



MAPPING OF SOFT SKILLS RESEARCH: A CITATION AND KEYWORD ANALYSIS

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Abstract

Soft skills are character traits and interpersonal talents that one possesses. They are often referred to as people skills. Nowadays, organisations are interested in the soft skills of their employees. So, this is a hot topic for the researcher. A lot of studies conducted by the researcher study the importance, barriers and other important aspects related to the soft skills concept. Still, there is a need for a comprehensive study that gives detailed information about the most productive authors, countries, documents and most used authors' keywords in soft skills research. Therefore, the goal of this study is to study the trends in soft skills research and identify the most productive authors, countries and documents. In addition, to map the top keywords used by the researcher in soft skills research. To achieve the study's objective, related data is retrieved from the Scopus database and biblometrix for bibliometric software used to analyse the result of the study; the result of the study is helpful for the potential researcher in making future research questions.

Keywords: *Soft Skills, Technology, Bibliometric, Citation Analysis, Keyword Analysis.*

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Introduction:

The "people-related skills" and the "personal skills" (attributes) listed above are examples of "soft skills," as stated in the definition. The terms "applied" and "21st-century skills" can also be used to describe "soft" skills. Soft skills are more closely related to who we are than our knowledge. Precision Consultancy (2006) identified six skills required for employees' employability.

- Personal skills
- People-related skills
- Community skills
- Business skills
- Conceptual/thinking skills
- Basic/fundamental skills

The skills that organisations are searching for in recent business professionals have been significantly impacted by technology. Because of the transition from an industrial economy to an information era and an office culture, morality, interaction, and flexibility are becoming more valued traits in many professions. Hard skills, or technical abilities, were historically the only ones needed for employment; however, the workplace of today shows that hard skills are insufficient to keep individuals employed when businesses are correct and decreasing positions. (Maes et al., 1997). The importance of developing soft skills is being emphasised by present and future business leaders since they are necessary for effective work performance today (Daim et al., 2012). While many excellent educational curricula also focus on technical abilities, university curricula should pay greater attention



to soft skills so that students can appreciate the importance of communication skills early on in their academic qualifications before embarking on a business career. There has been a significant amount of research done on the value of soft skills in the workplace. One analysis revealed that only 25% of long-term job success is influenced by technical expertise, and 75% is by interpersonal skills. (Nealy, 2005). Another study found that just 15% of achievement is attributable to hard skills, with soft skills accounting for 85% of success (Mitchell et al., 2010). A substantial literature on soft skills already exists, but there is a need for a study that gives information about the current trend of publication on soft skills and the most productive authors, countries, documents and most used authors keywords in soft skills research. So gives detailed information about the most productive authors, countries, documents and most used authors keywords in soft skills research.

Methodology:

Data collection:

This study used a screening technique to identify and extract pertinent research publications for inclusion from the Scopus database. We selected the top research papers since Scopus is the most extensive database that includes top journals, subject fields, study types, study languages, keyword selection, published articles or press articles, year of publication, and many more. More than 25,000 journals, 360 trade magazines, 17,000,000 researcher profiles, 81,000,000 curated papers, 80,000 institution profiles, and 7,000 publishers assessed are all included (Polit, n.d.) . In contrast to other databases like Web of Science, Google Scholar, Scientific Electronic Library Online, and Research Gate, this study used Scopus to acquire the data (Gallardo-Gallardo et al., 2015). We used “Soft Skills” as a search term in the search string of the Scopus database. the search is limited within the title as this helped to retrieve the related document. 1022 documents are identified that are related to soft skills, but we excluded 59 studies that are related to the non English language such as Spanish, German, Russian, French, Portuguese, Indonesian, Croatian, Italian, Chinese, Dutch, Malay and Polish. At last, this study extracted 963 studies in a BibTeX file contains important details about each publication, the subject area, including the names of the authors, the type of publication, the name of the journal, the nation, the organisation, and keywords. This study enabled us to answer the following research questions:

1. To study the trend of publications regarding soft skills.
2. To study the most productive author in researching soft skills.
3. To identify the most productive countries for conducting research on soft skills.
4. To identify the top keywords used in the soft skills research.

