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A Bibliometric Analysis of 21st Century Learning Using Scopus Database

Nurul Ashikin Izhar
School of Educational Studies, Universiti Sains Malaysia
11800 Penang, Malaysia

Nor Asniza Ishak
School of Educational Studies, Universiti Sains Malaysia
11800 Penang, Malaysia

Siti Mastura Baharudin
School of Educational Studies, Universiti Sains Malaysia
11800 Penang, Malaysia

Abstract. The concept of 21st century learning aims to prepare people to live and work in a more advanced environment. Hence, the objective of this paper is to explore the extent of publications on the topic of 21st century learning and COVID-19 in the Scopus database. Keywords used for analysis were TITLE-ABS-KEY-(('21stcentury*') AND (education* OR learning*) AND (covid*)) with the analysis based on (i) document and source types, (ii) citation trend, (iii) topic of discussion, and (iv) regional distribution. Four steps of research protocol were adopted: (i) topic, scope and eligibility, (ii) identification, (iii) screening. A total of 105 documents were then used for further analysis. 'Article' and 'Journal' under the 'Document' and 'Resources' Type registered the most citations and were assumed to be of most interest, while the Citation Trend showed an increasing number of citations of these publications. E-learning was the most frequently discussed topic, and the United States was the region most actively conducting research in this area. The high number of annual citations suggests that this area is a promising one for research. Although the most frequently referenced publications were about students' development of 21st century skills, there is still a gap in the field for educators. Further research would speed up the development of the educators' skills and promote the use of 21st century skills.

Keywords: 21st-century learning; COVID-19; bibliometric; Scopus database; trend

* Corresponding author: *Nor Asniza Ishak, asnizaishak@usm.my*

1. Introduction

The 21st century is gradually becoming the 'Information Age' and as such, learners are now faced with new challenges in their educational development (Izhar et al., 2022; Liu et al., 2020). It is no longer enough for learners to have basic school skills, they now need to be able to learn on their own, construct knowledge by themselves and understand its meaning at the same time, which could become challenges for some of the students (Fletcher et al., 2020). The subject of education has attracted increasing attention within both academic and public research circles. Education in the present day embraces diverse theoretical perspectives, methods of inquiry, social implications, et cetera. The advancement of technology and the need to develop individuals as human beings has impacted the effective teaching and learning process, and researchers have started to propose theories to address these new challenges. By investigating how society is changing in the 21st century, researchers have tried to discover what actual learning is about. In response, educational researchers have introduced '21st century learning' to illustrate how learner characteristics are changing in the new era (Ally, 2019).

The concept of 21st century learning arises from the idea that the knowledge accumulated over the last century is no longer sufficient for today's students to deal with present-day world (Tindowen et al., 2017). The purpose of education in the 21st century should be to help learners acquire the skills, attitudes and knowledge required to be productive members of society (Corporan et al., 2020; Tindowen et al., 2017). Thus, 21st century learning is about promoting more complex ideas and creating innovative methods for teaching students. 21st century learning can help students and educators create a strong reputation for their teaching skills and develop a clearer understanding of what they need to do to become successful learners (Ishak & Jamil, 2020). The learner, then, is expected to apply the skills in their learning process to promote their own understanding regarding subject matter rather than relying on their teacher's explanation. 21st century learning is not a new idea; in fact, it is very similar to the practices advocated in the Industrial Revolution. The use of technology in education goes back somewhat and is often interpreted as a kind of de-skilling by the students while teachers do not feel inclined to use it until they felt it necessary in the classroom (Izhar et al., 2022). For example, during COVID-19 the global control of movement meant that online teaching and learning had to be rapidly implemented to enable education to continue.

According to Rogers (2003), technology can be physical products such as smartphones, and virtual products such as software, ideas, and practices. The use of technology in education is probably best described as a positive force that has influenced the way that the school syllabus is taught (Izhar et al., 2022), and technology is now used for providing resources, instant communication, and collaboration to promote learning. Subsequently, it has now become one of the important assets in 21st century learning (Hofer et al., 2021). Technology has the power to enhance teaching styles, incorporate virtual learning environments and promote learning experiences with others around the world (Alhabeeb & Rowley, 2018; Lawrence et al., 2018). For example, the use of Canva software enabled students presenting their school projects to develop an interactive presentation

which also provided the opportunity to collaborate with other students. The use of technology in the teaching process enables teachers to deliver more interactive lessons to their students while also building a stronger reputation for their teaching skills (Al-Shabibi & Al-Ayasra, 2019; Guerrero-Alcedo et al., 2022). The flipping classroom is one of the practices that can be used by teachers to develop higher levels of understanding among the students.

