TESL Graduates and TVET English Language Teaching Readiness: The Curriculum Perspectives

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Abstract: This paper explores the potential gaps in addressing the competencies of pre-service English teachers by focusing on two main aspects; a) pre-service English teachers' preparation to teach 'smart and sharp skills' in TVET programmes and b) the implications on the current TESL curriculum. Hence, the purpose of the present study is twofold; to determine the elements of 'smart and sharp skills' exposure in TESL programme and to identify the pre-service TESL graduates' readiness to train these skills in the TVET programme. Employing a qualitative research design, the data was obtained through document analyses. The inclusion of 'smart and sharp' skills in the TESL programme and their match with the TVET teaching competency became the starting point of the investigation as the findings would be referred to in scrutinizing the TESL graduates' preparation to train those skills in TVET programme. Existing TESL curriculum documents from three public universities in Malaysia offering TESL programmes formed the units of investigation in the study, particularly in looking at the programme's learning outcomes (PLOs). Likewise, the Malaysian Quality Agency's (MQA) Programme Educational Objectives (PEO) for TVET teaching competency was scrutinized in finding a pattern between the PEOs, TESL PLOs and the exposure to 'smart and sharp' skills. Thematic analysis was employed in analyzing the data and to confirm its trustworthiness, an inter-rater test of agreement was conducted. Salient findings include the potential of the exposure to 'smart and sharp' skills in the existing TESL curriculum and the readiness of the TESL graduates to train those skills in TVET programmes. Based on the findings, several implications and recommendations have been identified and proposed. It is expected that policy makers, curriculum developers and TESL educators could benefit from the findings and implications presented in this paper. Further research focusing on the training effectiveness of 'smart and sharp' skills for TVET students could also be considered.

Keywords: Curriculum, Smart And Sharp Skills, TESL, TVET

1. Introduction

The idea that brought light to the present study is the need to provide better and improved teacher education, one that caters to the growing and changing needs of future students and their preparation for the workforce. The Higher Education Minister's mandate for the year 2023 emphasized on the eleven resolutions among which, the emphasis on 'smart and sharp skills' and TVET (MOHE, 2023). Various discussions have been deliberated on the influence of Industry Revolution 4.0, the Internet of Things (IoT) and Society 5.0 on teacher education curriculum (Ali, Mohamed Isa, Abu Bakar, Ahmad, Shaharruddin, 2022; González-Pérez, Ramírez-Montoya, 2022; Seufert, Oberdörfer, Roth, Grafe, Lugrin, Latoschik, 2022). Terms such as 'hard

skills' and 'soft skills', synonymous to attributes of ideal graduates became central too during curriculum development and review exercises. As higher education institutions are expected to produce graduates who fulfill the demand of the industry, emphasis on the ability to be resilient, flexible and creative among others become more prominent than just having the ability of being textbook smart (Lock, 2016; Gray, 2016; Lassi, Fettke, Kemper, Feld & Hoffman, 2014; Miranda, Navarrete, Noguez, Molina-Espinosa, Ramírez-Montoya, Navarro-Tuch, Bustamante-Bello, Rosas-Fernández, Molina, 2021).

The pandemic took the world by storm in early 2020 and almost three years were needed before the panic attack caused by the pandemic could be faced calmly. As the higher education landscape was just at the cornerstone of reconsidering the graduate attributes that meet the demand of IR4.0, IoT and Society 5.0 between the years 2018-2020 following the reports from World Economic Forum of those years (Miranda et al, 2021), the pandemic put all efforts of reconsidering the graduate attributes at a halt as the new focus was given on the innovative and transformative teaching and learning delivery (Khairuddin, Arif, and Khairuddin, 2020; Rarkryan, 2020, Goh and Abdul-Wahab, 2020; Khan, Nabi, Khojah & Tahir, 2021). Interestingly, the terms 'smart' and 'sharp' skills were first coined in 2019 as a result of the revised 'hard and soft skills' (Padurean & Fine, 2019). Due to the pandemic that hit the world in early 2020, it was not until recently the term 'smart and sharp skills' was given serious thought again, especially among policymakers and curriculum developers (MOHE, 2023).

