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Unveiling the Competence of BTLED and BTVTED Teachers Teaching Trainer's Methodology II Across Mindanao, Philippines

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ABSTRACT

Purpose of the study: This study aims to assess the competence of BTLED and BTVTED teachers teaching Trainer's Methodology II across Mindanao, identifying their skills, challenges, and strategies while proposing reforms to enhance teacher capability, certification accessibility, and curriculum alignment with TESDA and industry standards.

Methodology: An Explanatory Sequential Mixed-Method design was used, utilizing a validated survey questionnaire via Google Forms and in-depth interviews. Data were analyzed using both quantitative and qualitative approaches supported by *SPSS 26.0*. The study employed Vygotsky's Constructivist Learning Theory and Anderson's ACT-R Theory to frame data interpretation and analysis across selected Mindanao SUCs and LUCs.

Main Findings: Results showed that most BTLED and BTVTED teachers are young professionals facing outdated TESDA modules, limited access to Trainer's Methodology II assessment centers, and inadequate institutional support. Despite challenges, teachers exhibit adaptability through contextualized, project-based, and problem-based learning strategies. Peer mentoring and technology integration improve teaching effectiveness. However, excessive administrative workload, certification barriers, and unequal resource distribution hinder competence development. The study highlights the need for decentralized certification, updated training modules, and enhanced teacher support systems.

Novelty/Originality of this study: This study is the first regional analysis of BTLED and BTVTED teacher competence in Trainer's Methodology II across Mindanao. It introduces an evidence-based framework integrating social constructivism and cognitive automation to address gaps in certification and curriculum alignment. Its localized recommendations advance teacher training policy and technical-vocational education standards in Philippine higher education.

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1. INTRODUCTION

Curriculum is the core domain of education, encompassing educational experiences such as learning objectives, content, instructional methods, assessment strategies, and learning resources. For any curriculum to be effective, systematic evaluation is necessary to determine the extent to which it achieves its intended goals in facilitating learning and preparing diverse learners for future demands. In the Philippine context, curriculum implementation is governed by three major education agencies: the Department of Education (DepEd) for basic

education, the Technical Education and Skills Development Authority (TESDA) for technical-vocational education and training, and the Commission on Higher Education (CHED) for tertiary education. Harmonization among these three systems is essential to ensure coherence, continuity, and quality across educational levels. Several policy-oriented and empirical studies have emphasized that fragmentation among these agencies often results in misaligned competencies, duplication of training, and inconsistencies in teacher preparation and certification. In response, earlier research has proposed the creation of a National Education Council (NEDCO) to institutionalize long-term coordination, shared standards, and strategic planning across the three education subsectors, highlighting the need for integrated governance in Philippine education reform [1], [2].

Despite these structural and policy-level efforts, existing literature consistently reports persistent challenges in the professional development of Technical-Vocational Education (TVE) teachers. Empirical studies conducted in higher education institutions reveal that TVE faculty members experience limited access to industry immersion, competency upgrading, and certification programs due to constrained institutional budgets, competing academic workloads, and uneven distribution of professional development opportunities [3]. Comparative studies further indicate disparities between faculty members from State Universities and Colleges (SUCs) and Local Universities and Colleges (LUCs), with SUC faculty generally having greater access to externally funded trainings, international linkages, and TESDA-recognized certification pathways. Related research has also shown that while TVE teachers recognize the importance of continuous upskilling to enhance instructional quality, research productivity, and community relevance, institutional support mechanisms often remain inadequate or inconsistent. However, most of these studies focus broadly on training availability and institutional constraints rather than on evaluating mastery of specific, mandated competency frameworks.

A critical gap in the literature is the limited empirical evaluation of TVE teachers' proficiency in delivering Trainers' Methodology II (TM II), a core professional requirement embedded in both the Bachelor of Technology and Livelihood Education (BTLEd) and the Bachelor of Technical-Vocational Teacher Education (BTVTEd) programs. While previous research underscores the value of competency-based teacher assessment in identifying gaps in knowledge, skills, attitudes, and instructional practices [4], existing studies tend to concentrate on curriculum alignment, student employability outcomes, or general teaching preparedness. Very few investigations have systematically examined the readiness and proficiency of higher education faculty tasked with implementing TM II, particularly at a regional or multi-institutional level. This scarcity is especially evident in Mindanao, where region-wide assessments of TM II implementation and faculty competency remain largely undocumented.

The literature further identifies a structural constraint unique to geographically distant regions such as Mindanao: the limited availability and accessibility of TESDA-accredited TM II training and assessment centers. Prior studies on TVET implementation in island and rural regions reveal that faculty members often face logistical, financial, and institutional barriers to completing formal TM II certification, resulting in a mismatch between curricular requirements and actual faculty qualifications. Although BTLEd and BTVTEd curricula are explicitly designed to produce globally competitive TVET trainers and assessors, several studies caution that curricular intentions may not translate into practice when instructors lack standardized TM II certification. This situation potentially affects the consistency, quality, and credibility of TVET instruction and assessment across higher education institutions.

The urgency of this research is reinforced by national and international literature emphasizing the growing demand for competent, industry-ready TVET graduates who can support workforce development, economic resilience, and regional competitiveness. Studies aligned with ASEAN TVET frameworks and Philippine development plans stress that teacher competence, particularly in competency-based training and assessment methodologies, is a decisive factor in graduate employability and training quality. Without empirical evidence on the current proficiency levels of BTLEd and BTVTEd faculty teaching Trainers' Methodology II, higher education institutions and policymakers lack a robust basis for designing targeted faculty development interventions, optimizing resource allocation, and strengthening collaboration with TESDA and other accrediting bodies. This concern is particularly pronounced in Mindanao, where historical inequities in access to training infrastructure continue to shape educational outcomes.

Given these gaps and pressing concerns identified in previous research, the present study aims to assess the proficiency of BTLEd and BTVTEd teachers teaching Trainers' Methodology II across Mindanao, with particular emphasis on their knowledge, skills, attitudes, and instructional practices aligned with TM II standards. Specifically, the study seeks to (1) determine the level of proficiency of faculty members teaching TM II, (2) identify competency gaps and institutional constraints affecting TM II delivery, and (3) generate evidence-based recommendations for faculty development, policy support, and curriculum enhancement.

The novelty of this research lies in its region-wide scope and its focused, competency-based examination of Trainers' Methodology II proficiency among higher education faculty, an area that remains underrepresented in existing literature. Unlike earlier studies that broadly explore TVE teacher training or curriculum implementation, this study provides a targeted assessment directly aligned with CHED and TESDA standards. By integrating institutional, curricular, and competency perspectives, the study contributes new

empirical insights that can inform policy formulation, strengthen TVET teacher education, and enhance the production of globally competitive TVET graduates, particularly within the Mindanao context.

2. RESEARCH METHOD

2.1. Research Design

This study employed an Explanatory Sequential Mixed Method design; the research will begin with a quantitative phase to delineate the profiles of BTLEd and BTVTEd Teachers, emphasizing the subjects taught, attended training, and earned National Certificates. The subsequent qualitative phase involves a descriptive narrative approach to capture teachers' lived experiences handling subjects with Trainer's Methodology II.