Analysis technique:

The bibliometric analysis technique is used in this study to achieve the objective of the study.

Software:

A software programme called Bibloshiny for Biblometrix meticulously builds and visualises the bibliographic network (CHUNG & COX, 1990) . The researcher commonly uses Bibloshiny for biblometrix programmes to assess the bibliographic information. As opposed to other bibliographic software tools like Vos viewer, Bibloshiny for biblometrix has been extensively used for carrying out bibliographic data analysis in a number of subject disciplines (Broadus, 1987; Ge & Zhang, 2021).

**Results:****Descriptive information of retrieved documents:**

Table 1 gives information about retrieved documents. There are 969 documents on soft skills from 620 journals having 2701 keywords plus 1967 authors' keywords from 1981 to 2022. 9.815 average citations received by each document in this research. A number of 2396 authors participated in conducted research on soft skills. Around 178 documents are single-authored and 2218 documents are multi-authored. Approximately 3 authors collaborated for a document on soft skills. 2.92 is the collaboration index for conducted research on this topic.

Table 1 Description of the Data

Description	Results
Collaboration Index	2.92
Authors per Document	2.49
Single-authored documents	204
Authors of multi-authored documents	2218
Period	1981 - 2022
Average citations per document	9.815
Authors	2396
Authors of single-authored documents	178
Author's Keywords (DE)	1967
Keywords Plus (ID)	2701
Sources (Journals, Books, etc.)	620
Documents	963

Information about Document by Type:

Table 2 depicts 508 articles, seven books, 42 book chapters, 319 conference papers, ten editorials, one erratum, seven letters, 16 notes and three retracted published on soft skills. This information shows that the retracted, notes, letters, erratum and editorials are minimal. The researchers are not much worked on it. They all are 4.70 % of total publications. However, articles are approximately 55% of total publications, and conference papers are ranked second at 33 % publication of the total. As well as book chapter ranked 3rd in the number of publications in total.

Trend of publications:

Figure 1 presents the yearly output of the publications. Figure 1 depicts that the research on soft skills was published in 1981. However, the research on this topic was not increasing till 2009. After 2009 the number of publications increased but at a very slow rate. But in the years 2016 to 2022 the publications show an increasing trend it depicts that researchers are taking interest in conducting research on soft skills.

Table 2 -Number of Documents by Type

Document types	Number of Documents
Article	508
Book	7
Book Chapter	42
Conference Paper	319
Editorial	10
Erratum	1
Letter	7



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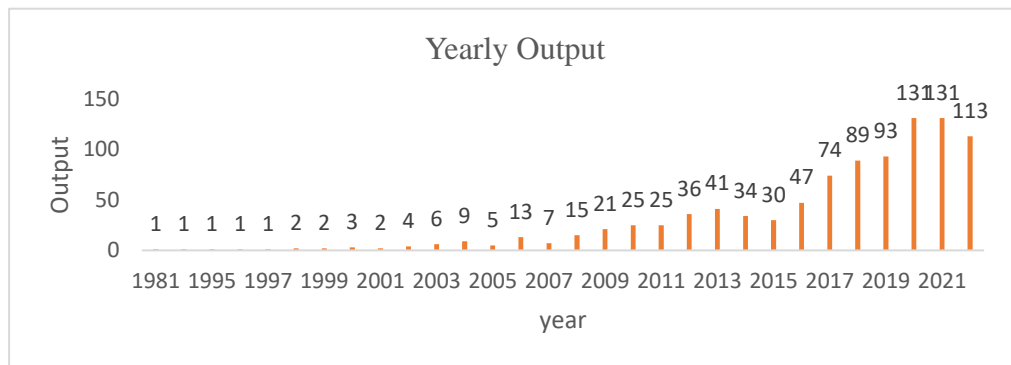


Figure 1- Yearly Output of Publications

Most Productive Authors:

Figure 2 shows the top 20 authors most cited in the soft skills research. Heckman J. J. is on the top out of 2396 authors with 149 citations (Table 3). Robles M. M. is on the second rank with 103 citations, followed by Goleman D. and Kautz T. However, Crawford A. and Cimatti B. with 39 citations each. A citation indicates the quality of products in the research, and it implies that it will also be helpful in the production of other publications (Rey-Martí et al., 2016). Table 3 gives information on citations that 20 authors received.

