



## Global Research Trends in TVET Education: A Bibliometric Analysis

Darren Peter<sup>1\*</sup>, Marsyall Peter<sup>2</sup>, Paul Peter<sup>1</sup>

<sup>1</sup>Universiti Tunku Abdul Rahman, Jalan Universiti, 31900 Kampar, Perak, Malaysia

<sup>2</sup>Tunku Abdul Rahman University of Management and Technology, Jalan Kolej, Taman Bandar Baru, 31900 Kampar, Perak, Malaysia

\*Corresponding author: darrenpeter018@gmail.com

Please provide an **official organisation email** of the corresponding author

### Full Paper

#### Article history

Received

6 August 2024

Received in revised form

6 August 2024

Accepted

16 August 2024

Published online

30 September 2024

### Abstract

This article presents a comprehensive bibliometric analysis of global research trends in Technical and Vocational Education and Training (TVET) education. The study aims to identify key themes, prominent authors, influential journals, and geographic distribution of research in this field. Through systematic data collection and analysis of scholarly publications, including journal articles, conference papers, and books, this study provides insights into the evolution and current state of TVET education research worldwide. The analysis covers various topics within TVET, such as curriculum development, pedagogical approaches, industry partnerships, workforce development, and technology integration in education. By examining publication trends, this study reveals shifts in research focus and emerging areas of interest within the TVET education domain. The findings of this study can inform strategic initiatives for enhancing the quality and relevance of TVET education programs, fostering innovation and knowledge exchange, and addressing emerging challenges and opportunities in the global TVET landscape. This article underscores the importance of evidence-based research and data-driven insights in advancing TVET education globally.

*Keywords:* - Vocational education, curriculum development, technology, industry partnerships, workforce development

© 2024 Politeknik Mukah. All rights reserved

## 1. Introduction

Technical and Vocational Education and Training (TVET) provides students with the essential skills and information for successful jobs in many industries. TVET has attracted considerable interest from scholars, policymakers, and practitioners over time because it has influenced economic growth, preparedness of the workforce, and advancements in technology. In a 2023 study by the United Nations Educational, Scientific and Cultural Organization (UNESCO), TVET is acknowledged as an essential catalyst for sustainable development, playing a significant role in attaining the Sustainable Development Goals (SDGs). The current article focused on SDG#4 (Quality Education), SDG#8 (Decent Work and Economic Growth), and SDG#9 (Decent Work and

Economic Growth). It is essential to prioritise the TVET domain to address the Sustainable Development Goals (SDGs) related to Quality Education (#4), Decent Work and Economic Growth (#8), and Industry, Innovation, and Infrastructure (#9). These goals are interrelated and require attention in the TVET area. SDG#4 prioritises the significance of high-quality education that is relevant and easily accessible to everyone. This aligns with the objective of TVET, which aims to offer practical skills and knowledge for employment and lifelong learning. Furthermore, SDG#8 emphasises ensuring quality employment and promoting economic advancement, where TVET plays a crucial role. TVET plays an integral part in equipping individuals with the necessary skills to meet the demands of the workforce, decrease unemployment rates, and facilitate sustainable economic progress. SDG#9 emphasises the importance of industry,

innovation, and infrastructure, which are closely connected to TVET, by promoting technical progress, sustainable industrial methods, and the creation of solid infrastructure. The TVET domain is vital in advancing global agendas by prioritising these SDGs. It promotes inclusive and fair education, stimulates economic success, and supports sustainable development for current and future generations.

Despite notable advancements in TVET, multiple challenges and shortcomings still require targeted study and solutions. An essential problem is the discrepancy between TVET programs and the industry's requirements. Although attempts have been made to incorporate Industry 4.0 skills, there still needs to be a discrepancy in matching TVET curricula with the fast-paced technological breakthroughs and the shifting work demands in digitalisation, automation, and sustainable technologies (Yong & Ling, 2023). Another crucial issue is the perception and level of knowledge of TVET among many stakeholders, such as students, parents, teachers, and employers. TVET programs frequently encounter social disapproval compared to conventional academic directions, resulting in reduced rates of student enrollment and a lack of enthusiasm among prospective students. To bridge the gaps in perception, it is crucial to advocate for the significance and applicability of TVET in fulfilling the requirements of many industries and cultivating clear career paths (Chan & Goh, 2023). These efforts are necessary to increase the attractiveness and effectiveness of TVET. Moreover, it is imperative to enhance cooperation between TVET institutions and industry partners to ensure the significance and efficacy of training programs (Akoojee & McGrath, 2022). Although efforts are made to encourage collaboration between industry and academics, the effectiveness of these partnerships might be impeded by constraints such as insufficient resources, divergent expectations, and coordination difficulties (Ghanem & Ghaley, 2024; Omar & Rashid, 2023). Facilitating effective communication, fostering mutual comprehension, and promoting collective accountability among stakeholders is crucial for maximising the results of work-integrated learning and cultivating industry-specific skills in TVET.

