International Journal of Recent Development in Engineering and Technology
Website: www.ijrdet.com (ISSN 2347-6435 (Online) Volume 15, Issue 03, March 2026)

# Exploring Research Trends in ICT in Education: A Decadal Thematic Analysis

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***Abstract*-- This study examines the research trends in Information and Communication Technology (ICT) in education by analyzing studies published between 2012 and 2021. The analysis focuses on the major areas or themes of research and explores the research objectives, methodologies, and key findings reported in the selected studies. The study adopts a two-phase analytical approach. In the first phase, the overall research trends in ICT in education are presented through diagrams, graphs, and visual representations to illustrate the distribution and frequency of different research themes during the selected period. In the second phase, each identified area or theme is examined in detail, highlighting the specific research objectives, research methods adopted by the scholars, and the major findings derived from the studies. The research studies included in this analysis were selected from technology and education-based journals that meet specific criteria, including publication by trusted publishers, high impact factor, recognized indexation, and consistent publication between 2012 and 2021. Both national and international journals were considered to ensure a comprehensive understanding of the field. Finally, the study identifies the existing research gaps within each theme and suggests possible directions for future research in the domain of ICT in education, contributing to a deeper understanding of emerging trends and priorities in educational technology research.**

***Keywords*- ICT in Education, Research Trends Analysis, Educational Technology, Thematic Analysis, ICT Integration in Education, Research Methodology in ICT Studies, Educational Research Trends, Research Gaps in ICT in Education.**

## I. INTRODUCTION

Information and Communication Technology (ICT) has become an integral part of modern education and plays a significant role in transforming traditional teaching–learning practices. The rapid development of digital technologies, the expansion of internet connectivity, and the increasing availability of digital learning resources have created new opportunities for improving the quality and accessibility of education. ICT tools such as computers, mobile devices, interactive platforms, learning management systems, and online resources have enabled more flexible, interactive, and learner-centered approaches to education.

As a result, educational institutions and policymakers across the world are increasingly emphasizing the integration of ICT in teaching, learning, assessment, and educational management. The integration of ICT in education has also attracted significant attention from researchers. Over the past decade, numerous studies have explored different aspects of ICT use in educational settings. These studies have examined themes such as ICT integration in classroom teaching, digital pedagogy, e-learning and blended learning environments, teacher professional development in ICT, students' digital literacy, and the impact of technology on student engagement and learning outcomes. In addition, research has also focused on issues such as access to technology, challenges in ICT implementation, and the role of ICT in promoting inclusive and collaborative learning environments. The increasing number of research studies in this field highlights the growing importance of understanding how ICT can effectively support and enhance educational processes. However, the rapid growth of literature in ICT in education makes it necessary to analyze the trends and patterns of research in a systematic manner. Trend analysis helps in identifying the major areas or themes that have received attention from researchers, the research objectives that guide these studies, the methodologies adopted, and the key findings that contribute to the development of the field. Such an analysis also helps in understanding the shifts in research focus over time and identifying areas that require further investigation.

In this context, the present study aims to analyze the research trends in ICT in education between 2012 and 2021 by examining studies published in technology and education-based journals. The study focuses on identifying the major areas or themes of research and analyzing the research objectives, methodologies, and findings reported in these studies. The selected studies are drawn from journals that meet specific criteria, including publication by trusted publishers, recognized indexation, high impact factor, and consistent publication during the selected period. Both national and international journals are considered to ensure a comprehensive representation of research in the field. The study is conducted in two phases.

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In the first phase, the overall trends of research in ICT in education are presented with the help of diagrams, graphs, and visual representations to illustrate the distribution and frequency of different research themes during the selected period. In the second phase, each identified theme is examined in detail, focusing on the research objectives, methodological approaches, and major findings of the studies. Finally, the study identifies the research gaps within each theme and suggests directions for future research, thereby contributing to a deeper understanding of emerging trends and priorities in ICT in education research.

## II. Research Methodology

The present study adopts a systematic literature review approach to analyze research trends in Information and Communication Technology (ICT) in education between 2012 and 2021.

Research articles were selected from technology and education-based journals published by trusted publishers with recognized indexation and high impact factors at both national and international levels. The selection of studies followed specific inclusion criteria, including relevance to ICT in education and continuous publication during the selected period. The analysis was conducted in two phases. The first phase presents overall research trends through diagrams and graphs, while the second phase provides a thematic analysis of the studies based on research objectives, methodology, findings, and identified research gaps.Criteria for Selection of Research Studies The research studies are selected based on the following guidelines: Universe: Technology and education-based journals only, good quality (trusted publishers), reach of the journals (indexation & high impact factor), both international & national level journals, publishing since at least the last 10 years (2012-2021).

