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Article

Digital Competencies for New Journalistic Work in Media Outlets: A Systematic Review

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Abstract

Media organizations operate in a rivalry-charged ecosystem nowadays, as a consequence of emerging patterns of news production, distribution, and consumption. Furthermore, the growing of public social media manifestations and the arrival of digital journalism require new professional roles, responsibilities, and skills inside the media industry. In this context, Faculties of Communication need to equip students with the digital competencies that are relevant to new media outlets and journalistic work. Based on this approach, the main objective of this study is to answer the following questions: What does the literature suggest about the digital skills that new professional profiles should acquire in the field of journalism? Which dimensions of digital competence are gaining visibility and which dimensions are being neglected? To answer the scientific objectives, a systematic review has been carried out following the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) statement. The application of the two models of digital competence, Bloom's taxonomy (1956), and digital competence in education (Redecker, 2017), serves as a framework in two ways: to determine the level of digital competence development, and to identify the dimensions on which greater emphasis is being placed. The results show a lack of studies linked to key aspects of digital competence, especially those related to personal growth, emotional state (Redecker, 2017), and the development of a deep level of acquisition of this competence (Bloom, 1956). This article proposes to reflect on whether we want to train professionals according to the model demanded by the media outlets nowadays, or whether we prefer to train communication professionals with a deep level of digital competence, since they are able to respond to the future and changing needs of the 21st century.

Keywords

digital competence; digital journalism; digital skills; journalism; new media outlet; professional profiles

Issue

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1. Introduction

In 2020, an artificial intelligent new language generator, GPT-3, wrote an essay, entitled “Are You Scared Yet, Human?,” in *The Guardian*, to convince citizens that robots come in peace (GPT-3, 2020). This article expressed deep concern about the future of journalism and challenged the new competencies and skills of students at the faculties of communication. Thus, it has become increasingly obvious and plain that journalists

and media organisations operate in a “hypercompetitive environment” (Chadwick, 2011, p. 3) and face different dilemmas currently. The emerging patterns of news production, distribution, and consumption (Carlson, 2017; Jensen et al., 2016; Salaverría & De-Lima-Santos, 2020), the growing public social media manifestations, and the arrival of digital journalism—described as a “highly elusive, changing, multifaceted concept” (Salaverría, 2019, p. 2)—among other phenomena, also emphasise the need to tackle this rivalry-ridden ecosystem. This can be

achieved by training new professionals in skills, responsibilities, and roles in line with the requirements of the new labour market and the media industry.

For some authors (Berganza et al., 2017; Cruz-Álvarez & Suarez-Villegas, 2017; García-Orosa et al., 2020; Lugo-Ortiz, 2016; Sánchez-García, 2016), the future of journalism relies on keeping its essence instead of training students in new technologies. Accordingly, Lazo et al. (2020) stress that there are traditional competencies in journalism that graduates should always acquire, regardless of whether professionals operate in online or offline environments since the absence of these skills would lead to an “identity crisis of journalism, with deep and disastrous consequences for the profession, the society and democracy” (p. 55). In this sense, Lazo et al. (2020) propose that the most noteworthy classical competencies and skills of journalists are “professional identity competencies, solidarity competencies, narrative skills, reporting skills, ethical, deontological and juridical competencies, psychosocial skills, social commitment competencies, creativity, speculative competencies and autonomous learning skills” (p. 55).

Other scholars (Bruns, 2016; Diakopoulos, 2015; Goggin, 2020; Heravi et al., 2021; Lewis & Westlund, 2016; Steensen & Westlund, 2021) argue that in this new digital landscape, the journalism process itself has changed radically. Therefore, the emergence of new journalistic works has pushed professionals to quickly incorporate new digital skills and competencies in this changing media landscape. In this line, many new insights for new professionals range from data journalism (Appelgren & Lindén, 2020) to online participatory journalism (Abbott, 2017; Engelke, 2019), mobile journalism (Borum & Quinn, 2016), and fact-checking journalism. For example, according to Graves (2016), journalists will comprise fact-checking agents and many non-professionals who will combat disinformation to recover the prestige and credibility of journalism and the media industry, mainly after the spate of false narratives surrounding Covid-19 (Luengo & García-Marín, 2020), among other growing fields.

This new media ecosystem also entails other complex changes that jeopardise the future of the journalistic profession, since the internet and social media offer average people the ability to instantly transmit information globally (Chung, 2008; Currie, 2012; Rogers, 2016). As Shirky (2008) states, “if anyone can be a publisher, then anyone can be a journalist” (p. 71). Analysing citizen journalism and the open comments section on social media and internet forums clearly shows that participants communicate and interact with one another and the media channel, creating online discussions that may even gain more attention than the news articles posted by the hosting website itself (López-Vidales & González-Aldea, 2014). For this reason, social media editors also work to smooth out the rougher areas of social media journalism, so they can incorporate new technology responsibly and try to stem the flow of inaccurate information (Myers, 2011).

Contrary to this line of thought, Simon (mediagrrl9, 2009) is critical of certain aspects of citizen journalism, since the structure of professional news organisations provides that ability for reputable journalists to use the sum of their time and professional experience to gather information, cross-check facts, and publish the news (Paine, 2015). Individuals doing anything else are amateurs pursuing the task without compensation, training, or, for that matter, sufficient standing (mediagrrl9, 2009). Nonetheless, the internet and social media are assets for the spread of media activism (Pickard & Yang, 2017), specifically, in the context where the media are controlled and there is government censorship, a state that has stonewalled a great deal of newspaper reporting, but independent bloggers have still been able to uncover corruption and spur political action (Hassid, 2012; Paine, 2015).

