Emergence of Wisdom Research in Higher Education during 1988-2022: A Bibliometric Analysis

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Purpose: This paper explores the emerging trends and themes of wisdom research in higher education during the 1988-2022 period.

Study design/methodology/approach: Wisdom publications (*n=523*) found in the Web of Science database were quantitatively analysed. We applied Bibliometric Analysis to map the emerging research themes and trends (i.e., citation, co-citation, bibliographic coupling, co-word, and co-authorship analyses). VOSviewer software was used for analysis and visualisation.

Findings: Findings indicated an exponential growth in wisdom publications that could provide opportunities for educational researchers for many years ahead. The main emerging themes were: pedagogy, teaching, students, intelligence, character, ethics, wisdom, local wisdom, phronesis, practical wisdom, spirituality, empathy, inequality, mindfulness, sustainability, and human capital.

Originality/value: This study uses the science mapping technique of Bibliometric Analysis, which is still a new method in educational research.

Need for Wisdom

Our world is complex, chaotic, highly interconnected, and full of crises. The World Economic Forum annually publishes The Global Risks Report (W.E.F., 2023). According to the latest report, in the long run, over 10 years, the top five risks are (1) failure to mitigate climate change; (2) failure of climate-change adaptation; (3) natural disasters and extreme weather events; (4) biodiversity loss and ecosystem collapse, and (5) large-scale involuntary migration. (W.E.F., 2023, p. 6). The top five short-term crises are (1) cost-of-living crisis; (2) natural disasters and extreme weather events; (3) geoeconomic confrontation; (4) failure to mitigate climate change; and (5) erosion of social cohesion and societal polarisation (W.E.F., 2023, p. 6).

Karami and Parra-Martinez (2021) argue that the need for wisdom during the COVID-19 crisis has increased as it was an important time for humanity. They write that in times of crisis, "Wise people combine knowledge, self-regulation, creative thinking, sound judgment, openness and tolerance, and moral maturity and altruism into dynamic balance and translate it into the best practice and best solution needed in a given context" (Karami & Parra-Martinez, 2021, p. 49). They argue that in times of crises, we need wisdom because wisdom is a situational construct that involves the adequate use of knowledge, intelligence and creativity, self-regulation, openness and tolerance, altruism and moral maturity, and sound judgment to solve critical problems. Wise thinking is, in turn, translated into wise action to face personal and social challenges" (Karami & Parra-Martinez, 2021, p. 42).

In our age, data, information, and knowledge have become abundant. However, it seems that only knowledge is not enough anymore to make wise judgements and decisions and act wisely. People experience data and information tsunamis (Deloitte, 2021) that cause moral and ethical crises. It becomes harder to identify reliable, valid sources, distinguish them from fake news and information, to make sense and decisions on available knowledge. Russell, already in the 1950s, argued that "the world needs wisdom as it has never needed it before, and if knowledge continues to increase, the world will need wisdom in the future even more than it does now" (Russell, 1956, p. 177). We agree with Russell, who claimed that „although our age far

surpasses all previous ages in knowledge, there has been no correlative increase in wisdom" (Russell, 1956, p. 173). He also pondered if wisdom can be taught and if teaching wisdom should be one of the aims of education, and he answered both of these questions positively.

We live in an era where technology is taking the lead with human robotics, artificial intelligence, and ChatGpt. However, the question is how humans can use technology for the betterment of the world. For this, we need people who can think, feel, make judgments, and act wisely. Ling (2020) focuses on the role of universities and argues that "to take the lead in times of crisis, universities are required to bring to bear theoretical understandings, practical experience, critical thinking, risk-taking, creativity and intellect and to take action that publicly demonstrates and exemplifies these characteristics. The key then is to have the wisdom to know how to use that knowledge for good rather than ill" (Ling, 2020, p. 363). Therefore, the role of education and higher education in fostering learners' wisdom has become essential. However, the question arises if higher education is ready to teach wisdom.

According to Maxwell (2021a), vital changes are needed in higher education and universities (Maxwell, 2012). Since the 1970s, he has demanded revolutionary changes in higher education and universities (Maxwell, 2014), as he is convinced that universities have betrayed reason and humanity (Maxwell, 2021b). Maxwell urges for more wisdom in higher education; for replacing knowledge-inquiry with wisdom-inquiry; and creating a wiser world by moving towards the 'Wisdom University' (Maxwell, 2012). He strongly believes that having knowledge is not enough. The aim should be to use that knowledge wisely for the benefit of all (Maxwell, 2014, 2021a). He urges universities to revolutionise themselves and move towards the 'University of Wisdom' with the aim "to help humanity make progress towards as good a world as feasible" (Maxwell, 2012, p. 123). Maxwell believes that human intellectual and welfare can be promoted by wisdom inquiry (Maxwell, 2012, pp. 133-135). He concludes that university research has been devoted primarily to acquiring knowledge and technological know-how. But knowledge and technological know-how increase our power to act which, without wisdom, can lead to as much harm as a benefit" (Maxwell, 2012, p. 137). According to him, there is an urgent need for an academic revolution (Maxwell, 2014) because the world is in crisis (Maxwell, 2021a). He is very critical towards the current universities. He claims, "Humanity is in deep trouble, partly because our institutions of learning, our universities, have long been seriously defective intellectually, and thus dysfunctional" (Maxwell, 2021b, p. 10). He concludes that „we urgently need to create a high-profile campaign devoted to transforming universities in the way required so that humanity may learn how to make social progress toward a better, wiser, more civilised, enlightened world" (Maxwell, 2021b, p. 1).