In addition to the shift from physical face-to-face classroom teaching and learning into cyberspace interaction, the outbreak of COVID-19 brought about the increase in research related to the 21st century learning (Izhar et al., 2021a) and led to an increase in interest in various aspects of 21st century learning on developing innovative methods (Andress et al., 2020), impact (Jordan et al., 2021; Kaden, 2020), strategies (Izhar et al., 2021a; Ng, 2021), guidelines (Ng, 2021; UNESCO, 2020) to 21st century learning.

The ever-increasing interest in education has led to an increase in publications in this field. The extensive amount of literature published each year makes it difficult for researchers to publish their work within a timely manner (Osman & Napeah, 2021) and, as a result, important research could be overlooked. To tackle this problem, bibliometric analyses have been extensively used to identify key trends and patterns in a given field of research (Chin & Chew, 2021; Khodabandelou et al., 2018; Shi et al., 2020). Bibliometric analysis is designed to estimate publication productivity; the data is used as an empirical technique for researchers and is a useful tool in measuring scientific output in each field (Ahmi & Nasir, 2019; Shi et al., 2020), thus providing insight into the future direction of research in this field. To perform effective bibliometric analysis, one needs access to reliable data which offer the researcher related information with relatively good accuracy and timeliness regarding his/her efforts (Moher et al., 2009). The scale of this data is so huge that finding the information that the researcher needs becomes a problem. As such, the first step should be locating one or more appropriate bibliographic databases (Ahmi & Nasir, 2019; Osman & Napeah, 2021; Shi et al., 2020). There are many open access databases available for researchers; finding the resources which meet one's needs is perhaps the most challenging aspect in conducting a successful analysis and requires knowledge about the databases which are available, their capabilities, and how to tap into them efficiently.

Scopus is one of the most commonly used open access databases for researchers, including education researchers (Osman & Napeah, 2021; Sweileh, 2020). The Scopus online demo provides an excellent tool to obtain information regarding Scopus features, functions, coverage, and industry data (Burnham, 2006). Furthermore, the platform helps researchers to learn more about conducting basic analyses with Scopus data. Currently, Scopus has more than 27 million records and allows users to search and download publications and citations from more than 24,000 academic publishers and societies all over the world (Ahmi & Nasir, 2019; Ha et al., 2020), making it a suitable open access tool to support researchers performing bibliometric analysis as it is stable and can be used widely with confidence by resourceful researchers all around the world.

This study aims to use a bibliometric analysis of the Scopus database to examine research on 21st century learning during COVID-19 in order to identify trends in research on 21st century learning during the outbreak of COVID-19 between 2020–2022 and address the following research question:

1. What is the current trend in the publication status of 21st century learning during the outbreak of COVID-19?

2. Method

The Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) method was adopted from Moher et al. (2009) was used in this study, which similarly used by Osman and Napeah (2021). The main stages involved in the method are: (i) identifying the topic, scope, and eligibility; (ii) screening those identified, and (iii) selecting the relevant ones. Data were extracted on 10 March 2022 using the following query: TITLE-ABS-KEY-((‘21stcentury*’) AND (education* OR learning*) AND (covid*)) on the Scopus database and the search was then limited to 2020–2022, which were the years when the COVID-19 outbreak affected the whole globe (Izhar et al., 2022). The query resulted in 284 documents. Documents were then further screened and only those that related to education were selected; all others were excluded. The content was identified through the document’s title and abstract. The screening process excluded 179 documents, leaving 105 documents for the research. Data were exported into comma separated files (CSV) which consisted of Document Types, Year, Affiliations, Author and Index Keywords, Publishers, Source Titles, Language, and Country. VOSviewer software version 1.6.17© 2009–2021 was used to visualise the bibliometric networks such as journals, researchers, publications, text mining of terms in the form of maps, while the Harzing’s Publish or Perish version 8.1.3683 was used to perform the citation analysis by retrieving and analysing the citations in a range of citation metrics including the number of papers, total citations and the h-index. Descriptive analysis of frequency and percentage were used to present the value of the data. Figure 1 illustrates the overall procedure employed in this study.