Similarly, there is indeed a broad diversity of professional profiles in today’s digital media newsrooms: writers or editors, data journalists, visual journalists (Cairo, 2015; Zavoina & Reichert, 2000), transmedia journalists (Renó & Flores, 2012), social media journalists and content curators (Renó & Renó, 2015), mobile journalists, and so on.

In this context, studying the competencies and skills for new journalistic work in media organisations has become an increasingly indispensable and urgent issue for professionals and scholars. In this research, we focus on digital skills and competencies for two fundamental reasons. First, examining general skills and competencies in journalism implies taking sides in an academic discussion that has been widely researched and debated, as demonstrated above. Second, the figure of the journalist had continuously evolved over the 20th century, although these transformations have occurred more acutely over the first two decades of the 21st century, mainly because the journalistic profession has continually changed to keep pace with technology. Therefore, to fully understand the new skills and competencies that these new professionals should acquire, it is essential to frame the research in the digital realm since it is currently the most common environment where journalists operate. This concrete framework also allows us to avoid outlining the future of journalism as vague and undefined.

However, in order to carry out a systematic review of the digital competencies that are necessary to develop the profession of journalist in the coming years, we first need to establish a theoretical framework that will serve as a model for understanding or framing digital competence. In this sense, the authors of this study have decided to use Bloom’s taxonomy (1956) as a regulatory and measurement framework of digital competence, since Bloom’s taxonomy (1956) is a reference model in the field of technologies and has a long trajectory in the scientific literature (Figure 1). Moreover, its specialization by categories and levels of acquisition is considered especially appealing to catalogue the findings of the systematic review in the following levels, which allows us

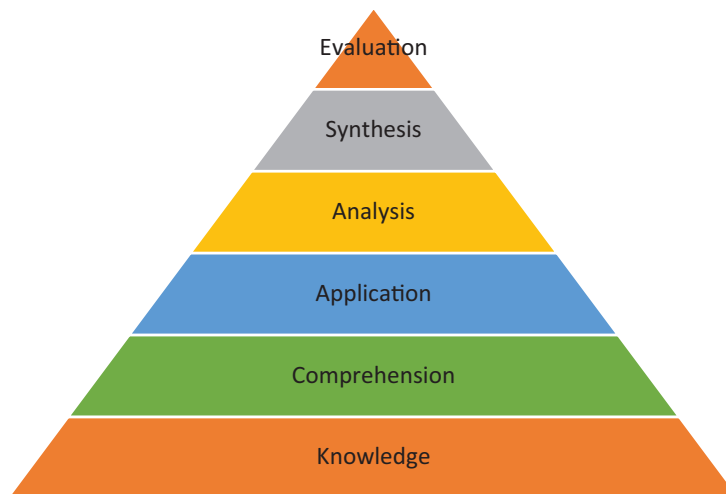


Figure 1. Bloom’s taxonomy. Source: Adapted from Bloom (1956).

to map a possible training itinerary in the new journalism degrees.

The main objective of this study is to present a theoretical basis that can offer an overview of what is required in the journalism profession, as well as to provide some lines of action that could be incorporated in the curricular designs of the new degrees. Regarding this purpose, it is considered that the model of digital competence in education (DigCompEdu; Redecker, 2017) stands out as the necessary regulatory framework in which to check which aspects are being implemented in the training plans and which are necessary to include, review, or rethink (Figure 2).

Thus, we attempt to answer this question at the core of our research: What does the literature suggest about the digital skills that new professional profiles should acquire in the field of journalism? Which dimen-

sions of digital competence are gaining visibility and which dimensions are being neglected? To shed light on these central questions, we have conducted a systematic review of the literature to understand the current state of this topic. In doing so, we have included research articles published over the last 10 years, from 2011 until our search was finished in June 2021.

2. Methodology

Our study advances a systematic review of the literature to understand the digital competencies and skills for the new professional profiles in the journalism field. New journalistic work in the social media era requires new professional roles, responsibilities, and skills within the media industry. Drawing on the emerging patterns of news production, distribution,

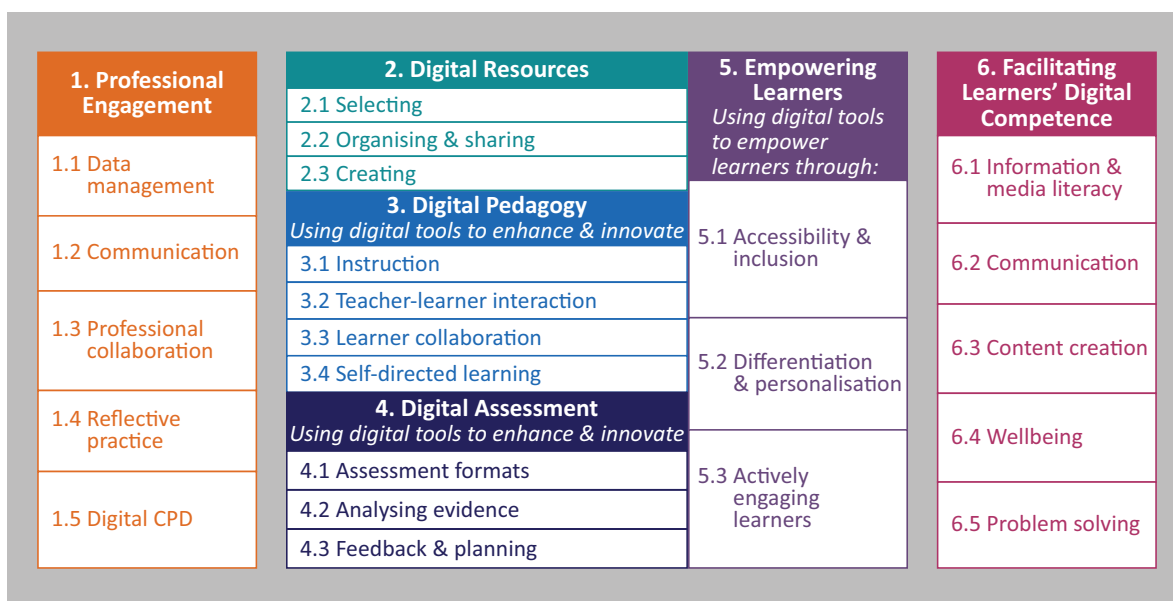


Figure 2. Overview of the digital competence in education framework. Source: Redecker (2017).

