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PREFERRED LEARNING STRATEGIES OF TECHNICAL VOCATIONAL TEACHER EDUCATION COURSES IN QUEZON PROVINCE PHILIPPINES: A BASES FOR INTERVENTION ACTION PLAN

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Abstract

In the evolving landscape of education, understanding the many learning styles of students is crucial for formulating successful teaching strategies. Studies demonstrate that students participating in technical-vocational teacher education programs are exhibiting subpar performance in other academic subjects. The research aims to highlight the particular intervention necessary for identifying learning styles in TVTE, necessitating a sophisticated teaching technique that accommodates the varied learning preferences of students and aligns instructional strategies accordingly. The research sought to identify the unique learning modalities used in the Technical Vocational Teacher Education programs at the community college in Mauban, Quezon Province, Philippines. To provide a comprehensive foundation and enhance the educational experience by aligning new teaching methods with students' learning preferences. This improves engagement, retention, and the use of material in technical-vocational education. Survey questionnaires were used to ascertain and measure the degree and direction of correlations between variables using quantitative correlational research. This is advantageous in education since it facilitates the assessment of relationships and the forecasting of future trends. This data may then be used to guide decision-making and enhance educational methods. The students' academic achievement in the topic was highly connected with their learning methods. Results indicate that students enrolled in TVTE courses completely concurred that learning strategies such as experiential

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learning, crossover learning, stealth assessment, and embodied learning significantly facilitate comprehension, support across diverse educational contexts, and improve information retention by enabling active application of knowledge to real-life scenarios, thereby enhancing problem-solving abilities. Additionally, it fosters introspection in the learning process, enhancing engagement via the incorporation of physical activities and sensory experiences. Furthermore, students unanimously concurred that the utilization of technology supports in the enhancement of their digital competencies and equips them for the exigencies of a technology-oriented future; additionally, universal design for learning and gamification augment education by incorporating elements such as rewards, competition, and interactive challenges into academic pursuits. Kinesthetic learning indicates that students strongly concur that physical activities enhance practical skills and foster a deeper connection to the material, while verbal learning enhances communication skills through the articulation of ideas in both written and spoken forms, thereby promoting a collaborative learning environment. This methodology fosters students' analytical reasoning, indicate that active learning is their primary preference among learning styles, whereas gamification ranks lowest among strategies for enhancing motivation and engagement, resulting in improved participation and performance, such as mitigating boredom during lectures and fostering liveliness. The study revealed a significant correlation between innovative learning styles and the preferred teaching strategies of students. The results suggest that active learning methods, which involve applying knowledge in practical contexts, are highly regarded for their ability to foster active participation and improve learning outcomes. These methods align with an experiential learning approach, which includes hands-on activities and real-world applications, proving effective in aiding students to develop skills and grasp theoretical concepts through direct experience. Additionally, the adoption of teaching strategies that cater to students' learning preferences may enhance academic performance. The community college is advised to implement an intervention action plan to address the varied learning needs and preferences within TVTED courses to achieve educational objectives. Integrating experiential learning techniques allows students to interact with the material actively and utilize their knowledge in

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practical situations. This method can boost understanding and retention, contributing to the success of TVTED course program at the community college. Moreover, opportunities for tangible learning experiences and real-world applications can demonstrate the relevance of their education and heighten motivation. Creating a supportive and inclusive educational atmosphere enables the community college to help students maximize their potential in TVTED courses.

Keywords: *Innovative, Learning modalities, Pedagogical, Technical Vocational Education, Strategies*

I. Introduction

In the evolving landscape of education, understanding the many learning styles of students is crucial for formulating successful teaching strategies. Understanding students' preferred learning strategies is crucial for effective teaching and learning. Individuals have unique learning preferences and styles that can significantly impact their academic performance and engagement. By identifying and understanding the preferred learning strategies of students in the Technical Vocational Teacher Education courses, educators can tailor their instructional methods to meet these students' needs better. While there has been extensive research on learning strategies in various educational contexts, limited studies have focused explicitly on the preferred learning strategies of students in the Technical Vocational Teacher Education courses field. The research gap highlights the need to explore students' learning preferences and strategies in their specific program.

Several important research questions can be addressed by conducting a comprehensive study on the preferred learning strategies of Technical Vocational Teacher Education courses. For instance, what are these students' most commonly preferred learning strategies? Do their preferences align with the teaching methods commonly used in the program?

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Are there any significant differences in learning preferences based on demographic factors such as age, gender, or prior educational background? Answering these research questions can provide valuable insights for educators, curriculum developers, and policymakers in technical vocational education, particularly food service management. The discoveries can inform instructional design, curriculum development, and teaching practices, ultimately leading to more effective and engaging learning experiences for students in the program.

Moreover, understanding the preferred learning strategies of students in the Technical Vocational Teacher Education courses can contribute to the broader body of knowledge on effective teaching and learning strategies in technical vocational education. The findings can be used to enhance the overall quality of technical vocational education programs, ensuring that graduates are well-prepared to meet the demands of the food service industry and effectively transfer their knowledge and skills to future professionals. By identifying the most effective learning strategies for these students and addressing potential differences based on demographic factors, educators can create more tailored and impactful learning experiences. The research contributes to the advancement of technical vocational education and the preparation of competent educators in the field of technical vocational education courses.

The research aims to investigate the preferred learning strategies of students pursuing a Technical Vocational Teacher Education course and provide valuable insights for educators and curriculum developers. Educators can tailor their teaching methods to enhance student engagement, motivation, and overall learning outcomes by identifying the most effective learning strategies for these students. Consequently, continuous professional development for TVET teachers is crucial. This development would enable teachers to improve their use of guiding pedagogical principles in practice, facilitating quality learning and better graduate outcomes.