2.2. Sampling Procedure

The 30 BTLED teachers were the respondents of this study. The qualitative phase had purposively selected ten 10 or more informants until data saturation is reached. Thirty respondents were randomly selected for the quantitative phase.

2.3. Research Instrument

Three (3) experts validated the survey questionnaire generated for the Explanatory Sequential Mixed Method. Meanwhile, an interview guide was used in the qualitative phase of the study. Three (3) experts validated the interview guide. The interview guide explored the gap experiences of BTLEd and BTVTEd teachers and the strategies they employed in their instructional delivery on the subjects, which emphasizes Trainer's Methodology II.

2.4. Data Collection Procedures

A quantitative research design utilized to describe the profile of BTLEd and BTVTEd teachers, and a survey questionnaire was based on the Assessment Guide used by the assessors for the National Certificate for Trainer's Methodology II. The survey was done online using Google Forms, while the interview was done on a platform convenient to the informants and the researcher.

Moreover, a descriptive narrative approach, utilizing In-Depth Interviews, was employed to collect narratives from BTLEd and BTVTEd teachers instructing subjects using Trainer's Methodology II. This was done either face-to-face, virtually, or by email [5], [6].

2.5. Data Analysis

This study used the Explanatory Sequential Mixed Method [7], [8] to thoroughly examine BTLEd and BTVTEd teachers in State Universities and Colleges (SUCs) and Local Universities and Colleges (LUCs) across Mindanao, Philippines.

In the quantitative phase, the study utilized surveys or standardized assessments to gather numerical data on various aspects, such as the effectiveness of training methods or teachers' proficiency [9]. Subsequently, in the qualitative phase, In-Depth Interviews were employed to delve deeper into the narratives and perspectives of these educators. By combining these two approaches, the research aims to uncover patterns, correlations, and contextual insights, offering a holistic and robust understanding of the challenges and successes encountered by BTLEd and BTVTEd teachers teaching subjects with Trainer's Methodology II in the specified universities and colleges across Mindanao.

3. RESULTS AND DISCUSSION

3.1. Demographic Profile of BTLED/BTVED Faculty

Table 1 presents the gender of BTLEd / BTVEd Faculty. As disclosed in the table, 20 or 66.7% are females, and 10 or 33.3% are males.

Table 1. Gender Profile of BTLEd / BTVEd Faculty

	Frequency	Percentage (%)
Female	20	66.7
Male	10	33.3
Total	30	100.00

The findings indicate that most of the teachers in the Bachelor of Technology and Livelihood Education (BTLEd) program were female, comprising 66.7% of the total respondents. This suggests that BTLEd, despite its technical-vocational orientation, reflects the broader feminization of the teaching profession in the Philippines. National statistics support this pattern, showing that women dominate public elementary (89.58%) and secondary (77.06%) teaching positions [10]. The increasing participation of women in the labor force further explains this trend, as teaching continues to be viewed as a stable and socially valued profession for women [9]. This

alignment with previous studies indicates that gender patterns observed in general education are also evident within technical-vocational teacher education programs.

While earlier literature often portrays technical and vocational fields as male-dominated, the results of this study suggest a gradual shift toward greater female participation in TVET teacher education. This finding both aligns with and extends prior research by demonstrating that women are increasingly represented even in programs requiring technical and competency-based instruction. It may be influenced by the integration of livelihood, entrepreneurship, and home economics components within BTLEd, which traditionally attract female educators [11], [12]. In general, the findings suggest that the BTLEd teaching workforce mirrors national gender trends in education while also signaling evolving gender roles in technical-vocational instruction, highlighting the need for future research to examine how gender composition influences teaching effectiveness and competency delivery in Trainers' Methodology II.

Age Profile

The age profile of the BTLEd/ BTVEd Faculty is presented in the table 2. As disclosed in the table below, majority of the respondents are 28 to 33 years old (33.33%), then the 27 and below and 41 and 46 years old both obtained of 26.66%, then 34 to 39 years old (13.33%).

Table 2. Age Profile of BTLEd / BTVEd Faculty

Age Profile	Frequency	Percentage (%)
28 to 33	10	33.33
27 and below	8	26.66
41 to 46	8	26.66
34 to 39	4	13.33
Total	30	100.00

As shown in the table, the largest proportion of BTLEd teachers (33.33%) falls within the 28–33 age range, indicating that a considerable segment of the teaching workforce is in the early stage of their professional careers. This age distribution suggests that many BTLEd teachers may be relatively new entrants to the profession, often characterized by high levels of motivation, adaptability, and openness to innovation. Previous studies support this observation, noting that newer teachers are increasingly likely to be professionally certified, pursue graduate studies, and begin their careers in schools serving diverse student populations [13]. Such characteristics may contribute positively to curriculum implementation and responsiveness to contemporary pedagogical demands, particularly in technical-vocational education where instructional approaches continue to evolve.

However, while younger teachers may bring enthusiasm and current pedagogical knowledge, the findings also align with earlier research cautioning against equating age with teaching effectiveness. Teaching strategies and classroom management skills are not solely determined by age or length of service. In fact, studies indicate that older novice teachers often demonstrate stronger commitment to the profession and exhibit higher retention rates compared to their younger counterparts [14], [15]. This suggests that professional maturity, motivation, and institutional support play a more critical role than age alone in shaping teaching effectiveness. In general, the age profile of BTLEd teachers reflects a workforce in transition, balancing youthful energy with varying levels of experience, underscoring the need for sustained mentoring, targeted professional development, and institutional support systems to strengthen teaching competencies across all age groups.

Undergraduate Course or Major

The undergraduate course or major of BTLEd /BTVEd Teachers is presented in table 3. As disclosed in the table below, the majority of the respondents were Bachelor of Secondary Education Major in Technology and Livelihood Education (BSEd TLE) has obtained 36.7%, followed by BSEd – Home Economics and BSIE – Practical Skills both obtained 13.33, both BSEd in Home Technology and BSHRM – Unit earner have 10%, next both BTE and BTTE has obtained 6.7%. Last, the BS in Agriculture was obtained at 3.3%.

Table 3. Undergraduate Course or Major

	Frequency	Percentage (%)
Bachelor of Secondary Education Major in Technology and Livelihood Education	11	36.7
Bachelor of Technology and Livelihood Education in Home Economics	4	13.3
Bachelor of Science Industrial Education-Practical Arts	4	13.3
Bachelor of Secondary Education major in Home Technology	3	10.0
Bachelor of Science and Hotel and Restaurant Management – Unit Earner	3	10.0
Bachelor of Technology Education	2	6.7

Bachelor of Technical Teacher Education Major in Heating, Ventilating, Air-conditioning and Refrigeration	2	6.7
Bachelor of Arts in Agriculture	1	3.3
Total	30	100.00

The table indicates that the Bachelor of Secondary Education major in Technology and Livelihood Education (BSEd–TLE) is the most common academic qualification among the respondents, with 11 teachers representing 36.7% of the total sample. This suggests that a substantial proportion of BTLEd teachers entered the profession through a secondary education pathway with specialization in TLE. Such a distribution reflects broader trends in teacher education, where BSEd–TLE programs serve as a primary pipeline for producing educators equipped with foundational pedagogical and technical competencies required for technology and livelihood instruction. The prominence of this qualification may also indicate its perceived relevance, accessibility, and alignment with institutional hiring preferences within technical-vocational education settings.