and consumption (Carlson, 2017; Jensen et al., 2016; Salaverría & De-Lima-Santos, 2020), as well as the growing public social media manifestations and the arrival of digital journalism as a “highly elusive, changing, multi-faceted concept” (Salaverría, 2019, p. 2), we conducted this literature review to shed light on overall trends in digital competencies and to identify previous studies in this research area. Moreover, based on two framework models of digital competence, such as Bloom’s taxonomy (1956) and Cruz’s taxonomy (2020), and the DigCompEdu model, we will try to make an in-depth analysis of which aspects of digital competence are being bolstered in journalism degrees and which are being forgotten, leading to a lack of competence in information professionals. Along this line, we reviewed several types of literature, following the items recommended in the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) statement (Moher et al., 2009; Urrutia & Bonfill, 2013), to ensure the validity and the accuracy of the process. The remainder of this methodology section is organised as follows: in Section 2.1, we itemise the research question and outline the scope of this work. In Section 2.2, we highlight the features and values of systematic literature reviews and assess the appropriateness of applying this method to this study. Finally, in Section 2.3, we present and expound on our procedure in carrying out this systematic review.

2.1. Scoping

The formulation of research questions is one of the first steps in terms of defining the scope of a systematic review, guiding the decision making throughout the review process and ensuring more focused findings (Counsell, 1997; Petticrew & Roberts, 2006; Siddaway et al., 2019). Given this, we attempt to answer this core question: What does the literature suggest about the digital skills that new professional profiles should acquire in the field of journalism? Which dimensions of digital competence are gaining visibility and which dimensions are being neglected?

2.2. Systematic Literature Review

Whereas reviewing the literature “involves selectively discussing the literature on a particular topic to make the argument that a new study will make a new and/or important contribution to knowledge” (Siddaway et al., 2019, pp. 750–751). The literature review is a research method that addresses much broader questions, leading researchers to draw firm conclusions based on existing conceptualisations (Siddaway et al., 2019). For this reason, a systematic review is a useful qualitative and structured method of identifying previous studies in each research area (Siddaway et al., 2019). The literature review contributes to categorizing the studies to answer specific research questions (Grant & Booth, 2009; Williams, 2019), as well as revealing trends, connections

across many studies and any gaps that need to be filled (Petticrew, 2001; Petticrew & Roberts, 2006). In doing so, this systematic review provides a database comprising all the literature relevant to digital competencies and skills for new journalistic work in media organisations.

2.3. Literature Search Process

Our approach consisted of two parts. Initially, we conducted a search process that started in January 2021, using the terms “digital journalism” and “digital skills” in the Web of Science (WoS) and Scopus. However, the obtained results were too broad and relatively uninteresting, giving the main objective of this study (to determine the overall trends and common patterns in publications that investigate the digital competencies and skills for the new professional profiles in the journalism field). Therefore, after this step, we undertook another search in which we used the Boolean operators AND and OR, adding the descriptors “media industry,” “social media,” “journalistic work,” “journalistic routines,” “professional competencies,” “professional responsibilities,” “professional skills,” and “professional roles.” Although the latter search improved the specificity of the results, the generated scientific publications were either too wide and extensive or too scarce and of little value for conducting a systematic review. These two initial searches positively contributed to developing a global overview of the studied subject and to reinforcing the suitability of conducting a systematic review of the literature.

In the second phase, we carried out a new search strategy to better achieve our purpose. In view of the obtained references, finally, in September 2021, it was decided to broaden the search by trying to conduct the widest possible literature review incorporating the findings found in the Scopus, WoS, and ScienceDirect electronic databases over the last 10 years, from 2011 until our search was finished in September 2021. Using these criteria, this final search strategy was formulated as follows:

(Digital journalism skills) AND ((media industry) OR (social media) OR (journalistic work) OR (journalistic routines) OR (professional competencies) OR (professional responsibilities) OR (professional skills) OR (professional roles))

This process generated a total of 5,325 items (4,035 in Scopus, 1,132 in ScienceDirect, and 158 in WoS databases). Then, we applied the inclusion and exclusion criteria following the PICOS model for narrowing down the results, as Table 1 shows.

After the identification of the 5,325 generated items, we applied the inclusion and exclusion criteria (listed in Table 1), which allowed us to focus on the research question, narrow down the existing literature and delimit the systematic review (Siddaway et al., 2019). Taking into consideration these criteria, 3,531 references were

Table 1. PICOS model.