II. Literature Review

Pavlova et al. (2020) recommended combining STEM skills with Higher-Order Thinking Skills into TVET curriculum. Participating in many classes and technical and academic courses enriches

the curriculum and develops these talents. Okolie, et al. (2021) stressed the need for HOTS classes to prepare students for the workforce. Hasan & Pardjono (2019) link HOTS to psychological, physical, and experimental aspects. Teachers are important to HOTS effectiveness, according to Tambunan et al. (2019), who emphasize thinking skills above classroom implementation.

Broad (2019) examined vocational instructors' methods for absorbing workplace collaboration-based skills, technology, and information. The research claims vocational teachers struggle in situations different from occupational knowledge formation. The complex and ever-changing character of occupational knowledge makes it difficult to acquire and recontextualize new methods and innovations from workplaces to educational environments. Research shows that vocational instructors employ professional development to obtain new skills, technology, and information to overcome these problems.

Carlsson et al. (2023) examined vocational instructors' socio-material perspectives on digital instruction. They investigated its prospects and recurring problems. Workplace developments need new vocational competence and digital technology standards. Digitalization influences vocational education, although little is known about it. Semi-structured interviews with ten vocational instructors from eight Swedish programs showed how digital technology helps teachers implement educational techniques and improve students' vocational competence. Digitalization also presents issues in keeping up with workplace developments and equipping students with appropriate practical digital technology.

Wang et al. (2023) examined technical and vocational students' long-term learning effectiveness under a school-wide theme teaching strategy. Technology has changed practically every aspect of people's lives, leaving gaps in the new knowledge and abilities needed by the future workforce and its trainers, according to Diao et al. (2022). To meet the professional development goals of in-service educators, trainers, and TVET leaders, teachers' teaching competency must be defined. A scale can help evaluate a teacher's instruction. Nessipbayeva said that TVET teacher competence is gaining attention. TVET teachers' expertise should improve instructional methodologies, boosting student success and application-oriented abilities.

Tarat et al. (2020) compared Thailand's and Singapore's vocational education systems. The survey interviewed 29 vocational education professionals from both nations. Thus, the Thai vocational education system offered students an educational alternative. However, gaps in university education, personnel shortages, and budgetary challenges hinder the development of instructional techniques and the generation of a trained workforce to fulfill the demands of a technologically advancing labor market.

Hammond (2019) evaluated teacher preparation program evidence and argued that professional standards in licensure and accreditation regulations can improve quality. This inclusion encourages educational institutions to adopt successful practices like performance-based accreditation strategies and standards-based performance assessments, which measure and develop teaching effectiveness. Srivastava (2022) observed that certain Indian schools use innovative teaching methods. Modern teaching is outcome-driven and centered on the university's vision, purpose, and goals.

Pangan (2021) sought to evaluate student satisfaction about the pedagogical approaches utilized by Technical-Vocational and Livelihood Education (TVLE) instructors amid the COVID-19 epidemic. The research aimed to assess the frequency of various instructional methods employed and the level of student satisfaction about the quality, attitude, and approach of their instructors' instruction.

Alinea (2021) asserted that Technical-Vocational educators must synchronize their technical and pedagogical competencies with academic and industrial standards to ensure graduates' job success. The research evaluated the Technical-Vocational Teacher Education (TVTE) program from the viewpoints of graduates and their supervisors in both educational and industrial settings. The study employed a quantitative research methodology to assess the sufficiency of the abilities attained by graduates for pedagogical and technical competence.

Salvador et al. (2022) examines the challenges and adaption strategies of Northern Technical and Vocational Education (TVE) instructors when teaching disparate disciplines. Kilag et al. (2023) emphasized the necessity of addressing challenges including the desire for creative pedagogical

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approaches and financial expenditures in infrastructure and technology. The study highlighted the essential responsibilities of the government, educators, and the corporate sector in advancing Technical and Vocational Education (TVE) and its impact on sustainable development.

Roallos (2021) examined the degree of implementation of pedagogical strategies and the understanding of skilled educators concerning subject knowledge and pedagogical goals as outlined in the Philippine Professional Standards for Teachers (PPST). The research found obstacles in the implementation of constructivist, collaborative, inquiry-based, integrative, and reflective teaching methods. The implementation of these pedagogical techniques, mandated by RA 10533, is expected to conform to educational standards and seamlessly integrate topic knowledge with pedagogy.

Villanueva (2018) underscores the necessity of delivering advanced technical education; nevertheless, while possessing highly qualified professors in disciplines such as culinary technology, construction technology, cosmetology, and garment technology, the institution encountered difficulties stemming from a deficiency of specialized instructors. The shift in the educational system resulted in several instructors possessing degrees in livelihood education and technology, rather than in specialized technical disciplines, therefore affecting their capacity to fulfill the competency criteria established by the Technical Education and Skills Development Authority (TESDA).

Rahmawati et al. (2021) investigated the fast progression of technology and its incorporation into educational settings. They underscored the necessity for educators to proficiently integrate technology with subject matter and pedagogical approaches. The Technological Pedagogical Content Knowledge (TPACK) framework was examined as a method to improve the successful integration of technology in education.