**Table: 1**

| Title | Publisher | Impact Factor | Indexation | Frequency | UGC List |
|---|---|---|---|---|---|
| **British Journal of Educational Technology** | Wiley | 4.929 | Scopus + 27 indexes | Bimonthly | Yes |
| **Computers and Education** | Elsevier | 8.538 | Scopus + 27 indexes | Monthly | Yes |
| **Educational Technology Research and Development** | AECT - Springer | 4.5 | Scopus, DOAJ, JSTOR, SSCI, ProQuest, ERIC, EBSCO, Norwegian Register for Scientific Journals and Series, UGC Care, etc. | Bimonthly | Yes |

**Table: 2**

| Phase 1 | Phase 2 |
|---|---|
| Articles published in the last decade | In-depth analysis of every theme |
| Geographical distribution of publication counts & Research hotspots | |
| Areas (themes) being researched | |
| Overall decadal distribution of themes | |

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*Phase 1*

*Number of papers published in journals of ICT in education during last 10 years*

**Table: 3**

| Name of Journal | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| British Journal of Educational Technology | 108 | 121 | 80 | 118 | 91 | 105 | 99 | 185 | 140 | 149 | 1196 |
| Computers & Education | 238 | 287 | 218 | 235 | 161 | 147 | 212 | 198 | 227 | 186 | 2109 |
| Educational Technology Research and Development | 55 | 46 | 37 | 43 | 61 | 70 | 71 | 67 | 150 | 204 | 804 |
| **Total** | 401 | 454 | 335 | 396 | 313 | 322 | 382 | 450 | 517 | 539 | 4109 |