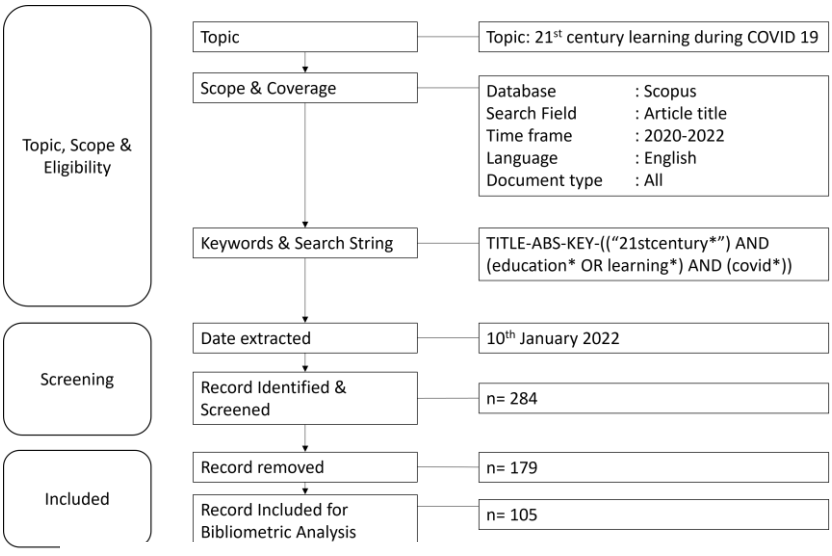

Figure 1: The Research Protocol.

3. Results and Discussion

The results revealed that 21st century learning is still an important and relevant area for research, especially in response to the necessary changes in modes of education due to restricted movement in response to COVID-19. Although most educational institutions at every level are using virtual learning, it is important to acknowledge the many technological approaches, methods and techniques that have been used in the teaching and learning process. This research found that researchers focus more on articles published in journals. The citation analysis has shown that the number of citations increased during the years 2020–2022 and that the topic of e-learning was the most intensively researched and is still a relevant and promising area for research. The reason for this trend may be because the e-learning that took over in cyberspace does not have the limitations or boundaries of conventional learning and teaching; its only constant is advancement in the development of the area.

The e-learning research area caught the attention of researchers all around the globe, with 113 countries having conducted research in this area, and the United States surfacing as the country with most publications. The area for 21st century learning was not only a feature of the learning process at the school level, but was also relevant at the higher education level. 21st century learning needs to be as thorough as possible at this level of education because much coursework and many projects are required for the students to pass their study.

The following scholarly works were presented to reflect the current publication status of 21st century learning related to COVID-19 based on (i) Document and Resource Type, (ii) Citation Analysis, (iii) Discussion Topic, and (iv) Geographical distribution.

3.1 Document and Resource Type

Ahmi and Nasir (2019) explain Document Type as the type of document based upon the origin of the document, such as a conference paper, an article, a book chapter, and so on, while the Resource Type is the type of source document, such as a journal, conference proceedings, book series, book, or trade publication, et cetera. According to Ahmi and Nasir (2019), a document may be listed under two types simultaneously, so conference papers that appear under 'Document Type' represent papers that were presented in conference, while the ones that appear under 'Resource Type', could be conference proceedings, book chapters, and so on.

Data synthesis using the VOSviewer software version 1.6.17© 2009-2021, and based on 'Document Type' of this study appears in Table 1. There were five widespread types of documents found in this study: Article, Conference Paper, Review, Book Chapter, and Note. The majority of documents published were Articles at 55.2% (N=58), followed by Conference Papers (35.2%, N=37), Reviews (6%, N=5.7%), and the smallest number was Notes at only 1.0% (N=1). Book Chapters weighted only 2.9% (N=3). Even though Article received a higher number of citations than other Document Types, all of them are equally influential in the academic world. Among the Document Types, there are no documents that

outweigh the benefits of content over the others as all the types have contributed much output of content. Nevertheless, as researchers tend to need a quick, compact, and informative paper, it is understandable that the findings of the research report reflect a higher percentage of Articles and Conference Papers citations, as shown in this study.