III. Methodology

The researchers employed quantitative correlational research to elicit pertinent information on the preferred learning strategies of the Technical Vocational Teacher Education

courses. Correlational research used to explore co-varying relationships between two or more variables (Pacciano, 2021). Random convenience sampling was applied in selecting respondents from the 1st year, to 4th year students enrolled specifically in the course program of Bachelor of Technical Vocational Teacher Education major in Food and Service Management at the community college name Pambayang Kolehiyo ng Mauban in Quezon Province, Philippines, with the total size of population of fifty (50) students in the academic year 2023-2024. This sample techniques are unbiased since the respondents has the same chance of being chosen and selection of respondents had no influence on the selection of other respondents. The researchers developed, modified and adopt questionnaires based on the literature review and validated with three (3) experts in the field of teaching and full-pledge masters in the technical livelihood education and TESDA (Technical Education and Skills Development Authority) technical vocational trainers and professionals. To make sure the internal consistency of the research instrument, the researchers conducted a pilot testing to 15 respondents that are not included in the study but with same characteristics and reliability test were executed. Based on the result of Cronbach's alpha, it came out; 0.94 which means that the research was excellent based on the rule of thumb of results, value at < 0.90 indicates excellent.

The first part gathered are the demographic information from respondents, second part focused on the preferred pedagogical strategies of the students, examining areas such as experiential learning, use of technology, crossover learning, stealth assessment, and embodied learning, third part assessed the students' perceptions of various learning styles, including universal design for learning (UDL), active learning, gamification, kinesthetic learning, and verbal learning. To ensure the reliability and validity of the questionnaire, the researchers conducted tests using Cronbach's alpha.

The questionnaire was administered to the selected 1st year to 4th year students enrolled in the course program of Technical Vocational Teacher Education courses at community college in Mauban Quezon, Philippines. Privacy, confidentiality, and anonymity were central to the research process. The researchers protected participants' identities and responses, upholding strict

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confidentiality to build trust and safeguard personal information. The collected were classified, tallied, analyzed, and interpreted using statistical tools to answer the problems. By applying appropriate statistical techniques, researchers can enhance the credibility and persuasiveness of their study, ensuring that their findings are robust and well-supported. The data gathered interpreted using the:

Formula: P= (f)/ (N) ×100

Where:

P = Percentage

F = Frequency

N = Number of Respondents

The researchers utilized weighted mean to analyze the preferred pedagogical strategies by the student and perceptions of learning styles of the students. The percentage is used to determine the profile of the respondents,

$$W = \frac{4f + 3f + 2f + 1f}{n}$$

Where:

W= Weighted mean

N = total respondents

f = frequency

The scale used for the preferred pedagogical strategies by the student and perceptions of learning styles are the following:

Descriptive Rating

Scale:	Statistical Limits	Descriptive Equivalent
4	3.26-4.00	Strongly Agree
3	2.51-3.25	Agree
2	1.76-2.50	Disagree
1	1.00-1.75	Strongly Disagree

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Since the p-value is less than 0.05 alpha, Reject the Null Hypothesis. As a result, a positive correlation exists between preferred pedagogical strategies and learning styles of the Technical Vocational Teacher Education courses. Kendall's Tau-b used as a statistical treatment to find a correlation between the preferred teaching strategies and learning styles. It deemed necessary to use this tool because the data appeared to be not generally distributed after several tests.

$$TB = \frac{nc - and}{\sqrt{(n0 - n1)(n0 - n2)}}$$

$n0 = \frac{n(n-1)}{2}$, where n is the data size

nc = number of concordant (x, y) pairs

nd = discordant pairs

$n1 = \sum_{j} \frac{tj(tj-1)}{2}$ (tj = number x values tied at jth value)

$n2 = \sum_{k} \frac{uk(uk-1)}{2}$ (uk = number y values tied at kth value)

The researched use this range in interpreting the degree of association or relationship of preferred pedagogical strategies and learning styles.

Range	Interpretation
±1.00	Perfect Relationship
±0.80 – ±0.99	Very Strong Relationship
±0.60 – ±0.79	Strong Relationship
±0.40 – ±0.59	Moderate Relationship
±0.20 – ±0.39	Weak Relationship
±0.01 – ±0.19	Very Weak Relationship
±0.00	No Relationship

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IV. Results And Discussion

The part focused on the findings, presenting, interpreting, and analyzing data gathered from the respondents. Data samples with tied ranks require Kendall correlation coefficients. Kendall's tau-b coefficient is better at identifying correlation between two non-parametric data samples with ties. The section should include tables to summarize the facts and investigate detect patterns and trends in preferred learning styles, examine variables influencing them, and consider program pedagogical consequences. The interpretation should reveal these students' learning preferences, skills, and weaknesses, and offer ways to improve their learning experience.

Table 1. Preferred pedagogical strategies of Technical Vocational Teachers Education course in terms of Experiential Learning.

Statements	WM	Description	Rank
1. Learning through experience helps me improve myself.	3.78	Strongly Agree	1
2. Through experiential learning, I share my experiences.	3.58	Strongly Agree	3
3. I understand my studies better when I share my experiences.	3.56	Strongly Agree	4
4. Experiential learning lets me use my skills in a situation.	3.56	Strongly Agree	4
5. I find it easier to do activities when based on personal experience.	3.7	Strongly Agree	2
GWA	3.64	Strongly Agree	

Legend: Strongly Agree (SA) 3.26-4.00, Agree (A) 2.51-3.25, Disagree (D) 1.76-2.45, Strongly Disagree (SD) 1.00-1.75

Based on the researchers' analysis, Table 1 shows that the respondents have a general weighted average mean of 3.64 in experiential learning. As a result, students strongly agree with

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experiential learning because it helps students enhance their learning. It allows them to learn by doing, making the lessons more memorable and engaging. Their hands-on approach helps students understand and retain information better. By actively participating, students can apply their knowledge to real-life situations, enhancing their problem-solving skills. Also, experiential learning makes education more effective and enjoyable for students.

