

Career Competencies and Career Choice among Technical and Vocational Students: A Thematic Meta-Analysis

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Abstract

Technical and Vocational Education and Training (TVET) has undergone significant transformation to produce a skilled workforce aligned with the needs of industry. However, in navigating an increasingly complex employment landscape, students are required to possess not only academic qualifications and technical competencies but also soft skills, personal qualities, and comprehensive career readiness. Therefore, this study aims to explore in greater depth the elements of career readiness skills and their importance in assisting students in making informed career choices. An in-depth analysis was conducted through a comprehensive review of prominent literature related to career readiness, career readiness skills, and career decision-making. The findings identified several key skill elements essential for developing career readiness, including student skills and qualities, technological and professional knowledge and competencies, entrepreneurial skills, and self-efficacy. These elements should be prioritized by TVET institutions through early exposure and interventions to better prepare students for appropriate career selection. This study also proposes a career readiness model based on the literature analysis, which can serve as a practical guide for institutions involved in technical and vocational education. It also adds value to the effort of producing highly skilled, competent, and quality human capital that meets current labour market demands.

Keywords: *Career Readiness, Career Readiness Skills, Career Decision-Making, Technical and Vocational Students.*

Introduction

Employment is a significant aspect of an individual's life, as it not only fulfils economic needs but also reflects one's social status and life stability (Suhaila et al., 2015). In today's rapidly evolving global economy and technological landscape, the world of work has become increasingly complex, demanding that individuals possess not only academic qualifications but also a diverse range of skills such as interpersonal abilities, flexibility, and proactivity (Makki et al., 2016; Stewards & Knowles, 2001).

For graduates of Technical and Vocational Education and Training (TVET), mastery of career readiness skills is critical to ensure their adaptability to the ever-changing demands of the labour market (McQuaid et al., 2013; Vidyullatha et al., 2016). These skills encompass career planning, career exploration, and a comprehensive understanding of the requirements and challenges associated with prospective occupations (Nor Hazwani & Sheerad, 2020; Maznizam & Abdullah, 2016).

However, studies have shown that many students exhibit limited exposure and motivation to develop these skills during their academic tenure, often perceiving that such competencies will be acquired only after entering the workforce (Rosenberg et al., 2012). This lack of preparation results in graduates being ill-equipped to face the demands of employment, particularly in areas such as communication and self-management skills (Cabellero et al., 2012). Moreover, employers frequently lack the resources or capacity to provide foundational training in these essential skills (Liu & Rau, 2014).

Therefore, early exposure and development of career readiness skills are essential to enhance graduates' employability and enable them to make informed career choices, thereby reducing the risks

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of work-related stress and job dissatisfaction (Josephine, 2016; Azyani et al., 2019). A holistic approach that integrates academic, technical, and non-technical skills is necessary to prepare TVET students to compete effectively in today's labour market (Artess et al., 2017).

Methodology

This study employed a document analysis and systematic literature review approach. A total of 70 literatures related to career readiness, career readiness skills, and career selection were selected for analysis. Systematic review refers to the process of combining, evaluating, and synthesizing the best and most specific research findings without involving particular issues (Campbell, 2006).

The document analysis was conducted through screening, careful reading, and thorough understanding of the explanations presented in each study to ensure that the findings could be analyzed and synthesized prudently (Bowen, 2009).

The selected studies comprised both quantitative and qualitative research published between 1961 and 2021. The inclusion of both quantitative and qualitative studies aimed to obtain a clearer and more comprehensive understanding of career readiness and career selection issues.

Furthermore, the reviewed studies were not limited to research conducted in Malaysia but also included studies from major countries such as the United States, the United Kingdom, and others. Regarding respondents, most studies involved participants from the education sector, the public sector, and the private sector.

Therefore, the findings of this study are based on secondary data sources. Despite relying on secondary data, the results are clear, accurate, valid, and reliable as the analyzed sources involved both quantitative and qualitative research derived from diverse backgrounds and experiences across developed and developing countries. The data sources also encompass varied social and work cultures and cover all employment sectors.

