

# Comparative Analysis of TVET Instructor Competency Standards: Insights from Malaysia and Beyond

Maznizam Bin Mansor  
Tun Razak Graduate School  
Universiti Tun Abdul Razak  
Kuala Lumpur, Malaysia  
m.maznizam@ur.unirazak.edu.my

Zulkiflee Bin Mohamed  
Tun Razak Graduate School  
Universiti Tun Abdul Razak  
Kuala Lumpur, Malaysia  
zulkiflee@unirazak.edu.my

Mohammed Reyasudin Bin Basir Khan  
Tun Razak Graduate School  
Universiti Tun Abdul Razak  
Kuala Lumpur, Malaysia  
reyasudin@unirazak.edu.my

Mohd Nor Azlan Bin Mohamed Sidek  
Tun Razak Graduate School  
Universiti Tun Abdul Razak  
Kuala Lumpur, Malaysia  
nor.azlan@ur.unirazak.edu.my

**Abstract**—The competency standards for Technical and Vocational Education and Training (TVET) instructors are crucial in ensuring the delivery of quality education and training, which supports the development of a skilled workforce. In Malaysia, the National Occupational Skills Standard (NOSS) - TVET Instruction, developed by the Department of Skills Development (DSD), serves as the benchmark for preparing instructors to meet industry demands and contribute to national economic growth. However, as global standards evolve, it is essential to assess how NOSS compares with other established frameworks, including the TVET Teaching Competency (TTC) by the Malaysian Qualifications Agency (MQA) and the Regional TVET Teacher Standard for ASEAN (RTTS) by SEAMEO VOCTECH and GIZ. This study conducts a comparative analysis of these three competency frameworks, aiming to identify strengths, areas of alignment, and opportunities for improvement within the NOSS framework. The findings reveal that while NOSS is well-tailored to Malaysia's specific industrial and educational needs, there are opportunities to integrate broader competencies, such as digital pedagogical skills and continuous professional development, which are emphasized in the TTC and RTTS frameworks. Based on this analysis, several recommendations are made to enhance the NOSS framework, ensuring that Malaysia's TVET instructors are equipped with both technical expertise and the adaptability required to meet the evolving demands of the global workforce.

**Keywords**—TVET Instructor Competency, National Occupational Skills Standard (NOSS), TVET Instruction NOSS, Competency Frameworks, ASEAN TVET Standards

## I. INTRODUCTION

Technical and Vocational Education and Training (TVET) is recognized globally as a key component in fostering economic growth and ensuring a skilled workforce to meet industry needs. In Malaysia, the TVET system has undergone significant transformations to address the country's economic goals and reduce dependency on foreign labor. The effectiveness of TVET is intrinsically tied to the competency of its instructors, as they play a crucial role in equipping students with the skills needed to excel in the workforce [1]. With growing industrial demands and the increasing importance of skilled human resources for

economic transformation, the role of TVET instructors becomes even more critical. In Malaysia, there is a clear emphasis on ensuring that instructors possess both field-specific expertise and strong teaching competencies to meet these demands. As the landscape of TVET continues to evolve, these competencies are essential for preparing a workforce that is ready to face future challenges. In Malaysia, the National Occupational Skills Standard (NOSS) - TVET Instruction (TVETI) developed by the Department of Skills Development (DSD), Ministry of Human Resources serves as the core framework for defining instructor competency. NOSS emphasizes hands-on, competency-based training aimed at aligning with industry demands and preparing students for immediate employment [3]. However, with the rapid pace of technological advancements and globalization, there is a need to assess how well NOSS aligns with both national and regional standards, such as the TVET Teaching Competency (TTC) developed by the Malaysian Qualifications Agency (MQA), Ministry of Higher Education and the Regional TVET Teacher Standard for ASEAN (RTTS) developed by SEAMEO VOCTECH and GIZ. While NOSS has been successful in addressing Malaysia's industrial needs, the TTC and RTTS frameworks place additional emphasis on interpersonal and leadership skills, professional development, and innovative teaching strategies, which are becoming increasingly important in today's globalized education landscape [5]. These frameworks advocate for more holistic competency development, ensuring that TVET instructors not only possess technical expertise but also the social and pedagogical skills needed to foster collaboration and adaptability in diverse work environments [4]. Given these differences, this study aims to conduct a comparative analysis of the NOSS TVETI, TTC, and RTTS frameworks to identify strengths, areas of alignment, and potential enhancements for the NOSS framework. By doing so, the study seeks to ensure that Malaysia's TVET system remains competitive on both a national and international level, producing instructors who are well-equipped to meet the evolving demands of the workforce.

