The Impact of Soft Skills Intervention on TVET Students: Evidence from Pre- and Post-Survey Analysis

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ABSTRACT

Despite possessing the technical competencies required by industry, many TVET graduates continue to face employability challenges due to underdeveloped essential soft skills such as communication skills, negotiation, critical thinking, working in a team, innovation, problem solving, managing stress, presentation, time management and adapting to change. This gap contributes to job mismatches, reduced workplace productivity, and difficulties in adapting to dynamic work environments. As employers increasingly value graduates who demonstrate both technical and soft skills, targeted training programmes have become essential to strengthen soft skills among TVET students. Despite increasing efforts to strengthen soft skills among TVET students, limited empirical evidence exists regarding the effectiveness of short-term soft-skills intervention programmes in enhancing communication and listening, teamwork, and problem-solving competencies. Therefore, this study evaluates the effectiveness of a short-term soft-skills intervention programme using a pre-test and post-test survey approach involving 42 TVET students. The findings revealed statistically significant improvements in communication and listening, teamwork and problem-solving skills following the intervention programme ($p < 0.001$). Moderate to large effect sizes were observed across all dimensions, with problem-solving skills demonstrating the greatest improvement ($d = 0.94$), followed by communication and listening ($d = 0.87$) and teamwork skills ($d = 0.60$). These findings suggest that short-term soft-skills interventions can effectively enhance students' interpersonal competencies and contribute to greater workplace readiness and employability.

Keywords: TVET, communication and listening skills, teamwork skills, problem-solving skills

INTRODUCTION

Technical and Vocational Education and Training (TVET) is part of the implementer of the higher education systems in Malaysia. TVET is no longer viewed as a last option or an alternative pathway, especially for students who are unable to secure a place in public or private university. Instead, TVET has now become one of the main pathways in academic education after the Sijil Pelajaran Malaysia (SPM). TVET is an academic pathway that equips students with skills and knowledge that are relevant to current industry demands, while also enhancing their employability upon graduation (Tripney, Hombrados, Newman, Hovish, Brown, Steinka-Fry, & Wilkey, 2013).

This is evidenced by the trend of student enrollment in TVET programs which is constantly increasing significantly and currently, a total of 439,00 students is currently undertaking TVET programmes throughout Malaysia (New Straits Times, 2025). This number clearly reflect the increasing recognition of TVET as one of the main educational pathways among SPM graduates. The surge in demand for TVET graduates is also driven by factors such as current economic needs, changing workforce trends and the implementation of national policies such as the National TVET Policy 2030 (launched in 2024), the 11th Plan (2016-2020), the 12th Plan

(2021-2025) which emphasize industry involvement and the development of highly skilled human capital through an industry-based curriculum. In addition, the Covid-19 pandemic that has hit the entire world has also been a catalyst for rapid changes in the use of digital technology and automation in various sectors and has increased the demand for technical skills. Therefore, in line with the Industrial Revolution 4.0 agenda, TVET is now also the core of the country's economic recovery efforts.
In addition, the announcement by Prime Minister Datuk Seri Anwar Ibrahim during the 2025 Budget presentation in October 2024 regarding the increase in the TVET allocation to RM7.5 billion, compared to the previous RM6.8 billion, to develop the TVET ecosystem demonstrate the government's commitment to this skills-based education path (Bernama, 2024).

However, despite the country's continuous efforts to produce high-quality and industry-ready TVET graduates to meet the industrial market, and despite the recognition of the technical expertise of TVET graduates is acknowledged. Based on the findings of previous studies, many studies involving the perspectives of employers who employ TVET graduates found that there is a gap in soft skills in TVET graduates which can contribute to marketability challenges, job mismatches and decreased productivity in the workplace (Bassah & Noor, 2023; Hamid, Piahat, Haris, & Hassan, 2023; Kasim, Puad & Abdullah, 2024). Although technical skills are in high demand in the industrial market, employers now prioritize graduates who excel in both aspects of skills. Where soft skills such as communication skills, negotiation, critical thinking, working in a team, innovation, problem solving, managing stress, presentation, time management and adapting to change are very important for use in the workplace and also in this challenging and competitive economy and also in producing quality human capital (Hamid, et al., 2023; Kenayathulla, 2021; Shahbazi & Ahmady, 2022).