This finding is consistent with previous studies emphasizing the growing demand for TLE competencies in response to the Fourth Industrial Revolution, which has reshaped skill requirements toward analytics, digital literacy, and data-driven decision-making [14]. While traditional TLE programs have historically focused on manual and livelihood skills, contemporary frameworks increasingly integrate technology-enhanced instruction and applied problem-solving. In general, the dominance of BSEd–TLE graduates among BTLEd teachers suggests that this specialization remains a critical foundation for technical-vocational instruction; however, it also underscores the need for continuous curriculum updating and advanced training to ensure that teachers' competencies remain aligned with evolving industry and technological demands.

Areas Taught

The area taught of BTLEd/BTVEd Faculty are presented in the table 4. As disclosed in the table below, majority of the respondents were teaching Technology and Livelihood Education (13.3%), followed by the Jr. Highschool TLE, SHS academic and Specialized, Technical and Vocational Education, Entrepreneurship have obtained 10.0%. Next, were the Exploratory Subjects, Food and Beverage Services, Food and Nutrition, TVE – RAC Servicing have obtained 7.6%. Lastly, were the Agri-Fishery and Profed Subject, Facilitating Learning Centers, Curriculum Development, Food Preparation, Home Economics-Child and Adolescence Development, history, trainers methodology, and nail care have the lowest percentage which is 3.3%.

Table 4. Areas Taught of BTLEd and BTVEd Faculty

	Frequency	Percent
Technology and Livelihood Education	4	13.3
Jr. Highschool TLE, SHS academic and Specialized	3	10.0
Technical and Vocational Education	3	10.0
Entrepreneurship	3	10.0
Exploratory Subjects	2	6.7
Food and Beverage Services	2	6.7
Food Processing and Cookery	2	6.7
Food and Nutrition	2	6.7
TVE – RAC Servicing	2	6.7
Agri-Fishery and Profed Subject	1	3.3
Facilitating Learning Centers, Curriculum Development	1	3.3
Food Preparation	1	3.3
Home Economics-Child and Adolescence Development	1	3.3
History	1	3.3
Training Methodology	1	3.3
Nail Care	1	3.3
Total	30	100.00

The table shows that Technology and Livelihood Education (TLE) is the most frequently taught area among BTLEd teachers, with four respondents representing 13.3% of the total sample. As a broad instructional domain, TLE encompasses multiple subfields such as home economics, entrepreneurship, industrial arts, and ICT-related skills, which may explain its higher frequency compared to more specialized areas. The prominence of TLE and other technical-vocational subjects indicates that BTLEd teachers are largely engaged in delivering practical, skills-oriented instruction aligned with workforce preparation. This distribution reflects the core mandate of the BTLEd program, which emphasizes employability, productivity, and applied competencies rather than purely theoretical learning.

This finding is consistent with previous studies demonstrating that TLE teachers' competencies, particularly in instructional delivery, classroom management, and personal-professional skills, are strongly correlated with students' work skills and work-related attitudes [16], [17]. Effective TLE teachers are reported to exhibit strong instructional competence, sound classroom management, and positive interpersonal relationships, all of which contribute to meaningful skills acquisition and learner readiness for employment [18], [19]. In general, the prominence of TLE as a teaching area underscores its central role in vocational education and highlights the importance of continuously strengthening teachers' pedagogical and professional competencies to ensure that students are adequately prepared for technical, entrepreneurial, and industry-related pathways.

Years of Teaching in BTLEd / BTVEd Faculty

The years in Teaching of BTLEd/BTVEd Faculty are presented in Table 5. As disclosed in the table, the majority of the respondents are 4 – 6 years in teaching with 26.7%. Followed by, 10 – 15 years in teaching with 23.3%. Next, both 7 to 10 and 1- 3 years in teaching have obtained 20.0%. Next were the 20 – 30 years in teaching with 6.7% and 6 years in teaching with 3.3%.

Table 5. Years in Teaching of BTLEd and BTVEd Faculty

Years in Teaching	Frequency	Percentage (%)
4-6 years	8	26.7
10-15 years	7	23.3
7 -10 years	6	20.0
1 -3 years	6	20.0
20 – 30 years	2	6.7
6 years	1	3.3
Total	30	100.00

The table implies that 4-6 years of teaching has the highest number representing 26.7% of the total sample. This suggests that a significant portion of the respondents has a relatively moderate level of teaching experience, which may indicate a period of professional growth and adaptation to teaching practices. Teachers in this range are likely still refining their teaching techniques, participating in professional development, and adapting to curriculum changes. Regardless of this issue, it will overcome this by having peer mentoring in every organization. Teaching skills can be acquired and refined through collaboration, mentoring, and ongoing training [18]. It is not about the number of years in service. It is about your passion as a teacher. Passion plays a crucial role in effective teaching and learning, serving as a motivating factor that enhances the quality of education [19], [20]. It is about on how you handle with the diverse students in the classroom for them to become globally competitive graduates. Passionate teachers create engaging learning environments that maximize students' potential and facilitate learning through enthusiasm and desire [21], [22].

Training Attended of BTLEd and BTVEd Faculty

The training attended of BTLEd/BTVEd Faculty are presented in the table 6. As disclosed in the table, one faculty or 3.3% attended 30 trainings. Followed by one faculty or 3.3% attended 15 trainings. Next, 3 faculty or 10.0% who attended three training. Next, 5 faculty or 16.7% participated in two training. Followed by 1 faculty or 3.3% attended 19 training. Lastly, only 1 faculty, or 3.3% did not participate in any training, which is a small but notable percentage of faculty who may not be engaging in available development opportunities.

Table 6. Training Attended by BTLEd and BTVEd Faculty

Number of Trainings	Frequency	Percentage (%)
30	1	3.3
15	1	3.3
3	3	10.0
2	5	16.7
1	19	63.3
0	1	3.3
Total	30	100.00

The table implies that only 1 faculty member (3.3%) attended 30 training sessions, reflecting a highly committed individual who likely values continuous learning and growth. Continuing professional training is essential for improving pedagogical competencies in a rapidly changing educational landscape [5].

The largest portion of the respondents, 63.3%, attended only one training. This could indicate a variety of factors, such as limited availability of training, time constraints, or perhaps the faculty's perception that a single session suffices for their professional development needs. Geographical difficulties, resource

inaccessibility, and centralized training practices pose challenges in some contexts [23]. It may also suggest that faculty are more likely to attend training when it is mandatory or highly relevant to their current responsibilities. Faculty preferences for training formats varied, with self-paced or combined approaches being favored [24]. However, to address this issue institutions could explore ways to increase faculty participation in multiple training sessions, possibly by making training more relevant, accessible, or integrated into the work schedule.