While the current body of literature primarily emphasises integrating digital skills, relationships with industry, and quality assurance, it underscores the importance of adopting a comprehensive and integrated strategy to address the linked challenges in TVET education. Evaluating the global pattern and the conceptual structure upon which it is constructed is essential, considering the importance and quantity of research on the issue that has lately surfaced. While several papers provide general overviews of different aspects of TVET, only a limited number of studies (Abd Majid et al., 2024; Andriyono et al., 2024; Maulana et al., 2024) have examined the state-of-the-art using bibliometric analysis. Unlike earlier literature reviews that examined specific components of TVET, this study offers a comprehensive and current analysis to enhance the comprehension of the

global TVET research environment. More precisely, this study focused on the following research questions:

- RQ1: What is the trend of research on TVET published to date?
- RQ2: Which countries contribute significantly to the study of TVET?
- RQ3: Who are the most prolific authors on TVET?
- RQ4: What are the most influential publications on TVET?
- RQ5: What are the main keywords of scientific research on TVET?

## 2. Methodology

This study is structured around the following five steps:

1. Choose the Scopus database and specify the search criteria. Scopus provides extensive coverage of several academic fields, giving academics access to a wide range of renowned and high-quality publications and thereby assuring the availability of reliable information.
2. Perform data analysis and data cleansing using bibliomagika and biblioMagika@split tools.
3. Consolidate the data from biblioMagika@Split, Open Refine, and VOSviewer
4. Perform the bibliometric network analysis
5. Analyse the conceptual structure, thematic elements, and emerging trends.

### 2.1 Search Strategy

The Scopus database conducted the bibliometric study as of May 2024. To find relevant papers in any language, a search query using the TITLE-ABS-KEY ("Education" AND "TVET") has been performed on the Scopus database. To verify that the located articles are connected explicitly to TVET as the main subject and to minimise the occurrence of irrelevant publications, we employ the TITLE-ABS-KEY search technique (Kücher & Feldbauer-Durstmüller, 2019). Fig. 1 displays the search strategy through the PRISMA 2020 flow diagram. The search generated an initial sample of 616 publications.

## 3. Result and Discussion

This section shows the status of TVET-related research in the Scopus database.

### 3.1 Trends in Publication

Number of TVET publications is shown in Fig. 2. TVET research publication from 2014 to 2024 shows a prospering intellectual environment. Eight articles found limited TVET research in academic discourse in 2014. However, this figure increased significantly in 2017, 2019, and 2023. Published articles increased to 33 in 2017, demonstrating growing interest in TVET research and initiatives. The trend persisted with 78 publications in 2019, representing a significant increase of approximately 69.57% compared