Langkay (2024), The study's objective was to evaluate teachers' teaching approaches from before the epidemic until the present. Teachers' pedagogical practices vary greatly depending on the academic profile, including the number of instructional pedagogies training they have attended, the kind of school from which they received their bachelor's degree, the subjects they teach, and the sort of education they have received.

Therefore, experiential learning, as a hands-on approach, can bridge these variations by providing practical experiences that cater to different teaching styles and student needs. By integrating experiential learning, student-teachers can enhance their effectiveness across various educational contexts and better support student learning.

Table 2. Preferred pedagogical strategies of Technical Vocational Teachers Education course in terms of use of technology

Statements	WM	Description	Rank
1. Using technology for studying is effective.	3.68	Strongly Agree	1
2. Technology helps me save time in studying.	3.48	Strongly Agree	4
3. Technology in studying includes interactive platforms.	3.44	Strongly Agree	5
4. Technology allows me to connect and participate in distant activities.	3.52	Strongly Agree	3

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5. Technology in studying provides knowledge and skills in digital tools.	3.60	Strongly Agree	2
GWA	3.54	Strongly Agree	

Legend: Strongly Agree (SA) 3.26-4.00, Agree (A) 2.51-3.25, Disagree (D) 1.76-2.45, Strongly Disagree (SD) 1.00-1.75

Table 2 shows the respondents have a general weighted average mean of 3.54 in the use of technology. As a result, students strongly agree with using technology because it benefits their learning. Technology enhances pedagogical strategies by making lessons more interactive and accessible. It also allows for personalized learning experiences and provides a wealth of resources to support and enrich students' understanding of the materials. Furthermore, technology enables real-time feedback and assessment, helping students to improve continuously. It also facilitates student collaboration, allowing them to collaborate on projects and share ideas more easily.

Specifically, Diao et.al. (2022), Technology has affected almost every aspect of existence. As the world becomes increasingly digital, the future workforce and its trainers must cover more knowledge and skill gaps. To help in-service educators, trainers, and TVET leaders improve their professional development, teachers' teaching competency must be defined. Technology is changing education; thus, students must use digital tools. Using technology in teaching makes learning more dynamic and interesting. This method prepares children for a tech-driven future by teaching them digital skills.

Based on the researchers' analysis on Table 3 below, the respondents have a general weighted average mean of 3.40 in crossover learning. As a result, students strongly agree with crossover learning because it benefits their education. Crossover learning combines different subjects and real-world experiences, making learning more relevant and engaging. It helps students see connections between various topics, enhancing their understanding and retention.

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Table 3. Preferred pedagogical strategies of Technical Vocational Teachers Education course in terms of Crossover learning.

Statements	WM	Description	Rank
1. Crossover learning enhances my study experiences.	3.22	Agree	4
2. Crossover learning involves applying knowledge from different subjects.	3.40	Strongly Agree	3
3. Crossover learning promotes a broader understanding of topics.	3.48	Strongly Agree	1
4. Crossover learning lets me enjoy discovering connections between subjects dynamically.	3.48	Strongly Agree	1
5. Crossover learning strengthens critical thinking and creativity.	3.42	Strongly Agree	2
GWA	3.40	Strongly Agree	

Legend: Strongly Agree (SA) 3.26-4.00, Agree (A) 2.51-3.25, Disagree (D) 1.76-2.45, Strongly Disagree (SD) 1.00-1.75

Their method also encourages critical thinking and problem-solving skills, preparing students for real-life challenges. Also, crossover learning makes education more dynamic and effective for students.

Specifically, Alinea (2021), Technical-vocational educators must honor the expectations of both the academic community and the corporate sector. Crossover learning integrates academic knowledge with practical commercial applications, fulfilling both educational and corporate standards. By integrating many disciplines with experiential learning, students acquire essential practical skills for the job. Educators may partner with industry experts to provide educational

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experiences that align with contemporary business trends and technology. This method enables students to cultivate a range of abilities and utilize their knowledge in practical scenarios, equipping them to address the difficulties and demands of academic and professional settings.

Table 4. Preferred pedagogical strategies of Technical Vocational Teachers Education course in terms of Stealth assessment

Statements	WM	Description	Rank
1. Stealth assessment lets teachers continually check my progress as a student.	3.38	Strongly Agree	5
2. Stealth assessment gives personalized feedback to help me address knowledge gaps.	3.50	Strongly Agree	2
3. Stealth assessment improves my overall knowledge.	3.43	Strongly Agree	3
4. Stealth assessment helps create a positive learning environment for me.	3.52	Strongly Agree	1
5. Stealth assessment helps hone my abilities and critical thinking.	3.42	Strongly Agree	4
GWA	3.45	Strongly Agree	

Legend: Strongly Agree (SA) 3.26-4.00, Agree (A) 2.51-3.25, Disagree (D) 1.76-2.45, Strongly Disagree (SD) 1.00-1.75

The Table 4 above shows the respondents have a general weighted average mean of 3.45 in the stealth Assessment. As a result, students strongly agree with the assessment because it reduces test anxiety by seamlessly integrating assessment into everyday learning activities. It

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provides continuous feedback on student progress, enabling educators to adapt teaching methods in real time. Assessing students in authentic contexts ensures that learning outcomes are relevant to real-world applications. Also, stealth assessment encourages students to reflect on their learning process, promoting deeper engagement and knowledge retention.

