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Declaration

Authors declare no potential conflict of interest for this study.

Trends of Research Visualization of Digital Collections and Resources in Academic Libraries from 2001 to 2020: A Bibliometric Analysis

Abstract

This paper was intended to evaluate electronic collections, digital collections, digital resources, e-books, e-resources using bibliometric exploration from 2001 to 2020. The main purpose is to associate the available scholarship on the electronic and digital collections in the Web of Science indexed documents. There was a lack of computable quantities on the electronic collections. We used the bibliometric analysis and 2002 published documents were found. The results indicated that the top topic of published documents as electronic books or e-books and library, article as a type, English as the top language, top publications in 2016, and Huang YM was the top author. Data analysis also asserted that the top organization was Bar Ilan Univ., Israel, United States as the top country, electronic books were top keyword, and electronic library with 616 citations was as a top source of publication. Further, the results and trends of data were present in the form of tables and figures.

Keywords: Electronic Collections, Digital Collections, Digital Resources, E-Books, E-Resources, Bibliometric Study

Introduction

The knowledge has been stored in libraries in the form of books, journals, periodicals, newspapers, and other documents (Blummer & Kenton, 2018; Henninger, 2016; Smith, 2013). The trend is traced back to the dawn of history when the information was turned into documents (Malone, Martin, Peters, Turner, & Vaughn, 2017; Rysavy & Michalak, 2019; Ye, 2019). Hence, the knowledge was constructed, deconstructed, and reconstructed over time (Dora & Anil Kumar, 2017; Drucker, 2013; Renfro & Neal, 2012; Shoaib & Ullah, 2019). This knowledge was primarily preserved by human beings (Brown, Alvey, Danilova, Morgan, & Thomas, 2018). In different times, different forms of knowledge were developed and stored in the libraries (Blaylock & Arriola, 2021; Farmer, 2016; Wagner & Lavin, 2009). Human beings utilized this knowledge for the development and growth of themselves and hence society (Chow & Tian, 2021; Fisher & Swartz, 2014; Ray, 2009; Wissel & DeLuca, 2018). For a long, humans got benefited from this knowledge in the traditional stock in libraries (Geuther, Hoeve, & O'Reilly, 2021; Terrill, 2018). Moreover, the students, readers, scholars, and scientists had to travel long for the sake of research and studies (Decker, 2021; Ho, 2020; Ray, 2009). The stock of manual and traditional stock of

data was difficult to access for a common user (Ho, 2020). As we mentioned that one has the thrust to study or research had to travel for a way to study the books and other materials they required (Andrews, Wright, & Raskin, 2016; Farmer, 2016; Richardson, Nolan-Brown, Loria, & Bradbury, 2012; Robertson-Kirkland, 2019). With the advent of modern technology, reforms were found in almost all the spheres of life (Bilandzic & Johnson, 2013). This modern technology accelerated the speed of work in every sphere. Like other spheres, technology was also utilized in higher education (Groenendyk, 2013; Huber, Embree, Gay, & Gilman, 2021).

The traditional libraries were turned into electronic or e-libraries (Bilandzic & Johnson, 2013). On the other hand, the research and technology further helped to produce the knowledge (Holmes* & Dubinsky*, 2009). This knowledge was stored over time in the form of different databases (Williamson et al., 2021). These databases were developed by technology-prone countries (Scaramozzino et al., 2014). It has further eased the readers, researchers, students, and scientists, and experts to access the knowledge they required within no time (Ali, Shoaib, & Asad, 2021; Bilandzic & Johnson, 2013; Shoaib & Ullah, 2021). It is important to mention here that the web ok knowledge and databases were developed, and all the knowledge was transferred electronically to these webs and databases (Condic, 2021; Kayode, Tella, & Akande, 2018; Williamson et al., 2021). Similarly, the traditional knowledge was also transferred electronically for easy access of humans (Peponakis, 2013). Although, it was difficult to transfer knowledge into electronic form however it was possible owing to the use of modern technology (Murphy & Newport, 2021; O'Donnell, Maloney, Masters, & Liu, 2020). Moreover, access to this stock of knowledge has been made easier to the readers, scholars, students, researchers, and scientists (Aagaard, Heinrich, Koury, & Kurt, 2009; Malone et al., 2017; Woodgate et al., 2017). Due to this, one access the databases of choice and domain by use of the internet (Syrkin, 2006). It has not only eased access to the knowledge but also introduced the efficient use of bibliometric methods that were previously manual and time taking processes (Baker, 1991; Cowhitt, Butler, & Wilson, 2020; Thanuskodi, 2010). The bibliometric methods are statistical analysis of the books, journals, documents, articles, and other publications by use of the software (Aparicio, Iturralde, & Maseda, 2020; Baker, 1991; Garrigos-Simon, Botella-Carrubi, & Gonzalez-Cruz, 2018; Sidiq, Hanafi, & Ekaputra, 2020). Presently, these bibliometric methods are used frequently in the library sciences (Cheng, Wang, Mørch, Chen, & Spector, 2014). Thus, in the past, the analysis of the documents was carried out by manual traditional methods and it was difficult to exactly know the stock of knowledge about