As employers increasingly value graduates who demonstrate both technical and soft skills, targeted training programmes have become essential to strengthen soft skills among TVET students. Despite increasing efforts to strengthen soft skills among TVET students, limited empirical evidence exists regarding the effectiveness of short-term soft-skills intervention programmes in enhancing communication and listening, teamwork, and problem-solving competencies, particularly using pre- and post-survey approaches. Therefore, it is important to evaluate whether structured training initiatives can lead to improvements in students perceived competencies in these areas. Accordingly, this study aims to evaluate the effectiveness of a two-day soft-skills workshop by examining changes in TVET students' communication and listening, teamwork, and problem-solving competencies before and after the intervention.

METHODS

This study adopted a quasi-experimental research design using a one-group pre-test and post-test approach to evaluate the effectiveness of a structured soft-skills workshop among Technical and Vocational Education and Training (TVET) students in Terengganu. This design is appropriate for intervention-based studies where the primary objective is to measure changes in participants' competencies before and after exposure to a specific programme. In this study, the intervention was a skills-based workshop aimed at enhancing students' communication & listening, teamwork, and problem-solving abilities. These competencies are increasingly emphasized under national frameworks such as the National TVET Policy 2030.

A two-day training workshop, *Bengkel Kemahiran Insaniah 2025*, was conducted in October 2025 by members of the Faculty of Business, Economics and Social Development (FBESD) at Universiti Malaysia Terengganu (UMT). Ethical clearance was obtained from the Institutional Ethics Committee. Participation was voluntary, and a circular outlining the details of the workshop was distributed to selected institutions, which were invited to confirm their participation. A total of 50 students from 3 TVET institution in Kuala Terengganu registered for the programme and 7 members of the Accountancy Programme at UMT facilitated the training sessions. The workshop was conducted over two days, with six hours of training each day. The sessions incorporated a variety of teaching media (e.g., PowerPoint presentations, whiteboards, and flip charts) and instructional approaches (e.g., lectures, group activities, and team-based learning), making them highly interactive. The topics covered in the workshop included communication and listening, teamwork, and problem-solving skills. All participants attended the full duration of the programme.

A structured pre-test and post-test assessment procedure was implemented to evaluate participants' improvement in soft skills following the intervention. On the first day of the workshop, prior to the commencement of any training sessions, participants were administered a pre-test consisting of 25 close-ended items covering the three core modules: communication and listening (8 items), teamwork (7 items), and problem-solving (10 items). The questionnaire was designed using a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree), allowing for the measurement of participants' perceived levels of understanding, confidence, and readiness in each competency domain. Participants were given 15 minutes to complete the pre-test under supervised conditions to ensure consistency in administration. The purpose of this initial assessment was to establish a baseline profile of students' soft skills prior to exposure to the workshop content. Clear instructions were provided to ensure that participants responded independently and honestly, reflecting their true perceptions and experiences.

Following the pre-test, the workshop sessions were conducted over two days using an experiential and student-centered learning approach. Each module was delivered through a combination of short lectures, guided discussions, and interactive activities tailored to simulate real-life scenarios. The communication and listening module emphasized active listening, clarity of expression, and appropriate feedback through role-playing and listening exercises. The teamwork module incorporated collaborative tasks, group-based problem-solving, and team-building activities aimed at fostering cooperation, mutual respect, and conflict resolution skills. Meanwhile, the problem-solving module focused on enhancing analytical, creative and critical thinking abilities through case-based discussions and interactive activities such as the spaghetti challenge and a circle-based creativity exercise. These activities encouraged participants to generate ideas, think innovatively, and develop solutions collaboratively in a problem-solving environment. Overall, these activities were designed to encourage active participation, peer interaction, and practical application of concepts, thereby reinforcing learning outcomes.