Findings From Literature Review

Key Elements of Career Readiness Skills

Career readiness is a complex concept that encompasses multiple broad dimensions. However, most previous scholars define it primarily in terms of work-related skills and knowledge, work practices, job understanding, awareness about careers, including an individual's ability to plan in the process of career decision-making. In general, this can be summarized as shown in Table 1 below.

Table 1. Definitions of Career Readiness

Researchers	Definition
Jyothimayee and Desai (2017); Makki, Javaid, and Bano (2016)	Work readiness is defined as possessing the skills, knowledge, practices, and job understanding that contribute to achieving organizational goals.
Reardon, Lenz, Sampson, and Peterson (2012); Sampson, McClain, Musch, and Reardon (2013)	Work readiness refers to an individual's ability to make appropriate career choices and plan their work considering factors such as family, social, economic, and organizational influences that affect career development.
Gysbers (2013)	Career readiness is defined as personal knowledge and awareness regarding the importance of success, including academic achievements such as good grades and graduation.
Lombardi, Conley, Seburn, and Downs (2012); Brady (2010)	Career readiness encompasses the skills, knowledge, and learning acquired through education or training related to career pathways.

According to the definition, it can be concluded that career readiness is a psychological factor involving cognitive, affective, and behavioural elements that influence an individual's career development, including career planning, career knowledge, career selection, career maturity, and career decision-making. It is also affected by external factors such as family, economic, social, and organizational contexts.

Moreover, career readiness is also viewed as the skills, knowledge, and learning acquired through education or job training. According to Makki et al. (2016), the term to consider in career readiness is the career readiness skills themselves, which encompass self-skills and qualities, technological skills and knowledge, as well as professional skills and knowledge. Entrepreneurial skills are also an element of career readiness skills (Carmenado et al., 2016).

Career Readiness Skills

Employers place high value on employees who possess strong career readiness skills. Various terms have been used interchangeably to describe the concept of career readiness skills, such as work readiness, study skills, and perfectionism traits (Cabellero et al., 2011).

According to Makki et al. (2015), career readiness skills refer to possessing the skills, knowledge, behaviours, and entrepreneurial understanding that help an individual achieve organizational goals. Students' achievements, skills, and knowledge are critical factors in developing their career readiness skills.

Findings from Cabellero et al. (2011) indicate that career readiness skills encompass items such as motivation, maturity, personal development, organizational awareness, technical skills, interpersonal orientation, positive work ethic, problem-solving skills, adaptability, and resilience. From the ten items identified, the researchers categorized these factors into four groups: personal factors, organizational thinking factors, work competencies, and social intelligence factors (Polat, 2018). Characteristics under career readiness skills include graduates who can easily adapt to new work cultures, possess high knowledge of their field, have the ability to work in teams, learn new skills quickly, demonstrate a strong work ethic, maintain good personal health, and consistently strive to meet workplace standards (William, 2016).

Students need to be trained in skills that align with their talents, potential, abilities, and interests. Beyond academic qualifications, career decision-making skills, skills to seek career resources and information, interpersonal relationships, and career readiness skills must be cultivated among students. According to previous research findings, there are five essential elements in career readiness skills that students need to master, namely: student skills and qualities, technological skills and knowledge, professional skills and knowledge, entrepreneurial skills, and self-efficacy, as shown in Table 2.

Table 2. Summary of Findings on Career Readiness Skills Elements

Career Readiness Skills Elements	Researchers
Student Skills and Qualities	Makki et al. (2016), Razak et al. (2014), Rosenberg et al. (2012), Rasul et al. (2010)
Technology Skills and Knowledge	Suleman (2016), Albert and Kumar (2015), Kang and Ritzhaupt (2015), Ismail (2012)
Professional Skills and Knowledge	Lang and Liu (2017), Che Mohd Zulkifli and Rajoo (2016), Rasul et al. (2010)
Entrepreneurial Skills	Lindberg et al. (2017), Carmenado et al. (2016), Bell (2016), Galloway et al. (2014), Hatem et al. (2016), Rae and Melton (2016), Yoon Young and Feda (2015), Malebana and Swanepoel (2015), Huq and Gilbert (2013)
Self-Efficacy	Makki et al. (2016), Bell (2016), Nagarathanam and Buang (2016), Lashley and Hazenberg (2016), Beaumont et al. (2016), Bilal et al. (2015)