Specifically, Salvador et al. (2022), teaching subjects outside specialization is one of teachers' primary concerns in the Philippines, particularly in Ilocos Norte. Therefore, stealth assessment can address this issue, allowing teachers to assess students' understanding across various subjects, regardless of their expertise. It provides a flexible assessment approach that integrates seamlessly into diverse learning activities, ensuring students' grasp of essential concepts is evaluated consistently. Their method also offers continuous feedback, enabling teachers to identify and support students' learning needs in subjects outside their specialization. Lastly, stealth assessment supports teachers in maintaining educational standards and fostering comprehensive student learning across different subject areas.

Table 5. Preferred pedagogical strategies of Technical Vocational Teachers Education course in terms of Embodied learning

Statements	WM	Description	Rank
1. Embodied learning makes studying interactive.	3.46	Strongly Agree	4
2. Embodied learning helps me remember information more effectively.	3.48	Strongly Agree	3
3. Embodied learning promotes active study.	3.58	Strongly Agree	1
4. Embodied Learning can improve movement, coordination, and spatial awareness skills.	3.42	Strongly Agree	5

5. Embodied learning encourages creativity through physical expression.	3.50	Strongly Agree	2
GWA	3.49	Strongly Agree	

Legend: Strongly Agree (SA) 3.26-4.00, Agree (A) 2.51-3.25, Disagree (D) 1.76-2.45, Strongly Disagree (SD) 1.00-1.75

The Table 5 shows the respondents have a general weighted average mean of 3.49 in embodied learning. As a result, students strongly agree with embodied learning because it enhances education by involving physical actions and sensory experiences in learning processes, making lessons more interactive and engaging. Their approach helps students better understand abstract concepts through hands-on activities, improving the retention and application of knowledge.

Additionally, embodied learning promotes active student participation and collaboration, fostering a deeper connection to the studied material. Also, it supports holistic learning by integrating cognitive, emotional, and physical aspects, thereby enriching students' educational experiences.

Moreover Williams, (2020), the vocational education system in several nations, particularly the Australian system with which the author is acquainted, plays a significant role in delineating the information and abilities students must acquire to be employed in various industries. Consequently, embodied learning prioritizes practical, experiential engagement that corresponds with industrial requirements. Through participation in embodied learning activities, students may replicate real-world experiences and cultivate the particular abilities required by their prospective careers. Their methodology guarantees that educational experiences are academic, practical, and pertinent to professional readiness. Furthermore, embodied learning enhances comprehension of industry-specific techniques by immersing students in interactive environments that replicate professional contexts. Ultimately, it equips students to proficiently address the demands and problems of their selected industry.

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Table 6. The perceptions in learning styles that must be used by students in the Technical Vocational Teachers Education in terms of UDL.

Statements	WM	Description	Rank
1. Universal Design Learning aims to make study materials and methods accessible to me.	3.34	Strongly Agree	4
2. Universal Design Learning accommodates different learning styles, ensuring content can be accessed in ways that match my preferences.	3.40	Strongly Agree	1
3. Universal Design Learning can offer easy methods for my studying.	3.32	Strongly Agree	5
4. Universal Design Learning recognizes that my learning can have various ways of being presented for my understanding.	3.38	Strongly Agree	2
5. Universal Design Learning helps address potential learning barriers, ensuring all students have equal opportunities to access, participate, and demonstrate their understanding of the curriculum.	3.36	Strongly Agree	3
GWA	3.36	Strongly Agree	

Legend: Strongly Agree (SA) 3.26-4.00, Agree (A) 2.51-3.25, Disagree (D) 1.76-2.45, Strongly Disagree (SD) 1.00-1.75

Based on table 6, the respondents have a general weighted average mean of 3.36 in universal design for learning. As a result, students strongly agree with universal design for learning because it provides multiple means of representation, engagement, and expression,

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accommodating diverse learning styles and needs. Their approach ensures that all students have equitable access to learning materials and opportunities, promoting inclusivity in education. By allowing flexibility in how students access and demonstrate knowledge, UDL supports personalized learning experiences, enhancing motivation and participation. Also, UDL helps create a supportive and accessible learning environment where every student can succeed and thrive.

However, Adeniran (2020) highlighted the correlation between the effectiveness of educational resources and the skill in utilizing teaching-learning tools. Consequently, Universal Design for Learning promotes the establishment of adaptable learning environments that cater to various learning styles. Universal Design for Learning guarantees that educational resources are accessible and functional for all students, irrespective of their skills or learning styles. Through the integration of UDL, instructors may develop instructional techniques and resources that accommodate diverse learning styles, therefore assuring successful engagement with the topic for all students. This method facilitates tailored learning experiences and significantly improves educational results by catering to individual requirements and preferences.

Table 7. The perceptions in learning styles that must be used by students in the Technical Vocational Teachers Education in terms of Active learning.

Statements	WM	Description	Rank
1. Active Learning helps me express my opinions.	3.64	Strongly Agree	2
2. Active learning makes remembering what we have learned easier because I engage in discussions.	3.62	Strongly Agree	3
3. Active Learning promotes skill development and critical thinking.	3.66	Strongly Agree	1
4. Through active learning, I get to apply theoretical knowledge to real-world	3.56	Strongly Agree	4

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situations, making learning more believable and applicable outside the classroom			
5. I bring my experiences to life through active learning by interacting with my classmates.	3.64	Strongly Agree	2
GWA	3.62	Strongly Agree	

Legend: Strongly Agree (SA) 3.26-4.00, Agree (A) 2.51-3.25, Disagree (D) 1.76-2.45, Strongly Disagree (SD) 1.00-1.75

The analysis shows in Table 7 that the respondents have a general weighted average mean of 3.62 in active learning. As a result, students strongly agree with active learning because active learning engages students directly in the learning process through activities like discussions, problem-solving, and hands-on tasks. Their approach fosters a more profound understanding and retention of knowledge by encouraging students to apply concepts in practical situations. Active Learning also promotes critical thinking and collaboration skills, preparing students for real-world challenges. Students develop a sense of ownership and responsibility for their learning outcomes by being actively involved in their education. Also, active learning enhances educational outcomes by making learning more dynamic, engaging, and impactful for students.