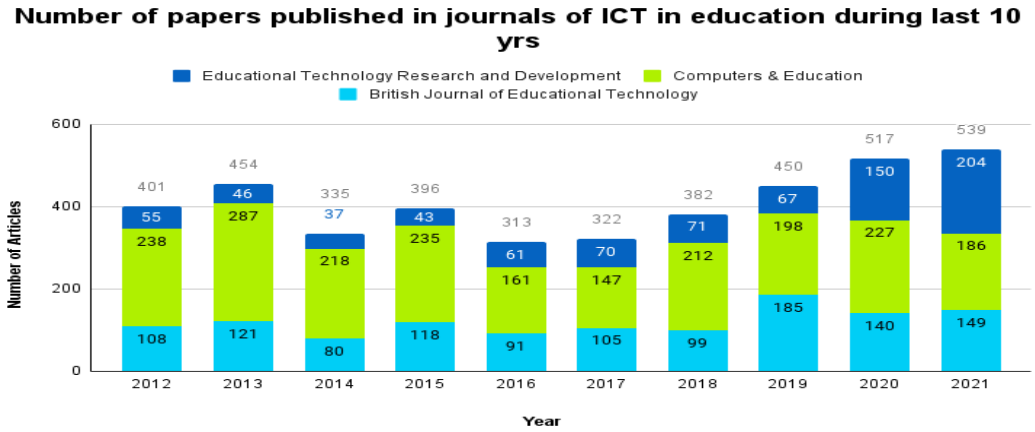


**Figure: 1**

*Research Hotspots*

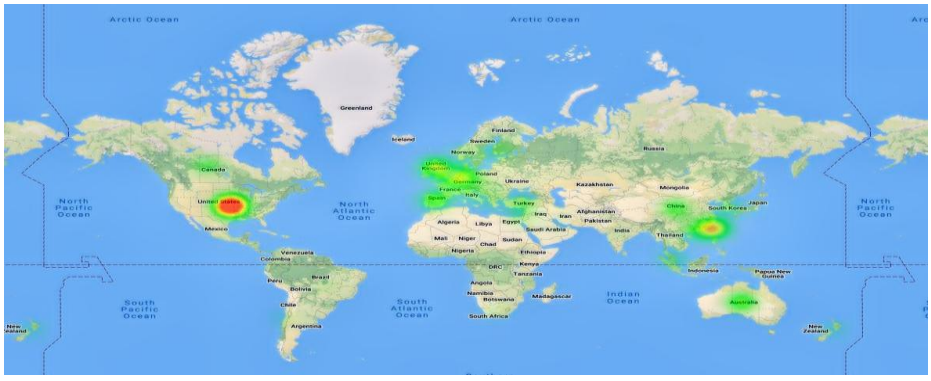


**Figure: 2**

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*Research Hotspots*

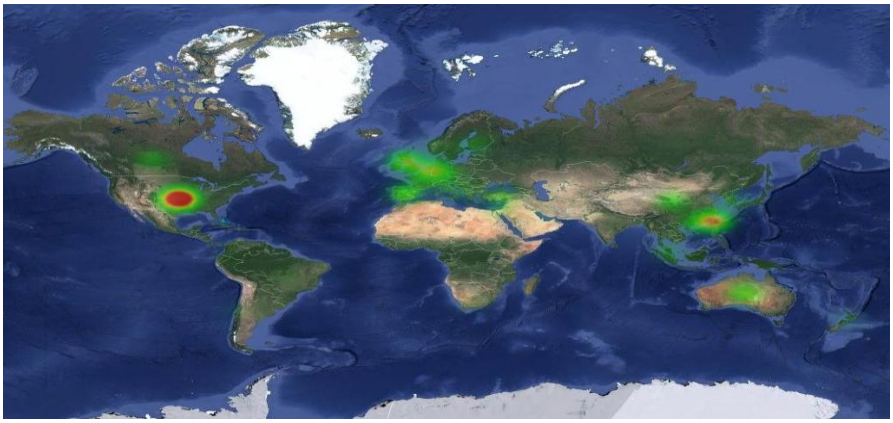

**Figure: 3**

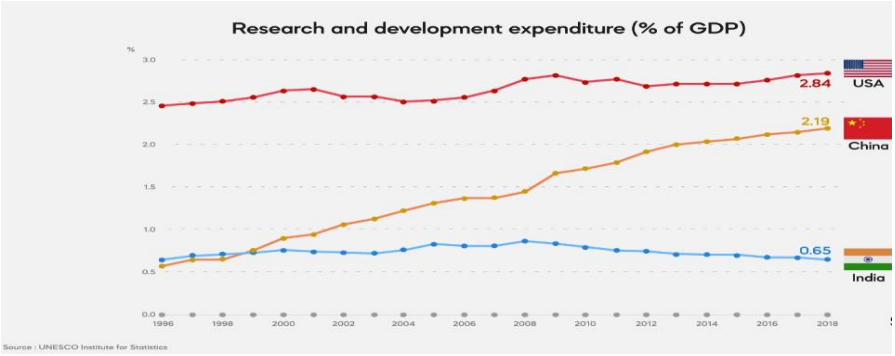


**Figure: 5**

*ICT Areas/Themes of Research*


**Figure: 6**

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*1. E-learning:* online learning, Computer-mediated learning, multimedia learning, Mobile learning, Web-based learning

*2. ICT and Subject Integration:* Language, Math, Science (STEM), Social Science, Arts

*3. Instructional Design:* Instructional Design models, TPACK, TPCK, ADDIE, Programmed Instruction

*4. Open Educational Resources (OER):* MOOC, OER, DIKSHA, Moodle, Creative Commons, Coursera, LMS, etc.

*5. Game-Based Learning:* Use of Games for Learning, Gamification

*6. Blended Learning:* Flipped, Hybrid, Blended Learning

*7. Immersive Technologies:* Virtual Reality, Simulations, Augmented Reality, Mixed Reality

*8. Artificial Intelligence (AI):* Data Mining, Machine Learning, Adaptive Learning, Intelligent Tutoring System

*9. ICT for Inclusion or Exclusion:* Assistive technologies

*10. Digital Abuse & Safety Cyberbullying:* digital abuse, safety, security, mobile addiction

*11. Digital Literacy:* Literacy, Digital Media, ICT/Information literacy, D Fluency/Competency

*12. Social Networks:* Social Networking Sites, Social Media, Networked Learning, Large Networks

*13. Digital Divide:* Issues of Digital Inequality / Usage / Access

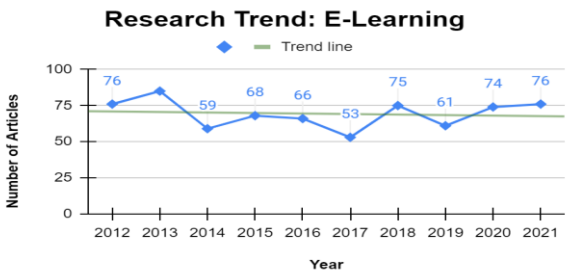
*Phase-2*

*Theme 1: E-learning*

E-learning is nothing but the use of technology to connect teachers and students who are physically miles apart. E-learning involves the use of multimedia to enhance learning (Kaushal, 2014).

*Trends*—sustained research trend line in different areas of e-learning; an average of 60-70 articles each year.

*RQs addressed*- Research in this area is largely focused around a) challenges and solutions of e-learning b) impact of e-learning on learning outcome c) evaluate students' preferences for online lecture d) impact of computer-supported collaborative learning on students' performance




*Methodology*- studies have largely been descriptive and survey in nature and they use both quantitative, mixed, and meta-analysis methods with tools ranging from self-made and standardized questionnaires, surveys, interviews, and Likert scales. Very few qualitative studies were observed. Most of the studies are conducted on university students and teachers. Samples are usually large.

