with the students' use of the technologies during the trial. ID 6 - Increasing digitization through eReaders and intranets has not been entirely successful in facilitating independent self-managing learners. ID7 - All participants experienced significant learning gains by participating in the program. ID 8 - Distance learning remains one of the most powerful transforming forces when there are challenges in the setting in which learning can occur. ID 14 - Distance education provides many opportunities with its learner-focused approach for lifelong learning due to the flexibility it offers for teaching and learning at distance.

Source: Authors

Despite the majority of the revised papers emphasize the benefits of online learning (HANCOCK, 2010; BROWN; RIOS, 2014; SEELIG; RATE, 2014; ROTH et al., 2016; DEMIRAY et al., 2016; FARLEY; HOPKINS, 2017; DILORETO et al., 2017, MOREIRA et al., 2017b; RENBARGER, et al. 2019), some of them also point to less positive results (FARLEY et al., 2014; HOPKINS; FARLEY, 2014), which could be associated to the lack of knowledge on how to learn with digital resources, the limited access to the computer labs and the lack of support from the education officers. In sum, the less favorable learning results were found in two papers' contents underlined in this study: resources and educational staff support.

Educational staff (which includes teachers, monitors or inmate tutors) is a relevant content in the revised papers. Issues regarding teacher support in learning processes, staff training and empowerment, educational staff preparation, availability, assistance, responsiveness, staff's competencies to monitor students' progress, conflict management skills and empathy, are often mentioned as can be observed at table 7.

Table 7 – Papers Results – Educational Staff

Domain	Meaningful Units
Educational Staff	ID 5 - Lack of support from the education officers. ID 8 - New systems in the prison will need to be developed to empower staff to the use of those devices. ID10 - Incarcerated students need responsive, committed and empathetic teachers, willing to support all students. ID 13 - All prison staff needs to be trained for the importance of education in prisons. ID 16 - Lack of support, monitoring; more support from teachers in virtual classroom context are needed. ID 17 - Inmates' referred positive experiences with the instructor.

Source: Authors

The analysis allows to reinforce the importance of educational staff in the revised papers. Particular relevance is given to the necessity of educational staff support in learning activities (HANCOCK, 2010; FARLEY et al, 2014; HOPKINS; FARLEY, 2014; HOPKINS, 2015; MOREIRA et al., 2017a; MOREIRA et al., 2017b), to the staff empowerment and training (SEELIG; RATE, 2014; CRABBE, 2016), and to educational staff value when their work is recognized by inmates (HOPKINS; FARLEY, 2014; BROWN; RIOS, 2014; DILORETO et al., 2017).

Finally, cultural aspects and policies are also a subject of concern in several revised papers. In particular, the social-political and cultural-discursive positions which impact prisoners' digital inclusion/exclusion, including security control/restrictions/constraints. Table 8 present those concerns.

Table 8 – Papers Results – Cultural aspects and Policies

Domain	Meaningful Units
Cultural aspects and Policies	ID 9 - Policies with the objective of bridging the gap of digital divide have to promote all kind of general skills. ID 10 - Discussion highlights the discrepancies between official discourses of access and rehabilitation and the punitive approaches of liberal policy. ID12 – There is a disjuncture between the discourses and legislation surrounding the rights of all prisoners to education in Europe, and what is happening on the ground in English and Welsh prisons. ID 15 - The space and time planning inside the prison is always framed by demands for security, discipline and economic efficiency, sometimes to the detriment of education. ID 16 - Imprisonment must be seen from a rehabilitation point of view, rather than punishment. ID 20 - Limits of technology use for safety reasons are important.

Source: Authors

The results show a trend to value rehabilitation policies over punitive policies (PIKE; ADAMS, 2012; BARREIRO-GEN; NOVO-CORTI, 2015; MOREIRA et al., 2017a), even though the discrepancy between discourses and practices is also pointed out (HOPKINS, 2015; CZERNIAWSKI, 2016). Security issues continue to weigh heavily on political decisions, as well on the implementation of practices that underpin the most avant-garde discourses.

5 FINAL CONSIDERATIONS

Learning experiences and research-action projects developed in prisons of different countries provide ground information that allows an analysis of congruences and discrepancies between discourses and practices. Hence the importance of making an overall picture of educational research about online learning experiences and learning supported by digital resources in prison environments.

Recalling the initial research questions, this study makes it possible to verify that the academic literature focused on online learning in prison is mainly published from studies carried out on the European continent. For example, regarding South America, in a recent publication about principles, public policies and education practices at Brazilian prisons, digital learning supported by technologies are not mentioned (SILVA; PIMENTEL, 2018). European funded programs can be a driver for researchers' interest in this topic. In fact, after 2017, there is a decrease of the number of published papers, which contrasts with the 2014-2017 period. During this period, the number of Prison Education Projects, in the scope of Erasmus +, increased progressively, as well as the amount of projects' funding, according to the formerly Grundtvig Coordinator and Acting Head of Adult Learning Unit of European Commission. These projects' dissemination activities, tools and networks (e.g. EPEA, Europris) and their policy recommendations, seem to have contributed to capture the scientific community's attention.

With the literature review, it was also possible to conclude that the papers present great diversity in terms of design, objectives and methodological approaches and options, despite the predominance of qualitative studies. Quantitative studies with large samples are not easy to carry out in these particular settings. There are already studies (BEHAN, 2014; GRAY; WARD; FOGARTY, 2019) pointing out the prison potential for change and highlighting the transformative effect of learning based on pedagogical practices. This can be seen as an opportunity for policy makers to encourage large and wide-ranging studies, reducing the gap between political discourses and practices in prisons, and supporting the rehabilitation policies. The scientific arguments of positive results from online learning experiences and learning supported by digital resources in prison environments will demand the necessary material and

human resources, namely, digital equipment and secure online solutions, as well as the empowerment and training of educational staff, as shown in this overall picture about academic literature focused on online learning in prison.

Currently, it is not easy to promote prison online learning activities in countries where issues related with basic needs and human rights are still the focus of concern. Even so, we recommend online learning experiences in prisons that belong to different cultural contexts, and research focused on its results. Particularly in Europe, it seems to be of great importance to continue to finance Erasmus + projects, in order to avoid the loss of the interest and enthusiasm previously conquered. Studies carried out in the prison context will continue to demonstrate that it is possible to learn online and safely in prisons. This will contribute to the elaboration of political recommendations that break down institutional barriers, namely those related to the lack of material and human resources.

Finally, in the future, we suggest similar studies of literature review, supported in other databases, and including products other than articles published in scientific journals.

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