the publications (Hung, 2012; Peng, Zhu, & Wu, 2020; Ullah & Shoaib, 2021). However, the use of modern technology has made it possible to analyze the publications from the different databases by use of bibliometric methods (Shoaib, Rasool, & Anwar, 2021; Ullah & Shoaib, 2021). The bibliometric studies use different other methods stemming from bibliometric to further analyze the data minutely by use of the scientometric method (Ruschoff, 2020). In addition, the bibliometric methods are normally used in developed and developing countries to analyze the different data sets in the library sciences (Kaparthi, 2005; Marín-Suelves, López-Gómez, Castro-Rodríguez, & Rodríguez-Rodríguez, 2020; Mokhtari, Soltani-Nejad, Mirezati, & Saberi, 2020; Sureka, Donthu, & Kumar, 2020). Hence, we used the bibliometric methods to analyze the scholarly publication of the electronic collection in libraries from 2001 to 2020.

Objectives of the Study

We articulated the following objectives to evaluate electronic collections, digital collections, digital resources, e-books, e-resources employing bibliometric analysis technique from 2001 to 2020. Further, the main objective was divided into the following sub-sections;

- Topic and type of published documents
- Language and year of the published documents
- Top ten productive authors and organizations
- Top ten countries and keywords
- Ten sources of publications
- Top ten documents by citations

Literature Review

The modern use of technology had been utilized primarily by the developed countries (Huber et al., 2021). Previously, the information was stored in traditional libraries (Groenendyk, 2013). These libraries were not accessible to all the men who desire to study and get benefitted from the data (Bilandzic & Johnson, 2013; Holmes* & Dubinsky*, 2009). Due to the use of modern technology, all the traditional form of data was converted into the electronic use (Scaramozzino et al., 2014). Similarly, the libraries were transferred into e-libraries (Ali & Naveed, 2020; Williamson et al., 2021). Due to the efficient use of technology, the developed countries revisited the knowledge in the presence of modern techniques and tools (Colahan & Perske, 2020; Francis, Ball, Kadylak, & Cotten, 2019; Gokhale, Mulay, Pramod, & Kulkarni, 2020). Similarly, the new knowledge was also generated in the light of the traditional forms of knowledge (Brown et al.,

2018). Thus, the knowledge was developed and further transferred electronically (Aagaard et al., 2009; Geuther et al., 2021). Force and Wiles (2021) revealed that the web of knowledge was developed to store the data online. Similarly, Samaroudi, Echavarria, and Perry (2020) also found reemergence of the knowledge as the research was excessively applied to the phenomena across Europe. The databases were generated to store the data. Vogus (2020) argued that the use of modern technology has revolutionized knowledge in general and library sciences in particular (Shoab, Abdullah, & Ali, 2020). Moreover, the objective behind developing these databases was to make access possible to the common reader, students, scholars, and scientists (Butler-Henderson, Crawford, Rudolph, Lalani, & Sabu, 2020; Cirelli & Long, 2020). With the development of knowledge and databases, modern techniques and tools were developed to analyze the data (Blaylock & Arriola, 2021; Farmer, 2016; Mierke, 2016). Thus, this stock of data was further analyzed through the bibliometric methods (Gokhale et al., 2020; Kaparathi, 2005; Mokhtari et al., 2020). These methods were introduced as the stock of data is greater and quantitative (Goyal & Kumar, 2021; Phelan, Anderson, & Bourke, 2000). It was not possible to analyze the data through any traditional statistical method therefore the bibliometric methods were introduced and applied (Abernethy & Holderied, 2018; Muhuri, Shukla, & Abraham, 2019; Thanuskodi, 2010). In bibliometric, scientometric methods were also introduced to analyze the publications minutely (Baker, 1991; Roig-Tierno, Gonzalez-Cruz, & Llopis-Martinez, 2017). In addition, the technology made it easy for human beings to study and research the publication by use of the bibliometric methods (Macauley, Evans, Pearson, & Tregenza, 2005; Su, 2020). In this way, the knowledge was easily accessible to the common person. Similarly, one does not need to travel long to reach the stock of data and spend months to conduct the bibliographic research as modern technology has made it easier to access the stock of data via software within no time (Aparicio et al., 2020; Peng et al., 2020; Schiuma, Kumar, Sureka, & Joshi, 2020; Thanuskodi, 2010).

