

Competencies Elements for Vocational Teachers of Learners with Special Educational Needs: A Systematic Literature Review Analysis

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Abstract: A nationally aligned education is expected to help impaired pupils attain their full potential. In recent years, there has been an increase in global awareness and recognition of vocational education and training for disabled learners. This includes regulatory changes in special needs education, creating specific curriculum curricula for fast-paced businesses, incorporating technology into lessons, constructing new vocational special needs education facilities, and reorganizing existing facilities to match current demands. These vocational education programs necessitate the creation of new vocational special needs education teaching positions. Teachers contribute to the Malaysian Education Blueprint 2012-2025 goal and vision by developing talent in special needs education. The competencies of this new educational function and other quality indicators in Malaysia have yet to be identified. This study looks at special education and vocational teacher competencies. A systematic literature evaluation revealed competencies for special education vocational teachers. Professional competency conceptions encompass technical, non-technical, personal, mental, and physical traits, motivations, and self-concept. These findings could be utilized to prepare special education vocational teachers. The findings will influence vocational special needs secondary school vocational teachers' professional growth. Identifying crucial competency features will give baseline data for enhancing our understanding of critical components for quality vocational teachers, critical to effective teaching and learning for learners with special educational needs.

Keywords: vocational teachers; competencies; special needs teachers; competency elements.

INTRODUCTION

A high-quality education consistent with the national educational system is anticipated to enable students with disabilities to realize their maximum potential. In recent years, global cognizance and perception of the significance of technical and vocational education and training (TVET) for learners with special educational needs have increased significantly. This embraces policy deviations in special needs education, the design of specialized special needs curricula aligned with fast-paced industries, the incorporation of technology into lessons, the setting up of new vocational special needs education infrastructure, and the redesigning of existing vocational special needs education institutions to meet the present demand.

The evolution of these TVET programs has necessitated the creation of new vocational special needs education teacher roles. Teachers play an important role in achieving the mission and vision outlined in the Malaysian Education Blueprint 2012–2025 as an important talent developer for the special educational needs (SEN) sector. Some special educational needs teachers are not ready or interested in teaching vocational subjects (Suriman & Tahar, 2018). Typically, the skills of teachers and the quality of their work impact the implementation of change (Ithnain & Saidin, 2020). Numerous studies imply that the success of change implementation is contingent upon teachers successfully improving the quality of their work.

To satisfy the needs of special needs students (Murid Berkeperluan Pendidikan Khas) as an alternative to academic streams, particularly those more inclined towards vocational fields. The charges stem from special needs students' limited access to academic and vocational education programs (Malle et al., 2015). This statement, agreed upon by Najwandan & Owojaiye (2019), mentions that vocational education is suitable for special education and can be adapted and implemented for people with special needs.

The first problem special education teachers face is that they do not have the SKM qualification to assess the Murid Berkeperluan Pendidikan Khass' (MBPK) skills before the students receive the certificate. Teacher competence is critical to ensure that vocational teachers can implement a high-quality teaching and learning process (Bakar, 2018). As a result, the Ministry of Education implemented the Zero Rejection Policy (2018) to ensure that students with disabilities receive the education they deserve.

The competencies required for vocational teachers of learners with special educational needs (SEN) involve a unique blend of skills and knowledge to effectively support these students in their educational and vocational pursuits. The study uses various studies to determine the competencies elements for vocational teachers of learners with special educational needs. Puspasari & Widyaastono (2020) mentioned that vocational teachers of learners with special educational needs must also be professional because special educational needs teachers must have specific competencies that teachers in public schools do not possess. To understand the diverse needs of learners with special educational needs, teachers need a deep understanding of the diverse needs present among students. These include recognizing various disabilities and learning styles and being aware of these students' social and emotional challenges. Emphasizing reflective practices, seeking feedback, and engaging in continuous professional development opportunities can enhance teaching effectiveness and promote positive student outcomes. By developing and honing these competencies, vocational teachers can effectively support the diverse needs of students with SEN in vocational education settings, ultimately empowering them to achieve their educational and career goals.

Additionally, vocational teachers must develop and practice skills that will aid in their competency development, such as planning and organizing materials for daily classes, practicing procedures for dealing with disruptive students, and creating a teaching environment that encourages students to participate actively in group or individual learning activities (Rashid et al., 2009; Misra, 2011; Ebenhi et al., 2016). Yang, Kaiser, Konig, & Blomeke (2018) agree on the importance of knowledgeable and skilled teachers in teaching and learning.