Wisdom has become the focus of many disciplines since the 1980s: in leadership and human resource management (Bachmann *et al.*, 2018; Banerjee, 2014; Ekmekçi *et al.*, 2014; Jakubik, 2021a; Jakubik & Müürsepp, 2022; McKenna & Rooney, 2005; McKenna *et al.*, 2009; Nonaka *et al.*, 2014; Rooney *et al.*, 2010; Solé, 2017); in psychology (Ardelt, 2004; Baltes & Staudinger, 2000; Bangen *et al.*, 2013; Bruya & Ardelt, 2018; Jeste *et al.*, 2010; Karami *et al.*, 2020; Karami & Parra-Martinez, 2021; Sternberg & Karami, 2021); in educational philosophy (Barnett, 1994a, 1994b, 2011, 2015, 2018, 2022; Diamond, 2021; Jakubik, 2021b; Maxwell, 2012, 2014, 2019a, 2019b, 2021a, 2021b; Müürsepp, 2021; Robinson, 1990). However, as many scholars (Diamond, 2021; Jakubik, 2022; Karami & Parra-Martinez, 2021; Ling, 2020; Maxwell, 2012, 2014, 2021a, 2021b) argue, there has not been enough attention paid to how wisdom can be cultivated (pedagogy) in persons in higher education. They also argue that wisdom research has been neglected in higher education.

Nevertheless, there is an increasing trend in wisdom research in higher education. Figure 1 presents the trend of growth in wisdom publications in higher education. The first wisdom publication in higher education was published in 1988.
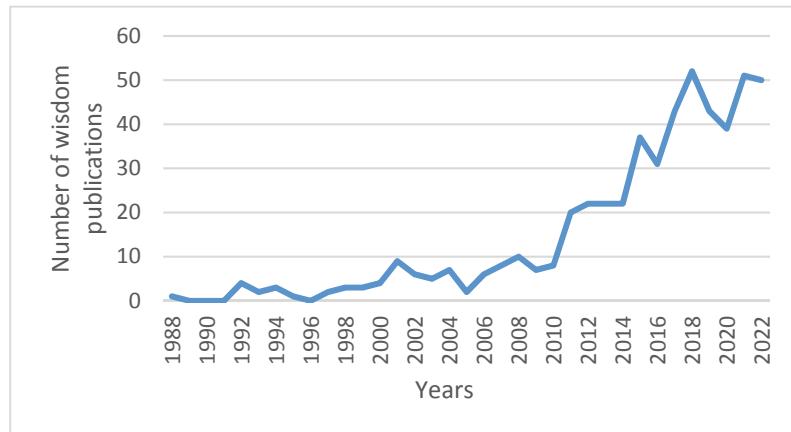

Figure 1: Trend of wisdom publications (*n=523*) in higher education (source: author, WoS)

Figure 2 shows the evolutionary phases of wisdom publications and the high growth of research papers since 2011.
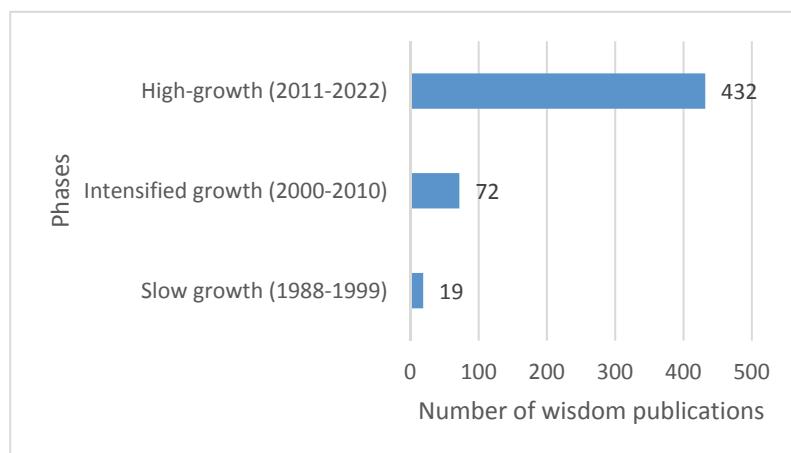

Figure 2: Phases of growth in wisdom publications *(n=523)* in higher education (source: author, WoS)

Therefore, this study asks: *How has wisdom been researched in higher educational publications during the 1988-2022 period?* The objective is to explore trends and patterns in wisdom research through time with a quantitative approach of Bibliometric Analysis (B.A.).