*Result*- Most of the studies found that during the COVID pandemic (2019-21), e-learning emerged as a dominant channel of learning. The Technological Acceptance Model was the most used theories in the analysed studies.

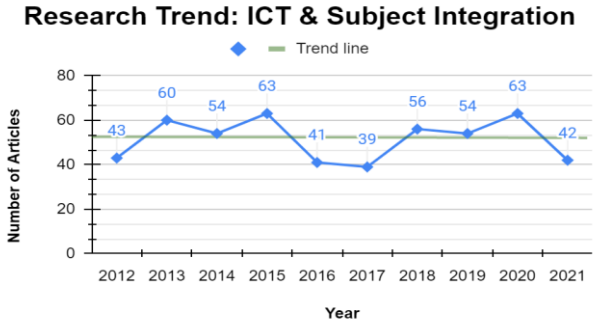
*Research Gaps*—**Cost-effectiveness** and impact studies of the new emerging technology of e-learning still need to be researched again. More research around the areas of multimedia and project-based learning is required. There is also a need for different qualitative studies and techniques reflected in different areas of e-learning.

*Theme 2- ICT and Subject Integration*

Integration of ICT into the learning environment will depend on the ability of both teachers and students to structure learning in new ways, to merge technology appropriately with a pedagogy, develop socially active classrooms, and encourage cooperative interaction and collaborative learning and group work.

*Trends*- Graph shows sustained research trends ; later, it steadily decreases from 2016 onwards, with an average of 40-50 articles being published in each year.

*RQs addressed*- effects of tablet-based cross-curricular math learning (EG) on third grade students' conceptual, procedural & problem-solving knowledge; impact of web-based learning on students' learning outcomes in high school physics classes; investigation of how national ICT development level and individual ICT usage will influence achievements in reading, mathematics, and science for 4th and 8th grade school students.



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*Theme 2- ICT and Subject Integration*

*Methodology*- Mostly used research designs are quasi-experimental, mixed method, and different trends of research. Tools used in these studies are interview schedules, observation diaries, and questionnaires, but for reviewed studies, large-scale international databases are used as tools. In most of the cases, senior secondary students are considered as the participants of the studies. T-tests, ANOVA, MANCOVA, SPSS, and descriptive statistics are used for studies.

*Result*- finding indicates a similar trend of the ICT influences for both groups, although there exists a difference in terms of the extent of the relationships. In addition, individual-level ICT use is a significant predictor, even if students' gender and socioeconomic status are controlled for; however, its influence is mixed across different student groups and subjects depending on the ICT usage type (volk etc 2017). implementing humor and concept cartoons in 9th grade ICT lesson increased the success of students and attitude toward the lesson, decreased the anxiety level of the students, and also affected the retention of knowledge positively in favor of the experimental group (Berkey Celik, 2016).

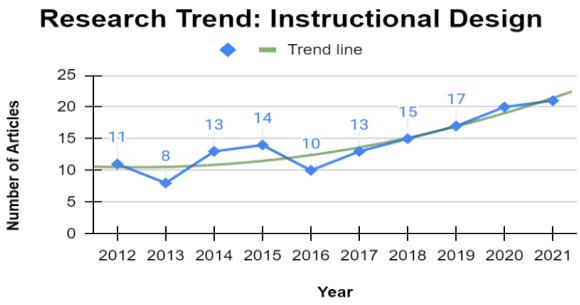
*Research Gaps*- Lack of studies has been found in the areas of arts/humanities as compared to language, mathematics, and science.

*Theme 3: Instructional Design*

*Definition*- **"**A Systematic Approach to Instruction" is the "systematic and reflective process of translating principles of learning and instruction into plans for instructional materials, activities, information resources, and evaluation" (Smith 1999).

*Trends*- The graph shows a rising trend of interest in this area over the past decades; an average of 9-10 articles are being published every year.

*RQs addressed*- a) design of instructional processes, b) uses of instructional models (ADDIE, DICK & Carey, Morrison, Gagne & Briggs, etc.), c) teachers' uses of TPACK as instructional design for professional growth, and d) association between instructional design and 21st-century skills.




*Methodology*- The designs mostly used in these articles are qualitative as well as case studies followed by mixed methods. On the basis of design, the most frequently used tools are interview schedules, observations, documentation of teacher assignments, audio recordings, etc. Samples of the studies are teachers, university students, and instructional designers. Analysis techniques are qualitative in nature (descriptive, content analysis, transcribing audio recordings, and triangulation).