Skills and Quality of Students

The skills and quality of graduates are among the employability skills that students need to master before entering the workforce. Employers often view students who possess these skills as more qualified for employment (Razak et al., 2014). A positive work ethic is embedded within the skills and characteristics of students, where work ethic refers to an employee's dedication to their job, including attendance, punctuality, and high motivation (Rosenberg et al., 2012). According to Makki et al. (2016), the skills and qualities of graduates include a positive work ethic, integrity, the ability to work in teams, self-expression, problem-solving skills, and creative thinking.

Technology Skills and Knowledge

Technology skills and knowledge are also included under the element of career readiness skills. These skills encompass data processing abilities, the capacity to search for information via the Internet, the ability to obtain and deliver information through audiovisual means, as well as fundamental computer proficiency (Ismail, 2012).

Findings from previous studies indicate that employers have given negative feedback regarding the skills possessed by students, including teamwork skills and technical skills (Suleman, 2016). Kang and Ritzhaupt (2015), on the other hand, found that the most important skills required in the job market are management and technical skills. For example, technology that aligns with current trends and the capability to work with complex technologies to enhance productivity are necessary.

Professional Skills and Knowledge

Professional skills and knowledge are essential components of employability skills. They encompass problem-solving and critical thinking abilities, lifelong learning, listening and speaking skills, job recruitment and promotion, as well as interpersonal skills (Che Mohd Zulkifli & Rajoo, 2016). Rasul et al. (2010) found in their study that 50.5% of graduates experienced unemployment for approximately nine months due to a lack of professional skills and knowledge. These graduates also exhibited weaknesses in communication, writing, and computer skills. Findings by Lang and Liu (2017) indicate that graduates without adequate professional skills and knowledge find it difficult to secure jobs that align with their areas of interest.

Entrepreneurial Skills

Entrepreneurial skills are among the key components of employability skills. According to Carmenado et al. (2016), the concept of entrepreneurship refers to the process of identifying, assessing, and exploiting opportunities, as well as enhancing an individual's ability to seize opportunities that are not easily recognized by others. Entrepreneurial skills are viewed as the competencies and abilities of graduates to work independently and to build their own careers—from entrepreneurial initiatives to commercial success. These skills have the potential to generate a positive impact on the national economy, create more job opportunities, and contribute to innovation (Carmenado et al., 2016). Furthermore, Malebana and Swanepoel (2015) found that when students are exposed to the concept of entrepreneurial behaviours, many of them demonstrate a desire to start their own businesses in the future.

Self-Efficacy

Previous studies have demonstrated a positive relationship between entrepreneurial skills and entrepreneurial behaviour, indicating that individuals with high levels of entrepreneurial skills are more likely to exhibit positive entrepreneurial behaviour (Malebana & Swanepoel, 2015). This suggests that positive behaviour, self-confidence, and personal capability should also be taken into account. The combination of these traits is commonly referred to as self-efficacy (Beaumont et al., 2016; Bilal et al., 2015; Qenani et al., 2014). Self-efficacy can be defined as students' awareness, belief, and confidence that they possess the necessary skills and knowledge to be empowered in facing challenges in the workplace. Consequently, high self-efficacy can positively influence graduates' job performance, thereby helping organisations remain competitive in the global market (Bilal et al., 2015; Gbadamosi et al., 2015).

The Relationship Between Career Readiness and Career Choice

Career choice is a crucial element in individual development, and various definitions have been proposed by previous researchers. According to Ginzberg et al. (1966), career choice is a developmental process that does not solely involve making a career decision, but also encompasses a series of activities that determine such decisions over a period of time. Each decision made will influence subsequent decisions, and it is not an absolute or final decision.