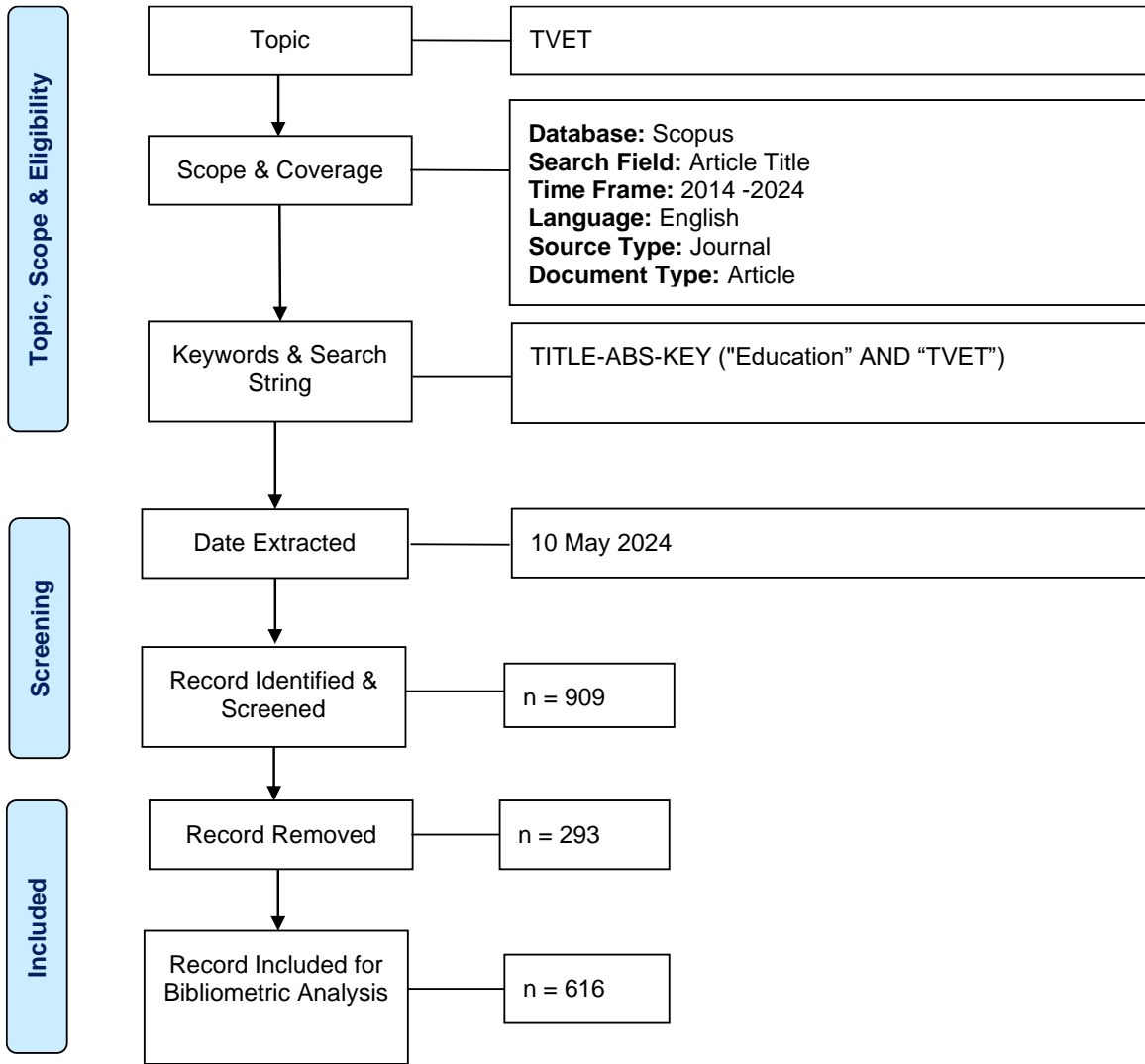


Fig. 1. Flow diagram of the search strategy (Zakaria et al. (2021))

to 2018. Vocational education, skill development, and workforce readiness are projected to become more important in global education systems. In the early 2020s, 82 publications were made in 2020 and 85 in 2021. During these years, growth continued but at a slower pace compared to previous rapid increases, indicating the maturing of TVET research subjects and techniques.

### 3.2 Document Type

Table 1 shows research document categories by frequency and ratio. Research articles comprise 72.24% of all texts, illustrating their prominence as a research publication method. Both academic books and conference proceedings are important for sharing research findings, with 18.34% and 6.17% of the publications being book chapters and conference papers. Review articles, including article and conference reviews, contribute slightly (1.46% and 0.49%, respectively), indicating a decreased concentration on them. The books make up only 1.30% of

texts, indicating less monograph-style study outputs. According to most articles, they are recommended for presenting research results because of their precise format, peer-reviewed nature, and adaptability for in-depth analysis and discussion of study findings articles.

