

## Exploring Teaching Strategies for Work-based Learning in TVET Practices: A Qualitative Study

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### Abstract

Work-based learning (WBL) has been acknowledged as one of powerful learning strategy that empowers students learning experiences through real working exposure. However, there still exists issues in the lack of teaching delivery to cope up with students learning expectation in the industry and thus affect in achieving student learning objectives. This issue has lead to the needs of compelling opportunity for enhancement, particularly concerning WBL teaching strategies. Tailoring specific methodologies in Work Based Learning(WBL) instruction has the potential to significantly enrich students' learning journeys. Consequently, this study endeavors to delve into the realm of WBL practices within the TVET landscape, focusing on the exploration of pivotal teaching elements through the lens of experiential learning approaches. A qualitative analysis involving thematic analysis has been used to process data gathered from semi-structured interview with seven (7) academic experts. As to provide insights for mentioned issue, this study revealed a comprehensive active learning activities to be applied with experiential learning instructional delivery in Work Based Learning (WBL) teaching setup. The implementation of case study, problem-based, and inquiry-based learning activities promotes direct engagement to real working experiences. Whereby, discussion and logbook reporting activities are recommended to facilitate reflective observation by instructors. Inquiry-based or industrial documentation analysis activities can aid in conceptualizing students' understanding of their learning experiences. For meaningful practical application, conducting project executions or competency tests is advised to encourage students to apply their learned experiences in various industrial contexts. It is advisable that future research could study the application of this teaching strategy in WBL practices which lead to

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more informed guidelines to design practical hands-on activities that most appropriate for learners' background and expectations.

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## 1. Introduction

Technical and Vocational Education and Training (TVET) plays a crucial role in equipping students with the knowledge, skills, and competencies needed to succeed in today's dynamic and rapidly evolving workforce. Central to the effectiveness of TVET programs is the integration of experiential learning approaches, which provide students with hands-on, practical experiences in real-world work settings. One such approach is Work-Based Learning (WBL), which immerses students in authentic workplace environments, allowing them to apply theoretical knowledge, develop professional skills, and gain valuable industry experience. However, there were needs in improving teaching strategy in Work Based Learning (WBL) (Ugwoke et.al, 2016); (Kamin et. al., 2019) and should differ differently from traditional teaching approaches (Abdul Kadir & Ling, 2021). Based on study observation among TVET students, it has been claimed that they are having a difficulty in meeting with teaching and learning expectation during their WBL session. There are a lot of factors that affect to this problem, one of it is the factor from the instructor. The instructor seems to have difficulties in choosing the suitable teaching strategies for students in Work-Based Learning (WBL) and due to the lack of teaching preparation (Adan, Douni & Hashim, 2021); (Mustafa Din & Idris, 2022). These issues lead to the needs on improving teaching approaches in order to improve Work-based learning (WBL) practices in TVET education environment.

Despite the growing recognition of the importance of experiential learning in TVET, there remains a need for empirical research to validate and refine teaching elements associated with WBL practices. It was acknowledged that Work-based learning (WBL) teaching approaches used must be an activity-based learning method aimed at practical implementation of work (Shukurov, 2020) and demonstrated with active teaching activities to enhance students' learning experience (Konstantinou & Miller, 2021). Experiential learning approaches can incorporate a vast spectrum of activities that provide hands-on experience and learning, both inside or outside a classroom setting. Empowering TVET students through experiential learning approaches requires careful consideration of the instructional strategies, pedagogical techniques, and learning outcomes that contribute to meaningful and effective work-based experiences. Thus, this article focuses on exploring experiential teaching strategy that are immersive and applicable to be applied in Work-based learning (WBL) implementation for TVET education.

In this article, we present the results of a study aimed at exploring teaching elements for experiential learning approaches in Work-based learning (WBL) practices within the context of TVET. Drawing on a comprehensive review of the literature, theoretical frameworks, and empirical evidence, we identify key teaching elements associated with effective Work-based learning (WBL) implementation and explore their impact on student learning outcomes. Through a rigorous validation process involving expert input and empirical data analysis, we provide insights into the essential components of Work-based learning (WBL) instructional delivery. Our findings contribute to the existing body of knowledge on empowering TVET students through experiential learning approaches and offer practical implications for educators, policymakers, and stakeholders invested in the advancement of TVET programs.

## 2. Literature Review

### 2.1 Work-based Learning in TVET

Technical and Vocational Education and Training (TVET) programs are increasingly recognized as essential pathways for preparing individuals for employment and career advancement in various industries and sectors. Central to the effectiveness of TVET programs is the integration of experiential learning approaches, which emphasize hands-on, practical experiences in real-world work settings (Barab, Squire, & Dueber, 2000; Kolb, 1984). One prominent approach to experiential learning in TVET is Work-Based Learning (WBL), which provides students with opportunities to apply theoretical knowledge, develop professional skills, and gain industry experience through immersion in authentic workplace environments (Billett, 2001; Boud & Solomon, 2001).

The literature on WBL in TVET highlights its potential to enhance student learning outcomes, increase employability, and foster smoother transitions to the workforce (Billett, 2014; Clarke & Winch, 2007; Evans et al., 2018). Studies have shown that students engaged in WBL experiences develop a range of competencies, including technical skills, problem-solving abilities, communication skills, and teamwork (Creswell et al., 2020; Fuller et al., 2019; Zibrowius & Wuttke, 2018). Furthermore, Work-based learning (WBL) has been found to contribute to students' motivation, engagement, and sense of autonomy and responsibility for their learning (Billett, 2009; Giesen et al., 2018; Guile & Lucas, 2016).

Despite the potential benefits of WBL in TVET, there are challenges and limitations associated with its implementation. These include issues related to curriculum design, assessment methods, employer engagement,

student support, and the integration of theory and practice (James et al., 2017; Nilsson et al., 2019; Wesselink et al., 2020). Additionally, there is a need for empirical research to validate and refine teaching elements associated with WBL practices, including instructional strategies, pedagogical techniques, and learning outcomes (Curtis et al., 2019; James & Billett, 2012; Korpershoek et al., 2016).