This paper has five sections. First, we presented arguments about why wisdom is needed and what role and responsibility higher education have in cultivating wisdom in learners. The second section presents the research problem, research question, objective, and analysis methods and visualisation of the results. In section three, we present the results, the systematic data collection and screening, and the findings of the B.A. The discussion section synthesises and interprets the results and answers the research question. In the conclusion section, we reflect on the limitations of our study, highlight future research possibilities, and indicate the novelty value of this study with possible practical implications.

Method

The research problem is that having data, information, and knowledge is not enough anymore to solve the global crises of humanity. We need wise people. We need wisdom that will guide

our actions for the betterment of our society. Education and higher education play a vital role in cultivating the wisdom of students. Therefore, this study asks: *How has wisdom been researched in higher educational publications during the 1988-2022 period?* The objective is to explore trends and patterns in wisdom research through time with an inductive approach.

Data were collected from the Web of Science (WoS) Core Collection database. Based on predefined criteria, data screening was done with PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analysis) principles (Rethlefsen et al., 2021). Data analysis was conducted quantitatively with Bibliometric Analysis (B.A.) science mapping technique, i.e., citation, co-citation, bibliographic coupling, co-word, and co-authorship analyses. Bibliometric analysis is a popular method in management (e.g., Agostini et al., 2020), economics, finance, and other disciplines. However, it is still seldom applied method in educational sciences (Brika et al., 2021). We followed the steps in B.A. suggested by Donthu et al. (2021, p. 295) as (1) defining the aim and scope of the research; (2) selecting the technique; (3) collecting data; and (4) conducting the analysis and reporting the findings.

Systematic data analysis and visualisation of the results were supported by VOSviewer, a freely available software developed by van Eck and Waltman (2010). The results were interpreted both quantitatively and qualitatively.

Results

Data Collection and Screening

The inclusion criteria were: time period (1988-2022) and wisdom publication. 1988 was selected because this was the year when the first wisdom publication in higher education was published based on a search in the WoS database. Figure 3 shows the data collection and screening process.
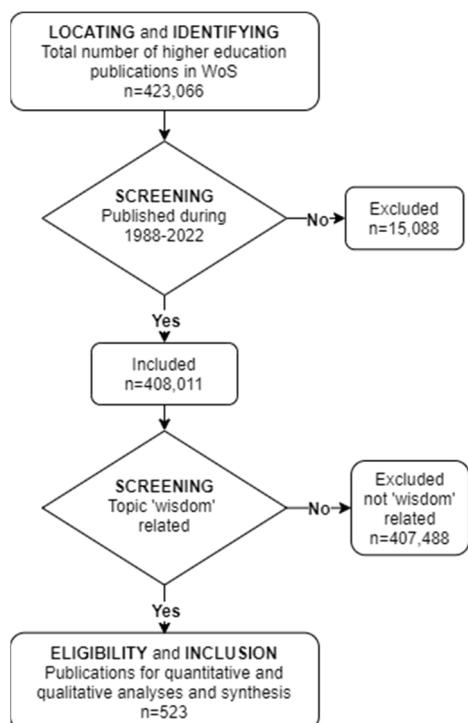

Figure 3: Identifying wisdom publications in the WoS database with PRISMA (source: author)

First, the total number of publications in higher education (*n=423,066*) was identified. Then, the screening was conducted in two steps: publications not published during 1988-2022

(*n=15,088*) and publications unrelated to wisdom (*n=407,488*) were excluded. The systematic screening resulted in *n=523* wisdom publications for inclusion in B.A.

Based on WoS analytics, the top five categories of 523 publications were: Education and Educational Research (186), Social Sciences Interdisciplinary (33), Management (30), Religion (26), and Computer Science Information Systems (22). The top three document types of these publications included: Articles (368), Proceeding Papers (138), and Review Articles (17). The top five authors were: Liu (3), Ardelt (2), Boliver (2), Chen (2), and Galic (2). The affiliation count results were, for example, RLUK Research Libraries U.K. (24), University of California System (13), Universitas Pendidikan Indonesia (10), State University System of Florida (8), University System of Ohio (8), and Harvard University (7). The top five publishers were: Taylor & Francis (58), Springer Nature (49), Elsevier (44), Sage (34), and Wiley (34).

Bibliometric Analysis

Citation Analysis

Documents (*n=523*): With 0 citations, we identified 523 documents (i.e., publications). There were 24 documents located with a minimum of 70 citations. The top five documents with the highest citations were: Hainmueller (525 citations), Quach (331), Earley (306), Uecker (266), and Kravdal (213).

Sources (*n=451*): With a minimum of 4 documents and 3 citations, 7 sources were located among the 451 sources: Studies in Higher Education (202 citations), Teachers College Record (68), Educational Philosophy and Theory (31), International Journal of Environment (28), sustainability (24), Philosophies (6), and International Journal of Early Childhood (3).