## II. LITERATURE REVIEW

### A. TVET Instructor Competency Standards

Competency standards for TVET instructors are essential in shaping both the quality of education and the graduates they produce. Instructors need a balance of technical expertise, pedagogical skills, and the ability to adapt to changing industry demands. Malaysia's National Occupational Skills Standard (NOSS), developed by the Department of Skills Development (DSD), provides a foundation for competency-based training, emphasizing hands-on, practical skills aligned with industry needs. However, as Industry 4.0 and new-collar jobs emerge, there is a growing need for NOSS to evolve and benchmark against global standards to remain competitive [14]. Additionally, frameworks like the TVET Teaching Competency (TTC) developed by the Malaysian Qualifications Agency (MQA) stress the importance of continuous professional development and social competencies, acknowledging that lifelong learning is essential for instructors to stay relevant [5]. Research also emphasizes the importance of balancing theoretical knowledge with practical industry training to meet labor market demands and keep pace with technological advancements [9]. By aligning local standards with international frameworks, Malaysia can ensure its TVET instructors are equipped to meet both national and global industry needs, producing well-rounded educators who are prepared for the challenges of a globalized economy.

### B. Regional TVET Instructor Standards

On a regional level, the Regional TVET Teacher Standard for ASEAN (RTTS), developed by SEAMEO VOCTECH and GIZ, introduces a broader set of competencies that reflect the growing importance of digital literacy, leadership, and cross-cultural communication in the ASEAN region [2]. These standards highlight the need for TVET instructors to not only master technical subjects but also to possess the social and leadership skills necessary to guide students in an increasingly interconnected world.

### C. NOSS for TVET Instructor

The development of the new NOSS for TVET Instruction Level 4 (P853-002-4:2021), known as TVETI, has been driven by industry feedback, highlighting the need for the existing Vocational Training Operation (VTO) Level 3 certification to be updated. This shift aims to equip TVET instructors with advanced teaching methodologies, aligning their skills with the demands of a more complex job market, including managing e-learning platforms. This upgrade reflects the need for higher competency standards and aligns TVET teaching licenses with academic ones, responding to the growing complexity of non-routine tasks. NOSS Level 4 certification prepares instructors for a wide range of complex technical and professional activities, requiring significant responsibility and autonomy. NOSS development committee views this certification as necessary to meet the higher competency requirements now expected in the field, ensuring instructors possess the skills and knowledge needed for current industry demands. NOSS for TVET Instruction is classified under Section (P) Education, according to the Malaysia Standard Industry Classification (MSIC 2008), and is grouped under Higher Education (853). This classification includes technical and vocational education at post-secondary and university levels, with activities aligned with ISCED 1997 levels 4, 5, and 6 [11].

### D. Graduate Certificate in TVET Teaching Competency

The Graduate Certificate in TVET Teaching Competency Guideline is a strategic initiative aimed at improving the quality of TVET instructors in Malaysia. It ensures that instructors in both public and private institutions, accredited by the Malaysian Qualifications Agency (MQA) under the Ministry of Higher Education, possess the necessary technical knowledge, skills, and professional competencies to meet national and international standards. The guideline's objectives include establishing a solid foundation for the certification and development of both pre-service and in-service TVET instructors. By providing a graduate certificate in teaching competency, the guideline aligns TVET instructors' qualifications with industry standards, promoting lifelong learning, innovation, and career development. The guideline highlights core competencies; Knowledge, Skills, Attitude, and Professionalism to prepare students for the transition from education to employment [12].

### E. Regional TVET Teacher Standard for ASEAN

The Regional TVET Teacher Standard (RTTS) is a comprehensive framework developed to enhance the quality and consistency of TVET instructors across ASEAN member states. The RTTS was spearheaded by Southeast Asian Ministers of Education Organization's Regional Centre for Vocational and Technical Education and Training (SEAMEO VOCTECH), with significant support from Regional Cooperation for Technical and Vocational Education and Training in ASEAN (RECOTVET) and contributions from a regional working group representing nine ASEAN countries: Brunei Darussalam, Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, Philippines, Thailand, and Vietnam. Within the RTTS, the word "standards" encompasses the various provisions and regional guidelines set forth in the document. These standards aim to guide and inform the professional development, competencies, and practices of TVET teachers across the ASEAN region. The RTTS is a key regional initiative that sets a unified standard for TVET educators in ASEAN. By establishing common guidelines and competencies, it seeks to raise the quality of TVET education, making it more consistent and effective across member states. The endorsement by multiple high-level ASEAN bodies underscores the commitment of the region to advancing TVET and ensuring that educators are well-prepared to meet the demands of a rapidly evolving labor market. The RTTS serves as a critical tool for harmonizing TVET education in ASEAN, promoting regional integration, and enhancing the mobility and recognition of TVET professionals across the member states [13].

