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Systematic Literature Review Application of Transferable Skills as a Key Factor for Vocational School Graduates

[1*]Riyan Yuliyanto, [2]Susilaningsih, [3]Mintasih Indriayu
[1, 2, 3] Sebelas Maret University, Indonesia

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A B S T R A C T

The gap between the competence of vocational school graduates and employers' expectations results in high unemployment among vocational school graduates. Therefore, vocational education needs to develop transferable skills to create a workforce ready to face the demands of the modern job market. This systematic literature review explores the importance of transferable skills and their impact on vocational schools. This study focused on scientific articles published between 2014-2023 using the Scopus database. This review identifies a growing body of literature that emphasizes the importance of equipping students with competencies that are not only relevant to their specific tasks but also valuable across a range of Occupational contexts. The increase in publications in 2023 indicates an increased scientific interest. The focus of research that is widely studied is curriculum, practical learning, extracurricular, and lifelong learning. Collaboration strategies between educators, institutions, and industry partners in developing responsive and relevant curricula will support the development of transferable skills. Then, in the end, the study also proposes future research topics.

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Corresponding Author:
Riyan Yuliyanto
Sebelas Maret University, Indonesia
Jl. Ir. Sutami No.36, Kec. Jebres, Kota Surakarta, Jawa Tengah 57126
Email: riyan.yuliyanto@student.uns.ac.id

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1. INTRODUCTION

Economic market competition in the era of globalization is increasingly competitive. Economic development increases the demand for Labor knowledge and skills in many industries throughout society (Nguyen, Cao et al., 2022). Although Indonesia recorded sustained economic growth over the past ten years, it faces challenges such as reduced decent work for youth and a need for more skills in competing in the world of work (ILO, 2020). According to a 2023 survey by Manpower Group, 77% of employers reported difficulty finding skilled

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employees (Manpower Group, 2023). Many employers expect graduates to be equipped with new skills besides academic qualifications (Jacobs et al., 2023; Hutson et al., 2023). Such as creativity, innovation, critical thinking, problem-solving, and decision-making (Smith & Paton, 2014; Ana et al., 2020; Inderanata & Sukardi, 2023), ways of working (e.g., communication and collaboration), literacy tools for work (e.g., information literacy and ICT literacy) and living in the world (society, life and career, and personal/social responsibility) (Nambiar et al., 2019). Such skills are also referred to as transferable (Collins-nelsen et al., 2021; Jacobs et al., 2023).

To create a skilled workforce, it is necessary to establish educational programs by the demands of employment (Martaningsih et al., 2019; Suyitno et al., 2022). Vocational education has become an important pathway to equip individuals with specific skills (Delcker, 2023). Students who graduate from Vocational High School (VHS) are expected to have the readiness to enter the world of work and be equipped with professional skills that can be adjusted to the needs of each field (Inderanata & Sukardi, 2023). However, vocational schools still need to meet the standards of qualification capabilities expected by the world of work (Sonhaji et al., 2019). This can be seen from the number of vocational school graduates who cannot be employed, thus contributing to the number of unemployed in Indonesia. According to data from the Central Statistics Agency (BPS), in 2023, the unemployment rate of vocational school graduates reached 9.6%, the highest number compared to other levels of education in Indonesia (BPS, 2023).

Some of the causes are the imbalance of the material obtained in school with what is needed in the world of work (Martaningsih et al., 2019), student skill development is less of a concern (Nguyen, Le et al., 2022), and the applied curriculum does not develop by technological developments (Rosidah & Sutirman, 2023) while continuing education and curriculum should be of particular concern for building learning relationships in schools and the need for job skills (Sappa et al., 2018; Nguyen, Cao, et al., 2022). This is a challenge for vocational schools to prepare graduates with skills that can answer the world of work challenges.