At the end of the second day, immediately after the completion of all training sessions, participants were required to complete the post-test using the same set of 25 questionnaire items. Similar to the pre-test, participants were allocated 15 minutes to complete the assessment. The use of an identical instrument for both pre- and post-test ensured measurement consistency and allowed for direct comparison of responses. An answer key was prepared to standardize the scoring process, with each response assigned a numerical value corresponding to the Likert scale. Scores were then aggregated to obtain mean values for each module as well as overall soft skills performance.

The collected data were analyzed using statistical package for the social sciences (SPSS) software. Descriptive and inferential statistical techniques were employed to analyse the data. Descriptive statistics, including means and standard deviations, were used to summarise participants' performance before and after the workshop. Inferential analysis was performed using paired-sample t-tests to determine whether significant differences existed between pre-test and post-test scores for the three competency domains. A total of 50 TVET students participated in the two-day soft-skills workshop. However, only 42 participants completed both the pre-test and post-test questionnaires in full. Consequently, the final analysis was based on 42 matched responses, as incomplete questionnaires were excluded to ensure the accuracy and reliability of the statistical analysis.

RESULTS & DISCUSSIONS

Descriptive Statistic

Table 1 Descriptive Statistics of Participants' Soft Skills Before and After the Workshop

Competency Domain	Pre-test Mean	Pre-test SD	Post-test Mean	Post-test SD
Communication and Listening	3.99	0.59	4.41	0.49
Teamwork	4.10	0.46	4.41	0.49
Problem-solving	3.89	0.63	4.50	0.45

Table 1 presents the descriptive statistics of participants' soft skills before and after the workshop. Prior to the intervention, participants reported relatively high levels of communication and listening, teamwork, and problem-solving skills, with mean scores ranging from 3.89 to 4.10 on a five-point scale. Among the three competency domains, teamwork recorded the highest pre-test mean score (M = 4.10, SD = 0.46), followed by communication and listening (M = 3.99, SD = 0.59) and problem-solving skills (M = 3.89, SD = 0.63). These findings suggest that participants possessed a positive baseline level of soft-skill competencies before attending the workshop.

Following the workshop, improvements were observed across all competency domains. Problem-solving skills recorded the highest post-test mean score (M = 4.50, SD = 0.45), while communication and listening skills and teamwork skills both achieved a post-test mean score of 4.41 (SD = 0.49). The increase in mean scores across all domains provides preliminary evidence that the workshop contributed positively to the development of participants' soft skills.

Effectiveness of The Soft Skills Workshop

Table 2 Paired Sample T-Test Results

Competency Domain	Mean differences	T (df=41)	P-value	Cohen (effect size)
Communication and listening	-0.422	-5.664	<0.001	0.87 (large)
Teamwork	-0.314	-3.897	<0.001	0.60 (moderate)
Problem-solving	-0.610	-6.061	<0.001	0.94 (large)

Table 2 presents the results of the paired-sample t-test conducted to evaluate the effectiveness of the workshop. The findings revealed statistically significant improvements in communication and listening, teamwork, and problem-solving skills following the intervention programme ($p < 0.001$). These results indicate that the workshop was effective in enhancing participants' soft-skill competencies.

The statistically significant improvements across all three competency domains, supported by moderate to large effect sizes, suggest that the intervention was not only statistically effective but also practically meaningful. Among the three competency domains, problem-solving skills exhibited the largest effect size (d = 0.94), indicating that the intervention was particularly successful in enhancing students' ability to analyse and resolve problems. This may be attributed to the workshop activities, such as the Spaghetti Challenge and circle-based creativity exercise, which encouraged critical thinking, creativity, and active engagement.