Post (1987) describes career selection as a continuous process, while Abdul Ghani and Ahmad Kamil (2011) define career choice as a field or type of job selected by a student as a future career.

The Concept of Career Choice

Choosing the right career is one of the major challenges faced by adolescents in Malaysia. This is because career choice reflects an individual's decision-making process, where they explore job fields,

acquire the necessary competencies, form opinions about what would bring satisfaction, and identify alternatives for achieving life satisfaction and career fulfilment (Zeynep, 2015).

Sharf (2016) emphasized that clarity and meaning in life can be manifested through the chosen career. Choosing the right career is essential to ensure that individuals gain life benefits, remain motivated in their work, and achieve a good level of productivity, which is vital for organizational sustainability and success (Josephine, 2016).

Issa and Nwalo (2008) assert that unproductive individuals often lead to inefficiency in completing tasks, which not only harms themselves but also affects the overall organization and national economy. Therefore, if an individual makes the wrong career decision, it can be detrimental to their future and the career field or organization they are part of. Having access to sufficient career information and guidance can help individuals make rational choices and use sound judgment in making career decisions (Josephine, 2016).

Consciousness in choosing the career which is aligned with an individual's interests, inclinations, abilities and the level of academic achievement is a fundamental process that crucial role in produce future professional pathway. This process just not only able to help individuals identify their fields that parallel with their potential but also ensures that their selection is capable of providing long term satisfaction and growth in career path. The selection of vocation is also the main factor in producing competitive, competent and highly skilled workforce in the fields that they pursued.

In addition, an adequate preparation in various of skills whether technical skills, psychosocial skills or problem-solving skills enhance the student confidence in confront the challenges of

working world (Normah et al., 2020). These skills are not only help the individuals to adapt quickly the constantly of changing working environments but also enable the individuals to fulfil current industry demands. Therefore, the level of awareness and initial preparation plays an important role in ensure that students is well-prepared and being able to survive effectively with the transition of learning environment to workplace environment.

According to Ginzberg et al. (1951) in the career choice theory, the individuals must first perform a thorough self-evaluation that encompasses their abilities, interests, personality traits and personal values that associated with the particular job or career pathway. This internal assessment is essential because it enable the individuals to understand their strengths, limitation, preferences and long-term aspirations. Ginzberg and his colleagues emphasize that career choice is not a small decision but rather a developmental process that evolves over time, formed by personal growth and life experiences.

Concurrently, the individuals should consider the various of external factors that related to the world of work. These all includes the practical aspects such as levels of salary, jobs scope, security, benefits, opportunities for promotion and working condition and also social elements like interpersonal relationships at the workplace, teamwork structures and organisational culture. An extra consideration might involve working hours, workload, job procedures, physical demands and the whole lifestyle that accompanies the particular occupation. By assessing both internal and external dimensions, the individuals can synchronize their personal characteristics with the realities of the work market.

Theory of Ginzberg emphasize that making a verdict effective career is occurred when individuals able to balancing their personal aspiration with the demands and practical limitation of the working world. This process requires reflection, exploration, and continuous adjustment as individuals become more mature and gain a deeper knowledge of themselves and the occupational environment. Ultimately, this comprehensive evaluation endorses the career choice with more informative and realistic thereby increasing the satisfaction, stability and long-term achievement in their chosen profession.

This clearly shows that career choice is a structured process in which the best decision is made based on the individual's natural traits. Selecting a career that aligns with one's qualifications, interests, and personality is crucial in determining one's life direction. Making the right decision during career selection can also lead to greater interest in the chosen field and a higher degree of life satisfaction. Hence, individuals must ensure that their personality is compatible with their chosen career path.

Career Readiness and Career Choice

The challenge in education today is not only to produce academically excellent students but also to prepare them for the world of work. Today's job market requires individuals who are skilled and ready to take on employment responsibilities. Therefore, to produce highly skilled and job-ready graduates,

students must be exposed to relevant knowledge from an early stage (Zhurad Haron & Adnan Ahmad, 2018).