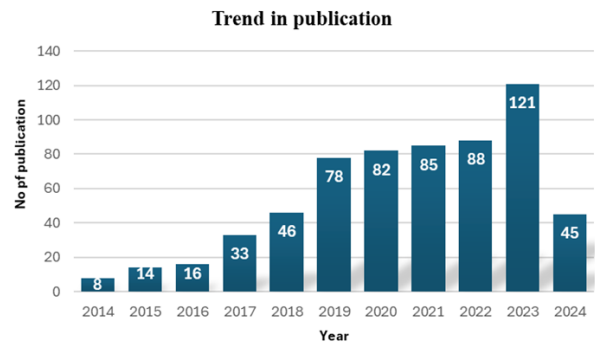


Fig. 2. Trend in the publication of school TVET research (2014 - 2024)

Table 1. Types of retrieved documents (2014-2024)

Document Type	TP	%
Article	445	72.24%
Book Chapter	113	18.34%
Conference Paper	38	6.17%
Review	9	1.46%
Book	8	1.30%
Conference Review	3	0.49%

Notes: TP = total number of publications

### 3.3 Publications by Countries

The number of publications by country in a particular field of study is detailed in Table 2. Malaysia is in the lead with 186 publications (30.19 percent), significantly emphasising research. South Africa subsequently ranks second with 105 publications (17.05 percent), indicating significant engagement. The United Kingdom and Nigeria exhibit moderate activity, as evidenced by their respective counts of 33 (5.36%) and 32 (5.19%) publications. Germany contributes 27 publications (4.38% of the total), whereas the United States and Indonesia each contribute 24 publications (3.90%). Thailand has 13 publications (2.11%), while China has 23 (3.73%). Various factors, including academic emphasis, research funding, and collaborative networks, impact this distribution. Malaysia and South Africa stand to gain substantially from substantial research funding and national initiatives. The emergence of research centres in Indonesia and Nigeria indicates contemporary academic interest. Prominent research traditions in the United Kingdom and Germany ensure a steady stream of contributions. The economies and populations of China and the United States are substantial, facilitating significant research engagement.

Table 2. Publications by countries

No	Country	TP	%
1	Malaysia	186	30.19%
2	South Africa	105	17.05%
3	United Kingdom	33	5.36%
4	Nigeria	32	5.19%
5	Germany	27	4.38%
6	Indonesia	24	3.90%
7	United States	24	3.90%
8	China	23	3.73%

### 3.4 Top Authors Contributing to TVET Research

Table 3 illustrates the names of the most influential authors in the TVET study, their article titles and the number of times they have been cited. The citations show that studies on teacher skills, sustainable growth, and current teaching methods in TVET are precious. Much attention is paid to regional studies that look at specific problems, like those in Malaysia, India, and Russia. This shows that TVET research is essential all over the world. Studies on Industry 4.0 and open learning tools show how important it is for TVET to use technology. Focusing on sustainability and service quality in education brings to light even more important and exciting areas in the field. Overall, these authors' work add many different and vital information to the TVET study, focusing on important topics.

### 3.5 Top Publishing Journals/Sources

Table 4 shows the top TVET study publications or sources, along with their total publications (TP), number of cited publications (NCP), total citations (TC), h-index, g-index, citations per publication (C/P), and citations per cited publication (C/CP). These journals stand out because they emphasise new ideas, creativity, sustainability, and educational research, which aligns with what is currently essential in TVET. Their reputation shows how important and valuable their published research is for solving current academic and real problems in the field.

### 3.6 Annual Number of Publications and Citation Matrix

Table 5 illustrates the yearly number of publications and citation metrics for TVET research from 2014 to 2023, such as total publications (TP), number of cited publications (NCP), total citations (TC), citations per publication (C/P), citations per cited publication (C/CP), h-index, and g-index. Data shows that interest and production in TVET research have increased, with publication and citation metrics approaching 2018-2019. The variation in citations per publication and cited article demonstrates that research's influence and significance change with time. High h-index and g-index values during peak years indicate important, high-quality research contributions. Citations and citation metrics have declined in recent years, which may suggest increasing publishing volume with decreased effect per publication or indicate an absence in citation accumulation for newer articles. Overall, the table shows a shift in the research landscape with considerable contributions in peak years, emphasising the dynamic character of TVET research.