Communication and listening skills also demonstrated a large effect size (d = 0.87), highlighting the effectiveness of the intervention in improving students' ability to process, interpret, and respond to information. These competencies are essential in both learning and workplace environments, where effective communication plays a central role. Although teamwork skills improved significantly, the effect size was comparatively moderate (d = 0.60). This may suggest that teamwork competencies require a longer period to develop, as they involve interpersonal dynamics, behavioural adjustment, and group interaction that may not fully evolve within a short-term intervention programme.

Overall, the findings provide empirical evidence that the two-day soft-skills workshop was effective in enhancing TVET students' communication and listening, teamwork, and problem-solving competencies. The moderate to large effect sizes further suggest that the improvements were not only statistically significant but also practically meaningful, supporting the role of short-term intervention programmes in strengthening students' employability and workplace readiness.

These findings are consistent with previous studies that emphasise the importance of communication, teamwork, and problem-solving skills as key employability competencies among TVET graduates (Bassah & Noor, 2023; Ali, Abd Hamid & Ahmad., 2025). The positive outcomes observed in this study support the effectiveness of structured interventions in developing soft skills within educational and TVET settings. Furthermore, the findings reinforce the importance of incorporating experiential and student-centred learning approaches into TVET programmes to strengthen communication and listening, teamwork, and problem-solving competencies. Given the increasing demand for graduates who possess both technical and interpersonal skills, the integration of such interventions can play a significant role in enhancing students' employability and workplace readiness.

CONCLUSION

The study aims to examine the level of students' communication and listening, teamwork, and problem-solving skills before and after the workshop intervention. The findings indicate that the intervention significantly improved all three soft skills among the participants.

Among the three skills examined in this study, problem-solving skills recorded the highest improvement with a large effect size, demonstrating that the intervention successfully strengthened students' analyical abilities and critical thinking. The effectiveness of the listening skill activities in motivating students' communication and information processing capabilities can also be captured in this study. Given that teamwork skills showed comparatively moderated effect size, it is reasonable to suggest that there is a positive impact of collaborative learning on students' interpersonal and group working experiences.

The overall findings imply that structured and experiential learning interventions are crucial in enhancing students' soft skills, specifically within educational and TVET settings. These skills are substantial in preparing students to fulfil industry demands and improve their employability in the future work environment. Therefore, educational institutions should further embed interactive, student-centered and problem-based learning approaches into teaching and learning activities to continuously enhance communication, teamwork and problem-solving proficiencies among students.

This study enriches the existing literature on soft skill development by establishing empirical evidence through designed workshops and interventions that can significantly improve TVET students' employability-related skills. However, several limitations of this study should be acknowledged. First, the study used a quasi-experimental one-group pre-test and post-test design without a control group. As such, improvements in students' soft skills cannot be explained exclusively based on the intervention, as external influences such as prior learning experiences, psychological development, or concurrent activities may have also contributed to the observed changes. Second, the sample size of this study is relatively small as it is limited to 42 TVET students from higher educational institutions specifically in Terengganu. This restricts the generalisability of the results to broader population of TVET students in other states in Malaysia. Third, the intervention duration was short, as the study assessed soft skills development over a two-day period only.

In light of these limitations, future studies are urged to use more rigorous research designs, such as randomized controlled trials, to strengthen causal inference. Studies involving a larger number of students from various institutions in Malaysia are also recommended to improve the generalisability. In addition, a longitudinal research design should be considered to examine the long-term effectiveness of soft skills development. Future studies may also investigate additional soft skill dimensions such as stress management and innovation to provide more insight into the evaluation of students' soft skill that meets current job market visibility.

Conflict of Interest

The authors declare that there is no conflict of interest regarding the publication of this paper.

Data Availability

The data associated with this study are not publicly available due to ethical and confidentiality restrictions. The dataset contains responses obtained from TVET students, and sharing these data could compromise participant privacy and confidentiality. Therefore, the data will not be made publicly accessible.

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