## 2.2 A Real Insight of Experiential Learning Approaches in WBL Context

Experiential learning (EL) can be referred to as learning by doing, learning through experience, or learning through taking part in an action. EL also is built on an interdisciplinary and constructivist learning foundation. It can be defined as an educational orientation which the aim of integrating academic and practical components of learning for a wholesome person approach, giving emphasis to the significance of experience for learning. According to Kolb (1984), learning cycle in EL can be explained into four stages starting from the students learning by doing and trying out what have been learnt as shown in Fig. 1 below.



**Fig. 1** Model of experiential learning by Kolb (1984)

Bringing a comprehensive experiential learning strategy into Work-based learning (WBL) practices could be beneficial as past studies has approved that experiential learning provides positive impact on students work-based learning (WBL) experiences. Experience-based activities empower the groups' learning tactic, as participants exchange information, manage different perspectives, and are ready to question and facing real problems. During EL, learners grasp the academic concepts while they put them into practice, resulting in the expansion of their perspectives and growth in personal development (Takahashi & Saito, 2013).

Learners also taught using innovative teaching techniques often attain higher performance and show a positive impact in class, at the same time, they enjoy the learning experience (Chapman, Schetzslle, and Wahlers, 2016). Many research studies have been carried out to address how active-based practices influence learners' performance level. Thus, it has become evident that adopting experiential learning strategies helps the learner's comprehension of theoretical concepts making them attain greater performance.

In summary, the literature on WBL in TVET underscores its importance as a means of preparing students for the demands of the workforce and enhancing their employability and career prospects. However, further research is needed to address challenges and gaps in WBL implementation and to validate and refine teaching elements for effective practice especially for experiential education in Malaysian TVET sector.

## 2.3 The Elements of Teaching Strategy

Teaching learning through experience is a constructivist learning teaching where students will actively participate in learning. Teaching strategies in learning through this experience can involve one or several methods that entails an active teaching approach that focused on student-centered learning activities. According to Regina (1991), learning through experience may involve various effective teaching strategy such as conducting experiments, role playing, model building or related field observations to promote students with real working exposure. A later study by Harb & Terry (1995), provides different perspective in teaching activities recommendations. Their study promotes various teaching strategy according to four (4) cycle of learning stages through experiences which is First, Second, Third and Fourth Quadrant Learning Activities. Among teaching strategy that has been mentioned are simulations, discussion, seminar, exams, problem-solving activities and as well as design projects. These activities help teachers or instructors to apply different teaching strategy into four (4) critical learning stages applies in experiential learning approaches. Additional, current study by Maunisah (2017), shows a similar finding. Her study has suggested that experiential learning approaches can be benefits from the perspective active

learning strategy. The application of problem-based activity, inquiry-based activity and case-based activity could increase students learning experiences through experiential learning approaches. These past studies have listed several potential teachings strategies to be considered in developing the appropriate teaching strategy to be applied in the context of this study.

### 3. Objective

This study aims to explore suitable teaching strategies for Work-based learning (WBL) implementation in TVET practices through experiential learning approaches. The outcomes in this paper will address the completion for the first objective of this research. Focus of this study aims in applying experiential learning approaches as referral teaching approaches in promoting effective teaching strategy for MTUN students who enrolled Work-based learning (WBL) TVET program.

### 4. Methodology

This study applies exploratory sequential mixed method as the research design. It was believed that the essential qualitative data becomes a means for developing and locating quantitative instrument later at stages of the study (Creswell, 2008). Thus, this paper will focus in explaining qualitative stages part as a purpose in sharing first part of data collection involved in this study. The main aim of using this qualitative approach is to get in-depth exploration of the suitable teaching strategy to be applied in Work-based learning for TVET practices. This approach provide opportunity to researchers in building a holistic picture and create understanding on the views of participants (Creswell, 2008; Mohamed & Ramlee, 2017 & Othman 2018). In addition to, a semi-structured type of interview has been used as a part of data collection method in this study as it enables researchers to explore in-detail the needs of suitable teaching strategies related to experiential learning approaches at the workplace. The data is then being transcribed and further analyzed using thematic analysis for defining the suitable elements for teaching strategy in work-based learning practices.

#### 4.1 Interview

Interview has been conducted to fulfill the main objective in this study which aims to explore in-detail the needs of suitable teaching strategies related to experiential learning experiences at the workplace among TVET students. A qualitative interview method is selected to ask-open ended questions so that the participants can convey their best experiences unconstrained by any perspectives of the researchers or any past-research findings in a two-way communication (Creswell, 2008; Ghazali & Sufean, 2018). Hasan (2012) concluded that the interview process is the main method in obtaining qualitative data and the results of interviews with experts can describe a phenomenon that occurs in the study. Moreover, it is proved that interview demonstrates most efficient way to collect in-depth data that involves social interaction with the respondents to gather their perspective towards study aims (Patton, 2002).

As in this study, researchers have chosen one-on-one, semi-structured interview to collect in-depth data from selected participants. Semi-structured interview has been widely used to get in-depth opinions from the respondents where additional interview questions also may be added to gather more information (Gay & Airasian, 2003; Ghazali & Sufean, 2018). As this study aims to explore in detail on the suitable teaching strategy, thus selecting this type of interview is most applicable. Questions for this open-ended interview session has been prepared in interview protocol developed by the researchers and has been extensively designed to meet the study objective.

Likewise, interview protocol was designed by the researchers based on extensive reading from literature to prepare the core interview questions prior to meet research objectives. In details, interview protocol contains instructions for the process of interview, the questions to be asked and space to take notes of response from the interviewee as it serves a meaningful information to the study. This study also applies a reference interview protocol reported from Asmussen and Creswell (1995) and is then being verified by a selected academic expert to ensure the consistency of questions format and content to meet research objectives in exploring suitable teaching strategy for WBL implementation.

