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(IJMOE)**www.gaexcellence.com/ijmoe**SCREEN TIME AND LEARNING IN DIGITAL
EDUCATION: A BIBLIOMETRIC ANALYSIS OF
RESEARCH TRENDS AND EMERGING THEMES
(2015–2025)**

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Abstract:

This is a bibliometric analysis examining the correlation among screen time, education, and the development of educational media, focusing specifically on the influence of digital media in instructional contexts. In this research, which is based on a Scopus-based analysis of 1,350 documents from 2015 to 2025, the authors used Harzing's Publish or Perish, Open Refine, Microsoft Excel and VOS viewer to map global publication trends, identify key contributors and outline the intellectual and thematic frameworks of the field. A notable increase in the number of studies after 2020, coinciding with the COVID-19 pandemic and the rapid spread of digital education, was observed. Significant contributions came from the educational sciences, psychology and computer sciences, and they came mainly from countries such as China, the United Kingdom and the United States. Digital literacy, media

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education, virtual learning, youth engagement and the cognitive impacts of screen exposure are regarded as key areas of research. And through the network of co-authorship and co-citation, the most influential authors and organizations can be identified, while keyword mapping can show the focus of concepts and the interdisciplinary connections. Despite the growing size of the literature, there are still major gaps in terms of culturally relevant learning, the long-term psychological consequences and the integration of inclusive UI/UX design principles. This research stands as a vital resource for scholars, practitioners and policymakers looking to navigate and contribute to this complex and rapidly changing field.

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Keyword:

Bibliometric Analysis, Digital Education, Digital Media, Screen Time



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Introduction

Digital technology has transformed the teaching of today, opening access to new knowledge and allowing new methods of teaching and learning. But, however, the educational benefits of the introduction of such technology depend on the integration of such tools into the learning environment, and largely on how the teaching and study process are set up (Global Education Monitoring Report Team, 2023). A study of screen time in relation to educational outcomes also points out that the relationship between digital technology and educational outcomes is complex: “The relationship between the duration of exposure to screen-based activities and educational gains is complex, because the purpose, content, context, and type of the activity may influence its effects on learning” (Adelantado-Renau et al., 2019). Recent research on the educational opportunities and developmental risks of digital screen use also highlights the importance of digital literacy and appropriate educational strategies (Caballero-Julia et al., 2024). Also, screen use should be analyzed in relation to the educational context and the way digital technology is arranged and implemented, rather than just duration of exposure.

It is known that the study has shown a relationship between screen duration and learning. Research has associated excessive use of screens, or some kinds of screens, with undesirable educational and psychological outcomes; but the relationship is more nuanced than screen duration alone. In a recent study, for example, a systematic review and meta-analysis has been analyse using the overall duration of screen viewing was not always associated with academic performance; however, certain activities, such as playing games and watching television, were associated with poorer academic performance.

Those studies suggest that screen use should be viewed in its context and modes of use, and not just as a matter of duration. In education, this distinction is of particular importance, as it can be used to teach, while at the same time it can lead to harmful effects through excessive or problematic use. This tension underlines the importance of a thorough examination of the design and use of digital learning environments and suggests that they should not be seen as purely separate domains.

The present study uses bibliometrics to map the development of research on screen use, learning, and digital education from 2015 to 2025, and outlines the trends in publications, as well as the number of citations, the distribution of works, and the development in the area of scientific topics. It includes the number and scope of publications, the most cited authors and papers, and those who are involved in the literature; as such, it presents a summary of the field of research, with a description of the areas which require further research (Donthu et al., 2021). This study also examines the publication patterns, the top cited articles and papers of the UI/UX, digital literacy, and other educational areas; it asks whether this literature highlights and emphasizes the conceptual and empirical relationships between problematic screen use and learning, the occurrence of new themes in the field, and whether it is consistent with the empirical results from previous studies. It combines a performance analysis with scholarly mapping, combining the characterization of research components and examining relationships among these components, in order to give a structured overview of the development and identify the areas for further empirical research. In addition, network visualization in VOSviewer supports the identification of relationships between authors, citations, and keywords within the literature (van Eck & Waltman, 2010).

Thus, what are the most common themes and frameworks found in the literature on the topic of screen addiction, learning tools, and the digital curriculum? Who are the major authors, organizations, and countries that shape the area? How have the priorities of research changed over time and what new directions are emerging? These enquiries aim to clarify the historical development and prospective advancements of academic endeavours within this interdisciplinary realm.

The next sections of this paper review the relevant literature, discuss bibliometric methods, present performance and network analyses, discuss the results and their implications, and end with limitations and future research avenues.

Literature Review

Its significance is controversial. The existing evidence is constrained by the inadequacy of the metrics commonly used to measure screen usage, which mainly rely on proxy or self-reported data that are recognized for their inaccuracies and biases (Beynon et al., 2024). Recent research is therefore increasingly focusing on the effects of digital learning platforms, media literacy, and educational design.

The greatest and most powerful system is useless unless it can be understood and used easily by individuals. This is where human-computer interaction becomes very important, as it helps grasp the needs of people and develop user interfaces that meet their specifications (Iskhat Begum, 2014). Similarly, another important question is how effectively the systems engage with people and how their use influences their future. The features which encourage the continuation of use are potentially detrimental to the well-being of digital users, and it is

therefore essential to investigate the relationship between UI/UX, learning effectiveness, and responsible engagement.

In accordance with Passas (2024), bibliometrics is the systematic investigation of scientific literature with the aim of identifying the most important trends, most influential authors, and most recent developments within a certain scientific field. The field is highly dispersed over education, psychology, media science, health, and computing, making it difficult to define its main themes, the most influential writers, and the most promising emerging trends. Bibliometric analysis is thus appropriate for revealing the intellectual and thematic structure of this interdisciplinary field.

Research can and must focus more on the empirical evaluation of a set of digital tools and strategies for well-being. Future research should also integrate learning and psychological theories into UI/UX studies.