Various studies of transferable skills to prepare graduates of vocational schools in multiple countries have been carried out. Studies in South Africa show that the development of transferable skills, especially those related to human interaction and communication with technology, is an important result of successful vocational training to meet the demands of Industry (Jacobs et al., 2023). Ohlemann & Driesel-Lange (2019) revealed that to increase the work competence of vocational school graduates in Germany, students need to be given special career education to have transferable skills to support work mobility and lifelong learning. In Indonesia, transferable skills are the main requirement criteria many company managers seek (Ana et al., 2020). Therefore, transferable skills are the key to the success of vocational schools in preparing graduates who are ready to work.

Currently, many studies examine the aspects of transferable skills as skills that vocational school graduates must possess. Hence, it is necessary to review the literature that discusses the application of transferable skills to vocational school students. This kind of research needs to be done because it can be the basis of research on vocational high school curriculum development following the context of transferable skills development so that graduates have job skills that are by the demands of the world of work and industry and the success of vocational school graduate output goals. Therefore, this study aims to determine the focus of research on transferable skills in vocational schools, analyze the extent to which vocational schools apply transferable skills in the learning process, and how the impact of vocational school graduates with good mastery of transferable skills.

2. METHOD

The method used in this article is a systematic literature review related to transferable skills as skills needed by vocational school learners. This systematic literature review followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) as a guideline to ensure a comprehensive and transparent review process (Moher et al., 2009). This article is divided into four main stages, as used by Xiao & Watson (2019), namely 1) inclusion criteria, 2) article identification, 3) selection for inclusion, and 4) selection based on quality and feasibility.

Inclusion criteria

The search for articles was carried out by only including research on transferable skills and vocational schools and including studies from the Social Sciences. Publications published in the form of final articles and using English.

Article identification

The literature search starts with the keywords “transferable skills” and "vocational school*”. The study focused on scientific articles published between 2014 and 2023 and was conducted through the Scopus database.

Selection for inclusion

The selection of articles used is seen from their relevance to the research question determined based on the title and abstract. Then, articles that do not specifically address transferable skills in the context of vocational education are excluded.

Selection based on quality and feasibility

After obtaining the results of the relevance of the title and abstract, the article is read in full further to evaluate the quality and feasibility of the research.

3. RESULTS AND DISCUSSION

3.1 Results

The article search and selection process follows the PRISMA model in Figure 1. A preliminary search found 226 articles. Then, a review of titles and abstracts is carried out. After reviewing the titles and abstracts, 59 articles were included for a full-text review. After that, 21 articles were obtained to be identified in depth to see how the application of transferable skills in vocational schools.

Through descriptive analysis, a descriptive-quantitative examination is carried out to assess the completeness of the available data. A total of 21 articles were collected from the Scopus database and then we did further analysis. After reviewing the database, research on transferable skills in vocational schools has experienced growth from previous years. This is evidenced by the fact that most publications related to the topic occurred in 2023. Despite a decrease in publications in 2017 and 2021, the number of publications on transferable skills in vocational schools increased in 2023; fluctuations in published articles are found in Figure 2 below through descriptive analysis, a descriptive-quantitative examination was carried out to assess the completeness of the available data. A total of 21 articles were collected from the Scopus database and then we did further analysis. After reviewing the database, research on transferable skills in vocational schools has experienced growth from previous years. This is evidenced by the fact that most publications related to the topic occurred in 2023. Despite a

decrease in publications in 2017 and 2021, the number of publications on transferable skills in vocational schools increased in 2023; fluctuations in published articles are found in Figure 2.