Table 1: Results of Document Type.

Document Type	No. of Publications	Percentage (%)
Article	58	55.2
Conference Paper	37	35.2
Review	6	5.7
Book Chapter	3	2.9
Note	1	1.0

There were four main types of 'Resource Type', of which Journals formed the largest portion at 62.9% (N=66), followed by Conference Proceedings with 26.7% (N=28). Book Series (9.5%, N=10) and Book (1.0%, N=1). The term 'Book Series' represents a set of collections of volumes in a series while 'Book' represents a single book.

As with Document Type, so with Source Type; the high number of Journals shows that, from the perspective of a researcher, journals tend to provide a quick source of information about the subject matter the researcher is interested in. As articles published in journals have undergone extensive review by experts in their respective fields through a blind review process, they can be assumed to be more reliable as references. Data presented in Table 2 summarise the results of Source Type obtained from this study.

Table 2: Results of Source Type.

Resource Type	No. of Publications	Percentage (%)
Journal	66	62.9
Conference Proceeding	28	26.7
Book Series	10	9.5
Book	1	1.0

For Document and Resource Types, the Articles and Journals, respectively, are shown to be the types of publication most favoured by researchers, and it is probable that more articles will be published in journals. The availability of the Journal Finder function in Scopus (Elsevier) makes it easier for the researcher to find the appropriate journal based on his/her prepared abstract.

3.2 Citation Analysis

Harzing's Publish or Perish Software was used to analyse the number of papers, the total number of citations, the frequency of citations per year, the frequency of citations per paper, h-index and other metrics. The results showed there were 221 citations among the 105 documents reported for the period 2020–2022. Figure 2 is

a graphic representation of the number of citations per year. From 2020 (22 citations) to 2021 (184 citations) there was steep increase in citation numbers followed by a steep decline in 2022 (34 citations). Nevertheless, it is expected that citation numbers will gradually increase for 2022 as the data used in this study was retrieved on 10 March 2022.

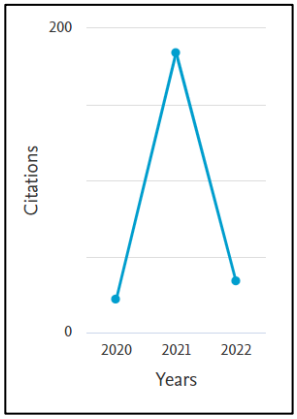

Figure 1: Results of Number of Citations From 2020 to March 2022.

The overall number of 240 citations related to 21st century learning between 2020–2022, with an average of 120.00 citations per year, indicates that the area remains an area of significant research interest. On average, each published article received 2.29 citations. Because COVID-19 resulted in rapid, unplanned changes to online education by most educational institutions at each entry level (Izhar et al., 2021a; Izhar et al., 2021b), it is expected that research into teaching methods on 21st century skills will continue to grow.

This trend is supported by the evolution of digital technology that now penetrates extensively into education. Gigantic companies such as Google and Microsoft possess their own space in the area of education and focus not only on education as in schools, but also on implementing the concept of lifelong learning and, in the process, have developed many educational products from there. Table 3 summarises the results of citation metrics obtained in this study.

Table 3: Results of Citation Metrics

Metrics	Data
Publication years	2020-2022
Citation years	2
Papers	105
Citations	240
Citations/year	120.00
Citations/paper	2.29
Authors/paper	3.13
Hirsch h-index	8
Egghe g-index	14
PoP hI_2norm	4
PoP $hI_2annual$	2.00

The top five most cited papers are given in Table 4. The most frequently cited article was "Leveraging technology for remote learning in the era of COVID-19 and social distancing" with a total of 50 citations published (at the time of preparation of this article) in 2020 alone. The listed top-cited papers covered the students' development of 21st century skills although there still a gap in the area of educators in promoting those skills, providing room for future research.

Learning involves many more people than just the students. As the promotion of 21st century learning is to equip students with the skills to help them thrive in the 21st century living and working environment, teachers and others involved in the learning process should be taken into consideration. Hence to teach people 21st century skills, the educators should be the first to be trained in 21st century learning knowledge and skills in order to pass on the appropriate teaching.