Furthermore, Syahrial et.al. (2019), Teacher pedagogy must be robust, comprehensive, and current. They must also comprehend students' learning experiences and topic-specific teaching and learning challenges. Therefore, active learning stresses instructors' responsibility in creating dynamic and engaging learning experiences. Active learning promotes teachers to engage students in learning, improving comprehension and retention. Understanding students' learning styles and problems helps teachers adjust active learning activities to individual requirements and improve learning results. Their method encourages classroom conversation and cooperation, creating a more engaging and student-centered learning environment. Finally, active learning helps teachers satisfy students' different learning requirements and enhance teaching approaches. Table 8. The perceptions in learning styles that must be used by students in the Technical Vocational Teachers Education in terms of Gamification.

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Statements	WM	Description	Rank
1. Gamification makes studying more captivating and enjoyable, sparking interest in my studies and motivating me to participate in educational activities.	3.32	Strongly Agree	3
2. Gamification encourages me to dedicate time and effort to learning voluntarily.	3.34	Strongly Agree	2
3. Gamification allows me to track my abilities in studying.	3.32	Strongly Agree	3
4. Gamification enables me to adapt to different learning styles by providing various challenges.	3.38	Strongly Agree	1
5. Gamification strengthens my social interaction and communication skills.	3.34	Strongly Agree	2
GWA	3.34	Strongly Agree	

Legend: Strongly Agree (SA) 3.26-4.00, Agree (A) 2.51-3.25, Disagree (D) 1.76-2.45, Strongly Disagree (SD) 1.00-1.75

Table 8 shows the general weighted average mean of 3.34 in Gamification. As a result, students strongly agree with Gamification because it enhances learning by integrating game elements such as competition, rewards, and interactive challenges into educational activities. Their approach motivates students by making learning more enjoyable and engaging, increasing their participation and interest in lessons. Gamification encourages problem-solving skills as students navigate tasks and levels designed to mimic real-world challenges. Gamification promotes continuous improvement and goal-setting among students by providing immediate feedback and progress tracking. Also, Gamification transforms learning into a dynamic and immersive experience that enhances educational outcomes.

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Blanca (2019), stressed the importance of instructional tactics in improving student performance. Thus, Gamification acknowledges its influence on student motivation and engagement. Gamification uses competition, prizes, and challenges to make learning fun and improve student performance. Gamification appeals to competitive or goal-oriented kids, so educators may use it to accommodate varied learning styles. Their method promotes student participation and problem-solving, making learning more engaging and practical. Finally, gamification helps teachers create interesting learning environments that boost student results.

As a result, on Table 9 below the general weighted average mean of 3.46, students strongly agree with kinesthetic learning because it involves physical activities and hands-on experiences that help students better understand and retain information. Their approach allows students to engage their senses and body movements, which enhances their learning experience by making abstract concepts more tangible and memorable.

Table 9. The perceptions in learning styles that must be used by students in the Technical Vocational Teachers Education in terms of Kinesthetic learning.

Statements	WM	Description	Rank
1. Kinesthetic learning involves active participation and physical movement, allowing students to engage and internalize information through hands-on experiences.	3.52	Strongly Agree	1
2. In kinesthetic learning, students learn better by actively doing tasks and experiencing	3.50	Strongly Agree	2

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learning personally rather than passively receiving information.			
3. Kinesthetic learners excel when they can use theoretical knowledge in practical situations, emphasizing the importance of real-world applications related to hands-on activities.	3.48	Strongly Agree	3
4. Kinesthetic learning can boost motivation and interest in my studies.	3.44	Strongly Agree	4
5. Kinesthetic Learning positively influences student behavior and creates a more dynamic classroom atmosphere.	3.34	Strongly Agree	5
GWA	3.46	Strongly Agree	

Legend: Strongly Agree (SA) 3.26-4.00, Agree (A) 2.51-3.25, Disagree (D) 1.76-2.45, Strongly Disagree (SD) 1.00-1.75

Kinesthetic learning also caters to diverse learning styles, ensuring that students who learn best through movement can excel. Students develop practical skills and a deeper connection to the material being studied by actively participating in their education. Also, kinesthetic learning fosters a dynamic and interactive classroom environment that supports comprehensive learning outcomes.

Golimlim, J. (2023), technology and Livelihood Education or Vocational Education are the most engaging, interactive, Value-laden, multidisciplinary subjects among the learning domains that include moral, political-economic, arthritic, and occupational attributes. Therefore, kinesthetic learning emphasizes hands-on experiences and physical activities integral to vocational skills development. Kinesthetic learning in TLE allows students to apply theoretical knowledge directly through practical tasks, such as technical skills training and workshop activities. By engaging in physical actions related to vocational tasks, students enhance their Technology and

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livelihood education or vocational education are the most interesting, dynamic, value-laden, interdisciplinary disciplines with moral, political-economic, arthritic, and occupational aspects. Therefore, kinesthetic learning emphasizes hands-on experiences and physical exercises for occupational skills development. Kinesthetic learning in TLE lets students apply theory to practical tasks like technical skills training and workshops. Physical acts connected to occupational tasks help students learn and master real-world applications. By combining cognitive and motor capabilities, this strategy ensures students obtain occupational skills and information.