	Inclusion criteria	Exclusion criteria
Participant	Any participants	None
Intervention	Any interventions	None
Comparator/Context*	Social science Research papers Published publications Papers that deal with journalism or digital journalism specifically	No publications published between 2011 and 2021 None in social science No research papers No published papers
Outcomes	Papers that deal with competencies and skills	Others
Study design	Any study designs	None

Note: The “Context” item is marked with an asterisk (*) because we have replaced the “Comparator” component, which is included in the classic PICOS models, with “Context” since it better fits the methodological needs of the studies in the field of social sciences. Source: Adapted from PICOS framework (Colás-Bravo et al, 2021).

excluded for the following reasons: 1,687 were not published between 2011–2021, 909 did not belong to the social science field, 766 were not research papers, and 169 had not been published yet. Consequently, this selection phase left 1,794 unique items. Subsequently, we screened the 1,643 remaining references, examining their titles and abstracts to identify the appropriate studies that tackled the subject of our study, leaving a total of 151 publications that fully satisfied the requirements detailed in Table 1.

Finally, after examining the full texts of the 151 items, we excluded 112 papers because they did not deal with journalism or digital journalism specifically or did not refer to competencies or skills or even failed to meet any of the above criteria that we had not identified in prior phases. Then, 39 items were included in the systematic review (see the full process in Figure 3). No manual results were added from additional databases because no relevant results were found for our study.

3. Results and Discussion

In this section, we present the results of our systematic review of the literature. Given the objective of the study, this section consists of three distinct parts. Firstly, the general results of the systematic review are presented according to the characteristics of the studies. Secondly, the studies found in the systematic review are catalogued based on Bloom’s taxonomy (1956) and Cruz’s taxonomy (2020). Both proposals will allow us to tackle what competencies and competency levels professionals are demanding in the last decade. Finally, the studies are arranged based on the DigCompEdu model of digital competence in education (Redecker, 2017). Hence, it is possible to establish which dimensions of digital competence are being emphasized and which are being

left aside. The DigCompEdu framework is a model of digital competence that should guide the development of present and future curricula; therefore, the study of these aspects would allow us to assess whether the current curricula are addressing all the necessary aspects of digital competence.

Regarding the main characteristics of these publications (see Table 2 and Figure 4), most of the studies that deal with digital competencies and skills in the journalism field apply a qualitative methodology ($n = 14$; 36%), such as interviews, observations, and case studies. Additionally, nine publications (23%) are theoretical studies essentially. Eight publications (21%) employ a mixed methodology. Eight research studies (21%) are based on quantitative analysis, using questionnaires and descriptive and inferential methods. In general, these findings might reveal a strong upward trend in qualitative procedures, using interviews, observations, case studies or theoretical reflections.

It should be stressed that these publications also present different sorts of samples in their research. According to Pozo et al. (2012), the profiles of individuals who participate in studies are broad and heterogeneous; therefore, the criterion for their selection is a key point when carrying out an analysis. For this reason, based on the taxonomy proposed by Pozo et al. (2012), we have distributed the 39 publications comprising our sample according to the following profiles:

- Specialists; This group consists of specialists who do not belong directly to the education domain but are experts in the communication field due to their professional competency and experience.
- Involved: This group is made up of students.
- Facilitators: We include academics and university professors in this group.