Vocational Teacher Competencies in Special Educational Needs

In this regard, teacher competence is an essential indicator of the quality of teachers' work. Ismail et al. (2018) define the capabilities of TVET teachers as a combination of knowledge, skills, and attitudes to produce competent students who meet industry requirements. To improve the quality of education for Malaysian students and to implement Malaysia's Education Blueprint Plan (Plan Pembangunan Pendidikan Malaysia) 2013–2025, teachers' teaching competence must be bolstered in terms of their skills and expertise. This study aims to identify the competencies required of vocational educators of students with special educational needs. The relationship between teacher competencies and providing quality vocational education for students with special needs is direct. Competencies are the knowledge, skills, and attitudes teachers need to effectively teach students with special needs in a vocational education setting. Providing students with special needs with a high-quality vocational education is essential for ensuring that these students have access to the education

they need to succeed in their future careers. When teachers have the necessary knowledge, skills, and resources to support students with special needs, they can create inclusive learning environments that foster engagement, motivation, and success.

LITERATURE REVIEW

Competencies are defined as a collection of related knowledge, characteristics, attitudes, and skills that significantly impact how individuals perform at work, are related to how individuals perform at work, can be evaluated using acceptable standards, and can be enhanced through education and development. Competence is similar to an umbrella that encompasses everything that affects job performance, directly or indirectly. As Astereki et al. (2021) state, competency is a systematic attitude toward employees that encompasses all the attributes, characteristics, and attitudes associated with effectiveness in performing tasks and responsibilities. Thus, competencies can be considered behavioral dimensions that influence performance. Karabulut & Özmen (2018) state that teacher competencies are critical in special education, just as in all other general education areas. Teacher competencies can be defined as the degree to which a teacher possesses the necessary knowledge, skills, and attitudes to perform successfully.

A competent TVET teacher means a TVET teacher with sufficient skills, knowledge, attitude, or behavior. Teacher competencies are directly related to providing quality vocational education for students with special needs. Competencies are the knowledge, skills, and attitudes teachers need to effectively teach students with special needs in a vocational education setting. Empowering teachers to deliver quality vocational education for students with special needs is crucial for ensuring these students have access to the education they need to succeed in their future careers. When teachers are empowered with the knowledge, skills, and resources they need to support special needs students, they can create inclusive learning environments that promote engagement, motivation, and success. According to the study by Abba and Rashid (2020), TVET teachers' motivational, methodological, and evaluation competence significantly impacted the implementation of inclusion in the curriculum.

Successful special education for students with disabilities relies on the preparedness of their teachers. Because of the special needs of students, their teachers need specific skills and knowledge geared towards aiding them in achieving appropriate results. Several studies emphasize that teachers should be committed to educational innovation. They need flexibility to adapt to diverse requirements and alter existing styles to work individually with students (Smith, 2007; Whitten & Westling, 1985; Zagona et al., 2017). Therefore, teachers' competence is key to successfully implementing inclusive education. Jones & Symeonido (2017) have emphasized the importance of ensuring inclusive education policies conform to quality teaching practices. Teaching and learning environments should be managed skilfully, student behavior should be understood, and social interaction skills should be developed by TVET teachers (Boahin & Hofman, 2014).

In order to successfully implement inclusive education, TVET teachers must use effective teaching methods. In an inclusive classroom, TVET teachers face many challenges when teaching various students. Teachers must also be competent in teaching methods to practice inclusive education effectively. Among the skills needed to be an effective teacher are the ability to modify student activities, plan classroom operations for all students, use various teaching methods successfully, adjust classroom equipment, adjust instructional content to meet the needs of students, and provide the right learning strategy. The teacher's duties include preparing, advising, instructing, leading, assessing, and reviewing student

achievement. Teachers deliver both theoretical and practical lessons in different ways. Special education teachers bear responsibility for their students, which means they need an increased understanding of the nature of disabilities, ways to mitigate disabilities' negative impact, and navigating complex cases (Da Fonte & Barton-Arwood, 2017; Ruppert et al., 2015). So that all students can work together, share the same goals, and benefit from collaboration (Badri et al., 2016).

METHOD

This study aims to identify the list of vocational teacher competencies required in special education and to develop the Vocational Teacher Competencies Framework in Special Education. The following research questions will guide this study:

1. What are the vocational and special education teacher competencies aligned with the special education needs vocational school?
2. What constructs of vocational teacher competencies align with the requirement for students with special educational needs?