Table 3. Top authors contributing to TVET research

Author(s)	Title	TC	C/Y
Ismail, Hassan, Abubakar, Hussin, Mat Hanafiah, Asary (2018)	The development of TVET educator competencies for quality Educator	17	2.43
Gamble (2016)	From labour market to labour process: finding a basis for curriculum in TVET	16	1.78
Haolader, Ali, Foysool (2015)	The taxonomy for learning, teaching and assessing: Current practices at polytechnics in Bangladesh and its effects in developing students' competencies	16	1.60
Chinedu, Wan Mohamed, Ajah (2018)	A systematic review on education for sustainable development: Enhancing TVET teacher training programme	15	2.14
Mustapha (2017)	Skills Training and Vocational Education in Malaysia	15	1.88
Mehrotra (2014)	From 5 million to 20 million a year: The challenge of scale, quality and relevance in India's TVET	15	1.36
Maltseva, Shabalin (2021)	The Non-Bypass Trajectory, or The Boom in Demand for TVET in Russia	14	3.50
Jafar, Saud, Hamid, Suhairom, Hisham, Zaid (2020)	TVET teacher professional competency framework in the Industry 4.0 era	14	2.80
Hashim S.; Rahman M.H.A.; Nincarean D.; Jumaat N.F.; Utami P. (2019)	Knowledge construction process in open learning system among technical and vocational education and training (TVET) practitioners	14	2.33
Mason R.B.; Mbambo S.N.; Pillay M.A. (2018)	Service quality at technical and vocational education and training colleges: Perception according to demographic factors	14	2.00

Table 4. Top publishing journals/ sources

Source Title	TP	NCP	TC	C/P	C/CP	h-index	g-index	Publisher
International Journal of Innovation, Creativity and Change	8	6	23	2.88	3.83	3	4	Primrose Hall Publishing Group
Sustainability (Switzerland)	7	6	25	3.57	4.17	2	4	Multidisciplinary Digital Publishing Institute (MDPI)
Journal of Educational and Social Research	3	1	3	1.00	3.00	1	1	Richtmann Publishing Ltd
International Journal of Scientific and Technology Research	2	1	2	1.00	2.00	1	1	International Journal of Scientific and Technology Research

Table 5. Annual number of publications and citation matrix

Year	TP	NCP	TC	C/P	C/CP	h-index	g-index
2014	6	4	38	6.33	9.50	3	6
2015	18	14	178	9.89	12.71	8	13
2016	21	17	105	5.00	6.18	6	9
2017	54	46	195	3.61	4.24	8	9
2018	58	44	345	5.95	7.84	11	16

### 3.7 Total Number of Publications and Citation

Fig. 3 compares 2014–2024 TVET articles and citations. It emphasises changing scholarly publications and citations in this field. By publishing 6 articles and collecting 38 citations in 2014, TVET research established the groundwork for future growth and influence. Later years saw an increase, especially in 2015, with 18 papers and 178 citations. The increased interest in TVET developments indicates scholarly awareness and engagement. From 2016 to 2019, publications and citations increased steadily, peaking at 81 and 449 in 2019. This time shows growing TVET research productivity and influence, exhibiting academic effort and impact. Beginning in 2020, citations dropped marginally, but publications remained steady. This trend suggests changes in citation practices or research emphasis that could influence TVET research citation patterns.

### 3.8 Network Visualisation Map of The Author's Co-Citation Analysis

Fig. 4 depicts the authorship relationship in school TVET documents, with four distinct groups denoted by different colours. There are also ties between other groups. The nodes correspond to the quantity of citations, while the links reflect the co-citation relationship.

### 3.9 Network Visualization Map of The Author Keywords

VOSviewer differentiates between two types of keywords: author keywords and index keywords. Co-occurrence is the simultaneous occurrence of two or more entities (Ahmi, 2022). Co-occurrence analysis of keywords investigates the combination or existence of two or more terms in the dataset. We employed VOSviewer to represent the co-occurrence of keyword associations visually. Out of the