#### 4.2 Sampling

Sampling in this study focuses on selecting potential respondents for the interview session. A purposive sampling using snowball technique has been used in this study to select a specific group of individuals that experts with subject matters as suggested by Naderifar, Goli & Ghaljaie (2017). A small group of people were selected initially based on research relevance and later then these participants propose other experts with similar characteristics or experience. This technique enables researchers to easily identify potential experts to be involved in this study. It was proved that this technique helps researchers to define suitable sampling technique in choosing a right participants related to study objectives (Zajchowski et al., 2019) and research describes snowball sampling as a

purposeful method of data collection in qualitative research (Naderifar, Goli dan Ghaljaie, 2017). Participation selection for the interview session also has been made based on Swanson & Falkman, (1997) where a person is said to be an expert after having experience in their respective field for at least 5 years and recognized by colleagues or the organization where they serve. As in this study, all participants were meticulously selected from TVET practitioner that must follow these criteria's: (1) must have at least 5 years working experiences in TVET teaching, (2) possess a good knowledge or experience related to Work-based learning (WBL) implementation or teaching experiences in MTUN or any other related TVET institution in Malaysia. This selection is important to this study as it is aimed that these experts could provide a relevant information on the suitable teaching strategies that suitable to the context of WBL teaching delivery in TVET institution specifically in MTUN practices.

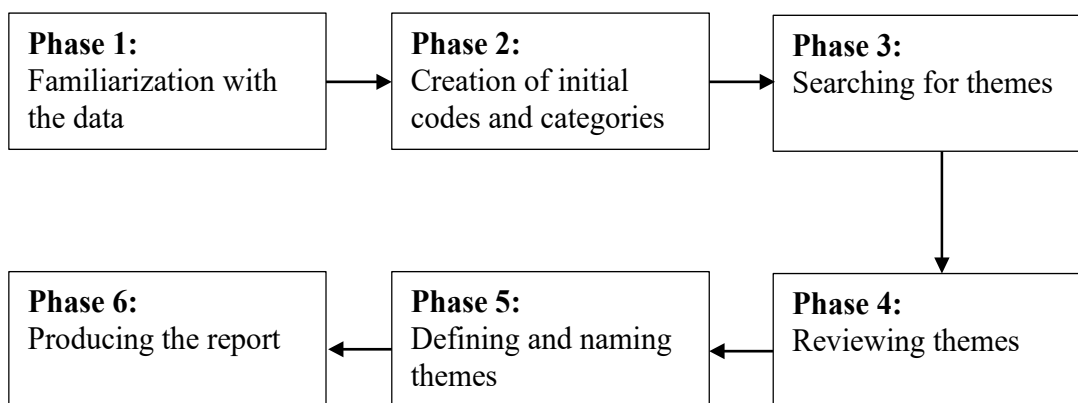
The number of participants involved in this study is 7 participants. Although there is no specific restriction for the number of participants to be selected for a qualitative interview, the research applied rule of thumb based on extensive literature findings. The numbers of participants are varied according to Creswell (2005) suggested 4 to 10 participants, Ghazali and Sufean (2018) suggested 1 to 7 participants and Mohd Hassan @ Abdul Ghani (2018) suggested at least 5 participants. The common idea is that to keep number of participants in small size so that all participants fit the sampling criteria. It is believed that smaller number of participants enhance quality of study (Ocampo, Ebisa, Ombe & Geen Escoto, 2018) and small number of samples is sufficient when the objective of the study is clear and focus in-depth (Satzinger, Jackson & Burd, 2007). The details of WBL experts who agreed to participate in this study has been explained as in Table 1 below. Preliminary agreement upon research question and research expectation has been made with the experts before the interviews conducted in this study. Once agreed, researchers start to conduct the interview session.

**Table 1** *Institutions and participants involved*

CODE	INSTITUTION	GENDER	EXPERIENCE
P01	Malaysian Technical University Network (MTUN)	Male	15 years
P02	Department of Polytechnic and Community College Education	Male	15 years
P03	Malaysian Technical University Network (MTUN)	Female	10 years
P04	Malaysian Technical University Network (MTUN)	Male	10 years
P05	Malaysian Technical University Network (MTUN)	Male	10 years
P06	Malaysian Technical University Network (MTUN)	Male	10 years
P07	Department of Polytechnic and Community College Education	Female	10 years

### 4.3 Data Analysis

At this stage, researchers have performed data analysis on interview data using thematic analysis to identify the potential teaching strategy that can be used in WBL. All information from this interview has been recorded using the note-taking method and audio/video recording. This evidence is in line with the opinion of Silvermen (2000) that there are three methods to record all the information during the interview session, which is the method of recording using a recording tape, taking notes during and after the interview session is conducted. All the recorded materials were then being transcribed into transcripts. Through the transcript, researchers has compiled all important information that can be developed as codes, categories and then develop themes to continue qualitative data analysis for the next stage. This is in line with the opinion of Strauss (2008) who states that themes are the result of coding, categories and comprehension responses. As to ensure the ease of flow for this thematic process, researchers have adapted thematic analysis flow suggested by Braun and Clarke (2006) as shown in Fig 2.