The present study is also interested in confirming how TESL pre-service teachers are trained and prepared to teach in TVET programmes, especially in training their future TVET students 'smart and sharp' skills. The special emphasis on TVET is based on the current direction of the Ministry of Higher Education (MOHE) on TVET programmes in the country. As stated in the Minister's annual address, TVET forms the backbone of the country's economical and social development as it focuses on the competency and capacity building of technical and vocational talents (2023). It is hypothesized at the onset of the study that TESL curriculum was developed without the inclusion of the 'smart and sharp' skills, let alone to train these skills to future students who are enrolled in TVET programmes.

In confirming how much has been deliberated on with regards to the inclusion of 'smart and sharp' skills training in the TESL curriculum since 2019 and how much training and preparation to teach those skills in TVET programmes, the present study was conducted with the following research questions in mind.

1. Are there elements of 'smart and sharp' skills integrated in the TESL programme learning outcomes (PLOs)?
2. What are the 'smart and sharp' skills identifiable from MQA's TVET Teaching Competency programme educational objectives (PEO)?
3. Is there a pattern between the TESL PLOs and MQA's TVET teaching competency PEO with the 'smart and sharp' skills?

2. Literature Review

TVET and its Graduates' attributes

Technical and Vocational Education and Training (TVET) programmes are offered to address the growing demand for highly skilled employees with a variety of advanced talents (Harun, Md Yusuff & Zakaria, 2020). Oviawe, Uwameiye and Uddin (2017) claim that TVET is a type of education that offers students the knowledge and skills they require to succeed in the labour market after graduation. Due to the potential of eradicating poverty and unemployment, TVET has received more attention than traditional higher education (Marope, Chakroun & Holmes, 2015; Chamadia and Shahid, 2018).

According to the International Labor Organization (ILO) and UNESCO, TVET offers educational programmes above what general education could offer such as the study of technologies and related sciences, and the acquisition of practical skills, attitudes, understanding, and knowledge relating to occupants in various sectors of economic and social life (UNESCO, 2023 and ILO, 2016). More and more emphasis is being placed on 'softer' abilities like communication, negotiation, and teamwork in addition to technical knowledge and ability in TVET programmes.

Due to its increasing demand in improving the country's economic and social development, TVET is offered at both public and private educational institutions, as well as other formal or informal learning environments, with the goal of providing all societal segments with access to resources for lifelong learning

(UNESCO, 2023). In the Malaysian context, the growth of TVET's educational system parallels the growth of TVET worldwide (Malaysian Education Blueprint, 2013). However, despite the fact that the job economy as a whole is improving, high rates of youth unemployment continue to be a significant issue (Kaprawi, Rasi, Spatti, Ismail & Razzaly, 2021). This calls for an immediate attention on improving TVET programmes and the delivery.

TVET graduates are professionals in the technical and vocational sectors. Specific graduate attributes have been associated with the demands of the technical and vocational industries. The following are some of the attributes as reported in the literature.

Key Competencies of Australia (Mayer Key Competencies)	UK Core Skills (NCVC)	Canada Employability Skills Profile	US Workplace Know How (SCANS)
Team Working with Others	Personal Skills for Working with Others	Positive Attitude and Behaviour to work with others and adaptability	Interpersonal Skills
Using Technology	Information Technology	Use of Technology	Technology Systems
Solving Problems	Problem Solving Skills	Problem Solving and Decision Making Skills	Foundation Skills and Thinking
Planning and Organizing Activities	Personal Skills, Improving Own Performance and Learning	Thinking Skills and Responsibility Skills	Resources, Foundation Skills and Personal Qualities
Communicating Ideas and Information	Communication for Improving Own Performance, Learning and personal Skills	Communication Skills	Information as the Foundation Skills and Basic Skills
Collecting, analyzing and Organizing Information	Communication Skills	Thinking Skills	Information as the foundation and Basic Skills
Post Mayer Additions: Cultural Understanding	Modern Foreign Language	Manage Information by Working Safely with Numbers and Participate in projects and Tasks	
Using Mathematical Ideas and Techniques	Numeracy and Application of Numbers	Understanding and Solving Problems Using Mathematics	Basic Skills as Foundation Skills

Fig.1 World TVET graduate attributes

(source:http://eprints.utm.my/id/eprint/60966/1/SarimahIsmail2014_EmployabilitySkillandFrameworkforTVET.pdf)

In comparison to these countries, Zaharim, Yusoff, Muhammed, Omar and Muhammad (2010) identified the TVET graduate attributes in Malaysia. The following is the proposed attributes as proposed by them.