## III. METHODOLOGY

This study employs a comparative analysis approach to evaluate the competency standards for TVET instructors across three major frameworks: the National Occupational Skills Standard (NOSS) - TVET Instruction, developed by the Department of Skills Development (DSD) in Malaysia; the TVET Teaching Competency (TTC) by the Malaysian Qualifications Agency (MQA); and the Regional TVET Teacher Standard for ASEAN (RTTS), developed by SEAMEO VOCTECH and GIZ. The comparative analysis aims to highlight key areas of alignment and divergence between these frameworks, providing a basis for identifying potential enhancements to the NOSS framework. This study

is designed as a document-based comparative analysis, where key competencies from each of the three frameworks are extracted and compared systematically. The analysis focuses on five main areas of competency that are critical to TVET instructor performance: Instructional Delivery, Curriculum Development, Professional Development, Social and Interpersonal Skills and Technological Competency. Data for this study were collected through an in-depth review of official documents and research articles related to the three competency frameworks. The following sources were utilized; NOSS (DSD) - Official documentation from the Department of Skills Development outlining the competency standards for TVET instructors in Malaysia, TTC (MQA) - Guidelines and competency standards set by the Malaysian Qualifications Agency, focusing on the teaching and learning competencies of TVET instructors, RTTS (SEAMEO VOCTECH & GIZ) - The regional competency framework for ASEAN TVET instructors, with a focus on preparing educators to meet regional and international standards. To ensure a structured comparison, a competency mapping matrix was developed. This matrix allowed for the clear identification of competencies shared between the frameworks, as well as areas where one framework offers unique strengths. The matrix was further refined through qualitative analysis, using thematic coding to categorize the competencies according to their relevance and applicability in different educational and industrial contexts. The study primarily focuses on document-based comparisons, and while it provides a comprehensive analysis of competency frameworks, there is a limitation in terms of empirical validation through interviews or field studies. Future research could include surveys or interviews with TVET instructors and policymakers to gain deeper insights into the practical implementation of these standards.

#### IV. FINDINGS

The findings from this comparative analysis highlight key areas where the National Occupational Skills Standard (NOSS), the TVET Teaching Competency (TTC), and the Regional TVET Teacher Standard (RTTS) align and diverge in terms of competency requirements for TVET instructors. By analyzing the competency areas of instructional delivery, curriculum development, professional development, social and interpersonal skills, and technological competency, we are able to identify both the strengths and areas for enhancement within the NOSS framework. Table I presents a comprehensive comparison of these three frameworks based on the key competency areas.

The comparative analysis reveals several significant differences between the competency frameworks of the National Occupational Skills Standard (NOSS), TVET Teaching Competency (TTC), and Regional TVET Teacher Standard (RTTS). In terms of instructional delivery, NOSS emphasizes Competency-Based Training (CBT), with a strong focus on practical skills, reflecting its alignment with industry demands in Malaysia [3]. However, the TTC promotes more flexible and innovative teaching strategies, while RTTS integrates blended learning and digital tools, offering a more modern, technology-enhanced approach [6]. Similarly, in curriculum development, NOSS is industry-aligned, ensuring TVET instructors prepare students with hands-on skills required for immediate employment. On the other hand, TTC encourages adaptability, allowing

instructors to adjust the curriculum in response to industry changes, while RTTS adopts a broader regional perspective, supporting curriculum adaptability across ASEAN countries [2].

TABLE I COMPETENCY MATRIX MAPPING

Competency Area	NOSS (TVET Instruction - DSD)	TTC (MQA)	RTTS (ASEAN - SEAMEO VOCTECH & GIZ)
<b>Instructional Delivery</b>	Competency-Based Training (CBT), Practical-focused	Flexible teaching strategies, innovative methods	Blended learning, digital integration
<b>Curriculum Development</b>	Industry-aligned, hands-on curriculum development	Competency-based, adaptive to industry changes	Broad, regional/global focus on curriculum adaptability
<b>Professional Development</b>	Limited focus on continuous professional development	Strong emphasis on continuous professional growth	Emphasis on leadership and regional collaboration
<b>Social and Interpersonal Skills</b>	Basic emphasis, not a core focus	High emphasis on interpersonal and leadership skills	Focus on social competence and cross-cultural skills
<b>Technological Competency</b>	Adequate coverage, could be enhanced	Strong integration of digital tools and platforms	Strong emphasis on digital literacy and online learning