In developing countries, libraries have been a major source of getting knowledge for a long (Nowicki, 2021; Rafiq, Batool, Ali, & Ullah, 2021). It is asserted that despite adopting the modern means of technology, in many developing countries, the traditional model of knowledge stock is found in terms of libraries (Asamoah, 2020; Craft, 2020). However, many countries have utilized the technology by converting the stock of data into e-libraries (Armstrong & Patti, 2020; Gokhale et al., 2020; Hassounah, Raheel, & Alhefzi, 2020). Looking at western countries, the efficient use of technology has been utilized in library sciences in few countries (Crawford et al., 2020;

Samaroudi et al., 2020). While the majority of the countries are still far behind the effective use of technology in library sciences (Creech, 2019; Merkel, Heinze, Hilbert, & Naegele, 2019; Nour, 2015; Rivas et al., 2019). It is revealed the bibliometric methods are also used for the analysis of the documents and publications (Kuzhabekova, 2021; Tallolli & Mulla, 2020; Tomaszewski, 2020). However, the developing countries are unable to develop the databases even for local use (Butler-Henderson et al., 2020; Cirelli & Long, 2020). Moreover, most of the developing countries are using the databases of developed nations including the web of knowledge (Peponakis, 2013). Although, few countries are working on indigenous data banks however these have not been active so far (Gaetjens, 2020; Perkins, 2020; Stearns, Revitt, & Leonard, 2020). Similarly, the developing countries lag behind the development of methods of analysis (Atta-Obeng & Dadzie, 2020; Chidi Nuel-Jean & Okoye, 2020). All the countries are using the software that is tested and verified by the developed nations (Asamoah, 2020).

The Data and Methods

For this study, we extracted data extracted from the Science Citation Index database, Web of Science (Core Collection) employing bibliometric analysis. We used the following searched query in Web of Science: TI=(“Electronic Collection*” AND Librar*) OR TI=(“Digital Collection*” AND Librar*) OR TI=(“Digital Resources” AND Librar*) OR TI=(“Electronic Book*” OR “E-Book*”) OR TI=(“Electronic Resources” OR “E-Resources” AND Librar*). The data was extracted from 2001 to 2020 years on March 23, 2021, at 04:20 PM, PST. The searched query found 2002 published documents on the subject under consideration. For analysis, we used Biblioshiny, ScientoPy, VOSviewer, and MS Excel software. Further, different tables and figures were developed on the subject to show the trend of data.

Results and Discussion

This section provides the results and discussion on the issue under discussion. It is important to mention here that it is further divided into different sub-parts as mentioned the followings;

Topic and Type of Published Documents

Table 1 indicated the topic and type of the published documents on the subject under discussion employing bibliometric analysis from 2001 to 2020. The data revealed that 68.18 percent of the published documents were published on the topic of ‘electronic books or e-books and library’ and 25.37 of the documents were published with the title ‘electronic resources or e-resources and library’. Similarly, 3.2 percent of the documents were published with the title 'digital resources and

library', 2.8 percent of the documents with the title 'digital collection and library', and only.45 percent of the documents were published under the title 'electronic collection and library'. It is important to mention here that more than half of the documents were published with the title 'electronic books or e-books and library'.

Table 1
Topic and Type of Published Documents (2001-2020)

The topic of the documents	Total Publications	Percentage
Electronic Books OR E-Books AND Library	1365	68.18
Electronic Resources OR E-Resources AND Library	508	25.37
Digital Resources AND Library	64	03.20
Digital Collection AND Library	56	02.80
Electronic Collection AND Library	09	00.45
Total	2002	100.00
Type of the documents	Total Publications	Percentage
Article	1069	53.40
Proceedings Paper	409	20.43
Book Review	282	14.08
Editorial Material	103	05.14
Meeting Abstract	37	01.85
Review	32	01.60
News Item	21	01.05
Letter	16	00.80
Article cum Proceedings Paper	15	00.75
Correction	06	00.30
Article cum Early Access	05	00.25
Software Review	04	00.20
Bibliography	02	00.10
Biographical-Item	01	00.05
Total	2002	100.00

Table 1 also asserted the type of the published documents from 2001 to 2020 based on the bibliometric analysis. It is important to mention here that 2002 total published documents, 806 sources, 8.63 average years of publication, 5.08 average citations per document, 0.5143 average citations per year per document, and 26566 references were found based on current analysis. Further, 53.40 percent of the documents were published in form of an article, and 20.43 percent of the documents were published as proceeding papers. It is worth mentioning to state here that the type of published documents was also reported as a book review, editorial material, meeting abstract, review, news item, letter, article cum proceedings paper, correction, article cum early access, software review, bibliography, and biographical-item. Hence, to sum up, more than half of the published documents were in the form of the article as the type of the published documents.

Language and Year of the Published Documents

Table 2 pointed out the language and year of the published documents from 2001 to 2020 employing the bibliometric analysis technique. Analysis showed that the majority (90.759 %) of the documents were published in the English language and 2.997 percent of the documents were published in Spanish. Similarly, only a smaller portion of the documents was published in the other languages i.e., German, Russian, Portuguese, Catalan, French, Italian, Turkish, Ukrainian, Chinese, Croatian, Polish, Arabic, Czech, and Japanese. It is important to mention here that there were 16 languages used in the published documents on the subject from 2001 to 2020.