Employability Skills
Communication Skills
Teamwork Skills
Lifelong Learning
Professionalism
Problem Solving and Decision Making Skills
Competency in Practice and Application
Knowledge of Mathematics, Sciences and Engineering Principles
Knowledge of Contemporary Issues
System Approach for Engineering and Related Disciplines
Competency in Specific Engineering and Related Disciplines

Fig. 2 Malaysian graduate attributes

At this juncture, it is quite obvious that both Malaysian and the world's TVET graduate attributes have various similarities. The list provided by Zaharim et al (2010) seems to summarize the common attributes.

Interestingly, despite the last few decades' emphasis on the 'soft and hard' skills, not much research has reported the need for graduates' work-related competencies readiness. Past studies by Subramaniam and Jaganathan (2021) and Govindaraj and Pandiyaraj (2022) confirm the need to revisit how the 'soft and hard' skills are trained to the students.

TESL curriculum

The term 'curriculum' is one of the most important terms in any education courses or programmes. Tyler (1957) the *guru* of education curriculum stated,

> "…all of the experiences that individual learners have in a program of education whose purpose is to achieve broad goals and related specific objectives, which is planned in terms of a framework of theory and research or past or present professional practices" (p. 79).

On the same note, Taba (1962) posited "…the curriculum is all of the learning of students which is planned by and directed by the school to attain its educational goals" (p. 11). In simple terms, curriculum is the blueprint of what should be included in the programme; its contents, teaching and learning delivery, activities and assessments. These aspects are decided by considering the outcomes of the programme, i.e. the graduates and their attributes in fulfilling the needs of the relevant industry. The following table signifies the common curriculum structure for TESL curriculum.

Table 1. TESL common curriculum structure

Components	Credit Hours	Percentage
University courses		
Faculty courses		
Core courses		
Elective courses		

TESL curriculum in Malaysian public universities needs to undergo specific assessment by the Malaysian Quality Agency (MQA) for its accreditation. In order to adhere to the accreditation requirement, the curriculum needs to be developed based on the eight domains of learning outcomes as specified in the Programme Standard namely;

i) knowledge
ii) practical skills
iii) social skills and responsibilities
iv) values, attitudes and professionalism
v) communication, leadership and team skills
vi) problem solving and scientific skills
vii) information management and lifelong learning skills
viii)managerial and entrepreneurial skills

It is interesting to note that both 'hard and soft skills' are apparent in the listing of the learning outcomes. However, in view of the present study, the presence of 'smart and sharp skills' within the TESL curriculum will be studied. Hence, the elements closest to the descriptions of what 'smart and sharp' skills among the 'soft and hard' skills are the only choice in determining the presence of the 'smart and sharp' skills within the TESL programme curriculum. The following discussions elaborate 'smart and sharp skills' with examples.

Smart and Sharp Skills

The Malaysian Minister of Higher Education in his address for the year 2023 stressed on the need to move away from producing graduates with 'soft and hard skills' only. Instead, the need now is to produce graduates who possess 'smart and sharp skills', a new term coined by Padurean and Fine (2019) at the Association of Advanced Collegiate Schools of Business (AACSB) in challenging the relevance of 'soft and hard' skills with the current and future industry needs. The term 'smart skills' is defined as a set of skills

required for a person to respond intelligently and diplomatically when they are faced with challenges (Padurean and Fine, 2019; Ministry of Higher Education, 2023). Having 'smart' skills will also mean the person has social intelligence, emotional awareness, discipline and empathy, among others. While having 'smart' skills deals more with the social dimension of a person, 'sharp' skills refer to the technical capabilities of a person, such as risk assessment, data mining and analytics, and model creation, among others (Padurean and Fine, 2019; Ministry of Higher Education, 2023). In other words, it's the set of abilities which are co-developed by working with technology and machines.

Initially, this framework was introduced in early 2019, in Padurean's book '*The Job is Easy, The People are Not! 10 Smart skills to be Better People*'. While the work began years prior, it appears that 'smart and sharp' skills will be a prominent framework in the education landscape and how students are to be trained and prepared before they enter the working sphere. In 2023, the Malaysian Higher Education Minister proposed to introduce 'smart and sharp' skills in an attempt to maintain the nation's youth and graduates to be competitive in the industry.