Authors (*n=1,357*): From 1,357 authors VOSviewer identified 4 authors with a minimum of 2 documents and 50 citations of an author: Boliver (161 citations), Laurent (80), Meyers (80), and Ardelt (55).

Organisations (*n=704*): From 704 organisations with a minimum of 5 documents and 5 citations, the following organisations were detected: Harvard University (781 citations), University of California Berkeley (190), Ohio State University (117), University Melbourne (63), and University Pendidikan Indonesia (18).

Countries (*n=67*): From the 67 countries with a minimum of 10 documents and 10 citations, there were 10 countries identified: the U.S.A. (4,050 citations), England (1,215), China (358), Australia (330), Germany (307), Canada (212), Spain (51), Indonesia (48), South Africa (25), and Malaysia (17).

Co-Citation Analysis

Cited references *(n=19,985)*: With a minimum of 7 citations of a cited reference, 12 cited references were detected (one cited reference title was not captured by VOSviewer). The top five cited references were: Baltes (11+7), Ardelt (10+7), Sternberg (11), Schon (9), and Braun (9).

Cited sources *(n=12,243)*: With a minimum of 50 citations of a source, 9 cited sources were located: Journal of Chemical Education (107), American Economic Review (73), Thesis (59), Journal of Geoscience Education (57), Medical Education (57), Science (56), Academic Medicine (55), Journal of Personal Social Psychology (54), and American Psychology (54).

Cited authors *(n=15,685)*: From the 15,685 cited authors, with a minimum of 5 citations of an author, 265 cited authors were found and 245 mapped. Figure 4 shows the item density map.

The highly cited authors were: Sternberg, Ardelt, Maxwell, Dewey, Nonaka, Mezirow, Freire, and Braun.
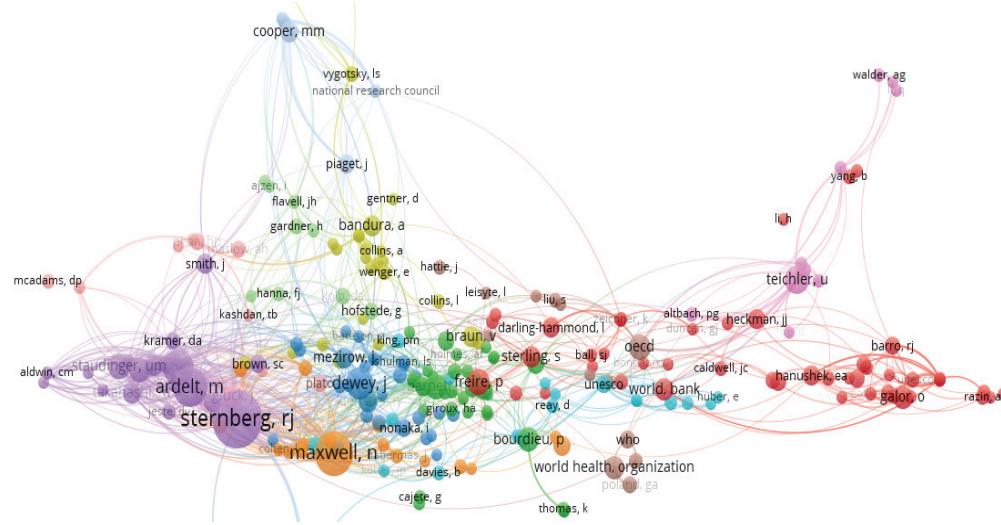

Figure 4: Network map of co-citation cited authors (mapped *n=245*) (source: author, VOSviewer)

Bibliographic Coupling Analysis

Documents *(n=523)*: From the 523 publications, with 0 citations of a document, 276 documents were mapped in Figure 5.
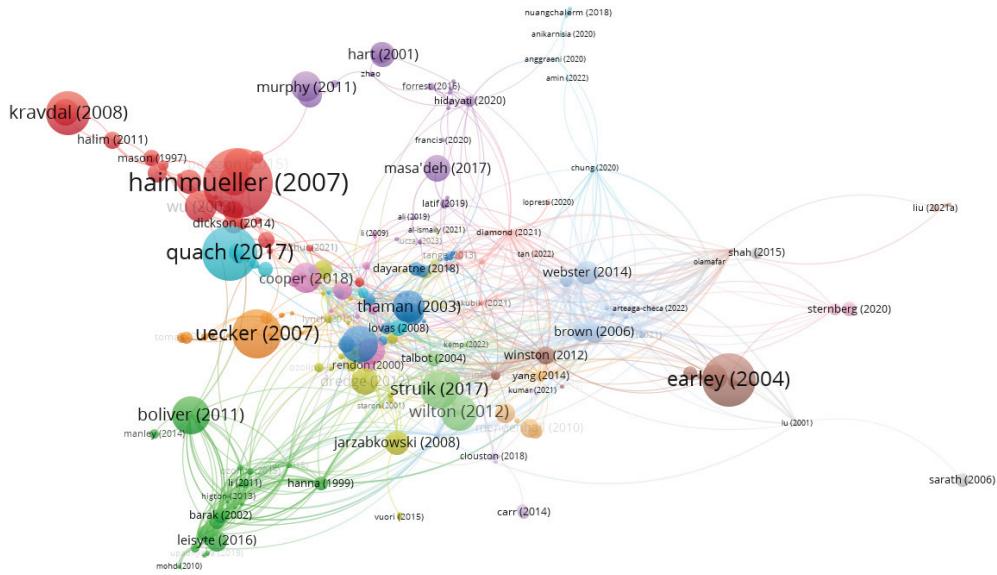