*Results*- Findings indicate that TPACK was mostly linked to expressing practical concerns.Teachers also need to develop competencies to facilitate discourse about design such that contextual concerns can be turned into opportunities to support pedagogical improvement.

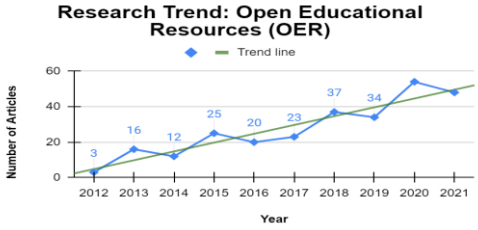
*Research Gaps*- Quantitative methods and techniques need to be employed in different research studies.

*Theme 4: Open Educational Resources (OERs)*

*Definition*- "Learning, teaching and research materials in any format and medium that reside in the public domain or are under copyright that have been released under an open license that permit no-cost access, reuse, repurpose, adaptation, and redistribution by others" (UNESCO, 2019).

*Trends*- Graph is exponentially increasing from 2012 onwards, with an average of 15-20 articles per year being published.

*RQs addressed*- OERs and student efficacy, perception of college students and instructors about OERs, and comprehensive understanding of the MOOC phenomena.



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*Methodology*- Most of the studies have largely been surveys and case studies in nature. Most of the studies are focused on probability and nonprobability sampling as well. Few studies have used Google Scholar as a tool (for cited articles). The perception and attitude scale is mostly used by the studies. During analysis a new instrument was found, the "Educational Scalability Analysis Instrument," to get insight into the educational scalability. Studies mostly use inferential and descriptive techniques for analysis. Few studies have used many techniques, such as the Mann-Whitney U test, grouped correlational analysis, multiple regression, and a qualitative analysis.

*Result*- Studies found that the majority of faculty and students who have used OER had a positive experience and would do so again (J. Hilton, 2020). Most of the research studies focused on perceptibility of teachers and students, psychological impact, course design, and quality assessment.

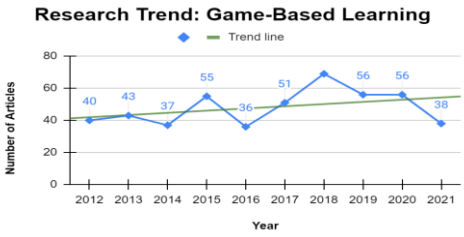
*Research Gaps*- the usability and user-friendliness of OER repositories, the effects of the use of OER on pedagogical approaches, and established educational practices. Selected subthemes such as Creative Commons and Moodle under main themes are being less researched as compared to OERs, MOOCs, and LMS.

*Theme 5: Game-Based Learning*

*Definition*-Game-based learning refers to the borrowing of certain gaming principles and applying them to real-life settings to engage users (Trybus 2015).

*Trends*- The graph shows an increasing trend line initially, then it becomes slow; on average, 40-50 research articles are being published in this area.

*RQs addressed*- Teacher and student perceptions and feelings about DGBL. Interaction of teachers about digital math and language games & game-based learning environments. Current trends examine overall effect size & discuss future direction for DGBL in the context of mathematics learning. performance-contingent reward in an extrinsically integrated game-based learning system




*Methodology*- Most of the studies have used experimental design, meta-analysis, qualitative methods, etc. Samples are mostly large in nature; secondary students and teachers were the participants in various studies. An independent T-test and the effect size (Cohen's d), constructivist grounded theory to determine themes, code recurring ideas, and organize them (Charmaz, 2006; Watson et al., 2011), and percentage analysis were used for analysis of data.

*Results*- exam-oriented education and traditional teacher-centred teaching in China influenced participants' perceptions and experiences of digital game-based learning (Deng, Wu, Chen, Peng 2020) Reward structures in games produce a significant increase in the level of learning, motivation, and engagement (Park, Kim, Yi, 2019). Results are highly encouraging for game-based learning.

*Research Gaps*- Research studies conducted to explore the difference in impact on students at different grade levels, for example, middle school vs. high school or elementary compared to middle school, would be beneficial. More studies need to be conducted that take place over a longer period of time to determine if the results change over time and the causes if they do. A study into instructional materials and strategies and the impact on student motivation when engaged in digital game-based learning is needed.

*Theme 6: Blended Learning*

A style of education in which students learn via electronic and online media as well as traditional face-to-face teaching. (Oxford Dictionary)

*Trends*- the trends saw the increasing graph from the last ten years. An average of 20-21 articles were published from three journals in the last 10 years.