Briefly, this framework discusses more subjective values as opposed to more concrete objective values in people. The term 'smart' skills, at its core, refers to one's ability to lower their ego. For instance, the ability to know when to listen to people, accepting a role, following instructions and maintaining composure in difficult situations. Whereas, the term 'sharp' skills refers to maintaining one's technical skillset to be 'sharp' or constantly up-to-date. Padurean and Fine (2019) explained 'sharp' skills as something that needs to be preserved well, maintained and kept updated with what time and context require.

This framework could be commonly mistaken or confused with 'soft and hard' skills. The importance and relevance of the 'soft and hard' skills are obvious in the development of holistic graduates, especially those who are trained in technical and vocational education (Sukumaran, Mohd Shahid, Abdullah and Thiagarajah, 2021). Padurean and Fine (2019) developed 'smart and sharp' skills to challenge soft and hard skills, which are referred as outdated and irrelevant in today's landscape. It should be noted that 'smart and sharp' skills, and 'soft and hard' skills, should indeed be compared, as the former would have sufficient argument against the latter. 'Smart' skills, which can be broken down into mental and emotional competence are made to replace soft skills. On the other hand, 'sharp' skills is the ability to sharpen and update skillsets to remain relevant and useful. This is to replace hard skills, which is commonly defined as technical skills and capability.

The following table summarizes the ten 'smart and sharp' skills, respectively, as proposed by Padurean and Fine (2019).

Table 2. Ten smart and sharp skills

10 Smart skills	emotional maturity, followership, adaptability, humility, cultural and ethical literacy, cognitive readiness, listening, managing up, strategic and critical thinking and validation.
10 Sharp skills	statistical thinking and data analytics, optimization, science-based management, managerial economics, analytical reasoning, digital literacy, machine learning, artificial intelligence-block chain-cloud-big data (ABCD), data visualization and system dynamics.

3. Methodology

Research Design

This study focused on the potential of the pre-service English teachers to teach in TVET programmes with a special emphasis on the 'smart and sharp skills' training exposure. In doing so, the scope of investigation includes the TESL programme curriculum and the exposure on how 'smart and sharp skills' could be trained within the TVET programmes by the pre-service teachers. A qualitative research design was opted in determining the data collection and analysis procedures that meet the main purpose of the study. The research questions, which were established at the onset of the study, confirm the suitability of the research design.

Instrument

Employing a qualitative research design, document analysis became the main instrument in the present study. The documents included curriculum documents from three public universities in Malaysia offering TESL programme and Malaysian Quality Agency's (MQA) Guidelines for Graduate Certificate in TVET Teaching Competency.

Data Analysis

Braun and Clarke (2006) claim that thematic analysis is a qualitative approach that is generally used in analyzing qualitative data such as document analysis. Thematic analysis is a process of identifying patterns and themes within the data (Evans, 2018). Braun and Clark (2006) state that a theme should portray important information in relation to the research questions. Therefore, the themes were derived as relevant data was sought to answer the identified research questions developed at the onset of the study.

Trustworthiness

In order to ensure the trustworthiness of the research findings, an inter-rater reliability check was conducted (Yin, 2014). The inter-rater check was done at the final stage of data analysis as the group of researchers crosschecked each other's interpretation of the themes identified from the data analysis stage. An expert who was not involved in the data collection and analysis was also sought to confirm the consistencies of the data interpretations and themes identification.

4. Findings

In eliciting relevant answers to the research questions, several document analyses were conducted. The following discussions on the findings are presented in the order of the respective research questions.

1. Are there elements of 'smart and sharp' skills integrated in the TESL programme learning outcomes (PLOs)?
2. What are the 'smart and sharp' skills identifiable from MQA's TVET Teaching Competency programme educational objectives (PEO)?
3. Is there a pattern between the TESL PLOs and MQA's TVET teaching competency PEO with the 'smart and sharp' skills?

In answering the first research question, a document analysis on the TESL programme curriculum documentation from three public universities in Malaysia was conducted. In particular, the learning outcomes were scrutinized as they reflect the aims and emphasis of the programme while reflecting the Education Programme Standard and MQA. The programme learning outcomes (PLO) from the three universities are as listed.

University A:
PLO1: Master and integrate knowledge of methods of teaching English as a Second Language.
PLO2: Apply the skills of English Language teaching competently.
PLO3: Think critically, creatively and solve problems intelligently.
PLO4: Communicate effectively in English and function as an effective leader or a member in the community.
PLO5: Manage and integrate ESL related information in English Language teaching in the practice of lifelong learning.
PLO6: Display professional attitudes, values, responsibilities and ethics in the teaching profession.
PLO7: Practice social responsibilities in line with the National Education Philosophy.
PLO8: Practice entrepreneurial attitude, skills and thinking as a culture.