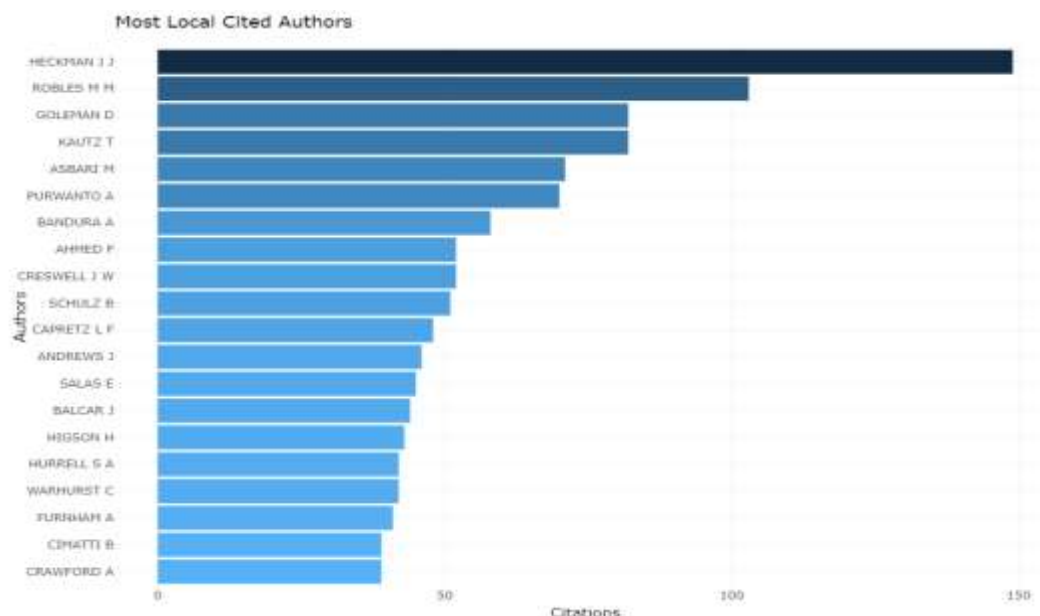


Figure 2- Most Productive Authors

Most Productive Countries in Soft Skills Research :

Figure 3 presents the production of publications all over the world. There are three colours in this figure. Dark blue colour represents that the researcher of that country is taking an interest in soft skills research. The light blue colour depicts that the research on soft skills is less in these countries in comparison to dark blue-coloured countries. grey colour represents that there is no publication available in these countries regarding soft skills.



A total of 76 countries participated in the research on soft skills. Table 4 shows that the USA is among the top 10 most cited countries with 3681 citations, followed by the United Kingdom with 772 and Malaysia with 449 citations. However, Spain and France are on the least with 136 and 116 citations respectively.

Table 3- Authors Citation Information

Author	Citation
HECKMAN J J	149
ROBLES M M	103
GOLEMAN D	82
KAUTZ T	82
ASBARI M	71
PURWANTO A	70
BANDURA A	58
AHMED F	52
CRESWELL J W	52
SCHULZ B	51
CAPRETZ L F	48
ANDREWS J	46
SALAS E	45
BALCAR J	44
HIGSON H	43
HURRELL S A	42
WARHURST C	42
FURNHAM A	41
CIMATTI B	39
CRAWFORD A	39

Table 5 gives information about the name of the top 10 countries in the research publication and the number of publications per country. USA, Malaysia and Indonesia are on the top with 336, 154 and 116 publications, respectively. In addition, Spain, Germany and South Africa are the least among the top 10 countries. The top 10 countries are all the most developed countries that depict that the developed countries are more aware of soft skills development in comparison to developing countries.