Methods

Bibliometrics and science mapping are the most efficient means to analyse large quantities of scientific literature. They allow the researcher to identify the trends in publication, the current topics, the scholarly leaders, and the new fields of research (Donthu et al., 2022; Aria and Cuccurullo, 2017). Using the extensive Scopus bibliographic database, we analysed primarily the articles, paying particular attention to their subject, their language, their citations, their authors, their organizations, and their countries. VOSviewer permitted us to build bibliometric networks with co-authorship, co-citation, and textual co-occurrence, as well as to draw up a map of connections, links, and new themes.

In the present study, bibliometric methods are combined with literature review, data cleansing, descriptive statistical evaluation, and network visualization using VOS Viewer. This approach provides the means to characterize the volume of publications and the interconnections between them according to authors, citations, keywords, and thematic associations. According to the views of Van Eck & Waltman (2010) and Aria & Cuccurullo (2017), it gives an opportunity to typify the number of published papers and the degree of interconnectedness between them, which are able to characterise the quantity of publications in relation to the connections between them, the authors, the citations, the keywords, and the topical associations.

Data Collection

The review of the studies concerned was based on the notion of the interrelatedness of screen time, digital media, and education, and it was decided to use Scopus as the primary source of data, owing to its broad multidisciplinary coverage. The search was formulated by the PRISMA system (see Figure 1), focusing on the interrelationship of screen time, digital media, and education. The data were selected by applying a combination of terminology relating to screen time and educational and psychological concepts in the search methodology.

As the main source of the bibliography, the most reliable and most comprehensive source of information was Scopus. Scopus is a very complete international indexing system that provides coverage of publications in the areas of education, psychology, communication, and computer science. As this index covers publications in all languages, source categories, document types,

and subjects, the search was done by using article titles. The strategy of the keywords and Boolean strings were carefully designed to include screen exposure and educational frameworks. The Boolean strings used were:

("screen duration" OR "screen engagement" OR "digital content" OR "device interaction")
AND ("education" OR "learning" OR "cognitive function" OR "understanding")

The data collection of the study covers the years from 2015 to 2025, and the collected data are analyzed for bibliometric assessment. The metadata of each article were collected, including the author, the affiliation, the country of origin, the name of the publication, the document type, the title, the keywords, the citations, and abstracts, all of which were subjected to careful and meticulous cleaning and standardization. This process forms a solid foundation for the bibliographical evaluation and the field survey. The comprehensive dataset consisted of 1,350 records.

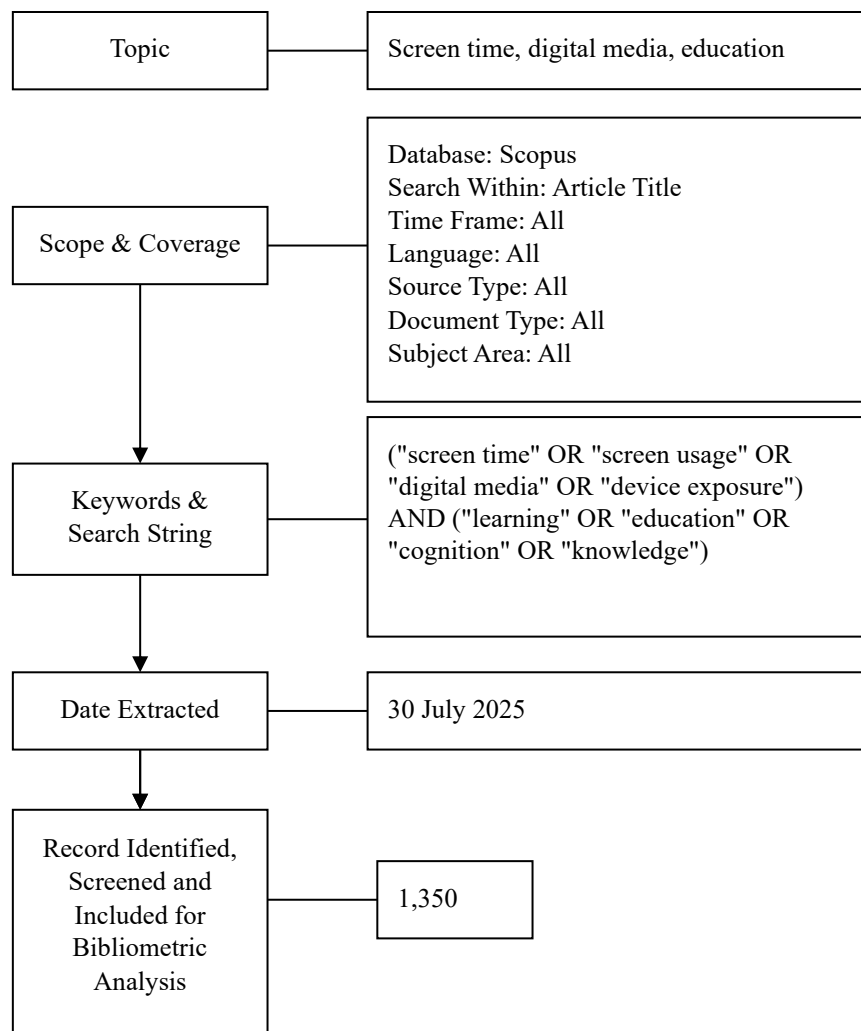


Figure 1. Flowchart Depicting the Research Methodology

Tools

The bibliometric research employed a suite of established tools, namely Harzing's Publish or Perish, OpenRefine, Microsoft Excel, and VOSviewer, to support data cleaning, standardisation, descriptive analysis, citation assessment, and science mapping. Harzing's Publish or Perish (PoP) were used to cross-verify citation metrics and author-level impact indicators, complementing the metadata retrieved from Scopus and providing additional insights into scholarly influence and productivity (Harzing, 2007). OpenRefine supported the cleaning and standardisation of bibliographic data by resolving inconsistencies in author names, institutional affiliations, and keyword spelling variations, which are important steps in reducing fragmentation within bibliometric networks (Verborgh & De Wilde, 2013). Microsoft Excel was used for frequency counts, descriptive statistics, and pivot-table generation. VOSviewer was then employed to construct co-authorship, co-citation, keyword co-occurrence, and term networks, providing visual representations of the intellectual and thematic structure of the field by Van Eck et al, 2010).