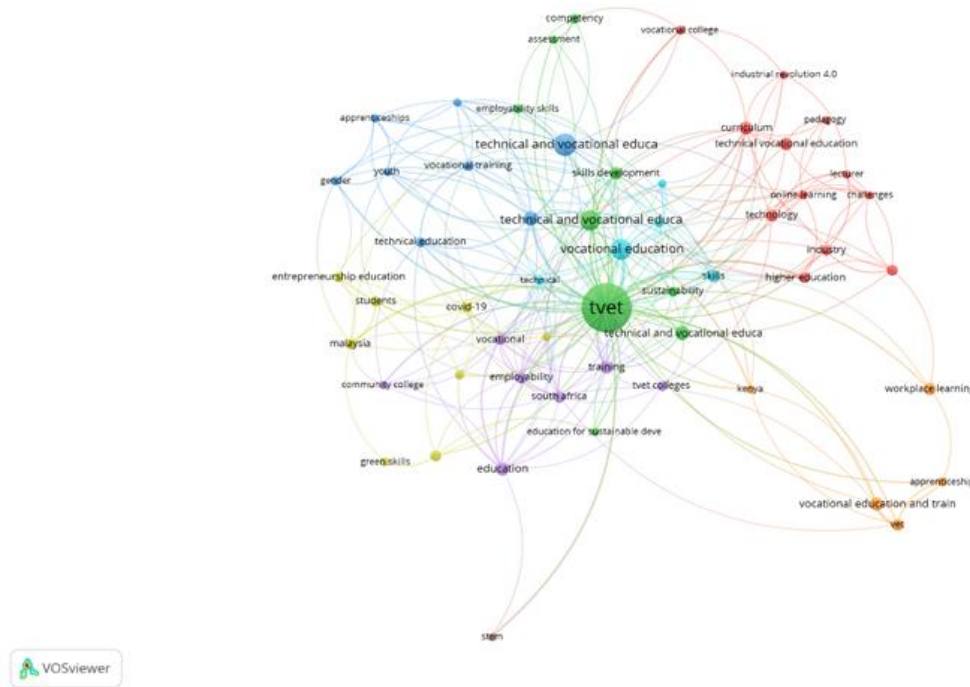


Fig. 5. Network visualisation map of the author keywords

#### 4. Conclusion

The comprehensive bibliometric analysis carried out in this paper effectively addresses all the research questions raised. Initially, the analysis of studies on TVET demonstrates a consistent rise in publications in recent years, highlighting the increasing worldwide attention and financial commitment in this area. Furthermore, the study reveals that nations like China, the United States, and Germany play a significant role in improving vocational education by being prominent donors to TVET research. In addition, the examination of prolific authors highlights influential individuals who have significantly impacted TVET research, with their substantial contributions defining the present state of the field. Identifying the most significant papers serves as a helpful resource for scholars looking for fundamental and cutting-edge studies in TVET. Finally, analysing the primary keywords in TVET research provides a valuable understanding of the dominant topics and growing areas of concentration in this subject. To make progress, it is essential to expand upon these discoveries by promoting global cooperation, stimulating inventive research approaches, and tackling new obstacles in TVET education. Future studies should further investigate these patterns, conduct a more extensive analysis of each country's contributions, and broaden the research scope to encompass the changing demands of the labor market and improvements in educational technology.

The expanding volume of research on TVET (RO1) indicates a global commitment to improve vocational education and develop a skilled and adaptable labor force. Not with standing recent movements, the overall direction

indicates a strong and dynamic field that consistently adjusts to new opportunities and challenges. This tendency ensures a steady stream of new knowledge, concepts, and industry best practices, strengthening TVET education to satisfy the needs of the current workforce and enhancing student job prospects. Furthermore, a multidisciplinary approach ensures that research findings are complete, understandable, and useful. This is shown in the wide diversity of publication formats seen in TVET research (RO2). This all-encompassing strategy raises the standard and efficacy of vocational education worldwide. Important roles are played in this sector by countries like South Africa, Malaysia, and Nigeria (RO3) and newly contributing nations like Indonesia. Their significant financial and academic contributions incorporate many viewpoints, supporting an international approach to vocational education. This global collaboration encourages overall quality in vocational training and matching educational curricula to the needs of the labour market. Moreover, the contributions made by renowned authors (RO4) and the importance of influential publications (RO5) point to a vibrant and dynamic research environment. These research's ongoing significance and citation metrics attest to their influence, which propels improvements in TVET curricula, approaches, and policy frameworks.