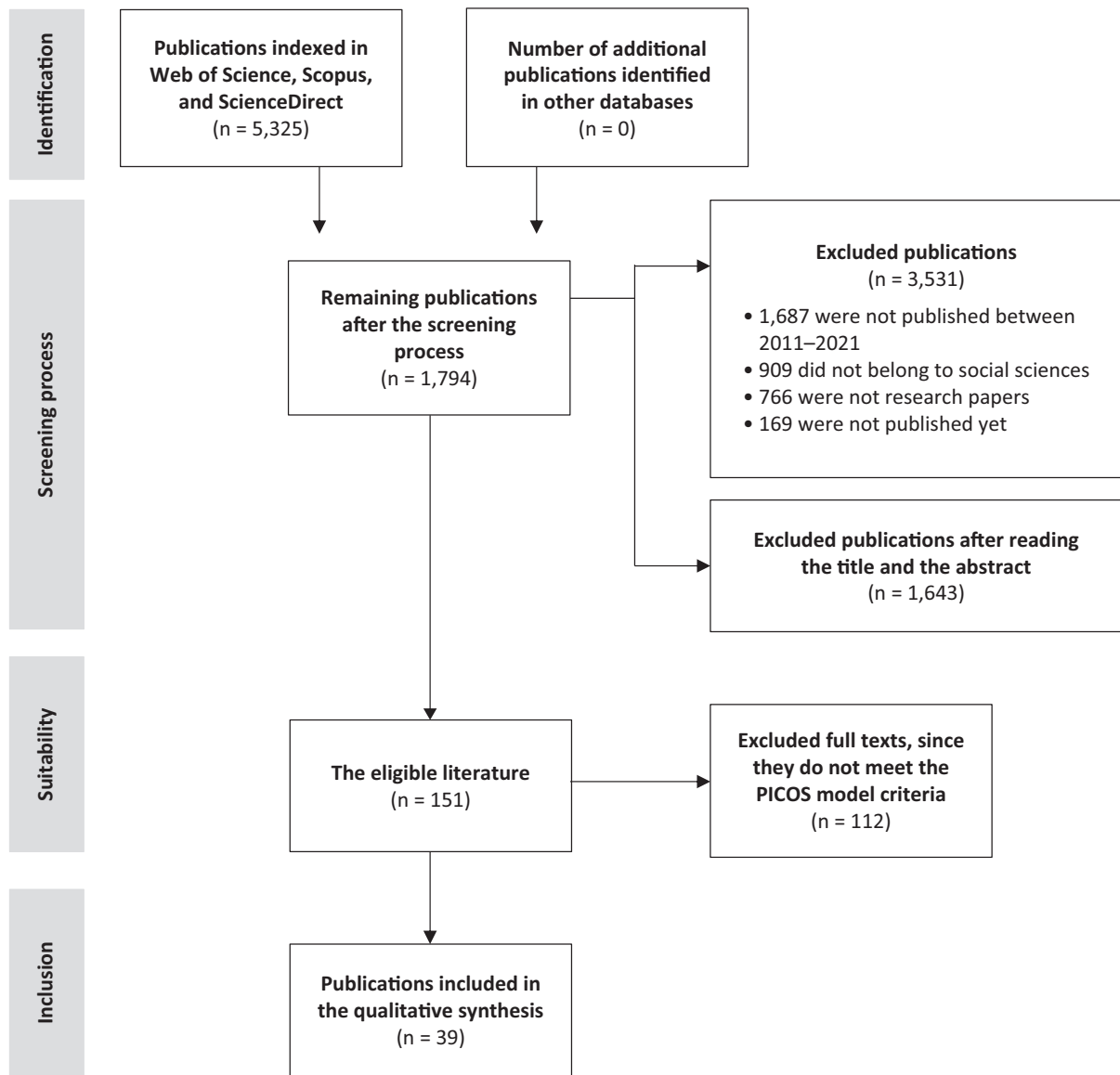


Figure 3. Planning, identification, and eligibility process workflow.

Bearing in mind that one research study could use two or more participant profiles, the “specialist” profile is the most prolific type in the sample (Table 2 and Figure 5). Fifteen publications have used journalists, founders of start-ups, media professionals, directors and supervisors

of media outlets, news editors in press departments, managers of strategic communications companies, and executive producers of small audio-visual production companies. Likewise, six studies use the “involved” profile, since their samples consist of college students and

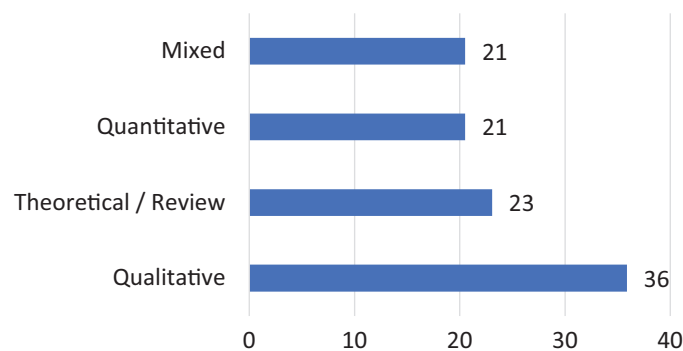


Figure 4. Percentage of studies by methodology.

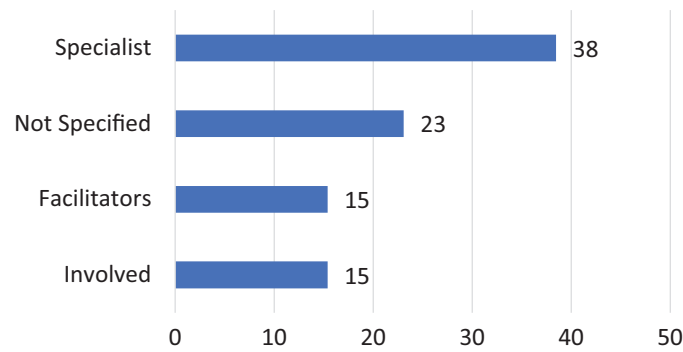


Figure 5. Percentage of studies by samples.

journalism and audio-visual communication students. Lastly, the “facilitator” profile is used in six research studies that have university professors and academics in their samples. Interestingly, there are nine publications in which the authors have not gathered any sampling, number of participants, or methods. Moreover, the sam-

ples of three studies comprise different sorts of narratives, such as the syllabi or study programmes of different universities, and previous publications when conducting a literature review.

Table 2 summarises the main characteristics of the publications included in the qualitative synthesis.

Table 2. Main characteristics of the publications included in the qualitative synthesis.

ID	Publication	Sample	Methodology
P1	Aceituno et al. (2014)	237 college students	Quantitative: descriptive and inferential
P2	Anderson and Bourke (2020)	Not applicable	Theoretical
P3	Appelgren and Lindén (2020)	Founders of two news start-ups in Stockholm	Qualitative methodology/case studies
P4	Calvo and Ufarte (2020)	Responsible for innovation of various national media, university teachers, journalists and journalism and audiovisual communication students	Mixed: qualitative/interview and quantitative/questionnaires
P5	Chen (2018)	475 scholarly journal articles in librarianship and journalism	Quantitative and qualitative comparative study
P6	Flores (2018)	Not specified	Mixed: case study and observation
P7	Gulyas (2017)	2,762 journalists	Quantitative/descriptive
P8	Jiang and Rafeeq (2019)	Six students, five professionals in communication, and four teachers from faculties of journalism	Qualitative/focus groups and in-depth interviews
P9	Josephi (2019)	Not applicable	Theoretical
P10	Karaduman (2015)	Not specified	Mixed: theoretical and in-depth interviews
P11	Köuts-Klemm (2019)	10 journalists from different media outlets	Qualitative/in-depth interviews
P12	Labio-Bernal et al. (2020)	107 teachers	Quantitative/survey
P13	Lazo et al. (2020)	119 articles indexed in Web of Science (54) and Scopus (65) between 1998 and 2017	Literature review

Table 2. (Cont.) Main characteristics of the publications included in the qualitative synthesis.