University B:
PLO1: Demonstrate knowledge and skills in the teaching of the principles of English language teaching and learning, linguistics, literature, computer assisted language learning and teaching pedagogy.
PLO2: Demonstrate knowledge, understanding and application of appropriate approaches, techniques and methodologies in English language teaching and learning processes.
PLO3: Integrate knowledge of information technology with theories in the teaching and learning of the four language skills, linguistics, literature, computer assisted language learning and pedagogy.
PLO4: Present theories, concepts and practice of language acquisition and teaching methodologies in the English language.
PLO5: Demonstrate understanding of the various language areas such as linguistics, literature, and computer-assisted language learning, through written and oral communication.
PLO6: Present theories, concepts and practice of language acquisition and teaching methodologies in the English language.
PLO7: Work collaboratively as part of a team undertaking different roles in a range of tasks.
PLO8: Utilize a range of technical and information communication technology (ICT) resources to independently acquire new knowledge and skills.
PLO9: Develop the ability and capability to design teaching materials, tailor-made courses, language teaching and learning software and web pages.
PLO10: Practice ethical and positive values in the academic and professional endeavour.
PLO11: Develop and practice positive attitude in the learning and teaching process.

University C:
PLO1: Able to apply the knowledge of ESL and pedagogy in teaching of ESL.
PLO2: Able to display technical and pedagogical skills in the teaching of ESL.
PLO3: Demonstrate social skills and responsibility for the well-being of society.
PLO4: Balance and uphold positive values, attitudes and professionalism in societal and professional engagement.
PLO5: Lead and collaborate with diverse team members and demonstrate effective communications.
PLO6: Able to solve problems in a scientific and systematic manner in the teaching of ESL.
PLO7: Demonstrate the ability to seek new knowledge independently.
PLO8: Display relevant and appropriate managerial and entrepreneurial skills.

A mapping between the TESL PLOs from the three universities could be done against the 'smart and sharp' skills as below. Several themes were identified from the enlisted PLOS that could be mapped against the 'smart and sharp' skills.

Table 3. Mapping of TESL PLOs' themes and 'smart and sharp' skills

TESL PLOSs' themes	Skills
a) Critical & creative thinking	Smart
b) Problem-solving	
c) Communication	
d) Leadership	
e) Professional attitudes	
f) Social responsibility	
g) Entrepreneurial	
h) Teamwork	
a) Master knowledge of teaching methods	Sharp
b) Competent skills of English Language teaching	
c) Manage and integrate ESL related information	
d) Master knowledge of information technology	
e) Design teaching materials	

As the present study looked at the training and preparation of future TVET English language teachers and to provide findings for the second research question, the MQA's guidelines on the TVET teaching competency were also referred to. The following is the expected programme educational objectives (PEO) related to the training of future TVET educators.

PROGRAMME EDUCATIONAL OBJECTIVES	
PEO 1	To produce competent TVET educators who have broad technical knowledge and skills in TVET and are capable of using appropriate numerical techniques and digital technologies in parallel with national education needs and industry standard practice.
PEO 2	To produce TVET educators who lead with accountability, communicate and interact with internal and external stakeholders when working in various educational and industry settings.
PEO 3	To produce TVET educators who uphold professional and ethical practices in educational and industry settings.
PEO 4	To produce TVET educators with positive attitude, entrepreneurial mind set and sustainable practices that foster innovation and creativity in enhancing their career.

Fig. 3 PEO of Graduate Certificate in TVET Teaching Competency

(source: Guidelines: Graduate Certificate in TVET Teaching Competency, pp. 7
retrieved from:
https://www2.mqa.gov.my/qad/v2/GGP/2021/Guidelines%20Graduate%20Certificate%20in%20TVET%20Teaching%20Competency%20-%20Oct%202021.pdf)

Figure 3 above signifies the required teaching competency for those who want to teach in TVET programmes. It is noticeable that several 'smart and sharp' skills could be mapped against the listed PEO as summarized in Table 4.