The yearly increase in citation metrics and publications (RO6) emphasises how dynamic TVET research is and how it fosters a free flow of concepts and best practices. TVET education may be further improved by addressing the elements that determine the research effect, ensuring that it remains relevant and successful in fulfilling the workforce's and society's demands. The co-citation

analysis (RO7) identifies important topics and significant works and offers a strategic road map for subsequent studies. The quality and relevance of TVET education may eventually be improved by crafting more significant studies produced as a result of this targeted research method. Even with these developments, there are still limitations. TVET research is multidisciplinary and dynamic, which might make it difficult to standardise and apply results in various geographic areas. Furthermore, due to their dependence on self-reported data, biases may be introduced into many studies, which might affect the findings' accuracy. Future research should resolve these constraints by encouraging rigorous methodology, standardisation, and long-term studies to comprehend the sustainability of TVET interventions.

Despite this, TVET has gained considerable global attention in recent years for its crucial role in tackling skills shortages, improving job prospects, and promoting economic growth. Research trends show an increasing focus on incorporating technology into the TVET curriculum, connecting training programs with the requirements of industries, and encouraging continuous learning throughout one's life. The emergence of Industry 4.0 and the digital transformation process have rendered it essential to include digital skills and capabilities in TVET curricula (Alsharari & Ahmed, 2022; Kana & Letaba, 2024). Research has investigated using virtual and augmented reality, online learning platforms, and sophisticated manufacturing technologies to improve learning and provide students with the necessary skills for the changing labour market. Another notable trend in TVET studies is the emphasis on sustainability and the acquisition of green skills (Lu & Xie, 2023; Yang et al., 2024). With the global trend towards sustainable practices in sectors, TVET programs must incorporate teaching on environmental sustainability, renewable energy, and green technology. Researchers are investigating how TVET colleges can provide students with the information and skills to promote sustainable development goals (SDGs). This includes incorporating sustainable practices into educational programs, cultivating collaborations with environmentally friendly enterprises, and raising students' consciousness about environmental concerns. The emphasis on sustainability in TVET is interconnected with the broader objective of attaining comprehensive and fair access to high-quality education for everyone.

A significant limitation of the study is the ongoing discrepancy between the skills taught in TVET programs and the job market requirements, leading to ill-equipped graduates for the available employment prospects. Furthermore, there is sometimes a lack of congruence with swiftly progressing technical innovations, making TVET courses obsolete and inadequate. Another notable constraint is the unequal availability of high-quality TVET, which poses considerable obstacles for marginalised and disadvantaged groups, notably those residing in rural regions and developing nations. The challenges are worsened by the limitations on funding, which result in insufficient infrastructure, resources, and teacher training (Raj & Tewari, 2023). Furthermore, the opposing view and social disapproval attached to vocational education in contrast to conventional academic routes continue to pose

a significant obstacle, impacting both the number of students enrolling in vocational education and the overall opinion of its worth. Furthermore, there is a need for more comprehensive frameworks to monitor and assess the efficiency of TVET programs, which hinders the ability to make continual enhancements and adapt to market demands (Zhang & Chen, 2023).

Future research on the long-term effects of TVET programs on workforce development and economic growth is necessary. Examining how cutting-edge teaching techniques and new technology may be incorporated into TVET education will be essential. Furthermore, analysing the regional differences in TVET education and how well it fits the needs of the local labour market may provide additional insight into how best to customise TVET programs. The global commitment to enhancing TVET education, as evidenced by a large amount of research, the variety of publications, and the worldwide collaboration, represents a major advancement in creating a skilled and adaptable labour force. TVET education may keep developing, guaranteeing that it is in line with the demands of the modern labour market and improving the job chances of students by resolving existing constraints and concentrating on future research fields. This all-encompassing strategy will help create a TVET education system that is more efficient, pertinent, and long-lasting, which will eventually help the world's workforce and economy.

Moreover, there is a growing fascination with the significance of TVET in fostering social integration and tackling inequalities in education and employment. Research emphasises that TVET is easily accessible to marginalised groups, such as women, rural communities, and those with impairments (Nzembe, 2019). Research is being conducted to explore methods for improving the inclusiveness of TVET programs, including focused outreach, flexible learning pathways, and supporting legislation. Furthermore, researchers are investigating the efficacy of TVET in different cultural and socio-economic settings to determine the most successful methods and models that may be replicated on a larger scale. This study highlights the capacity of TVET to enhance social equality and economic empowerment, positioning it as a crucial element of worldwide education and workforce development initiatives.