Table 2
Language and Year of the Published Documents (2001-2020)

Languages	TP*	Percentage	Languages	TP*	Percentage
English	1817	90.759	Turkish	7	0.35
Spanish	60	2.997	Ukrainian	3	0.15
German	27	1.349	Chinese	2	0.10
Russian	24	1.199	Croatian	2	0.10
Portuguese	16	0.799	Polish	2	0.10
Catalan	15	0.749	Arabic	1	0.05
French	12	0.599	Czech	1	0.05
Italian	12	0.599	Japanese	1	0.05

TP* = Total Publication

Year	Total Publication	Percentage	Year	Total Publication	Percentage
2001	50	2.498	2011	139	6.943
2002	33	1.648	2012	129	6.444
2003	52	2.597	2013	155	7.742
2004	46	2.298	2014	153	7.642
2005	64	3.197	2015	163	8.142
2006	61	3.047	2016	138	6.893
2007	82	4.096	2017	132	6.593
2008	83	4.146	2018	138	6.893
2009	71	3.546	2019	119	5.944
2010	99	4.945	2020	095	4.745

Table 2 also presented the year of the published documents. Data described that 50 documents were published in 2001, 33 documents in 2002, and 52 documents were published in 2003. It is important to mention here that the highest number of documents were published in 2015 i.e., 163 in total number. Further, the trend of data showed that the documents were gradually increased with time and change in a year.

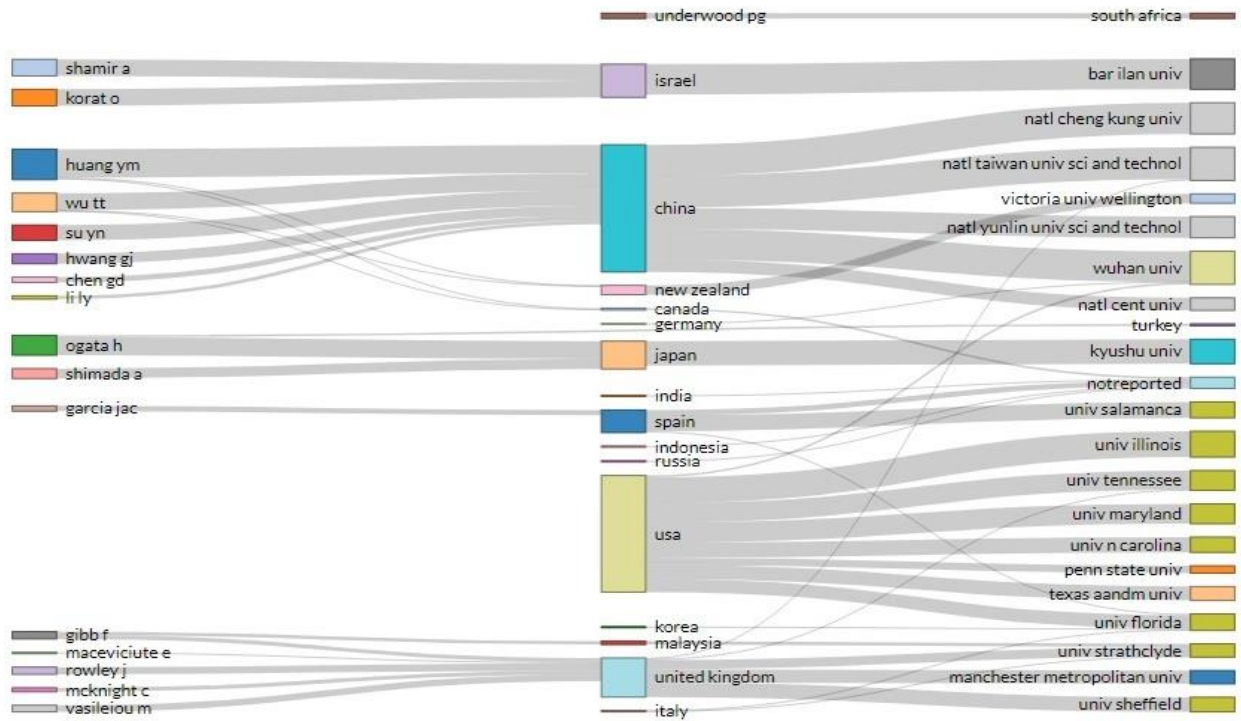


Figure 1. Three-factor analysis - authors (left), countries (middle), and organizations (right)

Top Ten Productive Authors and Organizations

Table 3 described the top ten productive authors and organizations employing bibliometric analysis from 2001 to 2020. Analysis indicated that the name of Huang YM was at top of the list with 0.6 h_index, 273 g_index, 20 m_index, 16 citations, 6 publications, and 2012 starting publication year. Similarly, the name of Shamir A secured the second position in the top ten productive authors list from 2001 to 2020 with 0.667 h_index, 511 g_index, 18 m_index, 18 citations, 12 publications, and 2004 starting publication year. Further, the name of Hwang GJ was at the bottom of the top ten productive authors list with 64 g_index, 7 m_index, 7 citations, 4 publications, and the 2017 starting publication year. It is important to mention here that the analysis indicated that 3475 authors, 4267 author appearances, 793 authors of single-authored documents, 2682 authors of multi-authored documents, 930 single-authored documents, 0.576 documents per author, 1.74 authors per document, 2.13 co-authors per documents, and 2.5 collaboration index.