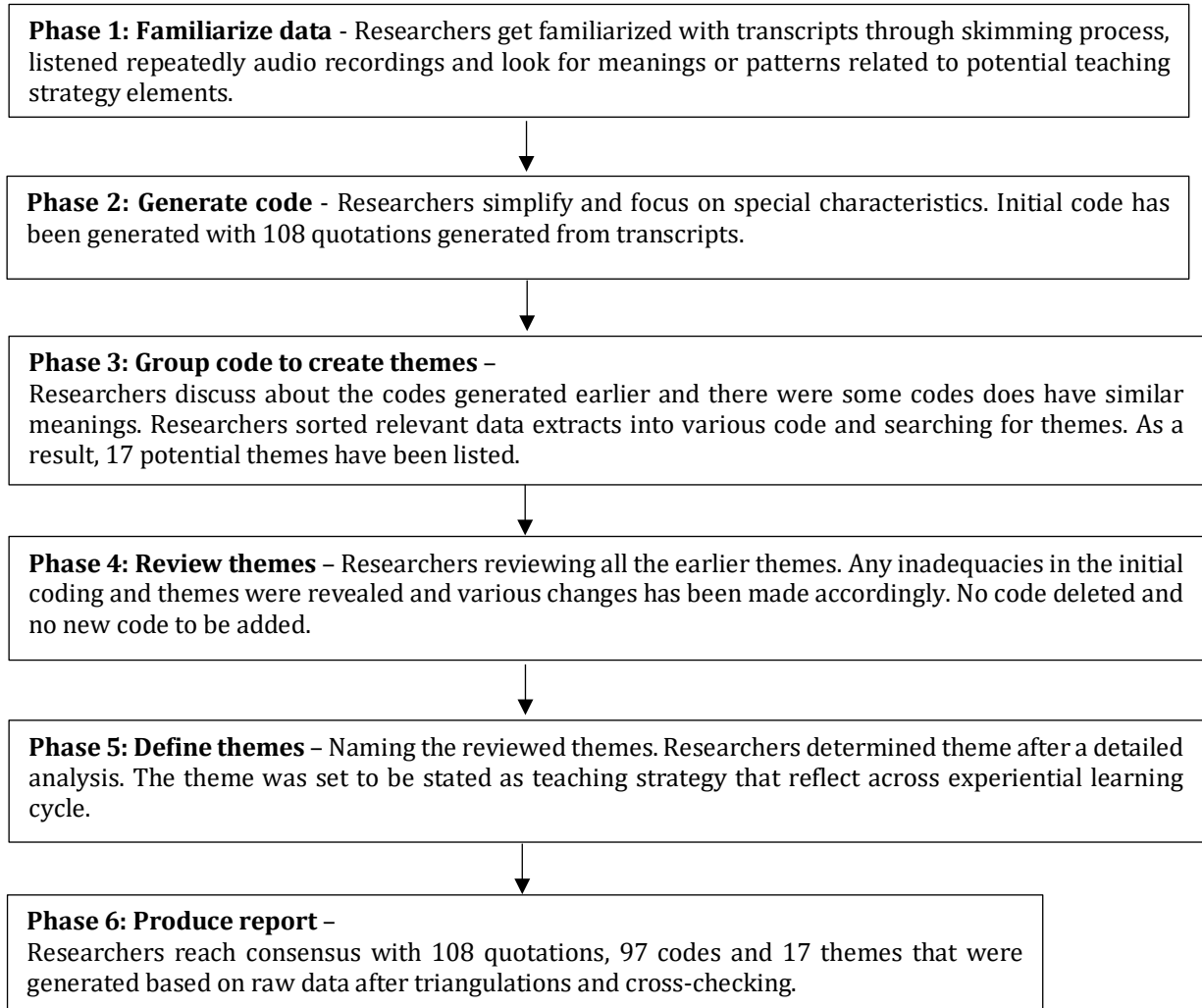
**Fig. 2** Thematic analysis phases (adapted from Braun and Clarke, 2006)

In initial phase, researchers get familiarized with the text in the transcripts through skimming process where the audio recordings were listened repeatedly to form sort of understanding before transcribing. The second phase starts after the researchers had ideas about the insights of data and keep revisiting the data to simplify and focus on specific characteristics of the data. Then researchers had identified important sections of text and highlight it as citations to index as potential codes for themes creation. Researchers worked systematically through the entire data set and gave full equal attention to each data item and identify interesting aspects in the data that formed the basis of themes across data set. Boundaries and coding framework were created to ensure that codes are not interchangeable or redundant. In the third phase, after all data was highlighted as citations and have been initially coded, a list of different codes identified across the data set has been developed. Next researchers sorted and collated all potentially relevant coded data extracts into themes. Themes were initially generated inductively from the raw data. This inductive analysis is a process of coding the data that was used by the researchers, so that researchers' analytic preconceptions can be avoided and forming a thematic analysis that is fully data-driven (Braun & Clarke, 2006). The researchers then reviewed the coded data extracts for each theme and consider if it appears to form a coherent pattern in fourth phase. In this fourth phase, researchers are then reviewing all the earlier themes. Any inadequacies in the initial coding and themes were revealed and various changes has been made accordingly. New code will be added if issues in the text are not covered and delete existing code when it was found not useful or if it is substantially overlapped with other codes. As a result, researchers had a good idea of the different themes and overall understanding about the data.