*R.Q*-challenges that students and educational institutions face in the online component of blended learning? What is the attitude towards online video lectures among the students? student and instructor perceptions of text and video feedback in technology integration courses. effectiveness of MOOC-based flipped learning**.** effectiveness of blended learning of learners' outcomes. learning experience of learners in blended mode learning. achievement of students in a blended learning mode classroom.

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*Methodology:* Most of the research was conducted by mixed-method, systematic review, quasi-experimental research, and survey method. A questionnaire and structured interview followed by most of the research for data collection, etc. Students and teachers were identified as a sample in the studies in large numbers. T-tests, multiple regression analysis, and ANOVA were used in most of the study.

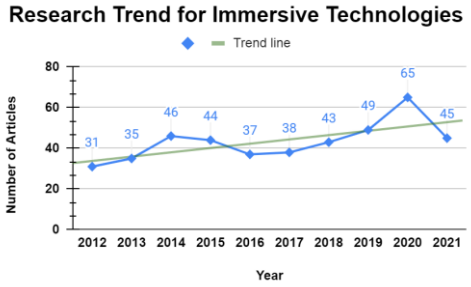
*Result:* high degree of satisfaction with the flipped approach-based classroom among the students. Students in the MOOC-based flipped classroom on average performed better than those in the traditional classroom. The effectiveness of blended learning in students' learning outcomes has a positive impact on the conceptual clarity of learning content. Learning is more understandable and flexible.

*Theme 7: Immersive Technology (AR, VR, MR)*

*Immersive Technology:* providing or involving by deep absorption or immersion in something such as an activity or a real or artificial environment (Merriam-Webster, n.d.)

*Trends:* increasing the graph from the last ten years. Average of 30-32 papers per year.

*RQs addressed:* the effectiveness of AR* (augmented reality) in learning and a comparison of the effectiveness of MR** (mixed reality) and traditional classroom learning. effects of VR (virtual reality-based) instruction on learning outcome




*Method of the study:* most of the study worked based on experimental, mixed-method, and surveymethods. *Results of the study:* the impact of immersive technology in education has a positive impact on making the learning content effective and joyful in front of the learners. Under immersive technology, some research regarding augmented reality showed that AR can be used for concept building in students.

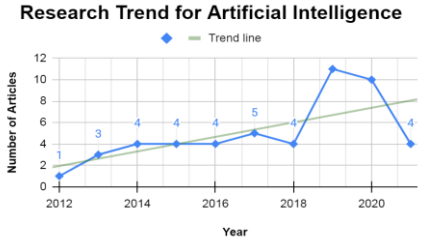
*Research gaps in* the Indian context include a lack of research in the experimental aspect.

*Theme 8: Artificial Intelligence*

"AI is machines and algorithms that are capable of performing computational tasks that would otherwise require human-like brain functions. It is the science and engineering of making intelligent machines, especially intelligent computer programs. It is related to the similar task of using computers to understand human intelligence, but AI does not have to confine itself to methods that are biologically observable." **(McCarthy, 2004).**

*Research Trends*- a slow but increasing trend; Avg 2-3 article papers published every year from these journals in the last 10 years.

*R.Q*- in most of the studies, the research objectives are the role or benefits of chatbots in education, the recent development of AI to develop the teaching and learning method, and also the administration system in education. AI-based tools that can help to reduce learning disabilities. role of chatbots in quality education and how AI tools can be used to improve outcomes in teaching and learning. How do Indian edtech companies use AI in education, and what are the possibilities and challenges of AI in education?




*Methodology*- most of the research followed by mixed method, a systematic literature review, or a comparative study. Students and teachers were considered as a sample in large numbers; reputable research journals were also considered. For the data collection tool, most of the research used questionnaires and interviews; in some research, secondary data such as such as books, articles, and reports were also identified. Research analysis techniques considered in inferential statistics **(**T-test, ANOVA, Mann-Whitney).

*Results*-Artificial Intelligence can be used for learning enhancement, such as personalized learning.

Techniques regarding artificial intelligence, such as NLP and chatbots, are useful for customized learning systems. has a potential customization of learning content or system.

*Research gaps need* more in-depth research according to qualitative aspects.

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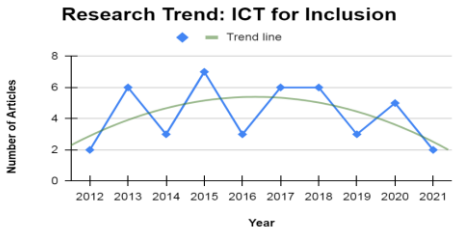
*Theme 9: ICT and Inclusion*

The act or practice of including and accommodating people who have historically been excluded because of their race, gender, sexuality, or ability. (Merriam-Webster Dictionary, n.d.)