Table 10. The perceptions in learning styles that must be used by students in the Technical Vocational Teachers Education program in terms of Verbal Learning.

Statements	WM	Description	Rank
1. Verbal learning supports my development of effective listening skills while actively engaging in verbal instructions, discussions, and presentations.	3.44	Strongly Agree	4
2. Verbal Learning encourages me to actively participate in academic activities like class discussions, presentations, and group projects.	3.44	Strongly Agree	4
3. Verbal Learning helps me share my ideas with my classmates.	3.46	Strongly Agree	3
4. Verbal learning helps me prepare for future workplace interactions, interviews, and presentations.	3.50	Strongly Agree	2
5. Verbal learning helps me quickly adjust to different learning environments.	3.58	Strongly Agree	1

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	GWA	3.48	Strongly Agree

Legend: Strongly Agree (SA) 3.26-4.00, Agree (A) 2.51-3.25, Disagree (D) 1.76-2.45, Strongly Disagree (SD) 1.00-1.75

Table 10 as a result with 3.48 of general weighted average mean, students strongly agree with verbal learning because it involves using spoken and written language to acquire and understand information. Students find verbal learning valuable because it helps them improve their communication skills in expressing their ideas and understanding others'. Their approach also supports critical thinking as students analyze and interpret verbal information, such as lectures, discussions, and written texts. Verbal learning fosters a collaborative learning environment where students can engage in dialogue, debate, and group activities to deepen their understanding of topics. Also, it enhances students' ability to process and articulate knowledge effectively.

Specifically, Rahmawati et al. (2021), Technology is rapidly advancing, and learning is using it more. Therefore, verbal learning uses spoken and written language to learn and communicate. Digital platforms include video lectures, internet conversations, and interactive multimedia materials improve verbal learning. These technologies allow students to access and display material through digital texts and virtual classrooms, satisfying their spoken learning preferences. Technology enhances student-teacher conversations with real-time feedback and collaborative learning. Finally, using technology with verbal learning creates dynamic and successful classrooms that improve students' communication and learning.

Table 11 below shows the that experiential learning ranked first as the most effective way to use, where they learn by doing things directly, such as participating in practical projects or real-world tasks. Followed by the use of technology, like computers and online resources, which they find helpful for interactive learning and exploring new concepts.

Table 11. Preferred pedagogical strategies by students of Technical Vocational Teachers Education program

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Pedagogical Strategies	Min.	Max.	Median	Mean	SD	Rank
Experiential Learning	2.2	4.0	3.80	3.64	0.434	1
Use of Technology	2.8	4.0	3.60	3.54	0.398	2
Crossover Learning	2.6	4.0	3.40	3.40	0.468	5
Stealth Assessment	2.4	4.0	3.50	3.45	0.468	4
Embodied Learning	2.0	4.0	3.60	3.49	0.473	3

Embodied learning ranked as third, which involves physical activities or sensory experiences related to food management, as it helps them connect theoretical knowledge with hands-on skills. Stealth assessment ranked as forth, which it gauges their understanding during learning activities without traditional tests, are appreciated for providing feedback without added pressure. However, crossover learning, which connects different subjects or disciplines, is the least favored among these students, indicating a preference for focused learning within their specific field of study.

Table 12. Perception of learning styles by students of Technical Vocational Teachers Education program

Pedagogical Strategies	Min.	Max.	Median	Mean	SD	Rank
Universal Design for Learning	2.0	4.0	3.40	3.36	0.443	4
Active Learning	2.2	4.0	3.80	3.62	0.449	1
Gamification	2.4	4.0	3.20	3.34	0.492	5
Kinesthetic Learning	2.4	4.0	3.60	3.46	0.466	3
Verbal Learning	2.4	4.0	3.60	3.48	0.471	2

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Table 12 shows that the active learning emerges as the highest rank, ranked first as effective use pedagogical strategies among students. This preference indicates a strong inclination towards hands-on learning, where they actively engage in discussions, projects, and practical exercises to enhance their understanding and skills. Following closely is verbal learning, ranked second, suggesting that traditional methods such as lectures and discussions hold significant value for their learning process. Kinesthetic learning ranks third, highlighting the importance of physical engagement and experiential learning in their educational journey. Universal design for learning ranks fourth, indicating recognition of the need for inclusive and adaptable learning environments, albeit not as prominently emphasized as more active or traditional methods. Gamification ranks fifth, implying that while elements of game-based learning are acknowledged, they are perceived as less effective compared to other styles within their academic context.

Table 13. Correlation between the preferred pedagogical strategies and learning styles of the students

Pedagogical Strategies	Learning Styles				
	Universal Design for Learning	Active Learning	Gamification	Kinesthetic Learning	Verbal Learning
Experiential Learning	.312**	.570**	.356**	.469**	.447**
Use of Technology	.408**	.274*	.268*	.370**	.349**
Crossover Learning	.525**	.493**	.503**	.461**	.342**
Stealth Assessment	.594**	.477**	.482**	.513**	.451**
Embodied Learning	.419**	.431**	.445**	.474**	.426**

**. Correlation is significant at the 0.01 level (2-tailed). *. Correlation is significant at the 0.05 level (2-tailed).1.000- Perfect; 0.801-.999 –Very Strong; 0.601 – 0.800 – Strong; 0.401 – 0.600 –Moderate; 0.201 – 0.400 – Weak; 0.00 to 0.200-Very Weak

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The table 13 presents the correlation coefficients from the preferred pedagogical strategies and learning styles using Kendall's Tau-b. It revealed that there was a significant positive correlation between experiential learning and universal design for learning, $\tau_b = 0.312$, $p<.001$. The correlation coefficients obtained from the analysis of preferred pedagogical strategies and learning styles using Kendall's Tau-b have provided valuable insights into the relationship between these variables among students in the Technical Vocational Teachers Education courses.