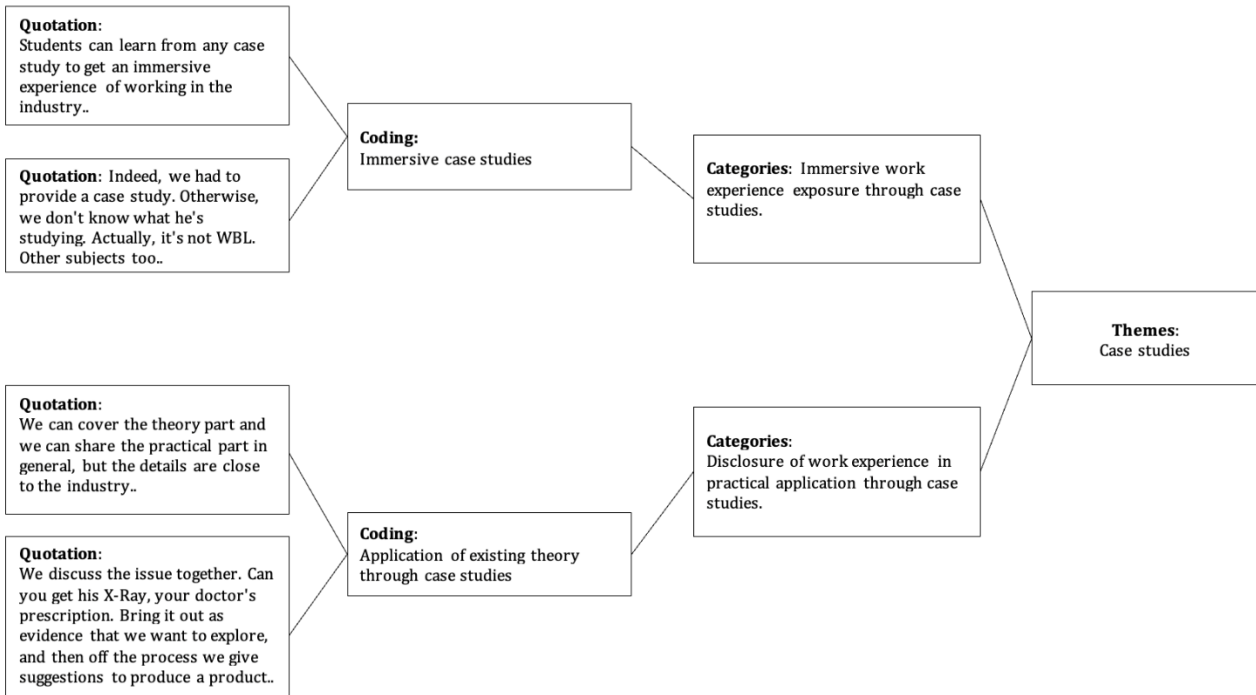
During the fifth phase, researchers start defining and naming the themes. As suggested by Braun and Clarke (2006), researchers come out with theme names that suitable to give a sense of meaning about the theme. At this stage, researchers fit the themes into overall story about the entire data set in relation to the research questions. In the final phase, the themes have been fully established and began final analysis and write-up for the report. The report of thematic analysis is provided with a concise and coherent account of the data within and across themes. Researchers also took direct quotes from participants as an essential component of the final report. Above all discussion, this flow chart provides clearer picture on how the process looks like to establish trustworthiness during each phase of thematic analysis that has been used in this study.

## 5. Finding

The findings of this paper will reflect to research questions has been set in this study which is to explore what the elements of teaching strategy is required in WBL implementation for TVET students. Herein the process of thematic analysis conducted in this study which ends with potential themes of WBL teaching elements in experiential learning approaches has been reported.



Taking into consideration the coding paradigm adopted from Strauss (2008), researchers had a proper guideline in developing theme based on categories from coded text gathered from the interview transcript. Theme determination is then resulted in the form of thematic analysis and narrative. Finally, the researchers reported findings in the form of narration supported by interview excerpts as shown in shown Fig. 3 below.



**Fig. 3** An example of result analysis from thematic analysis (adapted from Strauss, 2008)

The process of thematic analysis for other themes were continued and guided from above works. Thus, the overall result of essential teaching elements from thematic analysis can be presented as shown in Table 2 below:

**Table 2** The result of teaching elements

Categories / Sub-elements	Themes / Element	Construct / Domain
Provide students with Immersive exposure of real industry cases. That may apply theory in real case experience of industry. Encourage students to solve real industry case problems by having active exploration of real industry cases. Students also should undergo preliminary reflection on the solution of selected real industry cases exposure.	Case Study	Work Exposure
Expose students to real problems at work, encourage group activities, engage students with investigative activities, guide students through problem-solving task and encourage discussion that connect theoretical concepts.	Problem-based	
Guide students through inquiry activities, provoke questions that encourage investigation of new experiences, promote active question session that connected to real workplace challenges.	Inquiry-based	
Conduct discussion to monitor student work experience in workplace, encourage collaborative sharing session, relate discussion with theoretical understanding and focus on achievement of learning objectives.	Discussion	Work Reflection
Ensure students maintain detailed written records, use log to reflect on experienced work, align log with theoretical concepts and for future references record.	Log Report	
Conduct presentation as to monitor students experience thus evaluate work that has been experienced by the students.	Presentation	

Conduct review on students work performance to evaluate work experienced by the students and provide constructive feedback for further improvement on current works.	Performance Review	
Encourage students to extract important information from related industry documents and guide students to synthesize and draw conclusion from the document analysis to obtain an effective conceptual development.	Documentation Analysis	Conceptualized Knowledge
Guide students understanding by provoke investigative question that make them explore more questions about their work concept.	Inquiry-based	
Provide alternative viewpoints on relevant concepts and conduct knowledge sharing through proper discussion session.	Discussion	
Carry out practical work activities by ask students to develop any related industrial project, apply the knowledge learned from the experiences and make project presentation for future evaluation.	Project	
Ask students to re-simulate work that has been done and conduct reflection session to ensure right knowledge has been applied to solve any related industrial issues.	Simulation	Apply Knowledge
Conduct workplace competency test by preparing related technical question related to academic syllabus as to assess students' practical acquisition at work.	Competency Test	
Provide comprehensive learning support such as preparing appropriate communication medium among students, industrial and university, developing clear learning plan according to industrial needs and conduct program briefing to industry which leads to more meaningful learning.	Teaching and Learning support	Teaching Preparation
Provide potential technology adaptation into teaching strategy such as make use appropriate online learning platform to promote digital learning that ease students learning process.	Technology Adaptation	
Conduct a diverse industrial participation such as cooperative relationship to ensure industrial needs or limitations being considered into teaching strategy to be applied.	Industrial participation	

## 6. Discussion

This study is aimed to explore suitable teaching strategies for WBL implementation in TVET practices through experiential learning approaches specifically in MTUN institution. As a result from thematic analysis on interview data with selected experts, this study found 97 codes that has been arranged accordingly to develop 66 sub-elements, 17 elements and 5 domains of teaching strategy of experiential learning approaches. Initially, this study has found several ways of teaching strategy to be implemented within context of WBL MTUN implementation. Additionally, this study has found several effective ways to promote students with new working experiences during their WBL session. As at this learning stage, lecturer or instructor shall ensure that the students are exposed to hands-on experience activities, direct engagement with practical activities to provide students with tangible experiences, allowing them to immerse within practical experiences in real workplace. Whereby, teaching strategy may apply several teaching strategy such as real industry cases, real workplace problems solving activities and inquiry-based learning on investigating new work experiences. These teaching strategies able students to attain relevant working experiences, create a learning environment that bridges the gap between theory and practice, enhances critical thinking and problem-solving skills, and prepares students for the challenges they may face in their future careers. This finding is consistent with Chui (2019) where active learning approaches such as problem-solving activity offered students with special and unique opportunity to learn new real experiences related to higher education for ICT courses and helps to increase students working exposure and creativity through real problem-solving activities.