Figure 5: Bibliographic coupling of documents (mapped *n=276*) (source: author, VOSviewer)

The highly cited publications were e.g., Hainmueller, Quach, Earley, Boliver, Kravdal, Uecker, Thaman, Cooper, Jarzabkowski, Struik, and Wilton.

Sources *(n=451)*: From the 451 sources with a minimum of 4 documents and 1 citation of a source, there were 7 sources located: Studies in Higher Education (202 citations), Teachers College Record (68), Educational Philosophy and Theory (31), International Journal of Environment (28), sustainability (24), Philosophies (6), and Journal of Early Childhood (3).

Authors *(n=1,357)*: From the located 1,357 authors, with a minimum of 3 documents and 0 citations of an author, 5 authors were identified: Li (65 citations), Liu (9), Wang (3), Yang (3), Zhang (0).

Organisations *(n=704)*: The 523 publications were from 704 organisations. With a minimum of 5 documents and 0 citations, there were 5 organisations identified: Harvard University (781 citations), University of California Berkeley (190), Ohio State University (117), University of Melbourne (63), and University of Pendidikan Indonesia (18).

Countries *(n=67)*; With a minimum of 10 documents and 10 citations of a country, the most cited 10 countries were: the U.S.A. (4,050), England (1,215), China (358), Australia (330), Canada (212), Germany (307), Spain (51), Indonesia (48), South Africa (25), and Malaysia (17).

Co-Word Analysis

All keywords *(n=2,346)*: From the titles and abstracts of the 523 publications, 2,346 keywords were found. Based on network data, 343 keywords were mapped in Figure 6. The most frequently used keywords (larger font in Figure 6) were: education, wisdom, science, local wisdom, intelligence, inequality, phronesis, pedagogy, character, universities, students, teaching, higher education, management, spirituality, practice, empathy, and mindfulness.
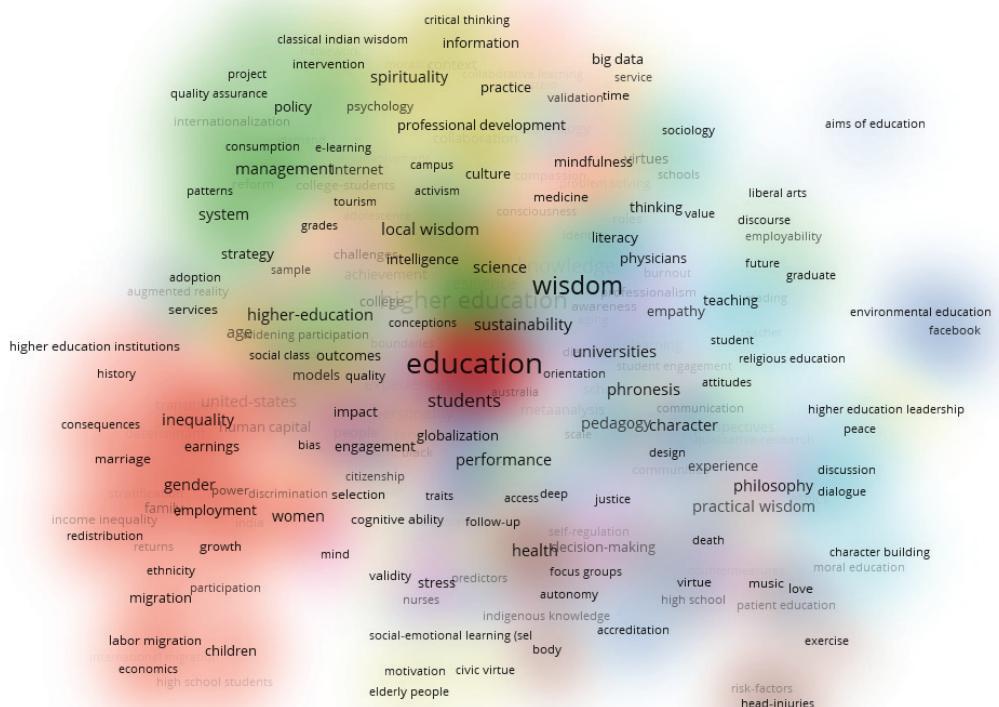

Figure 6: Cluster density map of all keywords (mapped *n=343*) based on network data (source: author, VOSviewer)