The comparative analysis reveals several significant differences between the competency frameworks of the National Occupational Skills Standard (NOSS), TVET Teaching Competency (TTC), and Regional TVET Teacher Standard (RTTS). In terms of instructional delivery, NOSS emphasizes Competency-Based Training (CBT), with a strong focus on practical skills, reflecting its alignment with industry demands in Malaysia [3]. However, the TTC promotes more flexible and innovative teaching strategies, while RTTS integrates blended learning and digital tools, offering a more modern, technology-enhanced approach [6]. Similarly, in curriculum development, NOSS is industry-aligned, ensuring TVET instructors prepare students with hands-on skills required for immediate employment. On the other hand, TTC encourages adaptability, allowing instructors to adjust the curriculum in response to industry changes, while RTTS adopts a broader regional perspective, supporting curriculum adaptability across ASEAN countries [2].

Additionally, both NOSS and TTC share a competency-based approach to instructional delivery and curriculum development. However, while NOSS is closely tied to industry-specific training, TTC offers a more flexible and adaptive curriculum that encourages instructors to modify content based on evolving industry trends. The competency frameworks of NOSS, TTC, and RTTS all underscore the importance of pedagogical approaches in developing social competencies among TVET instructors. Effective teaching and learning in vocational education rely heavily on instructors' ability to foster social skills, which are crucial in today's collaborative working environments. According to [1], pedagogical methods that emphasize social competency development play a significant role in enhancing the overall effectiveness of TVET instructors, ensuring that they are

well-equipped to engage with students and facilitate meaningful learning experiences.

Equally important is the need for TVET instructors to be highly skilled and knowledgeable in their respective fields. The development of competent instructors is pivotal in producing graduates who are well-prepared to meet the demands of the industry. These knowledgeable instructors are not only capable of delivering quality education but also play a key role in bridging the gap between education and industry requirements, ensuring that graduates are equipped to excel in their fields and contribute to the workforce [6][8]. Finally, all three frameworks emphasize professionalism, though TTC and RTTS provide more structured pathways for continuous improvement. RTTS, in particular, focuses on leadership and cross-cultural communication as essential competencies for instructors in the ASEAN region, reflecting a more globalized approach to TVET instructor development.

## V. DISCUSSION

TVET instructors are crucial in Malaysia's efforts to become a high-income economy. The National Occupational Skills Standard (NOSS) plays a key role in this by focusing on industry-relevant competencies and practical skills that align closely with the needs of local industries. By equipping instructors with the tools to develop a skilled and innovative workforce, NOSS helps ensure that Malaysia's TVET system remains relevant and capable of meeting the country's economic objectives [14]. This alignment between training and industry needs strengthens Malaysia's ability to produce graduates who are well-prepared to contribute to the nation's growth and competitiveness. The National Occupational Skills Standard (NOSS) demonstrates notable strengths when compared to the TVET Teaching Competency (TTC) and Regional TVET Teacher Standard (RTTS) frameworks. One of NOSS's key advantages is its strong alignment with Malaysia's specific industrial needs. By focusing on Competency-Based Training (CBT), NOSS ensures that TVET instructors deliver practical, hands-on skills that directly prepare students for immediate employment in local industries. This practical orientation makes NOSS highly relevant within the Malaysian context, particularly in sectors that require a highly skilled technical workforce. Furthermore, NOSS's clear focus on industry-specific competencies helps bridge the gap between education and employment, providing a straightforward path for graduates to transition into the workforce.

However, there are areas where NOSS could benefit from potential enhancements. While the framework excels in aligning with local industrial needs, it could incorporate more elements of flexibility and adaptability that are present in both TTC and RTTS. Specifically, the integration of continuous professional development and leadership skills could enhance the framework's ability to prepare instructors for a rapidly changing educational landscape [7]. Additionally, NOSS could expand its coverage of digital competencies, moving beyond basic ICT skills to include more comprehensive training in blended learning and digital literacy. Incorporating these elements would align NOSS more closely with the broader, global competencies emphasized in TTC and RTTS, ensuring Malaysian TVET instructors are better prepared to navigate a globalized and increasingly digitized workforce. The findings from this

comparative analysis have important implications for policy and practice. Policymakers in Malaysia may consider revising the NOSS framework to include more structured pathways for continuous professional development, as well as more comprehensive leadership and interpersonal skills training for TVET instructors. By doing so, Malaysia's TVET system could not only meet local industry demands but also equip instructors with the skills necessary to compete in a global market. In practice, these enhancements would require collaboration between the Department of Skills Development (DSD) and key stakeholders in education and industry to develop new training modules and certification pathways that address the evolving needs of both instructors and students. Ultimately, refining NOSS in these ways would ensure the long-term competitiveness of Malaysia's TVET system on both national and international levels.