National Certificates

The National Certificates of BTLEd/BTVEd Faculty are presented in Table 7. As disclosed in the table, 3 faculty members, or 10.0% of the total respondents, have earned six national certificates. This represents the highest level of certification among the faculty and reflects a significant achievement in terms of professional qualifications. Next, 5 faculty members, or 16.7%, hold four national certificates. Another 5 faculty members (16.7%) possess three national certificates. Followed by 2 faculty members (6.7%) who have earned two national certificates. Lastly, 6 faculty members (20.0%) do not hold any national certificates. This is the largest group, indicating that a significant portion of the faculty has not pursued these national-level accreditation forms.

Table 7. National Certificates

Number of National Certificates	Frequency	Percentage (%)
6	3	10.0
4	5	16.7
3	5	16.7
2	2	6.7
0	6	20.0
Total	30	100.00

The table implies that there are a higher percentage of faculty members who obtained no certificates than faculty who have certificates. This suggests that a significant number of faculty may not prioritize these certifications, either due to lack of opportunity, awareness, or interest. Studies indicate that faculty in higher education institutions may not prioritize these certifications. Many technical-vocational teachers in universities lack specialized competencies aligned with TESDA standards [25], often being graduates of broader Technology and Livelihood Education programs [26]. A study at Cagayan State University found that most TLE and Tech-Voc faculty have doctorate degrees unrelated to their teaching field and possess few NCs [27]. To address this issue institutions may want to create more awareness and encourage all the faculty members about the value of obtaining national certifications, both for professional growth and career advancement.

3.2. The General Self-Assessment Level of Competence among BTLED and BTVTED Teachers in Terms of the Mandated Assessment Guide for Trainer's Methodology II

Certificate of Competency 1. Conduct of Training needs analysis

Table 8 shows the Certificate of Competency 1. Conduct of training needs analysis. As disclosed in the table below, statements 1, 7, and 8 obtained the highest number of yes responses from the respondents. Statement *1. " Hold discussions with clients to identify objectives, expectations, and other requirements"*, suggests that the faculty is actively engaging with clients to understand their needs and expectations. Statement 7. *"Validate the TNA instrument to a select group of respondents to check on consistency and validity prior to actual use"* indicates that there is strong support for the practice of piloting or validating the Training Needs Analysis (TNA) instrument before its full deployment. Statement 8. *"Gather data and analyze information using valid analysis method"* highlights a key aspect of the training needs analysis (TNA) process. This response demonstrates that there is strong alignment among the respondents regarding the necessity of using appropriate and reliable methods to gather and interpret data when assessing training needs.

However, the statement 6. *Design TNA instrument following the prescribed format* obtained the highest number of no responses from the respondents. This finding suggests that there may be some concerns or challenges related to the adherence to a prescribed format when designing the TNA tool, or a preference for more flexible or customized approaches.

Table 8. Certificate of Competency 1. Conduct of Training Needs Analysis

Statement	Y	N
Hold discussions with clients to identify objectives, expectations, and other requirements	30	0
Identify and analyze issues to be addressed to determine the impact on client's objectives and requirements	28	2
Identify the TNA respondents/target group based on objectives and requirements	26	4

Develop research plan based on objectives and requirements	19	11
Present to concerned persons and finalize research plan using appropriate method for collecting information	2	28
Design TNA instrument following the prescribe format	1	29
Validate the TNA instrument to a select group of respondents to check on consistency and validity prior to actual use	30	0
Gather data and analyze information using valid analysis method*	30	0
Conduct orientation regarding the study	9	21
Disseminate TNA instruments to identified respondents	11	19
Gather filled out TNA instruments in accordance with procedures appropriate to the method selected	25	5
Analyze information using reliable valid data analysis methods to determine skills gaps that can be addressed through training or other intervention	25	5
Prepare conclusions on training needs supported by evidence and consistent with research objectives	23	7
Provide the client with options for meeting identified training skills	22	8
Prepare report and provide the client with advice and recommendations on training needs	18	12

The table implies that most of the responses of the faculty are positive ("yes") in the COC1. Training Needs Analysis (TNA), it signifies that teachers are open to and supportive of the process of identifying gaps in their knowledge, skills, and competencies. A TNA is a critical process that helps ensure that professional development opportunities are targeted, relevant, and aligned with teachers' real needs. Training needs assessment (TNA) is a critical process for identifying gaps in knowledge, skills, and competencies among employees. It involves systematic analysis to determine training requirements linked to performance deficiencies [28]. By engaging teachers in this process, schools and districts can create more effective and personalized professional development programs that address specific challenges and foster growth in areas where teachers require support. Such as Interactive, computer-based PD programs utilizing artificial intelligence have shown promising results in improving student performance and enhancing teachers' instructional practices [16].

Certificate of Competency 2. Develop Training Curriculum

The table 9 shows the Certificate of Competency 2. Develop Training Curriculum. As disclosed in the table below, statements 1." *Identify training regulations appropriate for the course to be developed"* only obtained the highest number of yes responses from the respondents. *"* It is a critical step in the training needs analysis (TNA) process, particularly when developing training programs that must comply with regulatory standards or industry guidelines. This result highlights a crucial step in the curriculum development process—ensuring that the content, structure, and delivery methods adhere to external requirements, which is essential for both legal and educational reasons. Only statement 4. *Develop course design* has obtained the highest of number of No responses. This result suggests that faculty members are not directly involved in the creation of the course designs, which could have important implications for the effectiveness and relevance of the training programs being offered.

Table 9. Certificate of Competency 2. Develop of Training Curriculum

Statement	Y	N
Identify training regulations appropriate for the course to be developed	30	0
Develop Learners profiles and identify potential learners	27	3
Analyze and interpret competency standards in developing a curriculum module/learning outcome	24	6
Develop course design	0	30
Validate training curriculum with other persons	11	19
Design TNA instrument following the prescribe format	2	28
Finalize training curriculum and submit to appropriate personnel	30	0

The table implies that the responses of faculty are positive ("yes") regarding their involvement in the development of training curricula, it signifies that teachers are engaged, supportive, and enthusiastic about shaping the professional development initiatives that will benefit their own growth and ultimately improve student outcomes. Involving teachers in the curriculum change process can enhance their understanding and empowerment to implement reforms [29]. Teachers are more motivated to participate actively in training programs when they have had a role in shaping the curriculum that meets their specific needs. Higher education teachers, particularly in polytechnics, express a need for industrial attachments to update subject knowledge and gain confidence in curriculum design [30].

Certificate of Competency 3. Develop Learning Materials

The table 10 shows the Certificate of Competency 3. Develop Learning Materials. As disclosed in the table below, statements 1, 2, 3, 5, 7, 14, and 31 have obtained the highest number of yes responses form the respondents. Statements 4, 12, 23, 24, and 29 got the highest number of no responses.