Results

Harzing's Publish or Perish is a program that used for cross-checking citation metrics and indicators of academic influence and productivity, complementing metadata obtained from Scopus (Harzing, 2007). OpenRefine facilitated cleaning and standardization of the bibliographic data and, by resolving differences in author names, affiliations, and keyword spelling variations, it improved the comparability of the bibliometric network (Verborgh & De Wilde, 2013). Microsoft Excel was used to count, describe and generate pivot tables. VOSviewer was used to visualize co-authorship and co-citation networks, as well as to construct keyword co-occurrence and term networks, providing visual representations of the intellectual and thematic structure of the field (van Eck & Waltman, 2010).

Documents Profiles

In table 1 shown the summarize of main bibliometric indicators for the 2015-2025 data set. The 1,350 publications accumulated 16,239 citations, averaging 12.03 citations per paper, with a h-index of 55 and g-index of 76 citation. These indicators show a substantial and increasingly visible interdisciplinary literature.

Table 1. Information Of Publication And Data

Information	Data
Publication years	2015 - 2025
Citation years	10
Papers	1350
Citations	16246
Cites Year	1624.6
Cites Paper	12.03

Cites Author	8236.48
Papers Author	716.57
Authors Paper	2.83
h index	55
g index	87

Source: Generated Using Bibliomagika® (Ahmi, 2025)

Publication Trends

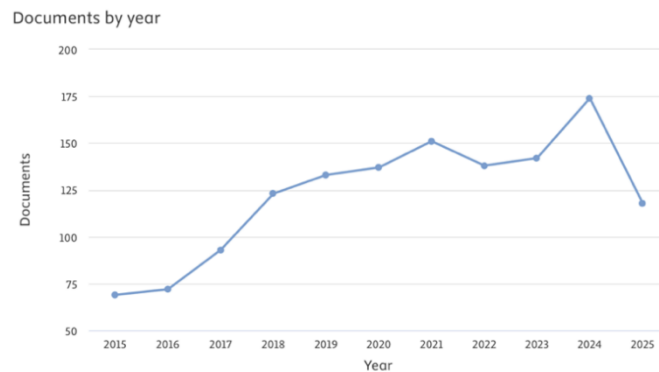
Annually, number of papers has grew from 69 in 2015 to a peak of 174 in 2024, followed by 119 in 2025. The growth was particularly marked from the end of the third year onward and remained at a high level after the pandemic period, reflecting a continuing high level of interest in digital learning and other screen-related matters.

Table 2. Publication Paper by Year

Year	TP	%
2015	69	5.11%
2016	72	5.33%
2017	93	6.89%
2018	123	9.11%
2019	133	9.85%
2020	137	10.15%
2021	151	11.19%
2022	138	10.22%
2023	142	10.52%
2024	174	12.89%
2025	118	8.74%

Notes: TP=total number of publications; %= percentage

Overall, the data in Figure 2 show a growing interest between 2015 and 2025. This shows that the area of screen time, digital media and educational design is becoming more and more interdisciplinary. And therefore, the monitoring of bibliometric indicators will help to detect thematic changes and emerging research.

**Figure 2: Publications Data (2015-2025)**

Source: Generated by Scopus database

Most Productive Authors

Table 3 shows the productive authors. K. A. Mills is the most prolific, with ten articles. He is followed by J. Castek and M. Dezuanni with six (0.44) each, and by the rest, who are all between four and five (0.44%), showing that the writing activity were distributed over the relatively large number of scholars. The strength of the digital literacy and media education scholars reflects the educational and literate antecedents of the field (Mills, 2010; Dezuanni, 2015).

Table 3. Most Active Authors

Author Name	TP	%
Mills, K.A.	10	0.74%
Castek, J.	6	0.44%
Dezuanni, M.	6	0.44%
Manderino, M.	5	0.37%
Alvermann, D.E.	4	0.30%
Botzakis, S.	4	0.30%
Brown, A.	4	0.30%
Cappello, M.	4	0.30%
Hobbs, R.	4	0.30%
Page Jeffery, C.	4	0.30%
Scheiter, K.	4	0.30%
Wargo, J.M.	4	0.30%

Note: TP=total number of publications.

Subject Area Distribution

Social Sciences dominated the dataset with 1,261 publications (93.41%), followed by Arts and Humanities (23.33%) and Computer Science (22.81%). Medicine (12.52%), Psychology (10.15%), and Engineering (8.59%) also contributed substantially, demonstrating the interdisciplinary character of research on screen use, learning, media, behaviour, and technology (Table 4).

Table 4. Subject Area Distribution

Subject Area	TP	%
Social Sciences	1261	93.41%
Arts and Humanities	315	23.33%
Computer Science	308	22.81%
Medicine	169	12.52%
Psychology	137	10.15%
Engineering	116	8.59%
Business, Management and Accounting	50	3.70%
Health Professions	48	3.56%
Decision Sciences	46	3.41%
Environmental Science	42	3.11%
Mathematics	24	1.78%
Energy	24	1.78%
Economics, Econometrics and Finance	16	1.19%
Biochemistry, Genetics and Molecular Biology	8	0.59%
Agricultural and Biological Sciences	6	0.44%
Materials Science	3	0.22%
Multidisciplinary	1	0.07%

Note: Percentages may exceed 100% because publications can be assigned to more than one Scopus subject area.