This research methodology utilizes a systematic literature review (SLR). The use of SLR allows for a thorough comprehension of a specific domain. SLR utilizes a methodical, clear, and repeatable procedure to gather and analyze a wide array of papers about this topic. The present study utilized a meta-analysis to statistically combine data from multiple studies obtained from various research paper providers, including Science Direct, Web of Science, Pro Quest, Horizon Research Publishing, Atlantis Press, Path of Science, AIP Conference Proceedings, Research Gate, Journal of Technical Education and Training, and WARSE. The search yielded numerous results, but researchers were chosen based on the following criteria deemed pertinent to the study: (1) The research focuses on teacher competencies in vocational and special education. (2) The studies must have been published between 2000 and the present, and (3) the elements or constructs of vocational education and/or special educational needs must be mentioned. Using meta-analysis, previous studies on teacher competence analyzed their data. After quantitative analysis, the meta-analysis of studies on TVET teacher competencies and special education teacher competencies was summarised in Tables 1 and 2.

Table 1. SLR – TVET Teacher Competency Framework

NO	AUTHOR (S)	STUDY DOMAIN	METHOD- OLOGY	COMPETENCY ELEMENTS	DIMENSION
1	MQA (2021)	Guidelines for TVET teaching competency	NIL	Personal Traits & Professionalism	Culture, value and virtue TVET laws and regulations Entrepreneurial and soft skills Professional services Leadership and management in TVET industry
				Teaching, Learning & Training	TVET curriculum design & development TVET curriculum delivery TVET curriculum evaluation Educational Technology & E-Based learning in TVET Industry advisory & career guidance
				Technical & Innovation	Research & innovation & project supervision Workshop, laboratory & filed work management
				Workplace Industry Engagement	Practical teaching for sustainable TVET

NO	AUTHOR (S)	STUDY DOMAIN	METHOD- OLOGY	COMPETENCY ELEMENTS	DIMENSION
2	Jafar et al. (2020)	TVET teacher competency framework in Industry 4.0	SLR	Technical	Subject matter expert Instructional planning, delivery, evaluation Technology application Classroom management Facilitate student Motivate student Student career development
				Non-Technical	Analytical Creativity Critical thinking Collaboration Innovative Leadership Professional development Research Social & cultural awareness
				Personal Attributes	Approachable Emotion control Adaptability Humanity Openness Risk taking Role model Team player
				Motive	Meaningfulness of life Self-concept
				Mental & Pysical	Mind state Physical fitness
3	Selvi, K. (2010)	Curriculum development	NIL	Field	Teacher expertise to teach regarding assigned subject at school
				Research	Skill to conduct research at school for developing their fields in gaining scientific thinking & scientific process skills
				Curriculum	Developing & implementing curriculum
				Lifelong learning	Abilities of learning to learn for own professional development in career
				Social-cultural	Knowledgeable social cultural background of students, local, human-right issues
				Emotional	Implementation of psychological consultation and curriculum guidance. Helping students to learn and willingness to learn through students emotional.
				Communication	Ability using oral, body and professional language in their fields
				ICT	Concerned with the use of technologies in managing and processing the information
4	Hamisu, M. A et al. (2017)	Proposed competency model for TVET lecturer in technical college	Quantitative and survey strategy	Organisational	Identification of critical business issue Communication Group dynamics Work environment analysis Goal implementation Consulting System thinking Visioning
				Environmental	Ecological and environmental safety

NO	AUTHOR (S)	STUDY DOMAIN	METHODOLOGY	COMPETENCY ELEMENTS	DIMENSION
				Thinking	Workplace performance, learning strategies & intervention Facilitation Standard identification Questioning Model building Analytical thinking Leadership
				Application	Training theory and application Career development Feedback
5	Wahyuni, D. S & Sugi hartini N. (2020)	Determining teacher competency at vocational high school	Mixed method (Fuzzy Delphi & Analytical Hierarchy Process (AHP))	Pedagogical	Implementation of teaching, learning and practical work skills Mastery of the head of vocational leaning Facilitating the development of the potential students Evaluation and assessment Industry-based curriculum
				Professional	Emphasises responsiveness and being proactive with changing skills demands in the industry Improving knowledge and skills related to the demands of skills in industry Develop content that is oriented, connected and integrated with the industry
				Vocational	Good knowledge related to work knowledge, work culture, work challenges, conceptual work, work procedures Providing industry experience in teaching and learning activities Role model
				Technological	Utilise and using ICT as a learning aid and a source of reference material
6	Ismail, A et al. (2018)	Developing of TVET teacher educator	Thematic approach	Personal traits & professionalism	Culture & virtue Laws & regulations Entrepreneurial and soft skill Professional services Leadership & management
				Teaching, learning and training	TVET curriculum planning & development TVET curriculum Delivery TVET curriculum evaluation Academic advisory
				Skill, technical and innovation	Industrial training & project supervision Research & innovation Workshop & laboratory management
7	UNEVOC (2020)	Trends mapping study (TMS) on new qualification and competencies in TVET (European perspective)	Survey and focus group	Digitalisation	Literacy, numeracy, basic digital skills Using software for online teaching & learning and virtual work meetings Digital skills and knowledge include additive manufacturing, data analytics, drone technology, automation and artificial intelligence
				Greening TVET	Advance cognitive skills to critical apply sustainability-related in various work situations To find creative ways to integrate sustainable action in daily working life