Table 10. Certificate of Competency 3. Develop Learning Materials

Statement	Y	N
Verify the brief, type of learning materials with the client	30	0
Identify characteristics of the learners/end users of the learning resource	30	0
Gather, collate and analyze existing information which may be relevant	30	0
Identify and act upon ethical and legal considerations	0	30
Write and document a development work plan	30	0
Generate a range of design options using a variety of principles and techniques	1	29
Establish design concepts, taking into consideration process, material, quantity, cost and outcome requirement	30	0
Take time to reflect on the designs, identifying the implications of each	28	2
Research and embed the diversity of the learners and their learning styles into the design specifications	2	28
Develop and confirm an outline or prototype for the learning resource	15	15
Identify relevant personnel to support the development phase, if needed	12	18
Develop content and content specification accordance with the agreed design	0	30
Divide the learning materials into manageable chunks/segments of learning principles and techniques	3	27
Access and modify/customize existing learning materials to suit the learning purposes and audience and audience	30	0
Develop and document new, relevant and engaging learning activities and related materials based on application of learning principles	26	4
Use clear, concise, grammatically correct and appropriate text for the intended audience/s	5	25
Format the resource using an appropriate style guide	12	18
Use relevant, instructive and appropriate visuals for the intended audience/s	15	15
Establish mechanisms for reviewing work in progress	29	1
Make modifications to the design and/or content, to address changes in project parameters	21	9
Develop Prototype systems and components in accordance with the agreed design	20	10
Develop and confirm mock-up/simulator's plan and specification with the client	19	11
Identify relevant personnel to support the development phase, if needed	0	30
Develop manual for prototype, model/simulator	0	30
Check content of the developed materials against content specifications	2	28
Check text, format and visual design for clarity and focus	12	18
Identify relevant personnel and seek support for the review and validation	6	24

Conduct an external review and incorporates using appropriate methods, and feedback	27	3
Review final draft against the brief and other relevant criteria prior to delivery to the client	0	30
Review the design and development process against appropriate evaluation criteria	28	2
Take time to reflect and identify areas for improvement	30	0
Document identified improvements for future projects	23	7

The table implies that the responses of faculty are negative ("no") regarding the "Develop of Learning Materials. This outcome could have various implications for the overall quality and effectiveness of the learning experience provided to students. The lack of faculty involvement in this crucial aspect of course design may point to structural or systemic issues that need to be addressed to improve the alignment between teaching objectives, instructional methods, and student learning outcomes. Teachers often struggle to effectively use available materials, leading to reduced student engagement and knowledge construction [31]. The lack of learning materials in classrooms is a significant challenge in various educational contexts. Studies have shown that insufficient textbooks, limited access to technology, and inadequate instructional aids hinder effective teaching and learning, particularly in mathematics [32].

Certificate of Competency 4. Develop Competency Assessment Tools

The table 11 shows the Certificate of Competency 4. Develop Competency Assessment Tools. As disclosed in the table below, only statement 5 “Select assessment methods which are appropriate for the competency being assessed, and in line with the purpose and assessment context” has obtained the highest number of yes responses form the respondents. Properly selecting assessment methods ensures that both learners and instructors are aligned in their expectations and that the assessments are meaningful and reliable in evaluating the learning process. Statements 3, 6, 7, 8, 10, 11, 12, 13 and 14 got the highest number of no responses.

Table 11. Certificate of Competency 4. Develop Competency Assessment Tools

Statement	Y	N
Identify competency standards which describe the work activities to be assessed	8	22
Read and interpret relevant unit(s) of competency to identify the required evidence	8	22
Identify evidence requirements which show full coverage and consistent performance of the relevant work activities*	0	30
Identify suitable assessment methods that are consistent with the evidence requirements and the advice provided in the Evidence. Guide and relevant Assessment Guidelines	20	10
Select assessment methods which are appropriate for the competency being assessed, and in line with the purpose and assessment context	30	0
Prepare assessment tools in accordance with the advice provided in the relevant Assessment Guidelines*	0	30
Prepare clear and concise written instructions and materials for the assessor and the candidate which accurately describe the assessment activity	0	30
Check assessment tools for validity, fairness, safety and cost effectiveness	0	30
Check draft assessment tools against evaluation criteria and revise, when necessary	9	21
Pilot test assessment tools with a small group of assessors and industry practitioners	0	30
Analyse data gathered through the validation to establish any changes that maybe required	0	30
Finalize assessment tools incorporating suggested changes as appropriate	0	30
Explain the principles of reasonable adjustment	0	30
Explain legal and ethical responsibilities associated with the assessment procedures	0	30

The table implies that the responses of faculty are negative ("no") regarding the "Develop Competency Assessment Tools", it can lead to significant issues in the effectiveness and relevance of the assessment process. Teachers play a crucial role in both the design and implementation of assessments, and their lack of involvement

can have far-reaching consequences. Teachers might not have the necessary skills or experience in designing assessments, which could discourage their involvement in the development process. Technology and Livelihood Education teachers face difficulties in adopting outcomes-based assessment practices, with issues including unclear learning outcomes, limited assessment strategies, and misalignment with skills being assessed University of New South Wales Sydney, Australia in 2023. To address these issues, the first step is to assess the current level of professional development and training available to teachers related to competency assessment tools. Competency-based assessment tools have been developed to evaluate teachers' professional skills, incorporating ICT to facilitate comprehensive assessment [33], [14]. This could involve surveys, focus groups, or one-on-one interviews with teachers to understand their knowledge gaps, perceived challenges, and training needs.

Certificate of Competency 5. Design and Develop Maintenance System

Table 12 shows the Certificate of Competency 4. Design and Develop Maintenance System. As disclosed in the table below, statements 5, 6, 11, 19, 20, 24 obtained the highest number of yes responses. Statements 7, 8, 9, 17, 22, 30, 31, 32 obtained the highest number of no responses.

Table 12. Certificate of Competency 5. Design and Develop Maintenance System

Statement	Y	N
Identify and comply with applicable Occupational Health and Safety (OHS), legislative and organizational requirements relevant to organizing maintenance programs	29	1
Recommend maintenance intervals of facility and equipment based on specifications, service requirements and workplace procedures	29	1
Separate special requirements for maintenance from routine /day-to- day maintenance schedules	28	2
Specify and develop an outline plan for maintenance and a related work schedule	29	1
Establish and maintain communication protocol in accordance with OHS requirements	30	0
Identify and confirm work requirements with appropriate parties or by site inspection	30	0
Identify and monitor relevant codes and standards throughout the work procedure	0	30
Identify, obtain and inspect resources and service providers in compliance with work plan and job specifications	0	30
Select and interpret relevant plans, drawings and text in accordance with the work plan	0	30
Prepares maintenance plan in detail including sequencing, prioritizing and considerations are made where appropriate for the maintenance of safety, security and capacity in accordance with system/site/organization requirements and reference information	28	2
Resolve coordination requirements, including requests for isolations where appropriate, with others involved, affected or required by the work	30	0
Select prevention and/or control measures based on identified potential hazards	29	1
Define work scope based on equipment and facility maintenance history, condition monitoring information, recent modifications and existing status	29	1
Prepare and assess impact cost of maintenance on budget	29	1
Access and interpret compliance documentation relevant to facilities and equipment maintenance management systems	29	1
Develop maintenance strategy for facility and equipment according to organization requirements	29	1
Identify data to be included in the reports on repair work	0	30
Establish systems to ensure that the condition and performance of equipment and facilities are regularly reported and discussed within the organization	29	1
Identify areas /items prone to defects, demonstrating frailty, or scheduled for regular maintenance	30	0
Inform individuals in the organization responsible for performing regular or scheduled maintenance duties of the details of the plan	30	0
Schedule and checks staff rosters to verify time when the maintenance process may be scheduled including optimum training for shut- down	19	11