ID	Publication	Sample	Methodology
P14	López-Vidales and González-Aldea (2014)	199 students	Qualitative/observation
P15	López et al. (2019)	Not applicable	Theoretical
P16	López-Martín and Córdoba-Cabús (2020)	20 public journalism universities	Qualitative/content analysis
P17	Lugo-Ortiz (2016)	Students, teachers, media professionals, and directors and supervisors of media outlets	Quantitative/descriptive and inferential media
P18	Macmillan (2014)	215 journalism students	Five-year qualitative study
P19	Manfredi et al. (2019)	Not applicable	Theoretical
P20	Oliveira and Angeluci (2019)	One market specialist, two national media professionals, and three researchers from Brazilian universities	Mixed: theoretical and qualitative/semi-structured interviews
P21	Pellegrini and Grassau (2018)	News editors in press departments, managers of strategic communications companies, and executive producers of small audiovisual production companies	Qualitative/in-depth interviews
P22	Recio and Santos (2014)	Not applicable	Theoretical study based on a teaching innovation project
P23	Reilly (2018)	The top 10 schools in the US, ranked according to the number of journalism and mass communication graduates	Qualitative: Content analysis of journalism courses at US undergraduate and graduate schools
P24	Robinson et al. (2021)	Not specified	Mixed: in-depth interviews and textual analyses
P25	Saavedra et al. (2020)	Total universe of official university bachelor's and master's degrees related to data journalism in Spain and offered in the 2019–2020 academic year	Quantitative/descriptive and inferential
P26	Saks et al. (2019)	4,387 tweets	Quantitative: a constructed-sample content analysis
P27	Schaich (2012)	Not specified	Qualitative/case study
P28	Sewchurran and Hofmeyr (2020)	Not applicable	Theoretical
P29	Stoker (2015)	Six students	Qualitative/semi-structured interview
P30	Tsymbal et al. (2020)	Journalism students	Mixed: quantitative/descriptive and inferential, and qualitative methods/interview and focus group
P31	Túñez et al. (2021)	12 experts from the main universities in Spain and heads of companies and of relevant associations in the sector	Qualitative methodology based on in-depth interviews
P32	Ufarte et al. (2018)	Seven university professors	Multidisciplinary method that combines qualitative and quantitative research techniques, such as structured interviews, content analysis, and questionnaire

Table 2. (Cont.) Main characteristics of the publications included in the qualitative synthesis.

ID	Publication	Sample	Methodology
P33	Ufarte, Anzera, and Murcia (2020)	Three projects: Maldito Bulo, Newtral Media Audiovisual, and Pagella Política	Qualitative methodology/case study and in-depth semi-structured interviews (conducted with co-founding members of Maldito Bulo and Pagella Política)
P34	Ufarte, Feiras, and Túniz (2020)	768 subjects from 17 undergraduate study programmes and 116 subjects from eight master's degrees offered by universities in Spain	Mixed: literature review and case study
P35	Valencia-Forrester (2020)	Not applicable	Theoretical
P36	van Laar et al. (2020)	87 journalists	Quantitative/survey
P37	Viljakainen and Toivonen (2014)	10 publishers of consumer magazines	Qualitative/in-depth interviews
P38	Wagner and Boczkowski (2019)	71 participants in Chicago, Philadelphia, and Miami	Qualitative/in-depth interviews
P39	Walker (2019)	Not applicable	Theoretical

Once the results have been analysed by their main characteristics, drawing on Bloom's (1956) taxonomy that delineates a hierarchy of cognitive-learning levels and Cruz's (2020) typologies of competencies of digital journalists, we have designed a classification (see Table 3) to organise the main results of the selected 39 publications. As explained above, this categorization allows us to conduct an in-depth analysis of the competencies required by future journalism professionals and the level of development of these competencies, leading to concrete actions.

Bloom's (1956) cognitive competencies refer to the competency of learning to learn. These competencies are essential for training students in new skills and abilities adapted to their future jobs and professional challenges, due to the impact of digitalisation and technological innovation. Moreover, these cognitive competencies usually imply a hybridisation between the journalist's classic qualities and emerging technologies (Calvo & Ufarte, 2020), which flows into a hybridisation of profiles and transversality of knowledge, skills, and attitudes (Gulyas, 2017; Ufarte et al., 2018). In contrast, social competencies create a deeper discussion since these skills require journalists to interact with other users on different social platforms and gather information in order to understand how users behave and what the audiences' wishes are on the internet.

Having explored the competencies and their levels of development, the studies found in the systematic review will be categorized using the DigCompEdu framework model (Redecker, 2017; see Table 4). As already explained, this procedure will allow us to shed light on which dimensions of digital competence are being emphasized and which are being neglected. Assuming that all dimensions

of digital competence are desirable and have approximately the same weight within the model, we understand that none of them should be neglected if we want to train professionals prepared for a digital world and in the continuous advancement of technologies.

As seen above, the results showed a clear imbalance in the dimensions of digital competence found in the literature. Specifically, it can be concluded that studies are putting the focus of attention on aspects based on the mastery and use of Digital Resources with 87% of studies that support this. Secondly, there was a pledge to generate the commitment of communication professionals with their job (Professional Engagement, 56%), including aspects such as Data Management or Professional Collaboration, and a mastery of the ability of Digital Assessment (60%), mainly related to the need to develop the ability to differentiate truthful and quality information within the digital information ecosystem. On the other side, we could see how fundamental aspects such as developing the journalists' ability to develop their digital skills (27%), empowering the professional, gaining confidence and security about their own abilities (27%), or encouraging the learning of an appropriate digital culture and professional health (20%), were those with the lowest percentage of occurrence.

These results collide worryingly with those found in Bloom's categorization (Figure 6), in which we found articles that mainly focused on the Knowledge (44%) and Comprehension (44%) dimensions, which are the lowest levels of Bloom's pyramid. The rest of the levels, such as Analysis (15%), Synthesis (18%) or Application (28%), have very low values, considering the number of articles analysed. As it happened with the evaluation dimension in the findings based on DigComEdu, we observe,

Table 3. Digital competencies for new journalistic work in media organisations.