Document Type

Journal articles dominated the dataset with 1,043 publications (77.26%), followed by conference papers (10.30%) and book chapters (7.11%). Reviews represented 2.81%, while books, notes, editorials, errata, and short surveys collectively accounted for only a small proportion of the corpus (Table 5). This distribution indicates that peer-reviewed journal articles constitute the principal form of scholarly communication within the field.

Table 5. Document Type

Document Type	TP	%
Article	1043	77.26%
Conference Paper	139	10.30%
Book Chapter	96	7.11%
Review	38	2.81%

Book	19	1.41%
Note	11	0.81%
Editorial	2	0.15%
Erratum	1	0.07%
Short Survey	1	0.07%
Total	1350	100%

Notes: TP=total number of publications

Source Title

The first-ranked journal was The Journal of Adolescent and Adult Literacy, which published 107 articles (7.93%), followed by The Reading Teacher, which published 48 articles (3.56%). Notable sources included Sustainability, Chinese Journal of School Health, Computers in Human Behavior, and Journal of Children and Media, showing the journal's distribution across education, literacy, psychology, health, media, and technology (Table 6).

Table 6. Source Title

Source Title	TP	%
Journal of Adolescent and Adult Literacy	107	7.93%
Reading Teacher	48	3.56%
Sustainability Switzerland	21	1.56%
Chinese Journal of School Health	19	1.41%
Computers in Human Behavior	16	1.19%
Journal of Children and Media	14	1.04%
Learning Media and Technology	11	0.81%
Frontiers in Education	10	0.74%
Media and Communication	10	0.74%
BMC Medical Education	9	0.67%
Comunicar	9	0.67%
International Journal of Emerging Technologies in Learning	9	0.67%
Proceedings Frontiers in Education Conference Fie	9	0.67%
British Journal of Educational Technology	8	0.59%
Computers and Education	8	0.59%
E Learning and Digital Media	8	0.59%
Profesional De La Informacion	8	0.59%

Most Active Institutions

Table 7 shows the institutions most active in the field of screen time, digital media, and education. The most active is the Australian Catholic University, with 15 publications (1.11%), followed by the Queensland University of Technology, with 14 publications (1.04%), and the Arizona State University, which has 13 publications (0.96%). The University of Tennessee, Knoxville and the University of Tübingen each contribute 10 (0.74%) publications, as well as a number of other institutions from Australia, North America and Europe, with between seven

and nine publications. In general, research is geographically distributed, but not consolidated in a single system.

Table 7. Most active institutions

Institution	TP	%
Australian Catholic University	15	1.11%
Queensland University of Technology	14	1.04%
Arizona State University	13	0.96%
The University of Tennessee, Knoxville	10	0.74%
Eberhard Karls Universität Tübingen	10	0.74%
The University of Arizona	9	0.67%
University of Toronto	9	0.67%
The University of Sydney	9	0.67%
University of Georgia	9	0.67%
Pennsylvania State University	8	0.59%
University of California, Irvine	8	0.59%
RMIT University	8	0.59%
University of Wollongong	8	0.59%
University of Michigan, Ann Arbor	8	0.59%
Johannes Gutenberg-Universität Mainz	8	0.59%
Griffith University	8	0.59%
Helsingin Yliopisto	7	0.52%

Most Active Countries

Table 8 shows the geographical distribution of the papers and the country-level contributions to research on screen time, digital media, and education, reflecting the global and interdisciplinary nature of the field. The United States has the highest proportion of 399 articles (29.56 per cent), followed by Germany with 8.07%, Australia 7.93% and the United Kingdom 7.85%, while China ranks fifth with 80 publications (5.93 per cent). This distribution shows that the field is predominantly located in countries with long-standing traditions of research, although contributions from Asian and Global South countries show increasing geographical diversity in the field, which points to the relevance of screen-based learning issues in the light of different cultural, technological and educational contexts. This also points to the need for increased cross-national collaboration and comparative research.

Table 8. Most Active Countries

Country	TP	%
United States	399	29.56%
Germany	109	8.07%
Australia	107	7.93%
United Kingdom	106	7.85%

China	80	5.93%
Spain	56	4.15%
Canada	54	4.00%
India	37	2.74%
Brazil	36	2.67%
Indonesia	36	2.67%
Portugal	26	1.93%
Italy	25	1.85%
Sweden	23	1.70%
Russian Federation	22	1.63%
Malaysia	21	1.56%
Thailand	20	1.48%
Singapore	18	1.33%

Source Type

The distribution of source types is presented in Table 9. Journals dominate the field with 1,091 publications (80.81%), representing the main channel for the communication of research results, theoretical developments, and systematic reviews in the interdisciplinary field of digital media and education (Donthu et al., 2021). Conference proceedings represent the second largest group with 139 articles (10.30%), and the presence of these articles in the field is partly due to the rapid development of educational technology and human-computer interaction, where research results and technological innovations are often published before they are submitted to a journal (van Eck & Waltman, 2010). Books constitute 95 publications (7.04%), and they mainly discuss the theoretical, contextual, and policy issues associated with digital media in education (Ellegaard & Wallin, 2015). The smaller series of 25 books (1.85%) represents a distinct group of publications in the field, and they are relevant to the field in that they gather interdisciplinary perspectives on issues such as digital pedagogy and media literacy.