Table 3 also revealed the organization of the documents published from 2001 to 2020 employing the bibliometric analysis technique. Data described that the name of 'Bar Ilan Univ., Israel' was at top of the list of organization of the published documents with 11 h-index and the name of 'National. Cheng Kung Univ., Taiwan' secured second position with 6 h-index. Similarly, the list also included the names of 'National. Taiwan Univ. Sci. & Tech., Taiwan', 'National. Yunlin

Univ. Sci. & Tech., Taiwan’, ‘UCL, United Kingdom’, and ‘Kyushu Univ., Japan’. Further, the name of ‘Univ. Illinois, United States was at bottom of the list of organizations. It is important to mention here that there were 1493 organizations found for the published documents from 2001 to 2020.

Table 3
Top Ten Productive Authors and Organizations (2001-2020)

Author	TP*	TC*	h_index	g_index	m_index	PY*_start
Huang YM	6	16	0.6	273	20	2012
Shamir A	12	18	0.667	511	18	2004
Korat O	11	17	0.611	545	17	2004
Ogata H	4	6		47	14	2016
Wu TT	3	4	0.3	31	14	2012
Maceviciute E	1	2	0.1	4	9	2012
Su YN	4	9	0.4	142	9	2012
Shimada A	3	4		24	8	2016
Diaz JRS	0	0	0	0	7	2016
Hwang GJ	4	7		64	7	2017

TC* = Total Citations, TP* = Total Publication, PY* = Publication Year

Organization	TP*	AGR*	ADY*	PDLY*	h-index
Bar Ilan Univ., Israel	23	-1	2	17.4	11
National. Cheng Kung Univ., Taiwan	21	-1.5	0.5	4.8	6
National. Taiwan Univ. Sci. & Tech., Taiwan	16	-0.5	2.5	31.2	4
National. Yunlin Univ. Sci. & Tech., Taiwan	16	-3.5	0	0	4
Univ. Salamanca, Spain	14	0	0	0	4
Wuhan Univ., China	12	0	0.5	8.3	7
Kyushu Univ., Japan	10	0	0.5	10	3
UCL, United Kingdom	10	-0.5	0	0	6
Natl. Cent Univ., Taiwan	9	-1	0	0	4
Univ. Illinois, United States	9	0	1	22.2	4

TP* = Total Publication, AGR* = Average Growth Rate, ADY* = Average Documents per Year, PDLY* = Percentage of Documents in Last Years