Table 4. Mapping of 'smart and sharp' skills with TVET Teaching Competency PLO

Skills	
Smart skills	a) lead with accountability, communicate and interact with internal and external stakeholders when working in various educational and industry setting (PEO 2) b) uphold professional and ethical practices in educational and industry settings (PEO 3) c) educators with positive attitude, entrepreneurial mindset and sustainable practices that foster innovation and creativity in enhancing their career (PEO 4)
Sharp skills	have broad technical knowledge and skills in TVET and are capable of using numerical techniques and digital technologies in parallel with national education needs and industry standard practice (PEO 1)

Finally, in answering the third research question, a pattern that reflects the potential emphasis on 'smart and sharp' skills among the three universities' PLO and the MQA's PEO for TVET teaching competency was identified. The pattern is identified through collapsing the mapping tables as below.

Table 5. Cross-mapping of TESL PLOs and MQA TVET Teaching competency PEO with 'smart and sharp' skills.

TESL PLOs' themes	Skills	MQA TVET Teaching Competency PEO
Critical & creative thinking Problem-solving Communication Leadership Professional attitudes Social responsibility Entrepreneurial Teamwork	Smart	a) lead with accountability, communicate and interact with internal and external stakeholders when working in various educational and industry setting (PEO 2) b) uphold professional and ethical practices in educational and industry settings (PEO 3) c) educators with positive attitude, entrepreneurial mindset and sustainable practices that foster innovation and creativity in enhancing their career (PEO 4)
a) Master knowledge of teaching methods b) Competent skills of English Language Teaching c) Manage and integrate ESL related Information d) Master knowledge of information technology e) Design teaching materials	Sharp	a) have broad technical knowledge and skills in TVET and are capable of using numerical techniques and digital technologies in parallel with national education needs and industry standard practice (PEO 1)

5. Discussions & Implications

The present study is quite a straightforward initial inquiry into the potential of 'smart and sharp' skills integration in the existing TESL curriculum and how future TESL graduates could be ready to serve as English language TVET instructors. Considering that 'smart and sharp' skills are new research focus due to its concept being coined for the first time in 2019 just before the pandemic, the present study took it up as the context in which the future TESL graduates should be trained and prepared for.

The first research question that looked into understanding the potential emphasis of 'smart and sharp' skills in the existing TESL curriculum was addressed by scrutinizing the programme's learning outcomes (PLOs). A total of three universities offering TESL programme were involved in which the programme's PLOs were analyzed. Based on a thematic analysis, the listed PLOs from the three universities were categorized according to the identified themes, which were derived from the definition and examples of 'smart and sharp' skills. The analysis has led to the identification of relevant 'smart and sharp' skills presence within the TESL curriculum.

Later, in scrutinizing TVET teaching competency, the MQA's Graduate Certificate TVET teaching competency's programme educational objectives (PEOs) were studied. Specific words and phrases from each of the PEO statement were analyzed and categorized according to the descriptions of 'smart and sharp' skills. The potential emphasis of the 'smart and sharp' skills was also evident in the PEOs.

Finally, in trying to picture the overall preparation of the TESL graduates in teaching the 'smart and sharp' skills in TVET programmes, the mapping of the TESL PLOs, and the MQA's PEOs with the 'smart and sharp' skills categories was done. A positive outlook emerged from the mapping suggesting that there is potential in the overall preparation of the TESL graduates to teach in TVET programmes and also to train the relevant 'smart and sharp' skills to their TVET students.

All in all, the findings have somewhat led to a possible conclusion; TESL graduates were exposed and trained the relevant skills and that they could be ready to teach in TVET programmes. Harun and Munzir (2020) have affirmed that the future of works require highly skilled employees with a variety of advanced talents. Oviawe et al (2017) posited that TVET programme offers students the knowledge and skills they require to succeed in the labour market after graduation. Hence, having a pool of highly skilled instructors like the TESL graduates to teach in the TVET programmes seem a perfect match to complete the process.

A question still remains though when it comes to the exposure and ability to train the 'smart and sharp' skills by the TESL graduates to their future TVET students. At the onset of the present study, it was hypothesized that TESL curriculum was developed without the inclusion of the 'smart and sharp' skills let alone to train these skills to future students who are enrolled in TVET programmes. In the present study, the terms, 'soft and hard' skills were referred to in identifying the potential presence of 'smart and sharp' skills in the existing TESL PLOs and MQA's PEOs. Interestingly, relevant terms in the PLOs and PEOs seem to suggest the inclusion of the 'smart and sharp' skills but yet they are not comprehensive enough as several skills relatable to 'smart' skills such as 'followership', and 'validation'; and most of the 'sharp' skills such as 'optimization, science-based management, managerial economics, artificial intelligence-block chain-cloud-big data (ABCD), data visualization and system dynamics' are not traceable in any of the PLOs or PEOs. Hence, further examination on the mapping of the CLOs and PLOs could be considered.