Table 9. Source TYPE

Source Type	TP	%
Journal	1091	80.81%
Conference Proceedings	139	10.30%
Book	95	7.04%
Book Series	25	1.85%
Total	1350	100%

Languages

Table 10 illustrated the linguistic distribution of publications on digital media, education and learning, confirming the strong dominance of English in the dissemination of knowledge. Of 1,350 publications, 1,248 (91.29%) were in English, reflecting the fact that English is the main international language of communication in the field of education, media and human-

technology interaction (Ammon, 2012). The second most common language was Spanish, with 44 articles (3.22%), which clearly showed the presence of the scientific community from the Spanish-speaking countries, and then Chinese (1.61%), German (1.32%), and Portuguese (0.95%). The rest of the languages, such as Russian (0.51%), Croatian, French, and Italian (0.22% each), and Polish, Bosnian, Korean, Slovak, and Turkish (all 0.07%), further suggest a wide range of interlingual studies and publications. It has been observed that the number of articles written in languages other than English was low. However, these non-English studies offered culturally and geographically sensitive perspectives on the use of screens and educational practices (Tardy, 2004). This points to the challenges of linguistic diversity, accessibility, and inclusivity within global scholarly communication (Van Weijen, 2012).

Table 10. Languages

Language	TP	%
English	1248	91.29%
Spanish	44	3.22%
Chinese	22	1.61%
German	18	1.32%
Portuguese	13	0.95%
Russian	7	0.51%
Croatian	3	0.22%
French	3	0.22%
Italian	3	0.22%
Polish	2	0.15%
Bosnian	1	0.07%
Korean	1	0.07%
Slovak	1	0.07%
Turkish	1	0.07%

Highly Cited Papers

Table 11 shows the most cited publications in the field of research on screen time, media use and education design, which underlines the interdisciplinary nature of the field. Alobaid (2025) was cited 357 times and proposes a pedagogical framework for strengthening digital multiliteracies among university students. Next, with 336 citations, Nagel and Zlatkin-Troitschanskaia (2025) explored how critical information literacy could improve students' ability to recognise misinformation and debunk untrue arguments in the online world. Mayen et al. (2025) drew 244 citations by examining the effect of adolescents' engagement with social media on learning and academic performance. The study was also highly cited. In addition, Gao et al. (2025), which focused on the educational integration of digital media in medical education with 220 citations, Qaggaduma et al. (2025), which addressed the learning of climate change through YouTube with 220 citations, and Rho et al. (2025; 218 citations), who trained students to recognize misinformation by using data visualization. Still other highly referred to papers explored the effects of YouTube consumption on mindfulness and well-being, aesthetics and education, as well as interactivity and vocabulary learning. These highly renowned papers also reflected the increasing scholarly attention that has been paid to digital literacy, academic

performance, media education, misinformation, well-being, and the educational, psychological, and socio-cultural dimensions of digital-media use.

Table 11. Highly cited papers

Authors	Year	Title	Source	Cites
A. Alobaid	2025	A didactical framework for raising awareness of digital multiliteracies among university students: objectives, expectations and challenges	Discover Education	357
M.-T. Nagel, O. Zlatkin-Troitschanskai a	2025	The competence to deal critically with online information among economics education students and teacher trainees in economics: implications for teacher training	Empirical Research in Vocational Education and Training	336
S. Mayen, A. Reinhardt, C. Wilhelm	2025	The complexities of digital media use in adolescents learning and academic performance: An experience sampling study	Computers and Education	244
Y. Gao, L. Zhu, M. Tian	2025	SWOT analysis of the application of three digital media in OLPE physical education teaching: Edmodo, Zoom, and Google Meet	BMC Medical Education	220
E.C. Ogadimma, S.H. Raza, A.A. Shah, S. Khan, S. Riaz, M. Alkhowaiter, S.U. Khan	2025	Exploring the connection between sustainable behaviors Recycle, reuse, and reduce and digital media framing in climate change Youtube Vodcasts	Sustainable Futures	220
J. Rho, M.A. Rau, X. Zhu	2025	Inoculating students against misleading data visualizations with perceptual training and informative feedback	Computers and Education	218
S. Eom, J. Park, E. Choi, J. Park, S. Kim	2025	How do users contribute to YouTube channels revenue? An empirical analysis of Korean beauty channels	Computers in Human Behavior	165
S. Wang, C. Jin	2025	Supportive teachers, thriving students: Mindfulness, self-efficacy, and media engagement as pathways to well-being	Acta Psychologica	163
M.W. Al-Quran, P. Moreno-Espinosa	2025	An Exploration into the Contemporary Development in the Realm of Aesthetic Education from the Perspective of New Media	Studies in Media and Communication	162
T. Sathyaseelan,	2025	Enhancing Students Vocabulary Learning Through Interactive Digital	World Journal of English Language	162

R. Pettela, M. Ramesh, S. Muralikrishnan, K. Savitha, L. Oli		Media: Learners Perceptions and Outcomes		
E.C. Gargroetzi, L.M. Zummo, A.R. Aguilar, E.P. Bene	2025	Quantitative civic literacies: Let's talk about election 2020 and youth use of numbers in digital civic media	Journal of Mathematical Behavior	157
S. Thammaratthara, S. Boonlue, S. Maneewan, K. Thamwipat	2025	Developing a Phenomenon-Based Learning Model Utilizing Digital Media on the LINE OA Application	Studies in Media and Communication	155
K. WarchaÅ,	2025	Facts, hopes, and fears: Recontextualising experimental drug results for diverse audiences	Discourse, Context and Media	142
M.L. van Moort, A. de BruÅne, P. van den Broek	2025	Reading Comprehension in an Online World: Challenges, Opportunities, and Implications for Education	Reading Teacher	125
H.L. Bradshaw-Beaumont	2025	Reimagining cultural identity through art: Integrating black artistic expression and innovation into curricula to enhance engagement	The Reclamation of Black Lives Matter in Education	125
C. Hillerdal, A. Watterson, L.A. Strunk, J.N. Cleveland, J. Anderson	2025	Nunalleq Digital Museum: Multivocal narration of a Yup'ik past	Antiquity	122
A. Tawiah	2025	Social Media Campaign Strategies: A Case Study of Political Issue Framing by 2024 Presidential Candidates in Ghana	Journalism and Media	119
X. Wang, W. You, W. Cao, H. Wang, M. Chen, R. Luo, T. Yang, Y. Liu, H. Pan, J. Zhang, Q. Gan, P. Xu, Q. Zhang, J. Xu	2025	Analysis of health-related lifestyles among primary and secondary school students in nutrition improvement program regions of China between 2021 and 2023	Chinese Journal of School Health	112
Y. Tong, Z. Zhang, Y. Wang	2025	Making Rural Elites: Empowerment of Chinese Rural Public Affairs Live Streamers on Short Video Platforms	Journalism and Media	112