Career exposure is necessary to help students plan and choose suitable career paths. Knowledge about career planning skills and career-related information is essential in enhancing students' career awareness and enabling them to make appropriate career choices. According to Mohd Helmi Ali et al. (2016), the lack of exposure and awareness regarding career education can influence students in making poor career choices, especially when it comes to knowledge and work experience.

Career planning and career selection should be based on mastery of specific skills, specifically to particular skills with career readiness (Nor Hazwani & Sheerad, 2020). Career readiness skills act as a base that enable individuals especially students to navigate the complex demands of work market nowadays. Frequently, these skills comprise with self-awareness, goal-setting, abilities of decision making, communication skills, adaptability and understanding of workplace expectations. When this competency flourished by student, they are well-prepared to assess their strengths, interests and career aspirations structured and meaningful.

Furthermore, students whose possessed a high level of career readiness are more capable of entering the job market with confidence and clarity. They are being the best positioned to evaluate various career opportunities, understand job requirements, and select career paths that aligned with their personal characteristics hence qualifications their long-term goals (Poh Li et al., 2018). High level of career readiness also enhances students' ability to make precise decision, manage transitions effectively and responded to challenges or uncertainties within the work market.

In essence, career readiness acts as a crucial mediator between education and employment results. When students are well-prepared, they are not just only increasing their chances of securing suitable employment but also experiences greater satisfaction and stability in their chosen careers. Thus, integrates career readiness skills into educational programmes is vital to ensure that students are equipped with the competencies that necessary for successful career development and throughout life employability.

Overall, the literature has demonstrated that elements of career readiness should be taken into account in the career decision-making process, as they help students to be more prepared in terms of personal qualities, technological knowledge and skills, professionalism, entrepreneurial abilities, and confidence in selecting a future career.

Career Readiness Selection Model

This career selection planning model is developed based on the analysis of findings from previous studies. While past research has extensively explored the methods and factors influencing career selection, this model specifically focuses on the essential skills required for planning, self-preparation, and acquiring relevant knowledge in the process of making career choices.

The model incorporates key elements that shape the career readiness skills students need to master. These elements play a crucial role in enhancing students' level of career preparedness. The absence of any one of these elements may adversely affect students' overall readiness and, consequently, their potential for career achievement.

Although these elements may appear distinct, they are in fact interrelated and complementary. For instance, a student with strong personal qualities—such as professionalism, confidence, and a solid work ethic—may perform tasks well. However, if the student lacks technological competencies, particularly in the use of computers and related software, their ability to complete tasks effectively may be limited. This limitation can compromise the quality of work produced and ultimately hinder the achievement of organizational goals.