Competencies	Definition	Task	Publications
Knowledge	Remember and memorise facts, principles, and concepts; evoking or recognising facts, events, or theories that have been learned	Memorise facts, principles, and conceptions	P1, P3, P4, P11, P13, P16, P14, P17, P18, P19, P33, P34, P32, P37, P2, P35, P38.
Comprehension	Organise events in such a way that makes sense; translating materials from one form to another, interpreting materials, or predicting future trends	Understand the information received	P7, P8, P13, P16, P17, P18, P19, P25, P28, P30, P31, P32, P36, P37, P35, P26, P38
Application	Apply the concepts or principles learned to solve new problems or handle new situations and to use learned materials in a new and concrete situation	Remember the information and apply it correctly	P1, P10, P13, P17, P25, P28, P31, P36, P2, P35, P38
Analysis	Ability to examine a concept and disaggregate it into its component elements, as well as to analyse the relations between and among parts	Ungroup the information into parts and determine how it is organised	P12, P17, P19, P25, P27, P28
Synthesis	Synthesise or propose new ways to value information; ability to resolve contradictions and put parts together to form a new whole	Propose new ways to understand the information	P17, P18, P19, P25, P27, P28, P36, P2, P35, P26
Evaluation	Ability to make critical judgements for a specific situation or a concrete purpose	Value the information from quantitative and qualitative perspectives	P12, P13, P17, P18, P19, P20, P21, P31, P32, P33, P36, P35, P26, P9, P5
Individual competencies	Ability to reflect on one's actions in digital environments; ability to direct and focus personal attention	Act correctly in a wide variety of situations	P1, P6, P8, P12, P13, P14, P17, P19, P22, P29, P30, P31, P33, P32, P37, P24, P2, P35, P26, P38, P39, P5
Social competencies	Ability to act in a socially responsible manner as a community member; ability to interact with social, technological, and educational networks; ability to work with others	Adopt a new way of interacting and socialising, not only between and among subjects, but between the audience and the content as well	P7, P13, P14, P15, P17, P20, P21, P29, P30, P31, P33, P32, P24, P2, P35, P26, P9, P23

Note: Publications may contribute to more than one competency. Source: Adapted from Bloom (1956) and Cruz (2020).

regarding Bloom's taxonomy, several articles that point to the need to develop this competence (38%). The rise of fake news is undoubtedly of concern to all agents involved in the communication field. Finally, the aspects related to Individual (50%) and Social (49%) competencies have high values, which are in line with the Professional Engagement dimension of the DigCompEdu

model. Thus, there is a tendency in the media outlets that pushes journalists to acquire competencies related to teamwork, and to empathise with the audience and their job through self-directed learning, lifelong learning, etc.

Based on these results, we affirm that there is still a long way to go to establish training needs that holistically satisfy all the dimensions present in digital competence;

in particular, those that can promote higher levels of professional satisfaction such as empowerment, learning healthy work habits and other aspects that are not being incorporated or demanded by media outlets. Becoming

aware of these aspects can be the first step to generate transformation and value in future curricula with a vision that is able to collect both the needs of the media outlets and the needs of the professional.

Table 4. Studies and dimensions of digital competence based on digital competence in education.

Dimensions	Definition	Studies	Total N = 30 (%)
1. Professional Engagement	Refers to digital skills and abilities to improve organizational communication between different agents; establish networks for professional collaboration, make use of reflective practice and serve for continuous professional training	P1, P3, P8, P9, P12, P14, P18, P20, P21, P22, P27, P29, P30, P33, P36, P35, P38	17 (56%)
2. Digital Resources	Refers to the capacity to select appropriate resources; create and/or modify existing digital resources to respond to objectives; as well as knowing how to manage, protect, share, and understand the use of open resources	P4, P5, P6, P7, P8, P10, P11, P13, P16, P15, P17, P18, P19, P21, P22, P24, P25, P26, P28, P30, P31, P33, P34, P32, P38, P39	26 (87%)
3. Digital Pedagogy	Refers to the use of digital resources and tools for lifelong learning and for professional innovation; it consists of developing skills that guide professional, collaborative, and self-directed learning	P1, P2, P16, P20, P24, P26	6 (20%)
4. Digital Assessment	Use of digital tools to improve the evaluation process; is linked to evaluation strategies through ICT, understood in the context of using digital tools to evaluate information quality and veracity	P1, P3, P5, P6, P11, P12, P17, P18, P19, P20, P25, P26, P28, P33, P34, P32, P38, P39	18 (60%)
5. Empowering Learners	Related to ensuring that professionals have the ability to access and handle all kinds of digital resources to solve tasks in their workplace; is about exploiting the potential of ICT to reduce possible gaps; personalize differentiated learning itineraries and achieve the active participation of professionals, fostering an active commitment	P1, P14, P23, P24, P29, P32, P37, P38	8 (27%)
6. Facilitating Learners' Digital Competences	Linked to practices that promote the development of digital competences; is specified in posing challenges based on real problems that involve the use of technologies	P1, P3, P13, P23, P24, P26, P29, P36	8 (27%)

Note: Publications may contribute to more than one dimension.