## VI. CONCLUSION

The comparative analysis of the National Occupational Skills Standard (NOSS), TVET Teaching Competency (TTC), and Regional TVET Teacher Standard (RTTS) frameworks highlights both the strengths and areas for enhancement within Malaysia's TVET instructor competency standards. For Malaysia to remain competitive on a global scale, it is essential that TVET institutions produce instructors who possess not only current competencies but also the ability to address future challenges. The evolving nature of industries demands that TVET instructors be continuously upskilled to handle the complexities of the modern workplace. This focus on continuous professional development is vital for sustaining the relevance and effectiveness of Malaysia's TVET system in the global economy. In conclusion, the competency development of TVET instructors remains a cornerstone of an effective TVET system, directly influencing the quality of graduates and, by extension, the workforce. As Malaysia continues to strengthen its TVET sector, refining the NOSS framework to incorporate continuous learning, digital competencies, and leadership training will ensure that its TVET instructors are not only equipped to meet local industrial needs but also capable of thriving in a rapidly evolving global economy. By building on its current strengths and integrating these enhancements, Malaysia's TVET system can continue to produce well-rounded, highly competent instructors who are adaptable, innovative, and prepared to face the challenges of modern education and industry.

## ACKNOWLEDGMENT

Special thanks to my team for their invaluable support throughout this research process.

## REFERENCES

- [1] G. Adamu, Z. M. Fadillah, and A. N. Ismail, *Competency framework for TVET teachers: Ensuring the quality of vocational education and training instructors*, Kuala Lumpur: XYZ Publishing, 2017.
- [2] I. Afferro, A. Nor Aini, and M. Haris, *The development of TVET educator competencies*, Kuala Lumpur: PTS Publications, 2018.
- [3] I. Afferro and A. Nor Aini, "Vocational Training Operation (VTO) and its importance in TVET," *Technical Vocational Education Journal*, vol. 12, no. 1, pp. 45-57, 2016.
- [4] I. Afferro, A. Nor Aini, and M. Rosli, "TVET National Teacher Standard: A framework for vocational education," *International Journal of TVET Development*, vol. 5, no. 2, pp. 100-115, 2017.

- [5] A. Che Amran and N. Zulkifli, "VTO implementation in Malaysian TVET institutions: Lessons learned and future strategies," *Vocational and Educational Training Review*, vol. 10, no. 4, pp. 25-39, 2020.
- [6] M. Grosch, "ASEAN TVET instructor standards and their role in regional economic development," *Journal of ASEAN Studies*, vol. 3, no. 1, pp. 67-85, 2017.
- [7] R. N. Raja Norhafiza and M. Zulkifli, *Malaysian TVET lecturer competency: Level 5 and beyond*, University of Technical Education Malaysia, vol. 18, no. 2, pp. 55-70, 2019.
- [8] M. Malloch and A. Helmy, "TVET teachers: A reflection on trends in Indonesia and Australia," *Vocational Education and Training in Asia-Pacific*, vol. 9, no. 3, pp. 115-132, 2017.
- [9] C. Harteis, "Competency-based learning in TVET: A balance between theoretical knowledge and hands-on skills," *Journal of Vocational Training*, vol. 7, no. 2, pp. 143-158, 2009.
- [10] S. Salleh, N. Sulaiman, and P. Frederiksen, "Challenges in developing competent TVET teachers: The Malaysian perspective,"
- [11] Department of Skills Development (DSD), *National Occupational Skills Standard (NOSS) TVET Instruction Level 4*, Ministry of Human Resources Malaysia, 2021.
- [12] Malaysian Qualifications Agency (MQA), *Guidelines: Graduate Certificate in TVET Teaching Competency*, MQA, 2021.
- [13] SEAMEO VOCTECH and GIZ, *Regional TVET Teacher Standard for ASEAN*, Deutsche Gesellschaft für Internationale Zusammenarbeit, 2019.
- [14] A. R. Mohamad Khair, R. M. Zain, and Z. A. Hamid, "A comparative analysis of NOSS and international standards for new-collar jobs in the era of Industry 4.0," *Journal of Vocational Education and Training*, vol. 15, no. 3, pp. 35-52, 2022.
- [15] G. Spöttl, "Teacher education for TVET in Europe and Asia: Challenges and solutions for quality assurance," *Journal of International TVET Studies*, vol. 12, no. 2, pp. 76-94, 2017.