This study also revealed another teaching strategy domain known as work reflection. This stage can be referred as a need of providing reflective aids in deriving meaning and insights from experiences thus encourage students to review and contemplate their experiences, examining both successes and failures and derive deeper insights from their actions. Teaching strategy shall assess the extent to which reflection aids in understanding the

connections between experiences and concepts learned. As for WBL practices, experts suggested that the instructors should ensure that the students could express their reflective observation effectively through discussion, log report, presentation, and performance review session to check students understanding from their collated experiences in the workplace. Recent evidence shows similar findings to this study. Davitadze et al. (2022) suggests that discussion and question and answer (Q&A) session helps students to simulate their understanding with related working experience and easier to assess students experiences while working in the industry thus promoting effective student's reflection session.

Next teaching strategy domain to be discussed in this study known as Conceptualized Knowledge. At this learning stage, students start to draw connections between their experience and extending broad concepts of theories related to their working experiences. Students seek to understand underlying principles, generalize observations, and formulate theories. Upon this matter, teaching strategy should assist students in deriving generalizations theories from their practical experiences. The main idea is that instructor shall perform teaching activities that could help students to extract general principles from their experiences, link experiences to theories, and grasp the underlying concepts or principles. As to achieve this, experts suggested that students can grasp underlying concepts of theories within their practical works in WBL through analyzing relevant industrial documentation to seek for more deeper understanding, conducting inquiry-based technique to probe students understanding and as well as having a comprehensive discussion with the students to create a coherent understanding towards related principles or theories. This finding consistent with Li, Öchsner & Hall (2017) where it was found that the application of inquiry technique by asking the students on ways to improve current technical design helps to improve students' engagement and experiences related to learnt topics.

Once underlying principles has been derived, active experimentation phase through knowledge application is next to be considered. This phase is necessary to ensure students applying the relevant insights gained from their experiences and conceptual understanding to a new or different situations. Students shall test the theories and seek for practical applications to encourage them applying their knowledge effectively in diverse contexts. As to support these needs, the instructor could apply teaching strategy that assessing on how well students are encouraged to apply their learning in new or different contexts. It evaluates the extent to which students can transfer their knowledge and skills gained from classroom to a real-world application. Applying this definition into WBL practices, experts suggested that students shall entitled with certain potential project to apply their new knowledge practically, conduct simulation activities to test students' acquisition towards their practical works and as well as conducting performance test to ensure students are applying a right principle in solving any practical issues to industrial works. Previous study proved that simulation training session helps students to demonstrate right principles to solve relevant real working challenges (Wijnen-Meijer, et. al., 2022).

This study in some extent, revealed another important stage to be highlighted when considering this experiential learning technique into WBL implementation in TVET practices. Experts suggested that a pre-stages of teaching preparation shall be considered to ensure the effectiveness of experiential teaching and learning environment. Study found the importance of making preparation for a comprehensive learning support, potential technology adaptation in learning environment and as well as diverse industrial participation to support the effectiveness of this teaching strategy application in WBL session. This finding is consistent to LeBlanc (2015) where it was recommended that teachers should try to prepare lesson plans regarding active student involvement in the learning process, include opportunities for reflective observation in connection with the conveyed concepts through experiment setting, and make predictions in relevant context, thus leading to more meaningful learning.

Therefore, this study revealed the application of experiential learning approaches can be incorporated with Work-based learning (WBL) implementation through several potential teaching strategies suggested by the selected experts. Even though there is no standardized approach of either WBL (MQA), this study revealed an insight to sought ways of better teaching practices in WBL for TVET practices. Previous studies revealed that the application of various teaching approaches could strengthening students learning experiences. A study by Patil, Budihal, Siddamal & Mudenagudi (2016) has proven that the use of diverse teaching methods such as problem-based learning and case-based learning in active learning strategies can improve student academic achievement, especially among undergraduate students. Also, Pamungkas, Widiasutri & Suharno (2019) found that the application of experiential learning in vocational education can provide convenience for students to learn based on their own experiences and improve their self-efficacy. This study in some extent soughs the new ideas of promoting efficient teaching strategies that suit with WBL implementation among MTUN TVET practitioners.

## 7. Conclusion

The application of active learning approaches has been widely used in previous research and has been tested in various education background especially in vocational education, it was believed that this learning approach could promote significant ways in strengthening TVET delivery specifically in WBL program. Although literature cited various teaching strategy or activities to be used in this experiential learning, this study suggests potential teaching strategy to be applied in the context of WBL for TVET practices. The teaching strategy defined in this

study highlights the suitability of each teaching strategy to be practiced in WBL according to Kolb's experiential learning cycle. As to provide great working experience to WBL students, study suggested that case study, problem-based and inquiry-based learning activities could be practiced. On top of that, discussion or logbook reporting activities could help instructor to receive comprehensive reflective observation from the students following by inquiry based or industrial documentation analysis activities that can help to conceptualize students understanding towards their learned experiences. As for practical application, it was advisable that project execution or competency test can be performed to encourage students in applying their learned experiences in diversify industrial context. This study in some extent revealed that a comprehensive academic preparation and industrial support should be justified in the earlier process of learning as to ensure the perfect alignment execution of experiential learning activities in WBL setting for specific TVET institution.