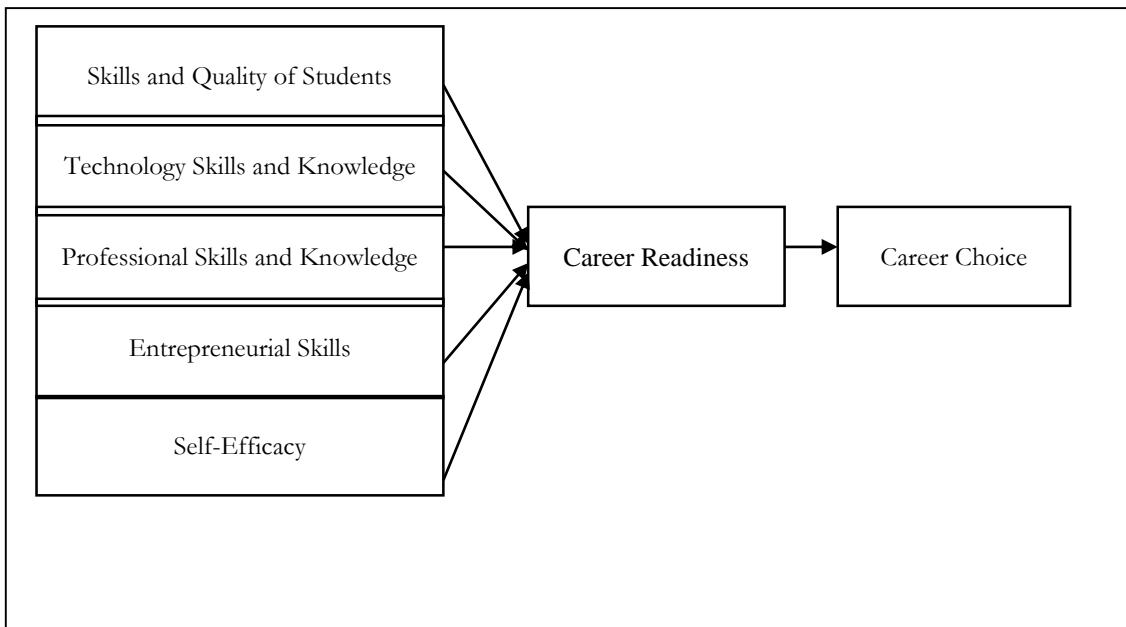


Figure 1. Career Choice Readiness Model

The career readiness model illustrated in Figure 1 presents the key components of readiness skills, namely student skills and qualities, technological skills and knowledge, professional skills and knowledge, as well as entrepreneurial skills. However, to further enhance students' competencies in the career selection process, an additional element—self-efficacy—should also be considered. Findings from Nor Hazwani and Sheerad (2020) revealed that career readiness is significantly related to self-efficacy. This result is supported by previous studies conducted by Makki et al. (2016), Bell (2016), and Nagarathanan and Buang (2016). The elements within this model contribute to improving students' career planning skills, which in turn prepare them to become skilled, competent workers capable of facing challenges in the workforce in line with current developments.

Discussion and Conclusion

Findings from the review of previous literature indicate that work readiness refers to an individual's capability to prepare for work by possessing the necessary skills, knowledge, practices, and job understanding that contribute to achieving organizational goals. Career readiness also assists individuals in planning and making career choices by understanding the required skills and knowledge necessary for their careers.

Nowadays, relevant skills and knowledge are important element in assist individuals adapting their self with working environment which is more complex, dynamic and competitive. The ability to masters in these skills not only enhances graduates' employability but also ensures that they being able effectively in working environment which is demands adaptations and critical thinking. In tandem with industrial expand and technological advancement, these skills have been recognised as the main components in education system and the student futures careers.

In the context of vocational education, students in Vocational Colleges being prepared with various skills that required by industry to ensure the human capital being produced completely possesses an optimal level of career readiness. The preparation encompasses not only the mastery of technical knowledge in their respective fields of study but also essential soft skills such as communication, teamwork, problem-solving, and professional work ethics. With early exposure and systematic training, students have the potential to enter the field of employment with confidence and be able to contribute effectively to the development of the nation's economic sector.

Amongst the methods that can be implemented to ensure that Vocational College students acquired skills aligned with employers' needs in this era of industrial revolution includes exposing students to problem-solving skills, conducting the learning process in a conducive environment,

establishing concrete learning objectives, strengthening self-management and time-management skills, promoting group learning and teamwork, providing appropriate assessments and integrating technology with experiential-based learning (Nurhanim Saadah et al., 2020). These methods able to some extent helps sharpen students' skills, serving as valuable preparation in making informed career choices and ultimately securing a place in the competitive job market.

Therefore, the idea of developing a career readiness model as proposed can be highlighted to provide clearer insights to technical and vocational education students who are about to enter the workforce. Furthermore, a more comprehensive study should be conducted on each element of career readiness skills, especially within the context of the Malaysian labour market. Such further research is essential to provide more detailed information and clearer insights, which can aid relevant stakeholders in technical and vocational education streams to enhance existing career programs. Ultimately, this will contribute to producing highly skilled human capital that supports organizational needs in the era of Industry 4.0.

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