Additionally, the 'smart' skills such as 'emotional maturity' and 'humility' seem to be embedded in the learning outcomes on 'professionalism and ethics' yet, these skills might be difficult to be observed and assessed. It is noted that some of the 'sharp' skills are seemingly embedded in the hard skills such as 'digital and literacy' skills in the PLOs and PEOs. As stated in much literature, the influence of Industry Revolution 4.0, the Internet of Things (IoT) and Society 5.0 on teacher education curriculum has become significant in the last decade (Ali, Mohamed Isa, Abu Bakar, Ahmad, Shaharruddin, 2022; González-Pérez, Ramírez-Montoya, 2022; Seufert, Oberdörfer, Roth, Grafe, Lugrin, Latoschik, 2022).

Additionally, similar to the nature of the 'smart' skills, some of the 'sharp' skills may need to be translated into the PLOs and PEOs. The 'sharp' skills such as 'optimization, science-based management, managerial economics, artificial intelligence-block chain-cloud-big data (ABCD), data visualization and system dynamics' need to be included clearly in the PLOs and PEOs. While 'smart' skills relate with the social dimension of a person, 'sharp' skills are the technical capabilities of a person, such as risk assessment, data mining and analytics, and model creation, among others (Padurean and Fine, 2019; Ministry of Higher Education, 2023). The existing 'soft and hard' skills may need to be revisited to ensure the inclusion of the skills identified under the 'smart and sharp' skills.

Hence, plenty still could be reconsidered when dealing with the curriculum. As the existing TESL curriculum was not developed with the latest set of skills in mind, the 'smart and sharp' skills, perhaps it is wise to revise the curriculum by looking deeply at how the content, teaching and learning delivery and activities, as well as the assessment are planned towards including the exposure of the 'smart and sharp' skills. This implication parallels well with Tyler (1962) the *guru* of education curriculum, who claimed,

> "…all of the experiences that individual learners have in a program of education whose purpose is to achieve broad goals and related specific objectives, which is planned in terms of a framework of theory and research or past or present professional practices" (p. 79).

Currently, the curriculum was developed based on the need to include 'soft and hard' skills. An easy generalization of 'soft and hard' skills having similarities with the 'smart and sharp' skills may lead to confusion of the actual skills involved. Therefore, exposure and training and a thorough analysis of attributes of the identified 'smart and sharp' skills need to be spelled out in each PLOs and PEOs. This implication could be supported by what Taba (1962) had posited earlier "…the curriculum is all of the learning of students which is planned by and directed by the school to attain its educational goals" (p. 11).

Finally, as the areas the present study investigated are quite new and generally no past studies have been conducted on the application and training of the 'smart and sharp' skills, research opportunities within these areas are aplenty. The present study provided a sneak peek into what lies on the surface of the curriculum. At the introductory level, the present study could be a guide or reference to policy makers, curriculum developers and fellow researchers. Future research could also be done on the effectiveness of the training of the 'smart and sharp' skills to future teachers.

6. Conclusion

'Smart and sharp' skills are quite a new concept in the educational setting, let alone in research. A quick generalization of 'smart and sharp' skills with the 'soft and hard' skills may easily be made that requires immediate attention for future research. The present study was conducted as a preliminary attempt to understand the potential inclusion of the 'smart and sharp' skills in the existing TESL curriculum. Additionally,

taking the context of the current TVET programme's importance to the country's socioeconomic development, a match between the preparation of future TESL graduates and their readiness to train 'smart and sharp' skills in TVET programmes was sought. The match could provide an early analysis and guide towards relevant TESL programme curriculum review and programme assessment. The three research questions posed at the onset of the research guided the data collection and analysis. It is interesting to note the great potential TESL curriculum has in preparing the graduates to teach in TVET programmes and most importantly, train the 'smart and sharp' skills to their future TVET students.

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8. Co-author contributions

Author 1 was responsible in the research conceptualization; literature review, writing and data analysis; Author 2 and 3 were responsible in data analysis and final editing.

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