In terms for future research, studying on how the identified teaching strategy to be applied in any specific TVET program could provide more practical findings. In addition to, study could also discuss its impact in enhancing the effectiveness of the implementation of WBL students in the workplace. Studying the real application of this teaching strategy in WBL practices could lead to more informed guidelines to design practical hands-on activities that most appropriate for learners' background and expectations.

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## Conflict of Interest

Authors declare that there is no conflict of interests regarding the publication of the paper.

## Author Contribution

The authors confirm contribution to the paper as follows: **study conception and design:** Reyanehme Rohanai, Hasyamuddin Othman, Aini Nazura Paimin; **data collection:** Reyanehme Rohanai; **analysis and interpretation of results:** Reyanehme Rohanai, Aini Nazura Paiman, Affero Ismail; **draft manuscript preparation:** Reyanehme Rohanai, Siti Soleha Razali. All authors reviewed the results and approved the final version of the manuscript.

## References

- Abdul Kadir, S., & Ling, Y. (2021). Pelaksanaan Pendekatan Pembelajaran Berasaskan Masalah dalam Institusi Pendidikan Teknikal [Implementation of Problem-Based Learning Approach in Technical Education Institutions], *International Journal of Education and Pedagogy*, 3(1), 22-41.
- Asmussen K. J. & Creswell J. W. (1995). Campus Response to a Student Gunman, *The Journal of Higher Education*, 66(5), 575-591, <https://doi.org/10.2307/2943937>
- Barab, S. A., Squire, K. D., & Dueber, W. (2000). A co-evolutionary model for supporting the emergence of authenticity. *Educational Technology Research and Development*, 48(2), 37-62, <https://doi.org/10.1007/BF02313400>
- Billett, S. (2001). Learning through work: Workplace affordances and individual engagement. *Journal of Workplace Learning*, 13(5), 209-214, <https://doi.org/10.1108/EUM0000000005548>
- Billett, S. (2009). Realising the educational worth of integrating work experiences in higher education. *Studies in Higher Education*, 34(7), 827-843, <https://doi.org/10.1080/03075070802706561>
- Billett, S. (2014). Learning through practice and learning through work: Their imperatives and synergies. In J. Higgs, A. Titchen, & D. Horsfall (Eds.), *Practice-based education: Perspectives and strategies* (pp. 13-26). Sense Publishers.
- Boud, D., & Solomon, N. (2001). *Work-based learning: A new higher education?* Open University Press.
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77-101, <https://doi.org/10.1191/1478088706qp0630a>
- Chiu S.K. (2019) Innovative experiential learning experience: Pedagogical adopting Kolb's learning cycle at higher education in Hong Kong. *Cogent Education*, 6(1), <https://doi.org/10.1080/2331186X.2019.1644720>
- Clarke, L., & Winch, C. (2007). *Work-based learning: Identities and insecurities in higher education*. Springer.
- Creswell, J. W. (2005). *Educational research: Planning, conducting, and evaluating quantitative and qualitative research*. Upper Saddle River, New Jersey: Pearson Education, Inc
- Creswell, J. W. (2008). *Educational research: Planning, conducting, and evaluating quantitative and qualitative research (3rd ed.)*. Upper Saddle River, New Jersey: Pearson Education, Inc
- Creswell, J. W., Creswell, J. D., & Garrett, A. L. (2020). *Educational research: Planning, conducting, and evaluating quantitative and qualitative research*. Pearson.