Table 4: Top Five Most Cited Articles.

Authors	Title	Source	Type	Citations	Year
S. Mukhopadhyay; A.L. Booth; S.M. Calkins; E.E. Doxtader; S.W. Fine; J.M. Gardner; R.S. Gonzalez; K.M. Mirza; X. Jiang	Leveraging technology for remote learning in the era of COVID-19 and social distancing	Archives of Pathology and Laboratory Medicine	Review	52	2020
C.H. Li; A.G. Rajamohan; P.T. Acharya; C.S.J. Liu; V. Patel; J.L. Go; P.E. Kim; J. Acharya	Virtual Read-Out: Radiology Education for the 21st Century During the COVID-19 Pandemic	Academic Radiology	Article	37	2020
Santiago Tejedor, Laura Cervi, Ana Pérez-Escoda, Fernanda Tusa Jumbo	Digital literacy and higher education during COVID-19 lockdown: Spain, Italy, and Ecuador	Publications	Article	32	2020
A. Purwanto; I.Z. Ichsan; P.W.P. Gomes; M.M. Rahman; Irwandani	ESBOR During COVID-19: Analysis Students Attitude or Develop 21st Century Environmental Learning	Journal of Sustainability Science and Management	Article	12	2020

Y. Zhao; A.M. Pinto Llorente; M.C. Sánchez Gómez	Digital competence in higher education research: A systematic literature review	Computers and Education	Article	12	2021

3.3 Discussion Topic

The VOSviewer software version 1.6.17© 2009–2021 was used in this investigation for its ability to calculate the occurrences of keywords (Raman et al., 2021). Figure 3 provides a visual overlay in which the strength of a relationship between two or more keywords is indicated by changes in the colour, circle size, font size, and thickness of connecting lines. Related keywords are indicated by the same colour. The keywords, COVID-19, e-learning, students, education, and teaching usually co-occur together, which is to be expected since, during the outbreak of COVID-19, most educational institutions shifted to online education as the strategies to ensure continued education were limited (Izhar et al., 2021a). Table 5 further shows that the word 'e-learning' itself occurred 26 times, followed by 'students' (25), COVID-19 (19), and 'education' (11), leading to the conclusion that online education became a widely researched topic during the COVID-19 pandemic.

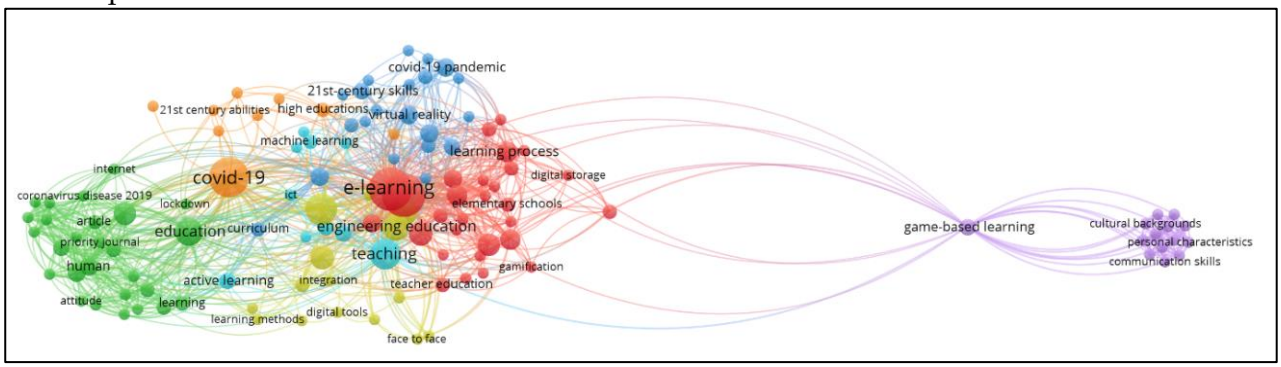

Figure 2: Results of Most Used Keywords.