B. Pyne, O. Asmara, A. Morawska	2025	The Impact of Modifiable Parenting Factors on the Screen Use of Children Five Years or Younger: A Systematic Review	Clinical Child and Family Psychology Review	108
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Co-authorship Analysis

Figure 3 is a network of the relations between the authors. The nodes represent authors, the edges the links. The size of the nodes is related to the importance of the respective authors in the network and are defined by the relationships between the node (van Eck and Waltman, 2010). The network is divided into thematic networks on the themes of media literacy, child development, behaviorism and educational technology. In short, it shows that research on this subject is very interdisciplinary and involves the disciplines of education, psychology, communication, health and media.

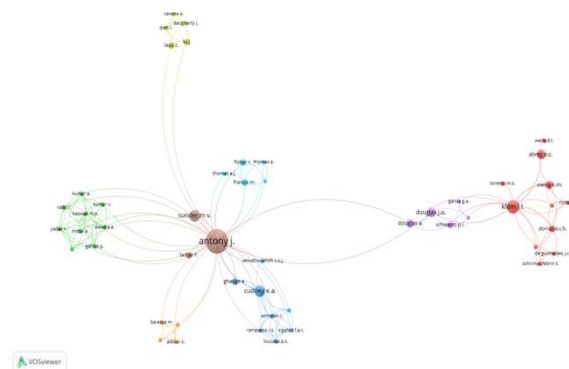


Figure 3: Co-authorship Analysis

Source: Generated using VOSviewer

Co-occurrence of Keywords

Figure 4 displays a keyword co-occurrence network created with VOSviewer, highlighting the principal themes in the study of digital media and literacies. Commonly appearing keywords are organised into thematic categories that illustrate the conceptual framework of the discipline (van Eck & Waltman, 2010). The crimson cluster focuses on digital media and encompasses terms like students, online education, virtual reality, learning, and critical analysis, highlighting a significant focus on the use of digital settings in academic situations. The blue cluster emphasises digital and media literacies, encompassing instructional technologies, teacher training, methodologies, and critical literacy. The green cluster highlights media utilisation tailored to certain age groups, pedagogical approaches, student involvement, and subject-oriented education, signifying a thematic focus on the developmental and curricular integration of digital technology. The yellow cluster encompasses visual literacy, music, adolescence, and policy, reflecting cultural, creative, and institutional viewpoints on digital literacy. The network exemplifies the multifaceted character of digital literacy research spanning pedagogy, cognition, culture, technology, and policy.

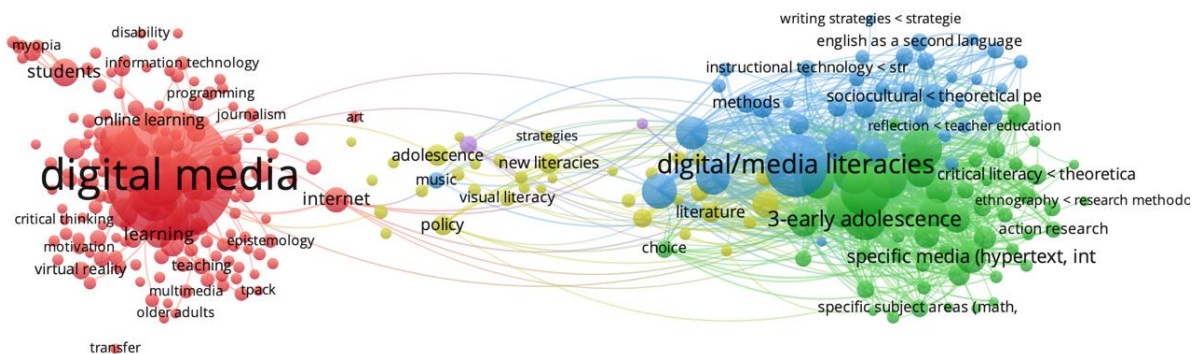


Figure 4: Keyword Co-occurrence Network

Source: Generated using VOSviewer

Co-citation by Cited Authors

As shown in Figure 5, the intellectual structure of the research on digital media, literacy and education consists of a network of thematic clusters: red, blue, green, and yellow. In the red cluster are authors associated with media literacy, participatory culture, youth digital engagement, and critical digital education, the blue cluster with work on early childhood development and the cognitive implications of digital media exposure, the green cluster with screen use, behavioural development, psycho-social outcomes, and public health, the yellow one with educational technology, teacher competencies, and the use of technology in teaching. Thus, the co-citation analysis provides a multidisciplinary network, including media studies, education, developmental psychology, behavioural research, public health and educational technology.

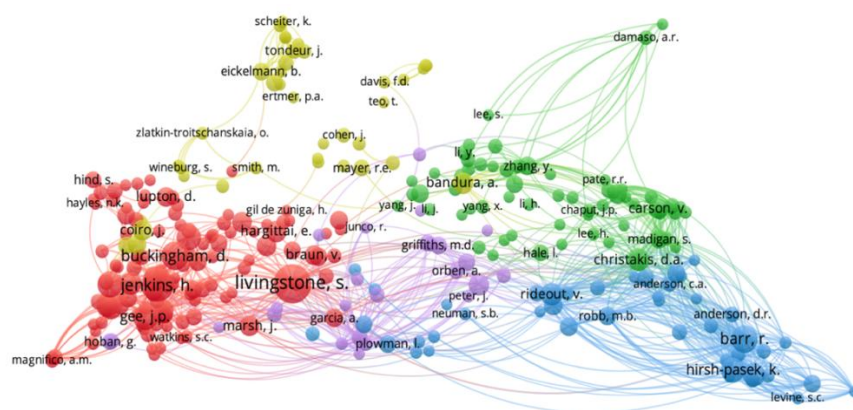


Figure 5: Co-citation by Cited Authors

Source: Generated by using VOSviewer

Network Visualisation of Terms in Titles and Abstracts

Figure 6 shows the network of terms, obtained from the titles and abstracts of the articles using binary counting in VOSviewer. The node size represents the frequency of the terms, and the connections between the nodes represent the strength of the relationship (van Eck & Waltman, 2010). The red cluster represents theoretical and conceptual research and contains terms such as concept, text, reflection, discourse and audience. These terms relate to meaning making and