Develop detailed work plans to accord with training schedules, availability of expertise and scheduling of resource availability	0	30
Complete maintenance work schedule following the work plan	28	2
Establish systems and procedures to satisfy identified maintenance requirements	30	0
Recommend appropriate procedures for further testing of equipment to appropriate personnel	10	20
Make adjustments to the work schedule and plan based on experience and completed documentation	4	26
Complete and forward maintenance records and reports to appropriate personnel	4	26
Establish procedures to confirm the currency of and compliance with facility and equipment maintenance and safety standards	4	26
Establish procedures to evaluate and confirm system/equipment in compliance with organizational requirements	1	29
Establish system of recording and reporting facility and equipment information	0	30
Establish procedures incorporating feedback of the review System	0	30
Establish procedures for response to instances of non-compliance or other discrepancies/ deficiencies revealed by a review	0	30

The table implies that most teachers responded "No" to the CO5. Design and Develop Maintenance System. This result raises concerns about the sustainability and continuous improvement of instructional resources. Schools face difficulties with ICT maintenance procedures and technical support, impacting resource utilization [13], [16]. Teachers do not fully recognize the importance of a maintenance system for learning materials or do not consider it a priority. The lack of a comprehensive learning management system [34] for teachers has prompted efforts to develop one, addressing issues such as unprepared teachers and unconducive learning environments [19], [22], [25]. This lack of engagement in the maintenance process may indicate barriers to effectively maintaining instructional resources or a lack of awareness about the importance of such systems. However, to address these issues institutions must regularly review and update learning materials. Regular reviews and updates of learning materials are crucial for maintaining educational quality. Institutions should prioritize this process as part of their quality improvement efforts [35]-[37].

Certificate of Competency 6. Develop Learning Materials for E-learning

Table 13 shows the Certificate of Competency 4. Develop Learning Materials for E-Learning. As disclosed in the table below, only statement 20 obtained the highest number of yes responses. Statements 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, and 26 obtained the highest number of no responses.

Table 13. Certificate of Competency 6. Develop Learning Materials for E-learning

Statement	Y	N
Establish learning resource specifications in line with target user requirements and intended delivery mode*	0	30
Prepare instructional design in accordance with content and established specifications	0	30
Prepare work plan in line with the expected output & the target Deadline	0	30
Prepare prototype in line with instructional design	0	30
Prepare media elements in line with instructional design and learning resource specifications	0	30
Perform authoring of learning resources in line with the intended delivery mode and with established learning resource specifications*	0	30
Discuss with concerned personnel in line with establishment policy the technical and/or content issues that may result in deviations of actual resources from instructional design	0	30
Develop utilization guide in line with learning resource features & Design	0	30
Develop test criteria and instrument in line with learning material Specifications	0	30
Identify test sites and reviewers in line with established target users	0	30
Undertook testing of learning resources in line with work plan	0	30

Address feedback and suggestions in line with approved work plan and development cycle	0	30
Explain IT principles underlying the use of the Internet and the World Wide Web in e-learning	0	30
Explain principles of learning as applied to the use of internet Technology	0	30
Explain the principles of instructional design as applied to e-learning	0	30
Describe learners' behavior and characteristics in an e-learning Environment	0	30
Explain the principles of research (as applied to e-learning materials development)	4	26
Explain project management principles as applied to e-learning materials development	13	17
Design instruction as appropriate to e-learning materials Development	30	0
Edit photos as appropriate to e-learning materials development	29	1
Illustrate digital images and objects as appropriate to e-learning materials development	29	1
Edit videos as appropriate to e-learning materials development	29	1
Edit audio as appropriate to e-learning materials development	29	1
Make use of authoring software as appropriate to e-learning materials development	2	28
Practice facilitation as appropriate to e-learning materials development	0	30

The table implies that mostly negative responses from teachers regarding the development of learning materials for e-learning in the classroom. It means there is a problem of the teacher about developing materials for e learning. The teachers are lack of time when developing materials for e learning. Teachers experiencing burnout with the different workloads such as lesson planning, grading, classroom management and designations. Teachers experience high levels of workload and burnout, which can negatively impact their performance [16]. Adding the development of e-learning materials on top of this can feel like an insurmountable burden. Despite high levels of burnout, teachers often maintain satisfactory work performance, possibly due to their dedication to the profession [38]. To mitigate burnout, researchers recommend proper workload assignment by school administrators, hiring non-teaching personnel for ancillary tasks [39] and enhancing teachers' stress management and self-efficacy skills.

3.3. Gaps Experienced by BTLED and BTVTED Teachers in Teaching Subjects with Trainer's Methodology II

BTLED and BTVTEd teachers face numerous challenges in implementing Trainer's Methodology II (TM II), ranging from systemic resource deficiencies to limited institutional support. These gaps hinder their ability to deliver quality education and meet TESDA standards effectively. Despite these obstacles, teachers exhibit resilience and adaptability in overcoming barriers. The following themes provide a comprehensive understanding of the difficulties faced by educators in teaching TM II.

Table 14. Gaps experienced by BTLED and BTVTEd Teachers in teaching subjects with Trainer's Methodology II.

Essential Themes	Core Ideas
Outdated Resources and Curriculum Misalignment	- TESDA modules are outdated and fail to reflect current industry standards. - Teachers rely on personal research to align lessons with practical applications. - Curriculum materials often require supplementation to remain relevant.
Accessibility and Certification Barriers	- No assessment centers exist in Mindanao, forcing teachers and students to travel to Luzon for certification. - The financial and logistical burden of obtaining certification discourages participation. - Certification gaps undermine confidence in teaching strategies.
Insufficient Institutional Support	- Minimal institutional collaboration with TESDA leads to inconsistencies in curriculum delivery. - Limited funding restricts access to necessary teaching tools and equipment.

	- Schools provide little professional development support for teachers handling TM II.
Time Management and Administrative Workload	- Extensive TESDA documentation requirements increase teachers' workloads. - Balancing administrative tasks with teaching responsibilities is challenging. - Teachers report limited time for preparation and innovation.
Unequal Resource Distribution	- Disparities in resources between schools exacerbate inequalities in teaching quality. - Some educators are forced to improvise with recycled or makeshift materials. - Hands-on learning opportunities are constrained by a lack of proper facilities

The challenges in BTLED and BTVTEd programs stem from outdated TESDA modules, misaligned curricula, and insufficient institutional support. The reliance on obsolete resources limits students' exposure to current industry standards, placing additional burdens on teachers who must supplement the materials. This misalignment hinders the development of industry-aligned competencies, and the lack of collaboration with TESDA further restricts teachers' access to essential tools and professional development [40], [41]. To address these issues, aligning curricula with industry expectations and providing robust institutional support [37] is crucial for enhancing teaching effectiveness and professional competence.