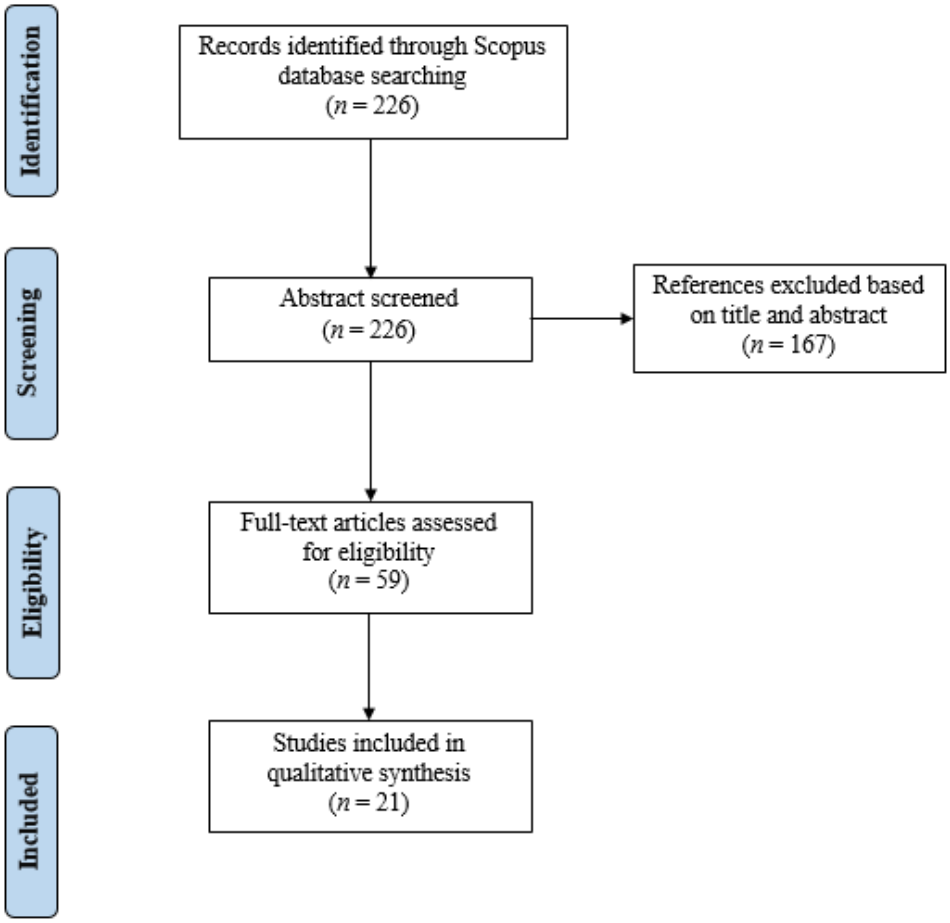

Figure 1. Prisma flow diagram of systematic review

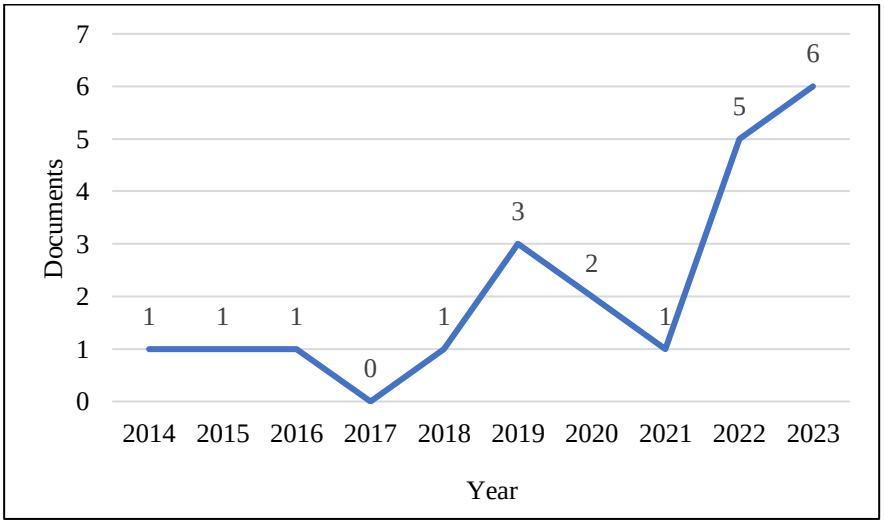

Figure 2. Article fluctuations in 2014 - 2023

Figure 2 shows the fluctuations in the number of articles from 2014 to 2023. The number of articles increased and decreased, although the changes were not very noticeable. From 2014 to 2021, a considerable increase peaked in 2023. In Table 1, the following research focuses are presented on the application of transferable skills in vocational schools used in each article.