sociocultural interpretations of digital practices. The green cluster is about children's interaction with digital media, and contains words such as child, parent, screen time, health, age, and questionnaire, together with developmental and health-related indicators. The orange cluster is about educational applications, and consists of terms such as instruction, learner, college, faculty, and digital competence. In sum, the network presents an interdisciplinary research landscape connecting conceptual perspectives, child development, health outcomes, digital competence, and educational applications.

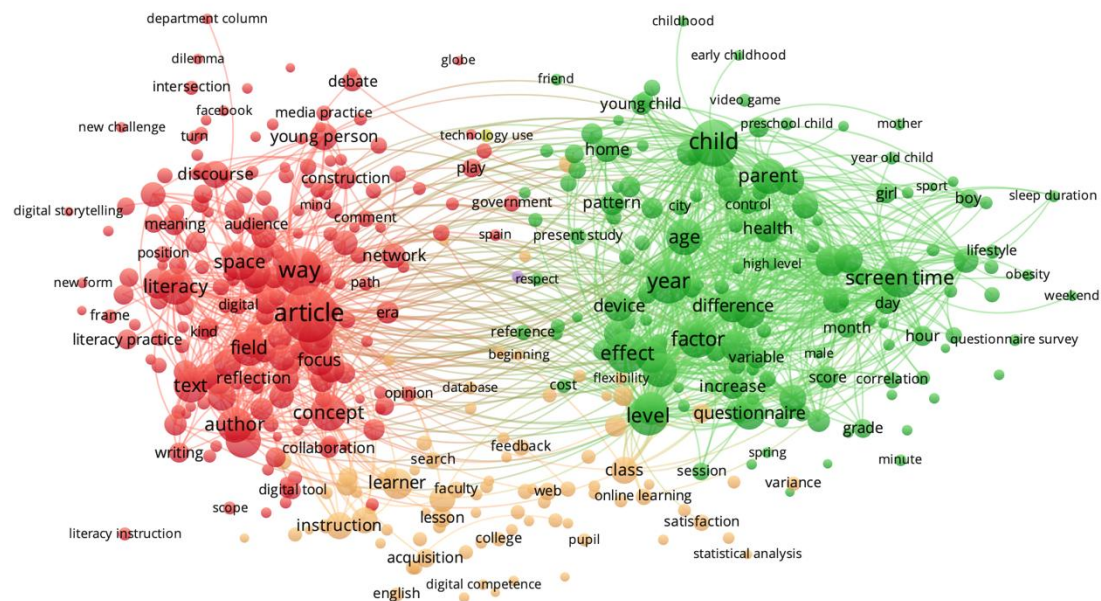


Figure 6: Network Visualization in Titles and Abstracts (Binary Counting)

Source: Generated by the authors using VOSviewer

Discussion

The bibliometric data show a growing and interdisciplinary field of research on the digital. The publications from the field of digital media, largely educational, social and psychological sciences, but also from the fields of information technology, medicine, and media sciences are strongly represented in the subject-, country-, and country-related distributions. This indicates that the main concern for the centrality of digital learning is the concern for excessive and problematical screen time. Productivity and influence are distributed among a large international network of institutions and authors and are not concentrated in a single research area.

The network analysis shows that the digital and media literacy, the behavioural and developmental effects of the screen exposure, the didactical potential and practice of the digital environment form the central topics of this field. The United States and other established scientific research systems are found in this field together with increasing contributions from Asia and the rest of the world, which points to an increasing acceptance of the problems posed by the screen in education. The number of citations between the disciplines increases, but UI / UX and intervention are less often cited than more general issues relating to digital media and learning.

These patterns can be explained in terms of the rapid digitalization of education, especially since the outbreak of COVID-19. When education moved to digital devices more and more, the emphasis of research turned from questions of access and media literacy towards questions of attention, well-being, learning, and responsible design. The results support the need for research that considers how the design of an educational app can encourage and support a meaningful learning experience without being compelled to play a game.

Implications for Practice

Our bibliometric study is aimed at helping educators, programmers, and policymakers by identifying key trends and knowledge gaps concerning screen use and educational interface design. For the field of educational technology, the data suggest that clear navigation, manageable information density, meaningful engagement, and age-appropriate interactivity are critical features of educational interfaces. Finally, policymakers and educational institutions can implement evidence-based digital well-being initiatives, which include appropriate guidelines for screen use, active learning strategies, and digital resilience initiatives.

The study also underscores the importance of digital literacy, civic engagement, misinformation awareness, inclusiveness, and equitable access when building contemporary learning environments. The implications reported here should be interpreted as directions suggested by the mapped literature rather than as interventions directly tested by the present bibliometric study.

Recommendations for Future Research

Hence, we recommend that future research focus on developing UI/UX solutions to prevent digital distraction and unwanted mental activity in digital educational systems. Specifically, longitudinal and experimental research is required to determine how design features such as directed navigation, reflective prompts, rest reminders, and bounded content flows can influence learning and digital well-being. In addition, the research should examine the effects on the mind and emotions of the participants of different learning groups and contexts, such as cultural and social variations.