Country Scientific Production

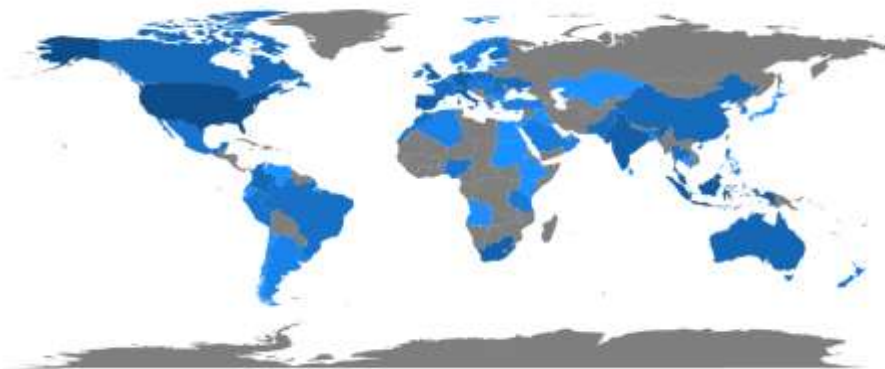


Figure 3- Most Productive Countries

Table 4- Most Cited Countries in Softs skills Research

Countries	Citation	Average article citation
USA	3681	25.386
United Kingdom	772	22.057
Malaysia	449	6.803
Italy	264	8.250
India	252	6.632
Canada	210	14.000
Australia	207	10.895
South Africa	166	9.222
Spain	136	4.121
France	116	12.889

Table 5- Top 10 Countries in the Research on Soft Skills

Counties	Number of publications
USA	336
Malaysia	154
Indonesia	116
Portugal	81
Uk	76
Italy	75
India	71
Spain	71
Germany	61
South Africa	51

Figure 4 shows the keyword analysis of the top 50 author keywords. The boldness and size of the word depict the importance of the word soft skills research. Soft skills are used by most of the authors in their research that is followed by the students and personnel training.



Figure 4- keyword Analysis of Softs Skills Research



Table 6 gives information about the keyword and their occurrence in the soft skills research. Soft skills were used 241 times, and students on the second rank occurred 216 times. This table indicates that most research was conducted on students, teachers, females etc. Table 7 give information about the top 10 most cited publication on soft skills research. The citation indicates that these publications are very important for soft skills research.

Table 6- Top 10 keywords used in Soft Skills Research

Keyword	Occurrence
Soft Skills	241
Students	216
Personnel Training	137
Engineering Education	108
Education	95
Human	88
Curricula	81
Teaching	75
Humans	54
Female	47

Table 7- Top 10 Cited Publication in Soft Skills Research

Author	Source	Citation
Heckman & Kautz (2012)	Labour Economics	632
Robles (2012)	Business Communication Quarterly	559
Andrews & Higson (2008)	Higher Education in Europe	479
Moss & Tilly (1996)	Work And Occupations	275
Laker & Powell (2011)	Human Resource Development Quarterly	198
de Carvalho & Rabechini Junior (2015)	International Journal of Production Research	164
Kumar & Hsiao (2007)	Leadership And Management In Engineering	162
Succi & Canovi (2020)	Studies In Higher Education	122
Stevenson & Starkweather (2010)	International Journal of Project Management	121
Shakir (2009)	Asia Pacific Education Review	102

Conclusion:

Soft skills are very necessary for individuals in today's competitive environment. The trend of soft skills research depicts that the importance of soft skills research has improved over the past few years. Heckman J. J. is number one among all authors of soft skills research with 149 citations, and USA is ranked first with 3681 citations and 336 publications. "Hard Evidence on Soft Skills" is the most productive paper that was important for 632 publications. "soft skills" is the most used keywords in the various publications it was used 241 times followed by Students 216 times. So, this research will helpful for the various potential researcher to set the future research question in their potential research of soft skills.

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Cite This Article:

* **Deepa (2023)**. *Mapping of Soft Skills Research: A Citation and Keyword Analysis*, **Educreator Research Journal, Volume-X, Issue-I, Jan –Feb 2023, 146-154.**