Table 1. Characteristics of article findings

No	Authors	Research Focus
1	(Rosidah & Sutirman, 2023; Jacobs et al., 2023; Inderanata & Sukardi, 2023; Arney, 2022; Suyitno et al., 2022; Hong et al., 2021; Sonhaji et al., 2019; Carvalho, 2016)	Practical learning
2	(Ajmi & Adawi, 2023; Amilda et al., 2023; Collins-nelsen et al., 2021)	Extracurricular application
3	(Delcker, 2023; Nguyen, Cao, et al., 2022; Nguyen, Le, et al., 2022; Soeprijanto & Ridwan, 2020; Sedighi et al., 2015; Smith & Paton, 2014)	Curriculum
4	(Ana et al., 2020; Ohlemann & Driesel-Lange, 2019; (Korshunov et al., 2019; Bahçelerli, 2018)	Lifelong learning

Source: Data processed by Researchers (2024)

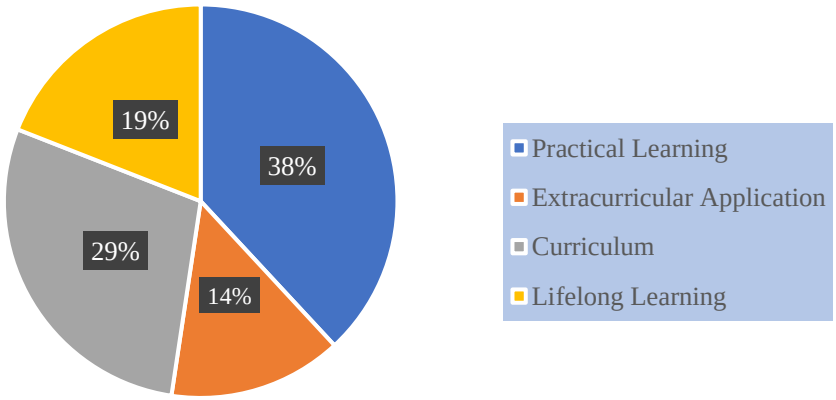

Figure 3. Research focus application of transferable skills in vocational schools 2014 - 2023

3.2 Discussion

Based on the review of 21 articles related to the application of transferable skills as an important factor in vocational school graduates, this section is divided into three main parts, namely, knowing the research pattern of several articles related to transferable skills in vocational schools, analyzing aspects of the application of transferable skills in vocational schools and the impact of good transferable skills.

Research focuses on transferable skills implementation in vocational schools

Researchers mapped several articles to identify research focus on transferable skills in schools. Then, the researchers found five research focuses studied from several articles published in 2014 - 2023. The focus of the research that has been carried out is on the following areas: 1) practical learning, 2) extracurricular application, 2) curriculum, and 4) lifelong learning. The five research focuses are interrelated, which is in line with the conditions for the development of transferable skills in vocational schools.

The literature on transferable skills in education and vocational schools has explored the importance of equipping students with competencies that are not only relevant to their specific tasks but also valuable across a range of occupational contexts. Various studies highlight the important role of vocational schools in equipping transferable skills to prepare students as a workforce (Sedighi et al., 2015; Ohlemann & Driesel-Lange, 2019; Ana et al., 2020). Nägele & Stalder (2017) emphasize the need for vocational education and training programs to encourage transferable skills, such as problem-solving, communication, and teamwork, to support work mobility and lifelong learning. This aligns with a broader educational discourse that recognizes the rapidly changing nature of employment and the need for individuals to adapt to new roles and industries throughout their careers (Jacobs et al., 2023). The development of

these skills is seen as important for the employability of graduates (Rosidah & Sutirman, 2023), as they are expected to be able to navigate a dynamic and often unpredictable labor market (Ohlemann & Driesel-Lange, 2019).

Research also highlights the challenges and opportunities presented by external factors, such as the covid-19 pandemic (Jacobs et al., 2023; Hutson et al., 2023), which affirms the need for a good curriculum to develop transferable skills (Ohlemann & Driesel-Lange, 2019). Ng & Harrison (2020) revealed how the pandemic has led to reevaluating teaching methods and integrating transferable skills in curricula to ensure that students remain adaptable and resilient in the face of disruption (Ana et al., 2020). It reflects a broader understanding that vocational education and training must not only respond to the pressing needs of industry but also prepare students for long-term career success and adaptability.