Additional obstacles include barriers to certification due to the absence of local assessment centers and time management challenges caused by excessive administrative workload [42]-[44]. Teachers in Mindanao are forced to travel long distances for certification, adding financial and logistical strain that discourages participation. Moreover, the excessive documentation requirements leave teachers with little time for preparation and innovation, affecting instructional quality. Disparities in resource allocation exacerbate these challenges, with underfunded schools forced to improvise, limiting hands-on learning opportunities [45]. To foster a more effective technical and vocational education system, addressing these issues requires localizing certification centers, reducing administrative burdens [46], and ensuring equitable resource distribution.

Table 15. Strategies of BTLED and BTVTEd Teachers employed in teaching subjects with Trainer's Methodology II.

Essential Themes	Core Ideas
Contextualization and Localization of Lessons	- Teachers design lessons tailored to the local context to connect theory with practical applications. - Community-based activities and real-world scenarios enhance student engagement. - Recycled and locally available materials are used for hands-on practice.
Problem-Based and Project-Based Learning	- Teachers implement problem-based learning by presenting real-life scenarios for analysis. - Project-based learning encourages students to design outputs aligned with community needs. - These methods foster critical thinking and creativity among students.
Integration of Technology	- Educators incorporate digital tools such as videos, simulations, and online resources. - Despite technological limitations, digital tools help engage students and simplify complex topics. - Teachers use blended learning approaches to combine face-to-face activities with technology.
Peer Mentoring and Collaborative Learning	- Group activities and peer mentoring encourage teamwork and build confidence. - Collaborative strategies ensure inclusive learning and maximize resource use. - Brainstorming sessions and shared tasks allow students to contribute creative ideas.
Focus on Student Motivation and Engagement	- Teachers adapt lessons to maintain student interest and participation. - Interactive activities like simulations, role-playing, and hands-on

	tasks motivate learners. - Student enthusiasm inspires teachers to persevere and innovate despite challenges.

Teachers in BTLED and BTVTEd programs adopt various strategies to enhance student learning, emphasizing contextualization, problem-based and project-based learning, technology integration, peer mentoring, and student engagement. By integrating community-based activities and real-world scenarios, teachers make lessons more relevant and engaging, helping students connect academic knowledge to local contexts and industry needs. Localized teaching methods are crucial for improving student outcomes and preparing them for industry-specific challenges [47], [48]. Problem-based and project-based learning further promote critical thinking, creativity, and higher-order skills by encouraging students to solve real-world problems and create outputs aligned with community needs [49], [50].

The integration of technology, such as digital tools, videos, and online resources, simplifies complex topics and enhances engagement, preparing students for a digital future [49], [42]. Peer mentoring and collaborative learning promote teamwork, creativity, and interpersonal skills, vital for success in the workforce [48]. Teachers also prioritize student motivation and engagement, using interactive activities like simulations and role-playing to foster intrinsic motivation and a positive learning environment. Motivation plays a key role in academic success, and when students are engaged, it stimulates teacher innovation, further enhancing the overall educational experience [38], [40].

3.4. Joint Display Analysis (JDA)

Table 16. Joint Display Analysis (JDA)

Quantitative Result	Qualitative Insights	Interpretation
20% of teachers lack national certifications	Accessibility and Certification Barriers – No assessment centers exist in Mindanao, forcing teachers and students to travel to Luzon for certification. The financial and logistical burden discourages participation and undermines confidence in teaching strategies.	The qualitative finding confirms the quantitative data, highlighting that decentralizing certification centers and providing financial assistance could address this gap.
100% of teachers identify training regulations but 0% involvement in curriculum design	Insufficient Institutional Support – Minimal institutional collaboration with TESDA leads to inconsistencies in curriculum delivery. Teachers feel excluded from decision-making processes, limiting their ability to tailor content effectively.	The quantitative and qualitative results conflict, suggesting that involving teachers in curriculum design could improve alignment with industry standards and enhance teaching outcomes.
High use of problem-based learning (PBL) strategies reported quantitatively	Problem-Based and Project-Based Learning – Teachers implement problem-based learning by presenting real-life scenarios for analysis and encouraging students to design outputs aligned with community needs. However, administrative workloads limit the time teachers have to innovate or implement PBL strategies effectively.	The qualitative findings confirm the quantitative data, indicating that streamlining administrative tasks could enable teachers to dedicate more time to innovative teaching strategies like PBL.
Technology use is acknowledged as insufficient	Integration of Technology – Teachers face challenges in using technology due to limited training and resources, worsened by burnout and workload constraints. Despite technological limitations, digital tools help engage students and simplify complex topics.	The qualitative observation confirms the quantitative data and suggests that institutional investments in technology training and workload management could address these challenges.
33.3% of respondents are aged 28-33, indicating a younger workforce	Time Management and Administrative Workload – Younger teachers report enthusiasm but are also challenged with outdated resources and a lack of experience in navigating systemic issues. Balancing administrative tasks with teaching responsibilities is difficult.	The age profile highlights a need for targeted professional development to address the challenges faced by younger teachers.
13.3% of teachers	Contextualization and Localization of Lessons –	The quantitative emphasis on TLE

specialize in TLE	Teachers design lessons tailored to the local context, using community-based activities and real-world scenarios to enhance student engagement.	specialization aligns with qualitative themes of contextualized teaching and skill-building.
High use of collaborative learning and peer mentoring	Peer Mentoring and Collaborative Learning – Group activities and peer mentoring encourage teamwork and build confidence. Collaborative strategies ensure inclusive learning and maximize resource use.	The quantitative and qualitative results align, reinforcing that collaborative learning is an effective method for student engagement and confidence-building.
Student engagement and motivation were reported as high	Focus on Student Motivation and Engagement – Teachers adapt lessons to maintain student interest through simulations, role-playing, and hands-on tasks. Student enthusiasm inspires teachers to persevere and innovate despite challenges.	The quantitative and qualitative findings align, showing that motivation plays a key role in enhancing learning outcomes and teacher performance.
Teachers report competence in conducting Training Needs Analysis (TNA)	Outdated Resources and Curriculum Misalignment – TESDA modules are outdated and fail to reflect current industry standards. Teachers rely on personal research to align lessons with practical applications.	The quantitative and qualitative results conflict, highlighting the need to update TESDA modules and provide better alignment with current industry needs.
Variability in teaching quality due to unequal access to resources	Unequal Resource Distribution – Disparities in resources between schools exacerbate inequalities in teaching quality. Some educators are forced to improvise with recycled or makeshift materials.	The qualitative observation confirms the quantitative data that resource disparities affect teaching effectiveness, suggesting that equitable resource allocation could improve consistency in teaching quality.