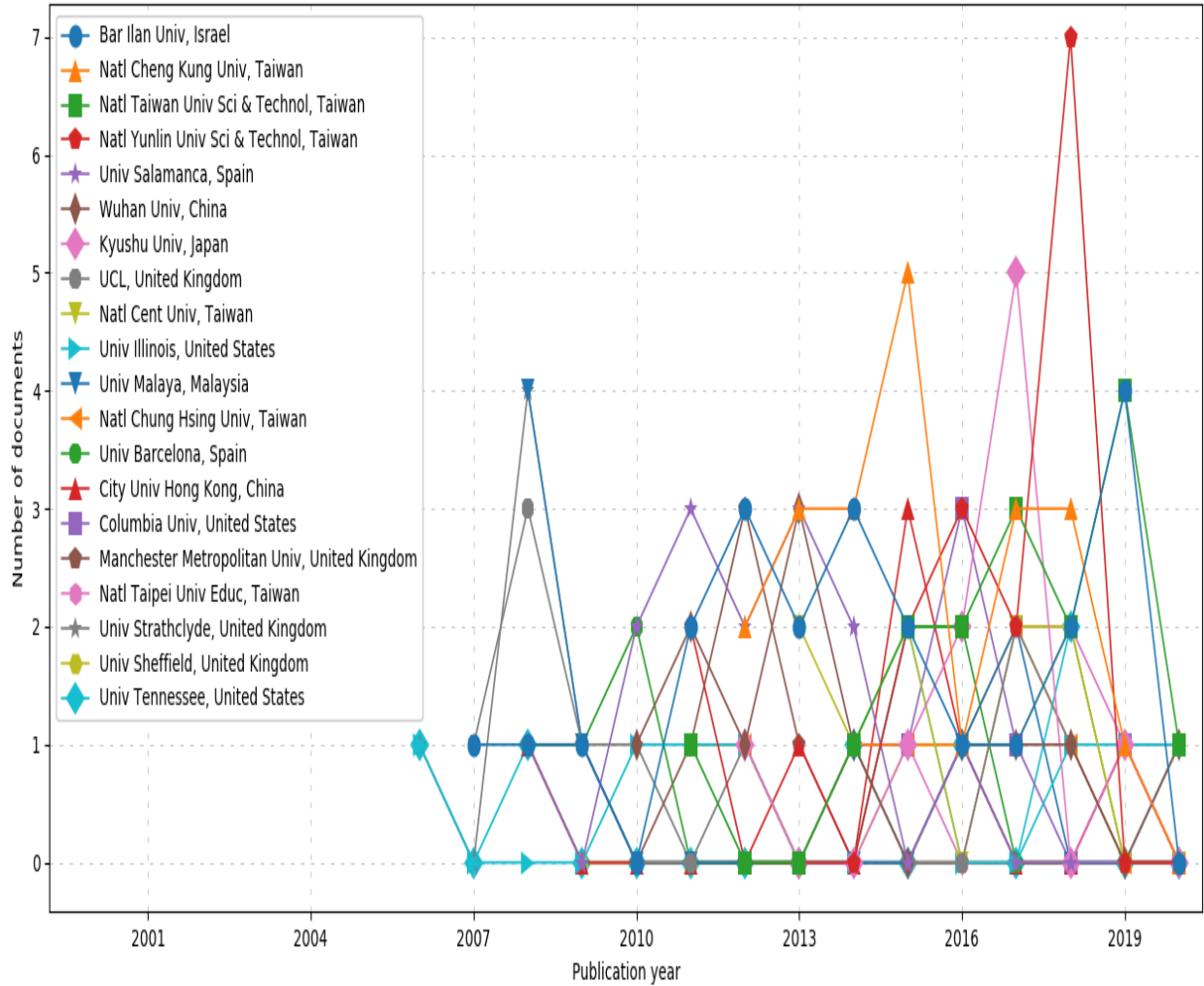


Figure 2. Top Productive Organizations (2001-2020)

Top Ten Countries and Keywords

Table 4 asserted the top ten countries and keywords employing bibliometric analysis techniques from 2001 to 2020. Analyzed data pointed out that the name of the United States was at top of the list of top ten countries with 629 publications and the name of China secured the second position in the list with 229 publications. It is important to mention here that the name of United Kingdom, Spain, Canada, India, Australia, Japan, and Malaysia was also in the list of top ten countries list of the published documents. Further, the name of Germany was placed at the bottom of the top ten countries list of published documents. Furthermore, the analysis also reported that there were 85 countries in total mentioned on the list of published documents from 2001 to 2020.

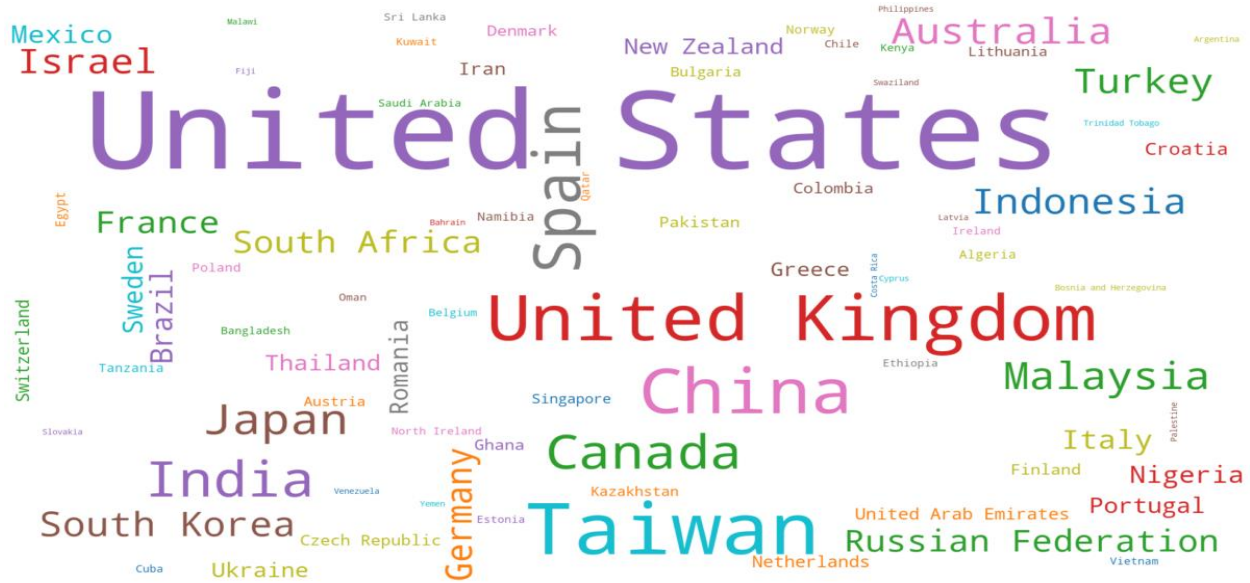


Figure 3. Top Productive Countries (2001-2020)

Table 4

Top Ten Countries and Keywords (2001-2020)

Country	TP*	Frequency	SCP*	MCP*	MCP*_Ratio
USA	629	0.351004	625	04	0.006360
China	229	0.12779	210	19	0.082970
United Kingdom	131	0.073103	122	09	0.068700
Spain	77	0.042969	70	07	0.090910
Canada	64	0.035714	55	09	0.140620
India	61	0.03404	61	00	0.000000
Australia	40	0.022321	38	02	0.050000
Japan	40	0.022321	37	03	0.075000
Malaysia	33	0.018415	27	06	0.181820
Germany	31	0.017299	29	02	0.064520