*Trends*- a declining trend. Average 4-5 papers per year
Trends showed that at present very little research work is done.

*R.Q*- most studies focus on parents' perceptions regarding the inclusion of ICT in the teaching and learning process. Analyze the teacher's perception of the teaching process through the inclusion of ICT. ICT tools that can be utilized toward teaching and learning. The implication of ICT tools for visually impaired students. Potential of ICT that can reduce the discrimination between the students. ICT integration for personalized learning in an inclusive classroom. How an innovative use of Information and Communication Technology can help create inclusive environments




*Methodology*- most of the research was conducted using descriptive, quantitative surveys, systematic reviews, and experimental and comparative methods. Most of the study was conducted among the students (elementary and secondary), parents, and teachers in a large school, and for data collection, questionnaires (open and close), interview schedules, and observations were followed by most of the research. Likert-type scales were also used to assess the attitudes. Most of the research analyzed by descriptive statistics relating to frequency distributions. percentages, Spearman rank correlation coefficients, the Mann-Whitney U test, and factor analyses. All data processing was conducted using the SPSS statistical package. Also in some studies, t-tests and z-tests are considered.

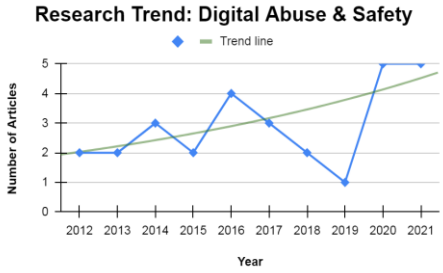
*Result*- positive perception of teachers towards the use of ICT in classroom teaching methods; ICT has a great impact for the specially abled students, and ICT also has the potential to reduce the discrimination of students to catalyze inclusiveness in the classroom.

*Theme 10: Digital Abuse and Safety*

Under this theme we try to cover cyberbullying, mobile addiction, safety, and security of data in media technology, etc. also try to find out in an educational context what types of research works are done.

*Trends*- the trend saw the slow but increasing graph. An average of 2-3 works have been done in these areas in the last ten years.

*R.Q*- what is the perception of schoolteachers regarding the need for and importance of cyberbullying knowledge among the students? Perceived the mobile phone stress and addiction among college students during the pandemic. How much cyberbullying exists, and how much cyberbullying happens through mobile phones? How does cyberbullying occur through mobile phones?




*Methodology*- most of the research was conducted through mixed, quantitative, or survey methods. Most of the research was conducted among teachers and colleges; in a large number specifically among students and teachers, the questionnaire or interview method was selected for data collection. t-test, the SPSS method is selected for data analysis in most of the research.

*Result*- some research concluded that cyberbullying/ cybercrime or digital abuse at present a serious emerging problem and for that, students have to face so many problems and also

After reviewing some literature on that issue, the result showed that very little work has been done on digital abuse or cybercrime in education. Some results reveal that using too many unnecessary mobile applications causes cyberbullying or digital abuse.

*Research Gaps*-Awareness of data (cyberbullying, cyber crimes, data theft, or security) among the students. When we know that most of the time students spend time on online media platforms, specifically during the pandemic.

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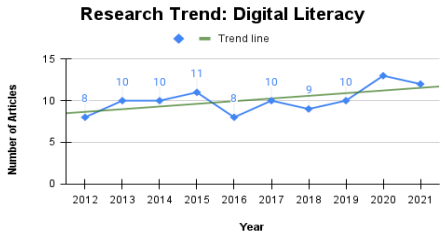
*Theme 11: Digital Literacy*

"The ability to effectively plan and monitor the efficacy of strategies used to search and manage the wealth of information available online, and the knowledge to appropriately vet and integrate those information sources" (Greene et al., 2014).

*Trends:* Rising trend; Avg. 9-10 articles per year Research interest got a boost during the covid-pandemic (2020-21)

*RQs addressed:* a) Users' level of digital literacy (viz. different demographics). b) Users' familiarity & performance on a variety of digital tasks & platforms. c) Factors affecting the attainment of digital literacy




*Methodology:* ***Sample***: Both small & large sample; students and teachers (Primary to university level) ***Research Design***: Quantitative or mixed-method studies, pre-test and post-test designs, and cross-sectional studies were more common; Think Aloud Protocol (TAPs). ***Methods:*** *Tools*: self-reported questionnaire, web-based performance tasks, case vignettes, standardized tests (Likert's scale), & modules. *Analysis techniques:* thematic & content analysis, descriptive stats (s.a. mean, median, freq., SD) & inferential stats (e.g., MANOVA, ANOVA, t-test, F-test, correlation, regression analysis, multidimensional analysis, etc.)