NO	AUTHOR (S)	STUDY DOMAIN	METHOD- OLOGY	COMPETENCY ELEMENTS	DIMENSION
				Entrepreneurship	Higher level critical thinking, complex problem solving and creativity capacity. Transforming creative and innovative ideas into profitable and sustainable business venture, turning ideas to action Unearthing financing opportunities for creation and development of start-up projects
8	Grosch, M. (2017)	Developing competency standard for TVET teacher in ASEAN countries	DACUM	Planning & Preparation	Identify students' background Design a lesson plan Prepare, design and choose learning content Design suitable teaching strategies and methods Choose and prepare suitable material and media Design assessment strategies and instruments
				Implementation	Motivate students in the learning process Manage class activities Communicate with students, colleagues and other stakeholders Apply teaching strategies and methods Connect students with the working world Use suitable material and media
				Evaluation	Assess students' learning outcomes Provide and get feedback from students Conduct and evaluation process
9	Volmari, K. et al. (2009)	Handbook to provide a coherent framework capturing the core activity and competence areas of the VET professions	Pilot study	Administration	Organisation & planning Project management
				Training	About simply telling the students how things were and showing them how to do things Speak of learning process or learning events that the teachers are in charge of Provide relevant learning to learners with skills valid today and in future
				Development & quality assurance	Continuing professional development To take responsibility and be involved in the overall development of one's own institution Perceived as something difficult and theoretical by regularly reviewing teaching and training materials to ensure that they meet with students' or clients' needs. Participate in audits and external evaluations carried out in their institution
				Networking	To midst all the demands and changes, organisations need to adopt more collaborative approaches in their operations In order to keep up to date with new technologies, new working practices and future trends in profession, teachers need to be aware of what is going on in the labour market and the enterprise

As shown in Tables 1 and 2, vocational teachers of students with special educational needs must possess the competencies of a TVET teacher and the ability to work with students with disabilities. All studies were conducted globally; the table above explains the various constructs utilized. The subsequent section elaborates on the outcomes.

FINDING AND DISCUSSION

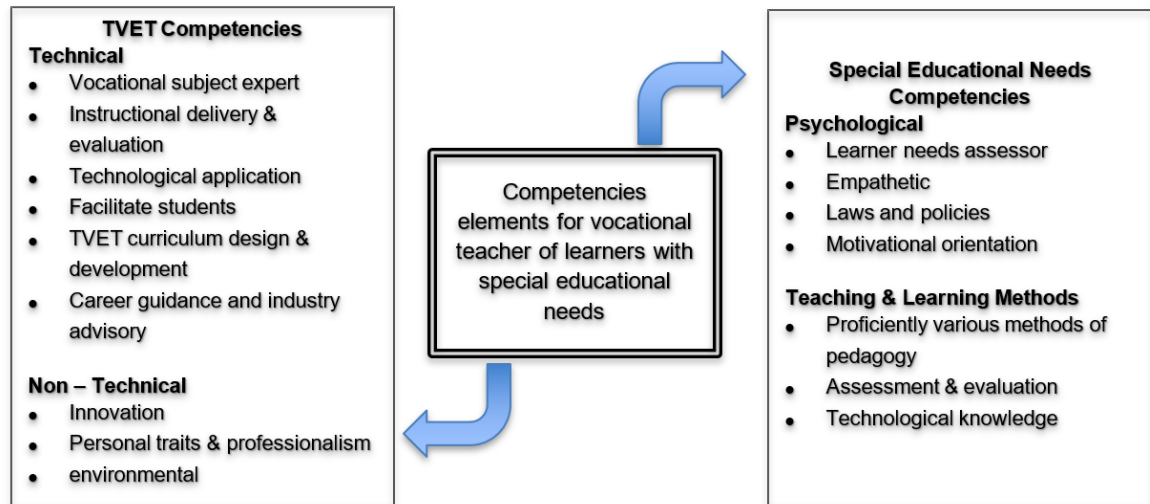
Finding(s)

The systematic literature review on competencies for vocational teachers of SEN learners delved deeply into technical and non-technical aspects essential for effective teaching in TVET settings. Within the technical domain, the findings underscored the imperative for vocational teachers to possess expertise in their respective vocational subjects and excel in instructional delivery and evaluation methodologies. This involves transmitting knowledge and ensuring it is comprehensively understood and effectively applied by SEN learners. Moreover, the review highlighted the crucial role of technology in modern education, emphasizing the need for vocational teachers to adeptly integrate technological tools and platforms into their teaching practices to facilitate an inclusive learning environment for SEN students. Additionally, the ability to design and develop TVET curricula tailored to the diverse needs of SEN learners emerged as a key competency, providing career guidance and insights into industry trends to better prepare these individuals for the workforce.