Table 5: Results of Keyword Occurrence

Keywords	F	Keywords	F	Keywords	F
E-learning	26	High Education	3	Priority Journal	2
Students	25	Learning	3	Problem Based Learning	2
COVID-19	19	Machine Learning	3	Remote Teaching	2
Higher Education	14	Medical Education	3	Robotics	2
Teaching	13	Remote Learning	3	SARS-CoV-2	2
Education	11	Role-playing Game	3	Saudi Arabia	2
Engineering Education	10	Teacher	3	Science And	2

21st Century Skills	8	Education Universities	3	Technology Self-directed Learning	2
Curricula	8	Attitude	2	Serious Games	2
Online Learning	8	Betacoronavirus	2	Social Value Indicator	2
Learning Systems	7	Communication Skills	2	Student	2
Pandemic	7	Coronavirus Disease 2019	2	Student Learning	2
Education Computing	6	Coronavirus Infection	2	Personal Characteristics	2
Learning Process	6	Coronavirus Infections	2	Student Performance	2
Teaching And Learning	6	Creativity	2	Surveys	2
Virus Pneumonia	2	Cultural Backgrounds	2	Technological Change	2
Websites	2	Cultural Settings	2	Integration	2
COVID-19 Pandemic	5	Data Acquisition	2	International Cooperation	2
Collaborative Learning	5	Data Science	2	Internet	2
Computer Aided Instruction	5	Decision Making	2	Large Dataset	2
Digital Literacy	5	Digital Competence	2	Learn+	2
Human	5	Digital Learning	2	Learning Environments	2
Humans	5	Digital Storage	2	Learning Media	2
Teachers	5	Digital Tools	2	21st Century Learning	1
Virtual Reality	5	Digital learning	2	21st Century	1
Active Learning	4	Distributive Negotiations	2	21st Century Ability	1
Blended Learning	4	Education, Distance	2	21st Century Classroom Management	1
Game-based Learning	4	Educational Robotics	2	21st Century Competencies	1
Pandemics	4	Educational Robots	2	21st Century Learning	1
Technology	4	Elementary Students	2	21st Century Learning Goal	1
21st-century Skills	3	Emotional Intelligence	2	21st Century Skill	1
Article	3	Face To Face	2	21st Century Skills	1
Augmented Reality	3	Flipped Classroom	2	21st Century Skill	1
Collaboration	3	Foreign Language	2	4C's	1

COVID-19	3	Gamification	2	4IR Case Study COVID-19 Earning Spaces Higher Education South Africa Teaching and Learning Technology	1
Critical Thinking	3	HOTS	2	ADDIE Model	1
Curriculum	3	High School	2	AI	1
Digital Literacies	3	Higher Order Thinking Skills	2	ANOVA Test	1
Distance Learning	3	Human Experiment	2	Academic Achievements	1
Distance-learning	3				
Elementary Schools	3	ICT	2	Academic English Writing Skills	1
Emerging Technologies	3	In-depth Interviews	2	Academic Performance	1
High Educations	3	Integration	2	Academic Requirements	1
Learning	3	Learning Methods	2	Adolescents	1
Machine Learning	3	Learning Society	2	Adversity	1
Medical Education	3	Lifelong Learning	2	Agile	1
Remote Learning	3	Lockdown	2	Agricultural Robots	1
Role-playing Game	3	Mobile Learning	2	Analysis Skills	1
Teacher Education	3	Motivation	2	Anglistics Students' Attitudes	1
Augmented Reality	3	Negotiation Process	2	Application Programs	1
Collaboration	3	Negotiations	2	Applications	1
COVID-19	3	Online Teaching	2	Apprentices	1
Critical Thinking	3	Online Teaching and Learning	2	Arab Students and Social Media Platforms	1
Curriculum	3	Personal Characteristics	2	Architecture Education	1
Digital Literacies	3	Personality	2	Artificial Intelligence	1
Distance Learning	3	Personalized Learning	2	Auburn Universities	1
Distance-learning	3	Pneumonia, Viral	2	Audio-visual Recording	1

Elementary Schools	3	Practical Recommendation	2	Authentic Learning	1
Emerging Technologies	3	Primary Education	2	Authoring Tool	1
				Autonomous Learning	1

F= frequency

3.4 Geographical Distribution

VOSviewer software version 1.6.17© 2009–2021 was used to produce a descriptive geographical statistical output of the research, with 113 countries contributing at least one publication. One publication was from undetermined countries. Topping the list of publications for 21st century learning is the United States with 17 publications (16.2%), which is unsurprising because the country is one of the developed countries and can be expected to possess the speed to boost skills such as a higher digital literacy. Using ICT (Information and Communication Technology) to deliver curriculum and instruction in the United States started in 2006 when states implemented the new K-12 system. The 1:1 computing programme transformed the teaching process as it created many groups to work together (Penuel, 2006) through the 'No Child Left Behind' policy (Smith & Kovacs, 2011).