From all keywords, based on bibliographical data, 59 were mapped in Figure 7. The most frequently used keywords were: education, higher education, wisdom, students, university, sustainability, performance, management, phronesis, and practical wisdom.
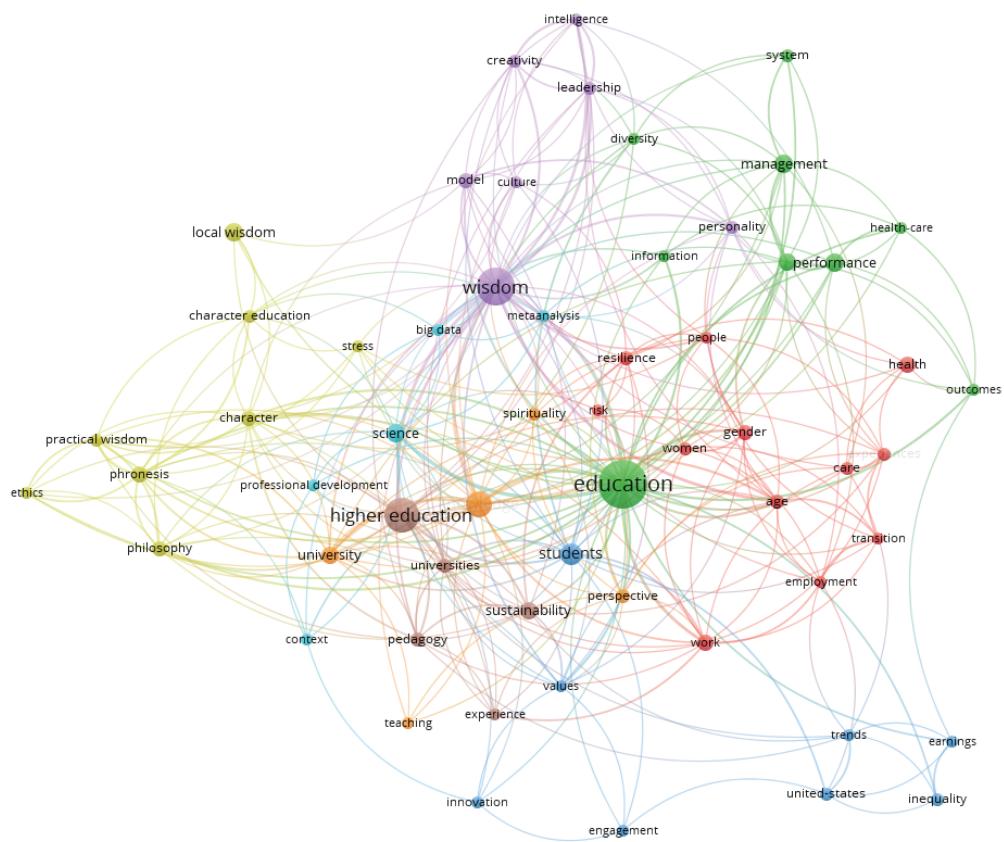
Figure 7: Network map of all keywords (mapped *n=59*) based on bibliographic data (source: author, VOSviewer)
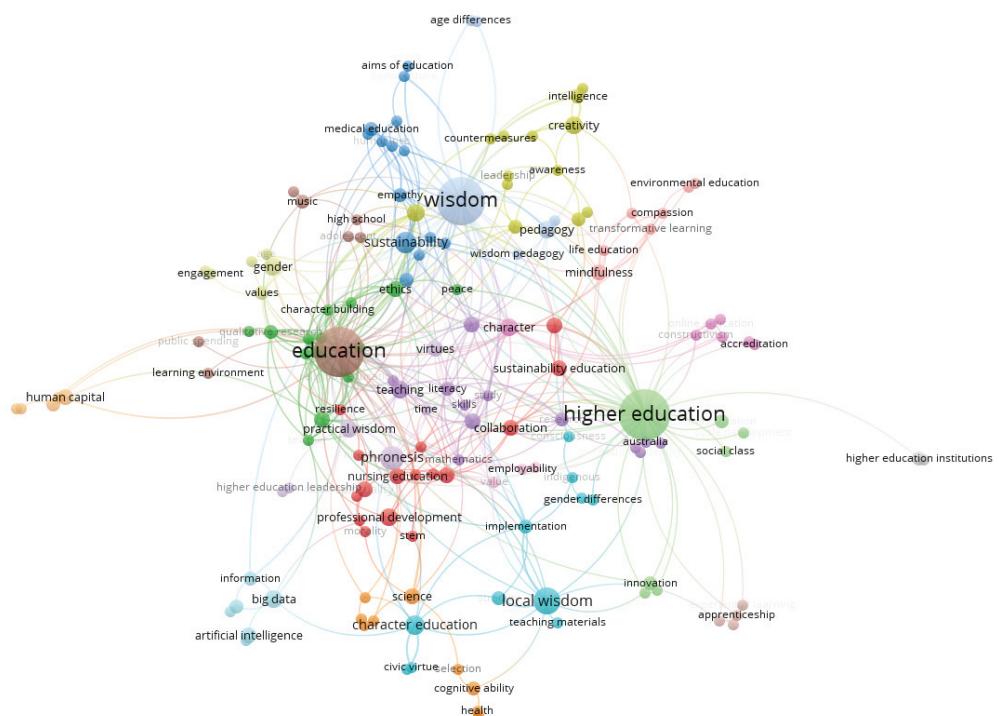
Figure 8: Co-word analysis of author keywords (mapped *n=157*) (source: author, VOSviewer)