TP* = Total Publication, SCP* = Single Country Publications, MCP* = Multiple Country Publications

Keywords	f	TLS*	Keyword	f	TLS*
Electronic Books	594	658	Publishers	21	38
Electronic Resources	249	333	Digital Collections	20	62
Academic Libraries	88	181	Mobile Learning	19	27
E-Book Reading	50	57	Copyright Law	17	29
Digital Libraries	47	53	Cataloging	14	26
University Libraries	85	162	Surveys	13	34
Collections Management	35	64	Acquisitions	11	27
Information Technology	25	35	Databases	11	15
User Studies	25	61	Bibliographies	04	06
Usage Statistics	22	45	Digital Books	04	06

TLS* = Total Link Strength

Table 4 also described the list of top keywords of the published documents. Data indicated that electronic books were at the top of the list as a keyword with an occurrence of 594 and 658 total link strength. Similarly, electronic resources secure the second position as a keyword in the list with 249 occurrences. It is important to mention here that other keywords were also mentioned on the list of top keywords including academic libraries, e-book reading, digital libraries, university libraries, collections management, information technology, user studies, usage statistics, publishers, digital collections, mobile learning, copyright law, cataloging, surveys, acquisitions, and databases. However, the keyword bibliographies and digital books were placed at the bottom of the list with 4 publications each. It is worth mentioning to state that there were 3663 all keywords, 947 keywords plus (ID), and 3098 author's keywords (DE). Further, the analysis also reported that there were 16 clusters, 190 items, 787 links, and 1681 total link strength.

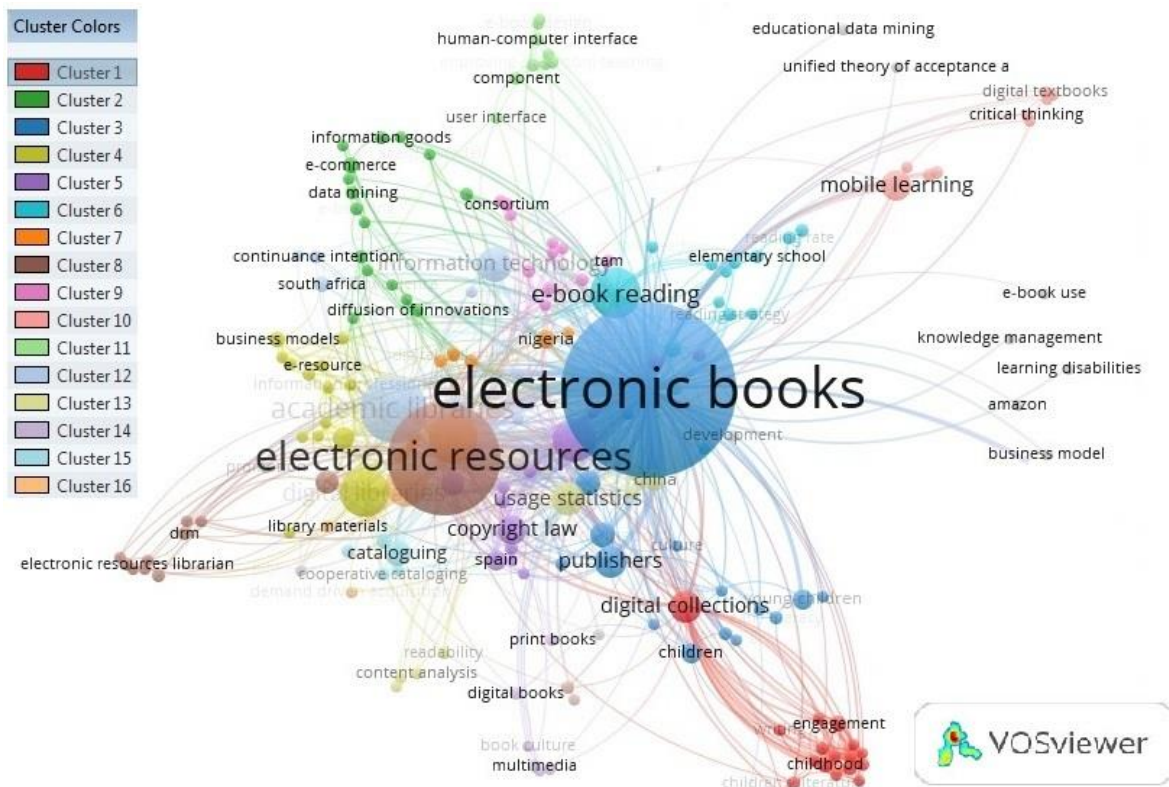


Figure 4. Co-Occurrences of Keywords (2001-2020)

Ten Sources of Publications

The analysis presented in Table 5 (see Appendix A) revealed the top ten sources of publications from 2001 to 2020 employing bibliometric analysis. Data indicated that the electronic library was

the top source of published documents with 14 h_index, 21 g_index, 0.666667 m_index, 64 publications, 616 citations, and 2001 years of publication. Similarly, serials review placed at second position in the list of the top sources of published documents with 6 h_index, 9 g_index, 0.352941 m_index, 44 publications, 104 citations, and 2005 year of publication. However, college & research libraries placed at the bottom of the list of top sources of published documents from 2001 to 2020 with 12 h_index, 17 g_index, 0.571429 m_index, 29 publications, 334 citations, and 2001 year of publication. It is important to mention here that the total sources of the published documents were 806 in number.