- Curtis, D. D., Winsor, D. L., & Stephens, L. F. (2019). *Best practices in work-based learning for community colleges: A guide for community colleges and business and industry*. Routledge.
- Davitadze, M., Ooi, E., Ng, C.Y. et al. SIMBA: using Kolb's learning theory in simulation-based learning to improve participants' confidence. *BMC Med Educ* 22, 116(2022), <https://doi.org/10.1186/s12909-022-03176-2>
- Evans, K., Hodkinson, P., Rainbird, H., & Unwin, L. (2018). *Improving workplace learning*. Routledge.
- Fuller, A., Unwin, L., Guile, D., & Wellard, I. (2019). Apprenticeship as a mode of learning: between learning theory and model of institutional governance. *Journal of Vocational Education & Training*, 71(2), 157-176.
- Gay, L. R., Airasian, P. (2003). *Educational research: competencies for analysis and application (7th ed.)*. Upper Saddle River, NJ: Merrill/Prentice Hall
- Ghazali, D. & Sufean, D. (2018). *Metodologi penyelidikan dalam pendidikan: amalan dan analisis (Edisi Ke-2)* [Research methodology in education: practice and research analysis (2<sup>nd</sup> Edition)]. Kuala Lumpur: Penerbit Universiti Malaya
- Giesen, J. C. A. H., Dengerink, J. J., Vink, S., Kreijns, K., & van der Vleuten, C. P. M. (2018). The complexity of assessing reflective learning: Implementing a validation framework in work-based learning. *Studies in Educational Evaluation*, 56, 148-156.
- Guile, D., & Lucas, N. (2016). Reconceptualising work-based learning for the 21st century. *Journal of Vocational Education & Training*, 68(1), 7-25.
- Harb, J. N., Terry, R. E, Hurt, P. K. & Williamson K. J. (1995). *Teaching through the cycle: Application of learning style theory to engineering education at Brigham Young University*. Utah: Brigham Young University Press.
- Hasan, A. (2012). Instrumen Penilaian Pembimbing dalam Pelaksanaan Pembelajaran Berasaskan (PBK) pelajar di industri [Instrument of Supervisory Evaluation for students centered learning in industry]. [Doctoral Thesis, Universiti Tun Hussein Onn Malaysia]. Institutional Repository UTHM.
- James, K., & Billett, S. (2012). Work-based learning: A neglected and contested terrain for learning. *International Journal of Training Research*, 10(1), 19-32.
- James, K., Millican, J., Hillier, E., Piggott, L., & Ballantyne, R. (2017). The feasibility of co-creating and assessing graduate attributes within the curriculum. *Higher Education Research & Development*, 36(1), 59-71.
- Kamin, Y., Latib, A., Amin, N., Saud, M., & Ahmad, A. (2018). Work-based learning: Employee Perspective towards the Automotive Industry. *Advanced Science Letters*, 2518-2521.
- Kolb, D. A. (1984). *Experiential learning: Experience as the source of learning and development*. Prentice Hall.
- Konstantinou, I., & Miller, E. (2021). Self-managed and work-based learning: problematising the workplace-classroom skills gap. *Journal of Work-Applied Management*, 13(1), 6-18. <https://doi.org/10.1108/JWAM-11-2020-0048>
- Korpershoek, H., Harms, T., de Boer, H., van Kuijk, M., & Doolaard, S. (2016). A meta-analysis of the effects of classroom management strategies and classroom management programs on students' academic, behavioural, emotional, and motivational outcomes. *Review of Educational Research*, 86(3), 643-680.
- LeBlanc, Manon., Michel, T.L., Mathieu L., & Nicole L-P. [2015]. When a school rethinks the learning environment: a single case study of a new school designed around experiential learning. *Procedia – Social and Behavioral Sciences*, 174, 3577 – 358.
- Li, H., Öchsner, A., & Hall, W. (2017). Application of experiential learning to improve student engagement and experience in a mechanical engineering course. *European Journal of Engineering Education*, 44(3), 283–293. <https://doi.org/10.1080/03043797.2017.1402864>
- Mohamed, N. A. A. & Ramlee, M. (2017). *Pendidikan Teknikal dan Vokasional: Pendekatan Penyelidikan, Analisis & Interpretasi*. Tanjung Malim, Perak: Penerbit UPSI
- Muanisah, L. (2017). Implementasi Strategi Experiential Learning; Keaktifan Siswa; Mata Pelajaran Fiqih [Implementation of Experiential Learning Strategy; Student Activeness; Fiqh Subject]. [Bachelor Dissertation]. STAIN Kudus.
- Naderifar, M., Goli, H., & Ghaljaie F. (2017). Snowball sampling: A purposeful method of sampling in Qualitative Research, *Strides in Development of Medical Education*. 14(3), 1-6.
- Nilsson, P., Nielsen, K., & Svensson, L. (2019). Unveiling the challenges of vocational education—Stakeholders' perspectives on work-based learning in upper secondary vocational education. *Empirical Research in Vocational Education and Training*, 11(1), 1-21.
- Ocampo, L., Ebisa, J. A., Ombe, J., & Geen Escoto, M. (2018). Sustainable ecotourism indicators with fuzzy delphi method – A Philippine perspective. *Ecological Indicators*, 93, 874-888. <https://doi.org/10.1016/j.ecolind.2018.05.060>
- Othman, L. (2018). Penyelidikan kualitatif: Pengenalan kepada Teori dan Metode (Edisi Kedua) [Qualitative Inquiry: An Introduction to Theory and Methods (2<sup>nd</sup> edition)]. Tanjung Malim, Malaysia: Penerbit Universiti Pendidikan Sultan Idris.
- Patton, M. Q. (2002). *Qualitative research & evaluation methods (3rd ed.)*. Sage Publications, Inc.

- Pamungkas S.F., Widiastuti, I., & Suharno (2019), Kolb's Experiential Learning for vocational education in mechanical engineering; A review, Exploring Resources, Process and Design for Sustainable Urban Development, in AIP Conf. Proc. 2114, 030023-1-030023-9; <https://doi.org/10.1063/1.5112427>
- Regina, S. K. (1991). *Instructional Approaches: A Framework for Professional Practice*. Saskatchewan Dept. of Education. Retrieved August 24, 2024, from <https://eric.ed.gov/?id=ED340692>
- Satzinger, J. W., Jackson, R. B., & Burd, S. D. (2007). *Object oriented analysis & design with the unified process*. Boston: Course Technology.
- Shukurov, S. N. (2020). Methods of Education and Training of Work-Based Learning. *International Journal of Progressive Sciences and Technologies (IJPSAT)*, 24(1), 380-384.
- Strauss, A. (2008). *Basic of qualitative research. Technique and procedure for developing method*. California: SAGE Publications Inc.
- Swanson, R., & Falkman, S. (1997). Training Delivery Problems and Solutions Identification of Novice Trainer Problems and Solutions. *Human Resource Development Quarterly*, 8(4), 305-314.
- Ugwoke, E., Ezeji, H., Edeh, N., & Etonyeaku, E. (2016). Effective Implementation of TVET-Industry Partnership for Employability through Work Integrated Learning in Nigerian University. *Review of European Studies*, 8(3), 307-315.
- Wesselink, R., Biemans, H. J. A., Mulder, M., & Teurlings, C. (2020). Bridging the gap between work process knowledge and vocational education: Developing a framework for a work process-oriented curriculum. *Journal of Vocational Education & Training*, 72(1), 1-25.
- Wijnen-Meijer, M., Brandhuber, T., Schneider, A., & Berberat, P. O. (2022). Implementing Kolb's Experiential Learning Cycle by Linking Real Experience, Case-Based Discussion and Simulation. *Journal of Medical Education and Curricular Development*, 9. <https://doi.org/10.1177/23821205221091511>
- Zajchowski, C., Tysor, D. A., Brownlee, M. & Rose, J. (2019), Air Quality and Visitor Behavior in U.S. Protected Areas, Springer: Human Ecology, 1-12, <https://doi.org/10.1007/s10745-019-0046-y>
- Zibrowius, M., & Wuttke, E. (2018). A practical approach to describing and assessing vocational competence. *Empirical Research in Vocational Education and Training*, 10(1), 1-23.