## References

- Abd Majid, M. Z., Kasavan, S., & Siron, R. (2024). Bibliometric analysis and science mapping of global scientific publications on technical vocational education training (TVET). *Library Hi Tech*, 42(1), 8-32.
- Ahmi, A. (2022). *Bibliometric Analysis for Beginners (1st ed.)*. Malaysia: UUM Press.
- Akoojee, S., & McGrath, S. (2022). TVET and the future of work in Africa: A critical analysis. *International Journal of Training Research*, 20(4), 301-317. <https://doi.org/10.1080/14480220.2022.1821738>.



- Alsharari, N. M., & Ahmed, A. (2022). The impact of digital technologies on TVET in the Middle East. *Education and Information Technologies*, 27(6), 7561-7577. <https://doi.org/10.1007/s10639-022-10871-1>.
- Andriyono, F. H., Hamidah, I., Salam, H., Berman, E. T., Wiyono, A., & Munawar, W. (2024, February). Bibliometric Analysis of Creativity and Creative Thinking Skills of Vocational School Students. In *5th Vocational Education International Conference (VEIC-5 2023)* (pp. 118-125). Atlantis Press.
- Chan, S. W., & Goh, H. C. (2023). The evolution of TVET in the digital age: Challenges and opportunities. *Journal of Vocational Education and Training*, 75(2), 225-240. <https://doi.org/10.1080/13636820.2023.1743078>.
- Ghanem, M., & Ghaley, M. (2024). Building a framework for a resilience-based public private partnership. *Journal of Destination Marketing & Management*, 31, 100849.
- Kana, N., & Letaba, P. (2024). The reshaping of curriculum transformation to address the 21st-century skill sets and employment prospects during the Fourth Industrial Revolution era: a case of the South Africa TVET colleges. *South African Journal of Higher Education*, 38(2), 157-175.
- Kücher, A., & Feldbauer-Durstmüller, B. (2019). Organizational failure and decline—A bibliometric study of the scientific frontend. *Journal of Business Research*, 98, 503-516.
- Lu, Y., & Xie, X. (2023). TVET and sustainable development: A systematic review of the literature. *International Journal of Sustainability in Higher Education*, 24(1), 88-104. <https://doi.org/10.1108/IJSHE-07-2022-0171>.
- Maulana, A., Arifah, S., Arthur, R., Hirzy, F., Daryati, D., & Murtinugraha, R. E. (2024, February). Bibliometric Study of the Technological, Pedagogical, Vocational Knowledge (TPVOK) Framework for Vocational Education. In *5th Vocational Education International Conference (VEIC-5 2023)* (pp. 609-617). Atlantis Press.
- Nzembe, A. (2019). *Social geographies of participation and success: narratives of six students in a technical vocational and educational training (TVET) college in Northern KwaZulu-Natal* (Doctoral dissertation).
- Omar, M. K., & Rashid, R. A. (2023). Enhancing employability through TVET: A case study in Malaysia. *Asia-Pacific Journal of Education*, 43(1), 123-136. <https://doi.org/10.1080/02188791.2023.1821735>.
- Raj, A., & Tewari, R. (2023). Bridging the skills gap: The role of TVET in developing countries. *Journal of Education and Work*, 36(2), 95-110. <https://doi.org/10.1080/13639080.2023.1883659>.
- Yang, W., Chinedu, C. C., Chen, W., Saleem, A., Ogunniran, M. O., Ñacato Estrella, D. R., & Vaca Barahona, B. (2024). Building Capacity for Sustainability Education: An Analysis of Vocational Teachers' Knowledge, Readiness, and Self-Efficacy. *Sustainability*, 16(9), 3535.
- Yong, B. P. P., & Ling, Y. L. (2023). Skills gap: The importance of soft skills in graduate employability as perceived by employers and graduates. *Online Journal for TVET Practitioners*, 8(1), 25-42.
- Zakaria, R., Ahmi, A., Ahmad, A. H., Othman, Z., Azman, K. F., Ab Aziz, C. B., & Shafin, N. (2021). Visualising and mapping a decade of literature on honey research: A bibliometric analysis from 2011 to 2020. *Journal of Apicultural Research*, 60(3), 359-368.
- Zhang, H., & Chen, J. (2023). TVET teacher training in China: Current practices and future directions. *Journal of Vocational and Technical Education*, 35(1), 45-59. <https://doi.org/10.1080/13636820.2023.1755063>.