The table presented p-value is 0.001, which is less than the alpha of 0.05 and therefore rejects the null hypothesis, which means a significant relationship exists between the preferred pedagogical strategies and learning styles of Technical Vocational Teachers Education courses.

Table 13 shows Kendall's Tau_B correlations between educational tactics and learning types. All paired correlations were significant at 0.05 to 0.01 levels, rejecting the null hypothesis.

The data provides sufficient evidence to reject the null hypothesis based on the findings provided. Rejecting the null hypothesis suggests meaningful relationships exist in the studied variables based on the evidence gathered. Therefore, the preferred pedagogical strategies are significantly related to learning styles in the Technical Vocational Teachers Education courses.

The findings implied that in terms of preferred pedagogical strategies the effective way to use is the experiential learning. While, in the perception in learning styles the effective way to use is the active learning. The findings indicate a preference among students in the Food Management Program for experiential learning as a pedagogical strategy. Experiential learning, which involves hands-on activities and real-world applications, is seen as effective in helping students develop practical skills and deepen their understanding of theoretical concepts through direct experience. In terms of perception in learning styles, active learning emerges as the most effective approach according to the students. Active learning methods, such as participating in discussions, engaging in group activities, and applying knowledge in practical settings, are valued for their ability to promote active engagement and enhance learning outcomes by encouraging students to actively construct their understanding and skills.

IMPROVING STUDENT ENGAGEMENT THROUGH INNOVATIVE LEARNING STRATEGIES
ACTION PLAN
By: DR. JO-ANN A. ABAD, LPT

Objective	Goal	Action Steps	Responsible Person (s)	Timeline	Resources Needed	Expected Outcome
To enhance student engagement and academic performance by implementing innovative learning strategies in the classroom setting.	I. Introduce Active Learning Techniques	• Identify key active learning strategies to implement (e.g., think-pair-share, problem-based learning). • Develop a schedule for incorporating these strategies into the curriculum. • Provide training sessions for teachers on how to effectively use active learning techniques. • Gather student feedback on the effectiveness of these strategies.	Curriculum Coordinator, Teachers, Training Facilitator	3 months (January 1-March 31) or Year round	Training materials, Time for professional development, Feedback forms	Increased student engagement and participation through the use of active learning techniques.
To enhance student engagement and academic performance by implementing innovative learning strategies in the classroom setting.	II. Integrate Technology into Teaching	• Conduct a technology needs assessment to determine the required tools and resources. • Purchase and set up necessary technology (e.g., tablets, interactive whiteboards). • Develop lesson plans that incorporate the use of technology. • Monitor and evaluate the effectiveness of technology integration in enhancing learning.	IT Department, Teachers, Technology Coordinator	3 months (February 1-May 31) or Year round	Budget for technology, Technical support, Lesson plan templates, Syllabus	Enhanced learning experiences and improved student performance through the effective use of technology.
To enhance student engagement and academic performance by implementing innovative learning strategies in the classroom setting.	III. Promote Collaborative Learning	• Organize group activities and projects that encourage collaboration among students. • Set up a classroom layout that facilitates group work and discussion. • Train teachers on facilitating and managing collaborative learning activities. • Collect feedback from students on their experiences with collaborative learning.	Teachers, Classroom Setup/ Group Team, Feedback Coordinator	3 months (March 1 - June 30) or Year round	Group activity materials, Classroom furniture, Feedback forms	Better tracking of student progress and enhanced learning outcomes through continuous assessment and feedback.
To enhance student engagement and academic performance by implementing innovative learning strategies in the classroom setting.	IV. Implement Continuous Assessment and Feedback	• Develop formative assessment tools (e.g., quizzes, peer reviews). • Integrate continuous assessment into the curriculum. • Provide training for teachers on using assessment tools and providing constructive feedback. • Evaluate the impact of continuous assessment on student performance.	Assessment Coordinator, Teachers, Professional Development Team	3 months (April 1 - July 31) or Year round	Assessment tools, training materials, data analysis software	Better tracking of student progress and enhanced learning outcomes through continuous assessment and feedback.

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Conclusion

After examining the findings data, researchers concluded the following: 1. Many students appreciate current educational methods, especially experiential learning, which is hands-on and engaging. Interactive and accessible technology tools that fit varied learning styles improve learning. Crossover learning helps students connect and understand by merging topics with real-world circumstances. Stealth assessment provides continual, non-stressful feedback and helps students and instructors track and improve performance. Embodied learning also makes abstract concepts concrete via physical exercises, improving engagement and retention. 2. Students greatly favor Universal Design for Learning because it meets varied needs through multiple representation, interaction, and expression, enabling equal access to resources and boosting performance. Active learning encourages critical thinking and engagement to improve comprehension and retention. Gamification improves participation and performance by motivating and engaging. Kinesthetic learning emphasizes movement and practical tasks to improve learning. Through discourse and discussions, verbal learning supports critical thinking and teamwork. Students generally feel that instructional methods and learning styles work well. 3. Thus, educational practices positively somewhat affect students' learning styles, refuting the null hypothesis. These data suggest that educational tactics and learning styles can improve student growth and academic performance. While this study found that experiential learning and active learning are good for academic performance.

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