Indonesia is second with 13 publications (12.4%), followed by Spain (10; 9.5%) and Malaysia (6; 5.7%). Developing countries such as Indonesia and Malaysia have taken seriously the responsibility of integrating 21st century learning into their educational systems, as evidenced by the high percentage of publications by Osman and Napeah (2021), showing they have a better opportunity for 21st century learning. These countries feel that the skills are important and they will do their absolute best to promote them. In Malaysia, the strategies to enhance 21st century learning are widely emphasised in the teaching methods used to deliver lessons in class. The initiatives to improve education have included using technology to promote a plan for an educational blueprint that has been applied to the country's national curriculum (Izhar et al., 2022). Table 6 summarises the results of publications based on geographical distribution.

Table 6: Results of Publication Based on Geographical Distribution.

Countries	F	Percentage (%)	Countries	F	Percentage (%)
United States	17	16.2	United Kingdom	2	1.9
Indonesia	13	12.4	Austria	1	1.0
Spain	10	9.5	Bangladesh	1	1.0
Malaysia	6	5.7	Cyprus	1	1.0
Portugal	6	5.7	Czech Republic	1	1.0
China	5	4.8	Denmark	1	1.0
India	4	3.8	Georgia	1	1.0
Netherlands	4	3.8	Ghana	1	1.0
South Africa	4	3.8	Guatemala	1	1.0
Brazil	3	2.9	Iran	1	1.0
Ireland	3	2.9	Italy	1	1.0
Israel	3	2.9	Jordan	1	1.0

Japan	3	2.9	Oman	1	1.0
Mexico	3	2.9	Palestine	1	1.0
Poland	3	2.9	Russian Federation	1	1.0
Australia	2	1.9	Saudi Arabia	1	1.0
Chile	2	1.9	Serbia	1	1.0
Colombia	2	1.9	Singapore	1	1.0
Ecuador	2	1.9	Slovakia	1	1.0
Egypt	2	1.9	South Korea	1	1.0
Finland	2	1.9	Sweden	1	1.0
France	2	1.9	Switzerland	1	1.0
Germany	2	1.9	Ukraine	1	1.0
Hong Kong	2	1.9	United Arab Emirates	1	1.0
Iceland	2	1.9	Zimbabwe	1	1.0
Pakistan	2	1.9	Undefined	1	1.0
Turkey	2	1.9			

**F= frequency*

4. Conclusion

Using bibliometric analysis, this study attempted to provide a comprehensive overview of publications on 21st century learning during the COVID-19 pandemic when movement was restricted between 2020 and 2022. A study of a total of 105 documents were retrieved from the Scopus database found that the number of publications increased between 2020 and 2021 but decreased dramatically in 2022. However, since the data for this study was retrieved in March 2022, it is possible that studies will be added over time, and may already have been added.

The findings of this study will assist researchers in gaining a better understanding of the impact of COVID-19 on the 21st century learning. The findings show that topics related to the advancement of educational technology as instructional design as well as soft skills have gained popularity over the years and educational technology developers, as well as educational policymakers could use the findings of this study to develop a better education strategy. Further research is also needed for instructional design to realise the aim of instilling 21st century learning skills within oneself. Instilling a skill in oneself takes time and experience, and is not a one-night miracle.

Despite its contribution, this study has some limitations. First, the data for this study was gathered from a single source, the Scopus database, and the researchers recognise that other databases such as WOS, ERA, Google Scholar and myCITE may offer different trends in publications. Therefore, this study proposes a future comparative study of bibliometric analysis based on different research databases to further investigate the trend of research in the discussed area. Secondly, this study only examined the document and source types, citation trends, discussion topics and geographical distribution. It might be relatively important to develop a broader research collaboration between institutions and countries that would benefit the involved parties. Ultimately, the number of publications in this field is still low, but the high citation rate per year indicates that there is potential for further research in the discussed field.

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