In Indonesia, research has investigated the alignment of vocational school programs with industry requirements, particularly regarding transferable skills. The researchers revealed a collaborative approach involving educators, institutions, and industry partners to develop high-quality students with hard and transferable skills (Soeprijanto & Ridwan, 2020; Ana et al., 2020). This collaboration is important for creating an effective learning process that can identify and develop the skills students need during education, thereby improving their readiness for the workforce (Sedighi et al., 2015).

Various studies have examined the diversity of vocational education content in different countries, professions, and work environments, recognizing the complexity of competency structures in vocational education and training (Nguyen, Le et al., 2022). Comparative research has shown that countries with strong vocational education and training systems providing vocational-specific skills and qualifications tend to have better youth labor market integration (Sedighi et al., 2015). However, there is still a need for further research on the evaluation of vocational education programs, especially from the perspective of graduates, to gain a clearer understanding of the effectiveness of these programs in providing transferable skills valued in the labor market.

Application of transferable skills in vocational schools

Transferable skills, also known as soft skills or employability skills, are increasingly recognized as an important component of vocational education. These skills include communication, teamwork, problem-solving, and continuous learning, which are essential for students to adapt to various work environments and ensure the continuity of their careers (Korshunov et al., 2019; Collins-nelsen et al., 2021). In vocational schools, applying transferable skills is often integrated into the curriculum through theoretical teaching and practical training (Bahçelerli, 2018; Ohlemann & Driesel-Lange, 2019). For example, in Indonesia vocational schools are actively working to align their programs with industry requirements, ensuring that students not only acquire technical expertise but also develop the soft skills needed in the industrial world (Soeprijanto & Ridwan, 2020; Sonhaji et al., 2019).

Practical training, a staple of vocational education, provides an excellent platform for students to apply and hone transferable skills (Amilda et al., 2023). However, there are still areas for improvement in some regions of Vietnam in implementing work practices that can hinder the development of transferable skills (Nguyen, Cao et al., 2022). To address this, vocational schools are encouraged to work with industry partners to develop practical curricula and training plans emphasizing applying transferable skills in real-world situations (Hong et al., 2021; Suyitno et al., 2022). This collaboration can also be extended to essential soft-skills training programs to prepare students to meet the diverse demands of today's workforce (Nguyen, Cao et al., 2022). In addition, transferable skills can also be developed in non-academic activities, such as extracurriculars (Collins-nelsen et al., 2021; Amilda et al., 2023;

Ajmi & Adawi, 2023), entrepreneurship training (Smith & Paton, 2014), and organizing (Carvalho, 2016).

The covid-19 pandemic further confirms the importance of transferable skills due to the transition from conventional learning to online learning in applying and developing skills. Vocational schools must reassess their curricula to ensure that transferable skills are taught and acquired effectively in a virtual environment (Rosidah & Sutirman, 2023). This situation highlights the adaptation and resilience components of transferable skills as educators and students navigate new communication, collaboration, and problem-solving modes. The pandemic has also provided an impetus for vocational schools to innovate in their teaching approaches, ensuring that students can develop these skills despite the constraints of distance learning (Rosidah & Sutirman, 2023; Jacobs et al., 2023). With online learning, students have developed valuable transferable skills for future jobs centered on technology.

A systematic and integrated framework for implementing transferable skills is more effective than interim policy-led initiatives (Nguyen, Le et al., 2022). Such a framework can guide vocational schools in instilling these skills across various disciplines and programs, forming graduates who are technically proficient and equipped with a broad set of competencies that enhance their employability. By focusing on developing transferable skills, vocational schools play an important role in preparing students for a successful transition into the workforce and the continued evolution of students' careers (Nguyen, Le et al., 2022; Ana et al., 2020).