Author keywords *(n=1,664)*: There were 1,664 keywords given by authors in the 523 publications. With a minimum of 2 occurrences, 176 author keywords were identified, and 157 were mapped in Figure 8. The most frequent author keywords were, for example, education,

higher education, wisdom, phronesis, sustainability, sustainability education, local wisdom, pedagogy, teaching, character, ethics, medical education, intelligence, creativity, collaboration, and human capital.

Co-Authorship Analysis

Authors *(n=1,357)*: With minimum 2 documents and 42 citations of an author, 8 authors were located by VOSviewer: Boliver (161 citations), Laurent (80), Meyers (80), Ardelt (55), Scherpbier (46), van der Vleuten (46), Winston (46), Sternberg (42).

Organisations *(n=704)*: From the total 704 organisations with a minimum of 5 documents an organisation 5 organisations were detected: Harvard University (781 citations), University of California Berkeley (190), Ohio State University (117), University of Melbourne (63), and University of Pendidikan Indonesia (18).

Countries *(n=67)*: from the total 67 countries, the top five countries were, with at least 19 documents and 19 citations of a country: U.S.A. (4,050 citations), England (1,215), China (358), Australia (330), and Indonesia (48).

Discussion

This study asked: *How has wisdom been researched in higher educational publications during the 1988-2022 period?* This study aimed to explore trends and patterns in wisdom research through time (1988-2022). Table 1 is a summary table that synthesises the results of the systematic B.A.

Interpretations of the results are qualitative. They are based on our sense-making and understanding of the findings. We argued for the need for wisdom in higher education. The findings from the WoS database showed an exponential growth of wisdom publications during the 1988-2022 period (figures 1 and 2). To answer the research question, we first located and selected for inclusion wisdom publications with PRISMA principles (figure 3), and then we conducted B.A. science mapping of 523 wisdom publications in higher education. The results of the B.A. showed that wisdom research started to evolve in 1988. The analysed publications showed that 523 were written by 1,357 authors affiliated with 704 organisations from 67 countries. Keywords from titles and abstracts were 2,346 (figures 6 and 7), and author keywords were 1,664 (Figure 8).

Table 1: Synthesis of the Bibliometric Analysis (*n=523*)

Science mapping		Wisdom publications in higher education *(n=523)* during 1988-2022
(1) Citation Analysis	Documents *(n=523)*	The top five documents with the highest citations were: Hainmueller (525 citations), Quach (331), Earley (306), Uecker (266), and Kravdal (213).
	Sources *(n=451)*	The highly referred sources were: Studies in Higher Education (202 citations), Teachers College Record (68), Educational Philosophy and Theory (31), International Journal of Environment (28), Sustainability (24), Philosophies (6), and International Journal of Early Childhood (3).
	Authors *(n=1,357)*	The most influential authors were: Boliver (161 citations), Laurent (80), Meyers (80), and Ardelt (55).
	Organisations *(n=704)*	The highly cited organisations were: Harvard University (781 citations), University of California Berkeley (190), Ohio State University (117), University Melbourne (63), and University Pendidikan Indonesia (18).
	Countries *(n=67)*	The most influential countries were: the U.S.A. (4,050 citations), England (1,215), China (358), Australia (330), Germany (307),