Top Ten Documents by Citations

Data analysis indicated in Table 6 (see *Appendix B*) top ten published documents by citations from 2001 to 2020. Results asserted that the published document was written by Woody, WD; Daniel, DB; Baker, CA was at the top of the list with 245 citations, published in 2010, and had 4 pages (ISSN=0360-1315, VO./No.=55/3) and Shelburne, WA secured the second position in the top-cited documents with 117 citations, published in 2009, and had 14 pages (ISSN=1464-9055, VO./No.=33/2-3). However, the author's name Kang, YY; Wang, MJJ; Lin, RT was at bottom of the top ten documents by citations with 92 citations, published in 2009, and had 4 pages (ISSN=0141-9382, VO./No.=30/2).

Conclusion

The overall conclusion that we reached based on the bibliometric analysis enabled us to gain more in-depth insights into the electronic collections and support to recognize variables that were used during research on the subject underhand. The study was mainly based to assess electronic collections, digital collections, digital resources, e-books, e-resources using the bibliometric analysis technique of published documents indexed in Web of Science from 2001 to 2020. Data analysis results concluded that the top topic of published documents is electronic books or e-books and library, article as a type, English as the top language, top publications in 2016, and Huang YM was the top author. Data analysis also asserted that the top organization was Bar Ilan Univ., Israel, United States as the top country, electronic books were top keyword, and electronic library with 616 citations was as a top source of publication. The study suggested that further bibliometric analysis techniques may be employed from other databases and using other electronic and digital collections-oriented topics.

Limitations of the Study

The current bibliometric analysis technique was employed on published documents in the Web of Science only and we did not use other databases. Further, it only focused to examine electronic collections, digital collections, digital resources, e-books, e-resources using the bibliometric analysis technique of published documents indexed in Web of Science from 2001 to 2020. Hence, we did not use other related topics that were interlinked with the digital collections and resources.

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Appendix A

Table 5

Ten Sources of Publications (2001-2020)

Sources	TP*	TC*	h_index	g_index	m_index	PY*_start
Electronic Library	64	616	14	21	0.666667	2001
Serials Review	44	104	6	9	0.352941	2005
Technical Services Quarterly	43	9	2	2	0.125	2006
Program-Electronic Library and Information Systems	42	259	9	15	0.45	2002
Journal of Academic Librarianship	40	371	12	19	0.571429	2001
Library Resources & Technical Services	39	230	7	14	0.333333	2001
Library Collections Acquisitions & Technical Services	37	379	9	19	0.428571	2001
Collection Building	30	178	8	13	0.5	2006
DESIDOC Journal of Library & Information Technology	30	49	4	5	0.363636	2011
College & Research Libraries	29	334	12	17	0.571429	2001

TP* = Total Publications, TC* = Total Citations, PY* = Publication Year

Appendix B

Table 6

Top Ten Documents by Citations (2001-2020)

DOI	Authors	ISSN	Vol./No.	Pages	PY*	TC*
10.1016/j.compedu.2010.04.005	Woody, WD; Daniel, DB; Baker, CA	0360-1315	55(3)	4	2010	245
10.1016/j.lcats.2009.04.002	Shelburne, WA	1464-9055	33(2-3)	14	2009	117
10.1598/RRQ.39.4.2	De Jong, MT; Bus, AG	0034-0553	39(4)	16	2004	108
10.1007/s11423-012-9237-6	Huang, YM; Liang, TH; Su, YN; Chen, NS	1042-1629	60(4)	20	2012	110
10.1016/j.compedu.2009.11.014	Korat, O	0360-1315	55(1)	8	2010	108
10.1111/j.1365-2729.2006.00213.x	Korat, O; Shamir, A	0266-4909	23(3)	12	2007	99
10.2190/EC.40.1.c	Zucker, TA; Moody, AK; McKenna, MC	0735-6331	40(1)	41	2009	97
10.1016/j.compedu.2006.04.002	Korat, O; Shamir, A	0360-1315	50(1)	15	2008	96
10.1111/j.1467-8535.2006.00640.x	Grimshaw, S; Dungworth, N; McKnight, C; Morris, A	0007-1013	38(4)	17	2007	87
10.1016/j.displa.2008.12.002	Kang, YY; Wang, MJJ; Lin, RT	0141-9382	30(2)	4	2009	92

PY* = Publication Year, TC* = Total Citations