Impact of transferable skills on vocational school graduates

The main focus of vocational education today is developing core skills important in various industries and job positions, not just imparting technical knowledge (Bahçelerli, 2018). Transferable skills are essential for adaptability and employability in a rapidly changing job market (Ana et al., 2020). Various studies have shown that industries in Indonesia and beyond are increasingly looking for employees who have transferable skills in addition to their vocational qualifications (Soeprijanto & Ridwan, 2020; Ajmi & Adawi, 2023; Inderanata & Sukardi, 2023). Graduates who have honed these skills are better prepared to meet the demands of the industrial world, demonstrating versatility and the capacity to thrive in diverse work environments.

The shift to remote learning and work demands increased self-management abilities, flexibility, and higher technology expertise (Jacobs et al., 2023). Vocational school graduates with transferable skills are better prepared to face the challenges of increasingly massive technological developments. The ability to communicate effectively in virtual environments, collaborate with remote teams and adapt to new digital tools are competencies that are becoming increasingly important (Bahçelerli, 2018). Reflective learning experiences during the pandemic have shown that students can gain transferable skills through online teaching and learning, which can benefit their future employment in technology-centered workplaces (Hong et al., 2021; Delcker, 2023).

However, developing transferable skills in vocational schools is challenging. For example, studies in Vietnam have shown that the job training time in vocational schools needs to be increased (Nguyen Le et al., 2022). This can limit opportunities for students to apply and perfect transferable skills in practical settings (Sonhaji et al., 2019; Bahçelerli, 2018). This gap highlights the need for vocational schools to collaborate with industry partners to create practical curricula and training plans emphasizing real-world applicability. Soft skills training programs are also important to ensure graduates have complete knowledge and are prepared for the workforce.

Ultimately, the impact of transferable skills on vocational school graduates is enormous, affecting their employability and career success. Graduates with a strong transferable skill set are more likely to find employment related to their field of study and succeed in the workplace (Ana et al., 2020; Jacobs et al., 2023). A systematic and integrated approach to embed transferable skills in the vocational education curriculum is needed to produce graduates who are not only technically skilled but also adaptable and capable of lifelong learning (Bahçelerli, 2018; Ana et al., 2020; Rosidah & Sutirman, 2023). As the labor market continues to evolve, it is important to develop these skills so that vocational school graduates can be prepared for work.

4. CONCLUSION

Transferable skills are very important for graduates of vocational schools, which significantly affects students' employability and career advancement. Skills, including communication, teamwork, problem-solving, and adaptability, are essential in a dynamic job market and are highly valued by employers across various industries. Based on this systematic literature review, it is found that four research focuses have been carried out, namely practical learning, extracurricular implementation, curriculum, and lifelong learning. Vocational schools play an important role in embedding these skills into their curriculum through practical training and extracurricular activities. Despite challenges such as insufficient practice time and the need for curriculum improvement, developing transferable skills in vocational education is essential to prepare graduates to successfully navigate the world of work and adapt to future career changes.

This research contributes to uncovering the importance of practical learning, extracurricular application, curriculum development, and lifelong learning in preparing students for a dynamic and rapidly changing labor market. Researchers highlight how vocational schools are important in equipping students with transferable skills. In addition, the importance of collaboration between educators, institutions, and industry partners in developing a responsive and relevant curriculum, which not only meets the needs of the industry but also supports the development of transferable skills. Overall, the study provides important insights into how vocational schools can improve the employability of their graduates, encourage student success in diverse work environments and prepare for lifelong learning and career adaptation.

Many future research opportunities, such as a focus on developing a comprehensive framework for integrating transferable skills into vocational education curricula, with an emphasis on practical application through collaboration with industry partners. Investigate the long-term impact of online learning on the development of practical and vocational skills and the effectiveness of extracurricular activities in improving transferable skills. In addition, it explores the role of academic self-efficacy in student engagement and success in internships and the effectiveness of character education programs in shaping vocational student behavior. Then, comparing different vocational education systems can provide insight into best practices and factors affecting graduate employability, particularly about the success of practical teaching programs and work readiness initiatives.

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