		Canada (212), Spain (51), Indonesia (48), South Africa (25), and Malaysia (17).
(2) **Co-Citation Analysis**	Cited references *(n=19,985)*	The top five cited references were: Baltes (18), Ardelt (17), Sternberg (11), Schon (9), and Braun (9).
	Cited sources *(n=12,243)*	Journal of Chemical Education (107), American Economic Review (73), Thesis (59), Journal of Geoscience Education (57), Medical Education (57), Science (56), Academic Medicine (55), Journal of Personal Social Psychology (54), and American Psychology (54).
	Cited authors *(n=15,685)*	(see Figure 4) The authors cited together in articles: Sternberg, Ardelt, Maxwell, Dewey, Nonaka, Mezirow, Freire, and Braun.
(3) **Bibliographic Coupling Analysis**	Documents *(n=523)*	(see figure 5) Hainmueller, Quach, Earley, Boliver, Kravdal, Uecker, Thaman, Cooper, Jarzabkowski, Struik, Wilton.
	Sources *(n=451)*	Studies in Higher Education (202 citations), Teachers College Record (68), Educational Philosophy and Theory (31), International Journal of Environment (28), sustainability (24), Philosophies (6), and Journal of Early Childhood (3)
	Authors *(n=1,357)*	Li (65 citations), Liu (9), Wang (3), Yang (3), Zhang (0)
	Organisations *(n=704)*	Harvard University (781 citations), University of California Berkeley (190), Ohio State University (117), University of Melbourne (63), University of Pendidikan Indonesia (18).
	Countries *(n=67)*	U.S.A. (4,050), England (1,215), China (358), Australia (330), Canada (212), Germany (307), Spain (51), Indonesia (48), South Africa (25), and Malaysia (17).
(4) **Co-Word Analysis**	All keywords *(n=2,346)*	Keywords based on titles and abstracts of publications were: (see Figure 6) Based on network data: education, wisdom, science, local wisdom, intelligence, inequality, phronesis, pedagogy, character, universities, students, teaching, higher education, management, spirituality, practice, empathy, mindfulness. (see Figure 7) Based on bibliographic data: education, higher education, wisdom, students, university, sustainability, performance, management, phronesis, practical wisdom
	Author keywords *(n=1,664)*	(see Figure 8) The authors' most frequent keywords were: e.g. education, higher education, wisdom, phronesis, sustainability, sustainability education, local wisdom, pedagogy, teaching, character, ethics, medical education, intelligence, creativity, collaboration, and human capital.
(5) **Co-Authorship Analysis**	Authors *(n=1,357)*	Authors who most frequently published with other co-author/s were: Boliver (161 citations), Laurent (80), Meyers (80), Ardelt (55), Scherpbier (46), van der Vleuten (46), Winston (46), Sternberg (42).
	Organisations *(n=704)*	Sources that were most frequently referred together in an article were: Harvard University (781 citations), the University of California Berkeley (190), Ohio State University (117), the University of Melbourne (63), and the University of Pendidikan Indonesia (18).
	Countries *(n=67)*	Countries which were most frequently referred together in an article were: the U.S.A. (4,050 citations), England (1,215), China (358), Australia (330), and Indonesia (48).

Wisdom has been researched in higher education intensively. From 2011-2022 there were 432 publications (figure 2). We also discovered that during the last 6 years, 2017-2022, the number of wisdom publications was around 40 per annum (2017 (43), 2018 (52), 2019 (43), 2020 (39),

2021 (51), and 2022 (50)). This could indicate that educational researchers realised the importance of wisdom in education. They strive to better understand what wisdom is and how it can be cultivated in learners.

The B.A. mapped the emerging themes in wisdom research. These could be best demonstrated with the keywords found during the analyses (figures 6, 7, and 8): education, wisdom, higher education, university, pedagogy, teaching, students, intelligence, character, ethics, wisdom, local wisdom, phronesis, practical wisdom, science, management, spirituality, practice, empathy, inequality, mindfulness, sustainability, sustainability education, medical education, performance, creativity, management, collaboration, and human capital.

Conclusion

Our study has several limitations. Donthu et al. (2021, p. 295) indicate three main limitations of the Bibliometric Analysis as follows: (1) scientific databases can have errors as they are not designed entirely for Bibliometric Analysis; (2) inclusion and exclusion criteria for further analysis and synthesis are defined subjectively by the researcher; and (3) it can offer only a cross-sectional and not a long-term prediction of the research field. We actively aimed to mitigate these limitations of B.A. with systematic data location and screening process (figure 3) based on PRISMA principles and predefined criteria.

Our study was limited only to the WoS database Core Collection, to two keywords for search, 'higher education' and 'wisdom', and to data extracted only from the titles and abstracts of publications. Educational researchers are encouraged to conduct similar studies for different databases (e.g., CORE with 207 million publications, Crossref with 11 million, and Google Scholar with 390 million). Furthermore, researchers could search for different keywords related to wisdom and higher education (e.g., emancipatory education, ethical education, moral education, value-based education, and religious education) to validate the results of this study. A full-text analysis could be implemented as well. In addition, other software could be used for data analysis and visualisation (e.g., CitNetExplorer, CiteSpace, Gephi, HistCite, Pajek, Sci2, and KnowledgeMatrix Plus (Brika et al., 2021, p. 4). Furthermore, this study used only *science mapping techniques* (i.e., citation, co-citation, bibliographic coupling, co-word, and co-authorship analyses) and only to VOSviewer for visualisation. Researchers can continue B.A. by applying other techniques such as *performance analysis techniques* (i.e., publication-related metrics, citation-related metrics, citation-and-publication-related metrics) and *enrichment techniques* of network analysis (i.e., network metrics, clustering, and other tools for visualisation).

To our best knowledge, this is the first study to explore wisdom research in higher education with B.A. The findings indicate an exponential growth in wisdom publications (figures 1 and 2) that provides opportunities for educational researchers for many years ahead. This paper draws attention to the importance of fostering wisdom in learners. Therefore, higher education is vital in this process. Furthermore, we think that more research is needed to explore and synthesise different wisdom pedagogy models and frameworks and apply them in teaching practices.

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