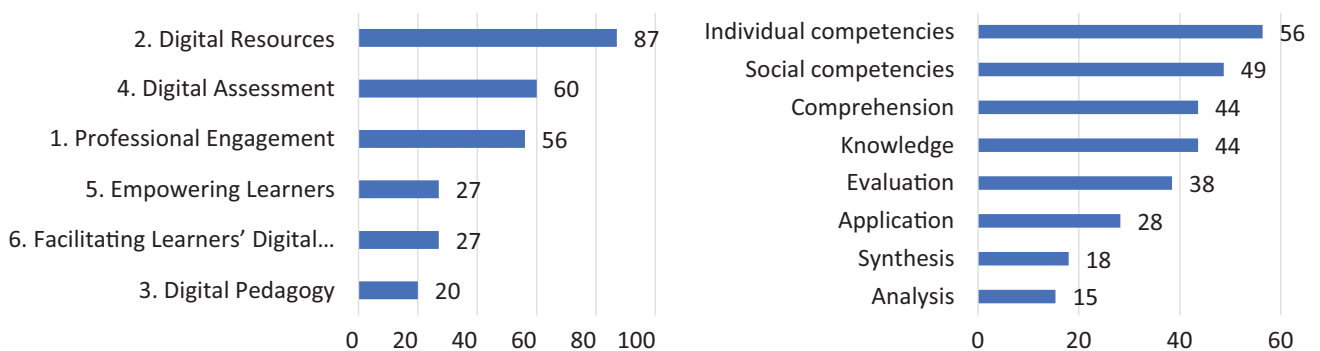


Figure 6. Comparison of the results based on the digital competence in education model and Bloom's taxonomy.

4. Conclusions

This study provides an important insight into the key aspects of digital competence and skills required by journalism professionals that are currently in demand. In addition, the systematic review of the literature that we have carried out in this work has determined which aspects or dimensions of digital competence are being privileged in the last 10 years. The application of the two models recognized by the scientific community of digital competence, such as Bloom's taxonomy (1956) and the DigCompEdu model (Redecker, 2017), has served as a theoretical framework in two ways: to determine the level of digital competence development (Bloom), and identify the dimensions on which greater emphasis is being placed. The value and originality of this work lie in the comparison of both models to extract a holistic view of the new digital competencies demanded by the media outlets, by measuring, at the same time, the areas in which digital competency is specified and its level of development.

Focusing on the characteristics of the works and following the taxonomy of authors such as Pozo et al. (2012), we conclude that the studies in the systematic review aim attention at collecting the opinion of communication professionals (managers, publishers, producers, etc.). Although this could be considered opportune and necessary, the great difference in the results obtained shows a clear tendency to favour the needs of the industry, which can lead to a neglect of the demands and proposals of both students and teachers, ultimately affecting future journalists. Some authors share this concern and demand the development of studies with a perspective focused on other actors in the sector (Tsymbal et al., 2020; van Laar et al., 2020).

These results are further supported by the comparative analysis of digital competence models. The analysis results have shown that there is a high proliferation of studies focused on competencies development related to improving organizational communication and marketing (e.g., Schaich, 2012), establishing networks for professional collaboration (e.g., Josephi, 2019), or making use of reflective practise (e.g., Aceituno et al., 2014; Jiang & Rafeeq, 2019; Macmillan, 2014). On the contrary, neglecting competencies development related to personalizing differentiated learning itineraries and achieving the active participation of professionals, fostering an active and creative commitment (e.g., Reilly, 2018; Robinson et al., 2021; Stoker, 2015). As well as posing challenges that involve the use of technologies to provide answers and promoting the development of digital skills (e.g., Appelgren & Lindén, 2020; Lazo et al., 2020; Saks et al., 2019) linked to aspects of individual and emotional nature: Empowering Learners and Facilitating Learners' Digital Competences dimensions (Green et al., 2017; Peters et al., 2018).

The results of this analysis also show that another of the key aspects found after the literature review

has been to discover that from the point of view of the development of digital competence (according to Bloom, 1956), the studies focus on the most basic levels of digital competence: specifically, the Knowledge and Comprehension levels. These results converge, worryingly, with those of the analysis following the DigCompEdu framework (Redecker, 2017), in which studies focus on the Digital Resources dimension. This may highlight a tendency on the part of the media outlets towards the demand for worker profiles with very specific roles in the mastery and use of digital resources, but without paying special attention to cognitively higher aspects of digital competence (such as the level of Analysis, Synthesis, and Evaluation). These findings coincide with the concern of authors (Alexander & Giarrappa, 2021) who point out, as a general problem, the current trend of university curricula towards a more professionalizing than academic orientation, reducing the distance between the university world and professional training. If this were the case, it might inevitably lead to a proliferation of communication professionals who are very expert in certain tasks, but with a lack of global vision of the environment and with visible skills deficiencies. However, as some authors (Jagannathan et al., 2019; Rainie & Anderson, 2017) have highlighted, this may be a consequence of an increasingly sectorized world of work. It is important to note that current educational models of digital competence raise the alarm that it is as necessary to develop skills related to the use of resources as it is to develop other dimensions of digital competence (linked, as mentioned above, to personal development and personal empowerment, improved well-being, time management, etc.; Schleicher, et al., 2019).

In summary, this article contributes to the field of journalism research by providing a vision of digital competence linked to the current moment of work in the communication sector. Our results bring to light a lack of studies linked to some key aspects of digital competence, especially those related to personal growth, emotional state (Redecker, 2017), and the development of a deep level (Bloom, 1956) of digital competence acquisition. These results may serve to reflect on the need to look at the curricula of journalism and communication degrees and reflect about whether we want to train professionals following the model demanded by the media outlets, or whether we would like to train professionals with a deep level of digital competences. Nevertheless, despite that the DigEduComp framework is a global model, standardized throughout Europe and recognized in many Western countries, the national context could be a key factor that influences the interpretation of the results.

Conflict of Interests

The authors declare no conflict of interests.

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