In the non-technical realm, the review identified several vital competencies essential for vocational teachers working with SEN learners. Innovation was highlighted as crucial, emphasizing the importance of creativity and adaptability in devising alternative teaching methods and approaches to meet the unique needs of each individual student. Furthermore, personal traits such as patience, empathy, and a commitment to professionalism were essential for fostering a supportive and inclusive learning environment where SEN learners feel valued and empowered to succeed. Additionally, an awareness of environmental factors, including social and cultural contexts, emerged as vital for creating an inclusive and accessible learning environment for all students. This finding is supported by Suriman & Tahar (2018) and Jamaludin (2014), those teachers involved with vocational subjects have a high level of knowledge, skill, and attitude of the teachers.

Moreover, the review identified specialized competencies specific to addressing the needs of SEN learners, particularly in the domains of psychological and teaching and learning methods. Psychologically, vocational teachers must be adept at assessing individual learner needs, understanding the diverse challenges SEN students may face, and maintaining empathy and sensitivity in their interactions. Knowledge of relevant laws and policies about SEN education was also deemed essential to ensure compliance and advocate for the rights of SEN learners. Maintaining a motivational orientation and fostering a positive learning environment supported SEN learners' engagement and achievement. Utilizing the results of SLR, the researchers can propose the TVET competencies required of vocational teachers for learners with special educational needs into two main elements: TVET competencies and SEN competencies, as shown in Figure 1.

Figure 1. Proposed Vocational Teacher of Learners with Special Educational Needs



Discussion(s)

The technical competencies listed in this study are explicitly related to the roles of TVET teachers in the instructional and learning process in the areas of vocational subject matter mastery, instructional planning, delivery of instruction, instructional evaluation, classroom management, student motivation and facilitation, student career development, technology utilization, career guidance, and industry advisory. Non-technical competencies are associated with other values, such as transforming innovative and creative ideas, personal characteristics and professionalism, and ecological and environmental safety.

To be proficient in the teaching and learning process, a vocational teacher with learners with special educational needs requires being able to interact with this type of student. As indicated in Figure 1, they ought to possess psychological aspects and specialized skill sets that correspond to unique profiles of student disabilities. Acquire a thorough understanding of the specific disability, including its characteristics and effects. Effective inclusive education practice also requires competence in teaching and learning methodologies. Teaching strategies require the ability to modify student activities, plan classroom operations for all students, employ various teaching methods effectively, adjust classroom equipment, adapt instructional content to students' needs, and provide the most effective learning strategy.

Vocational teachers must know how to improve teaching and learning, innovate in the classroom, and be exposed to various teaching and evaluative strategies. Ensuring vocational teachers are familiar with the relevant laws, policies, and regulations related to special education. Vocational teachers should have individualized education plans, accommodations, modifications, and the rights and entitlement of learners with special educational needs. To accommodate various characteristics of students' disabilities, vocational teachers should be able to modify assignments for learners with special needs, such as utilizing technology for additional learning activities, by adapting curriculum content for students with special needs. Various alternative teaching methods must be developed to compensate for the deficiencies of the digitalization activities of students with special needs.

CONCLUSION

In conclusion, developing vocational teacher competencies in schools for learners with special educational needs is crucial to the success of vocational education for learners with special needs. Vocational teachers can effectively meet their students' unique needs and challenges through specialized training, knowledge of special education laws and policies, differentiated instruction, collaboration and communication, positive behavior support, assistive technology, and ongoing professional development. Research demonstrates that vocational teachers with specialized competencies in special educational needs vocational schools are better equipped to provide individualized instruction, adapt teaching methods, and support the skill development of students with various disabilities. Their knowledge of various disabilities and their effects on learning and the development of vocational skills enables them to tailor instruction to meet the individual needs of each student. The research demonstrates that special education teacher competencies are essential for providing high-quality vocational education for learners with special needs. By fostering the development of these competencies, special educational needs vocational schools can effectively prepare learners with special educational needs for entry into the workforce and facilitate their journey toward independence and self-fulfillment.

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