*Results:* ***Role of digital access*** on students' digital competence (Hatlevik & Christophersen, 2013). Digital natives generally find it easier to ***adapt to unfamiliar technologies*** than their older generations; ***Transferable Knowledge*** (Ng, 2012). Tg can help improve digital literacy level {***some but not all competencies*** of digital literacy} (Greene et al., 2014; Lazonder et al., 2020). Generally, ***participants overestimate their digital competencies***; gap most evident in social-emotional skills (Porat, et. al, 2018).

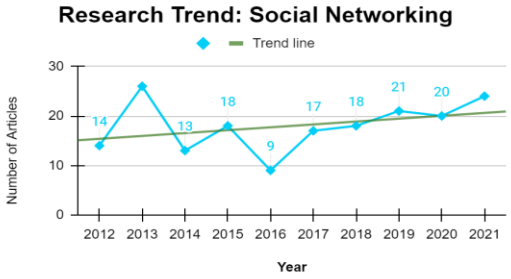
**Research Gaps**: Need to ***continuously revise*** the meaning & elaborate the conceptual understanding of digital literacy. More research on ***best practices*** around teaching students to intelligently navigate & use digital technology and ***ways to overcome barriers to digital literacy*** are required (Silber-Varod et al., 2019).

*Theme 12: Social Networking*

*Definition:* Social Networking refers to "the activity of sharing information and communicating with groups of people using the internet, especially through websites that are specially designed for this purpose" (Cambridge Dictionary, n.d.)

*Research Trends:* A steadily increasing trend; Avg. 18 articles per year.

*RQs addressed:* a) use & functions of social media, b) usage patterns by generational cohorts, c) effects of use & attitudes around SNS on one's physical & mental well-being, academic performance & productivity, d) Tr-Std student interaction via SNS and the dilemmas thereof




*Methodology: Sample*: Adolescents / University students / Higher professionals (e.g., teachers) + Large sample (ranging from a few hundred to lakhs). ***Methods***: Descriptive, Exploratory in nature; Quantitative & Mixed Methods Design: Few qualitative & longitudinal studies.

*Results:* Use of SNS: ***Personal***, ***Professional***, ***Academic*** & ***Social*** purposes (Junco, 2012; Eid & Al-Jabri, 2016), Trs' use: connect to online Professional Learning Networks (***PLNs***) + ***students*** (Trust, Krutka, & Carpenter, 2016) **,** Impact on academic performance: ***Mixed results*** (+ve & -ve). (Hu & Yu, 2021; Busalim, et. al., 2019; Alloway, et. al., 2013; Thomas et al., 2020), ***Tr-Std contact*** through SNS: variety of ***purposes*** [communication, monitoring std well-being, improving relations], ***Dilemmas*** of Tr-Std contact: Privacy; Authority & friendship; Availability & responsibility (Asterhan & Rosenberg, 2015)

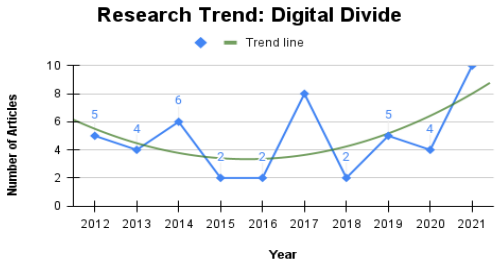
*Theme 13: Digital Divide*

"The economic, educational, and social inequalities between those who have computers and online access and those who do not" (Merriam-Webster, n.d.).

*Research Trends:* First a downward then a slow but upward trend; Avg. 4 - 5 articles per year.Research interest got a boost during the covid-pandemic (2019 - 21)

International Journal of Recent Development in Engineering and Technology
Website: www.ijrdet.com (ISSN 2347-6435 (Online) Volume 15, Issue 03, March 2026)

*RQs addressed:* Levels of access (inequality) among people from a wide variety of demographics (class, gender, grade, age, geography, etc.)




## III. Conclusion

- Prolific & Scanty research areas
- Quantitative & Mixed methods being the dominant research designs
- Need for critical, post-positivist, philosophical, sociological perspectives & theoretical expansion in ICT & Education [*Look beyond the capitalistic perspectives* fed by tech giants.]
- Developed world having greater global representation in Ed-Tech research
- At a National Level:
  - ★ Need to work towards greater (need-based) technological integration within various educational structures
  - ★ Increase GER in Higher Ed (more researchers ~ higher representation)
  - ★ Increase R&D funding in public institutions.
  - ★ Regulations that encourage participation & dissemination of research at global platforms
  - ★ Initiatives to structurally embed Intellectual Property Rights in Indian policies, practices & expectations thereof

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