The quantitative and qualitative findings of the study reveal interrelated institutional, professional, and instructional challenges affecting the delivery of Trainers' Methodology II (TM II) among BTLEd and BTVTEd faculty in Mindanao. One of the prominent findings is the demographic profile of respondents, which shows a predominance of younger, early-career faculty members, many of whom are female. This demographic pattern suggests both a challenge and an opportunity. On one hand, early-career faculty often face constraints related to limited experience, restricted access to professional networks, and fewer opportunities for certification. On the other hand, existing literature highlights that younger educators tend to be more open to pedagogical innovation and reflective practice, particularly when provided with structured mentoring and institutional support. Studies on TVET faculty development emphasize that mentorship programs linking novice and senior instructors significantly enhance teaching confidence, instructional competence, and professional identity formation [17], [43]. The absence of formal mentoring mechanisms, therefore, may delay competency development and certification readiness among younger faculty.

Another major finding relates to the limited accessibility of TM II certification and assessment processes. Both quantitative indicators and qualitative narratives underscore logistical barriers such as travel costs, time constraints, and the scarcity of TESDA-accredited assessment centers in Mindanao. This finding is consistent with previous regional studies on TVET implementation, which identify geographic inequity as a persistent barrier to professional certification in island and peripheral regions. Research has shown that centralized certification systems disproportionately disadvantage faculty from remote areas, resulting in uneven competency validation and delayed compliance with national standards. As noted in earlier studies, the lack of decentralized assessment centers not only restricts faculty career progression but also affects instructional quality, as teachers may deliver competency-based courses without formal assessor training [45]. The present findings reinforce these conclusions and highlight the urgency of decentralizing certification mechanisms to ensure equitable access and consistent program implementation.

In terms of pedagogy, the study reveals widespread use of problem-based learning (PBL) and project-based learning strategies among faculty teaching TM II. This aligns with existing research demonstrating that PBL and project-based approaches are particularly effective in technical-vocational education because they promote critical thinking, collaboration, and real-world application of skills [51]. Faculty narratives suggest that these strategies help simulate workplace conditions and enhance learner engagement. However, despite positive pedagogical orientations, institutional constraints limit the consistent and effective use of these approaches.

Excessive administrative workloads, extensive documentation requirements, and limited preparation time were repeatedly cited as barriers. This finding mirrors prior studies that argue administrative overload diverts teachers' time and cognitive resources away from instructional planning and innovation [40]. Without institutional reforms to streamline reporting systems and redistribute non-teaching tasks, the pedagogical potential of learner-centered strategies may remain underutilized.

The integration of educational technology emerged as another critical issue. While faculty recognize the value of digital tools and e-learning platforms in enhancing instruction, many reported difficulties in developing digital learning materials due to limited training, inadequate infrastructure, and insufficient technical support. This result is consistent with previous research indicating that technology integration in TVET is not solely dependent on individual teacher motivation but is strongly influenced by institutional capacity, access to training, and workload conditions [40], [52]. Studies have shown that when teachers lack structured professional development in digital pedagogy, technology use remains superficial and fragmented rather than transformative [45]. The present study confirms that without sustained digital skills training and support personnel, technology integration efforts may exacerbate teacher stress rather than improve instructional effectiveness.

Finally, the findings highlight limited faculty involvement in curriculum development and review processes. Although faculty members possess practical insights from classroom and industry engagement, their participation in curriculum decision-making remains minimal. This result aligns with literature emphasizing that top-down curriculum implementation often leads to misalignment between industry standards and classroom realities. Previous studies argue that empowering teachers as curriculum co-designers enhances relevance, ownership, and instructional coherence [12]. The lack of meaningful faculty participation in curriculum development may therefore contribute to gaps between intended TM II standards and actual teaching practices.

Based on the findings, it can be generally inferred that the effectiveness of Trainers' Methodology II delivery in Mindanao is shaped not only by individual teacher competence but also by systemic and institutional factors. Early-career faculty demonstrate strong pedagogical potential and openness to innovative teaching strategies; however, their professional growth is constrained by limited access to certification, mentorship, and training opportunities. Centralized certification systems, excessive administrative workloads, insufficient digital infrastructure, and restricted faculty participation in curriculum development collectively weaken the consistent implementation of TM II standards [38], [40]. These patterns suggest that improving TM II delivery requires comprehensive, system-level interventions rather than isolated training initiatives.

The findings of this study have important implications for higher education institutions, policymakers, and accrediting agencies. For higher education institutions, the results underscore the need to institutionalize mentoring programs, reduce administrative burdens, and invest in continuous professional development, particularly in TM II certification and digital pedagogy. For policymakers and accrediting bodies such as the Technical Education and Skills Development Authority and the Commission on Higher Education, the study highlights the necessity of decentralizing assessment centers and strengthening inter-agency collaboration to ensure equitable access to certification. At the instructional level, the study implies that supporting learner-centered and technology-enhanced pedagogies requires structural support, not just individual teacher initiative [52].

Despite its contributions, this study has several limitations. First, the study focused on BTLEd and BTVTEd faculty in Mindanao, which limits the generalizability of the findings to other regions of the Philippines. Second, while the study employed both quantitative and qualitative approaches, the reliance on self-reported data may introduce response bias, particularly in assessing perceived proficiency and instructional practices. Third, the study did not include direct classroom observations or performance-based assessments of TM II competence, which could have provided a more objective measure of instructional proficiency.

Future studies may expand the scope of this research by including faculty from other regions to allow for comparative regional analyses of TM II implementation. Researchers may also employ longitudinal designs to examine how faculty proficiency and certification status evolve over time following targeted professional development interventions. Incorporating classroom observations, portfolio assessments, or student performance data could further strengthen the validity of future findings. Finally, future research may explore the perspectives of institutional leaders, assessors, and industry partners to develop a more holistic understanding of systemic factors influencing TM II delivery and TVET teacher readiness.

4. CONCLUSION

This study assessed the proficiency of BTLEd and BTVTEd teachers in delivering Trainers' Methodology II (TM II) in Mindanao, identified the challenges affecting its implementation, and examined the instructional strategies employed by faculty. The findings indicate that while teachers demonstrate commitment, adaptability, and pedagogical initiative, their effectiveness in implementing TM II is constrained by curriculum misalignment caused by outdated TESDA modules, limited access to assessment and certification centers, insufficient technological resources, and excessive administrative workloads.

The study further reveals that teachers adopt localized and learner-centered approaches, particularly problem-based and project-based learning, peer mentoring, and collaborative practices, to bridge gaps between theory and practice. These strategies are especially beneficial for younger and early-career teachers, as explained by Vygotsky's Constructivist Learning Theory, which emphasizes social interaction, guided support, and collaboration within the Zone of Proximal Development as foundations for professional growth and effective learning. However, inconsistent access to updated instructional materials and institutional support limits the sustained and standardized implementation of TM II competencies.

Overall, the study concludes that effective delivery of Trainers' Methodology II in Mindanao depends not only on individual teacher competence but also on systemic support mechanisms, including updated curricula, accessible certification processes, manageable workloads, and continuous professional development. Without addressing these structural concerns, the capacity of BTLEd and BTVTEd programs to produce competent and industry-ready TVET educators remains constrained.

It is recommended that TESDA and higher education institutions regularly update TM II instructional modules, decentralize certification and assessment centers in Mindanao, strengthen faculty development in digital pedagogy, reduce administrative workloads through support systems, and institutionalize peer mentoring and faculty participation in curriculum development to improve alignment with national TVET standards.

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