This comparison will help determine the effects of the interfaces on engagement. Because the focus of the literature map on UI/UX is relatively low, more specialized research should be done on learning science, psychology and digital well-being. This work will show that engagement can be designed ethically rather than unthinkingly increased.

To conclude, we must do more research on digital and media literacy, in particular on the learners' ability to evaluate online information, such as information filtered through algorithms, as well as the misleading and false content that are becoming more common in educational interfaces. We also need to study the relationship between intensive screen use, well-being and learning, and distinguish between intensive learning and recreation. All this requires interdisciplinary collaboration and solid methodology that combines observable outcomes with specific features of the learning interface and the curriculum.

Conclusion

The paper presents the results of the bibliometric study conducted on the subject of the use of screens in education, which was conducted on a worldwide scale from 2015 to 2025. This analysis of publications, particularly marked by a notable increase following 2019. The study mainly involves English-language papers, which come from a variety of academic disciplines, including education, social science, IT, psychology, medicine and media studies.

The clusters of the studies on scientific knowledge map revealed intellectual clusters dealing with digital and media literacy, developmental and behavioural outcomes associated with screen time, learning technology and teaching methods. The cluster diagrams showed the interdisciplinarity of the field of science and the importance of interface design as an important subject of study. The frameworks point out the growing integration of disciplines, but they also show the lack of research into the UI and UX strategies to foster the balance between engagement, education and digital well-being.

It is thus important to take into account not only the access to and use of these tools, but also how the design choices make them a source of attention, of concentration, of learning and responsible use of the screen. The limitations of the study are due mainly to the limitations of Scopus and the bibliometric metrics and keywords employed to define the corpus, which may have resulted in excluding research from other sources, in other languages, using other words. Another limit relates to the bibliographical methodology. The search strategy spanned a large field of screen use, including terms like “screen time”, “screen use”, “digital media” and “device exposure”, and therefore the corpus should not be interpreted as a survey of studies of addiction to screens, but instead of being a study of the literature on excessive or problematic use of screens, it is part of a much larger discussion about screen use in education.

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References

- Adelantado-Renau, M., Moliner-Urdiales, D., Cavero-Redondo, I., Beltran-Valls, M. R., Martínez-Vizcaíno, V., & Álvarez-Bueno, C. (2019). Association between screen media use and academic performance among children and adolescents: A systematic review and meta-analysis. *JAMA Pediatrics*, 173(11), 1058–1067. <https://doi.org/10.1001/jamapediatrics.2019.3176>
- Ammon, U. (2012). Linguistic inequality and its effects on participation in scientific discourse and on global knowledge accumulation—With a closer look at the problems of the second-rank language communities. *Applied Linguistics Review*, 3(2), 333–355. <https://doi.org/10.1515/applirev-2012-0016>
- Aria, M., & Cuccurullo, C. (2017). bibliometrix: An R-tool for comprehensive science mapping analysis. *Journal of Informetrics*, 11(4), 959–975. <https://doi.org/10.1016/j.joi.2017.08.007>
- Beynon, A., Hendry, D., Lund Rasmussen, C., Rohl, A. L., Eynon, R., Thomas, G., Stearne, S., Campbell, A., Harris, C., Zabatiero, J., & Straker, L. (2024). Measurement method options to investigate digital screen technology use by children and adolescents: A narrative review. *Children*, 11(7), 754. <https://doi.org/10.3390/children11070754>
- Caballero-Julia, D., Martín-Lucas, J., & Andrade-Silva, L. E. (2024). Unpacking the relationship between screen use and educational outcomes in childhood: A systematic literature review. *Computers & Education*, 215, 105049. <https://doi.org/10.1016/j.compedu.2024.105049>
- Dezuanni, M. (2015). The building blocks of digital media literacy: Socio-material participation and the production of media knowledge. *Journal of Curriculum Studies*, 47(3), 416–439. <https://doi.org/10.1080/00220272.2014.966152>
- Donthu, N., Kumar, S., Mukherjee, D., Pandey, N., & Lim, W. M. (2021). How to conduct a bibliometric analysis: An overview and guidelines. *Journal of Business Research*, 133, 285–296. <https://doi.org/10.1016/j.jbusres.2021.04.070>
- Ellegaard, O., & Wallin, J. A. (2015). The bibliometric analysis of scholarly production: How great is the impact? *Scientometrics*, 105(3), 1809–1831. <https://doi.org/10.1007/s11192-015-1645-z>
- Global Education Monitoring Report Team. (2023). *Global education monitoring report 2023: Technology in education—A tool on whose terms?* UNESCO. <https://doi.org/10.54676/UZQV8501>
- Harzing, A.-W. (2007). *Publish or Perish*. Harzing.com.
- Ishrat Begum. (2014). HCI and its effective use in design and development of good user interface. *International Journal of Research in Engineering and Technology*, 3(Special Issue 3), 176–179.
- Mills, K. A. (2010). A review of the “digital turn” in the New Literacy Studies. *Review of Educational Research*, 80(2), 246–271. <https://doi.org/10.3102/0034654310364401>
- Passas, I. (2024). Bibliometric analysis: The main steps. *Encyclopedia*, 4(2), 1014–1025. <https://doi.org/10.3390/encyclopedia4020065>
- Tardy, C. (2004). The role of English in scientific communication: Lingua franca or Tyrannosaurus rex? *Journal of English for Academic Purposes*, 3(3), 247–269. <https://doi.org/10.1016/j.jeap.2003.10.001>
- van Eck, N. J., & Waltman, L. (2010). Software survey: VOSviewer, a computer program for bibliometric mapping. *Scientometrics*, 84(2), 523–538. <https://doi.org/10.1007/s11192-009-0146-3>

- van Weijen, D. (2012). The language of (future) scientific communication. *Research Trends*, 31.
- Verborgh, R., & De Wilde, M. (2013). *Using OpenRefine*. Packt Publishing.