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The Implementation Structure of Work-Based Learning (WBL) in Malaysia: The Perspective of Industry

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Abstract

The industry has been looking for a teaching structure for tertiary education to address the knowledge gap in potential talents. Work-Based Learning (WBL) is a teaching and learning approach in which the industry is directly involved in the knowledge delivery process. Students are put in the industry and receive direct instruction from industry specialists. However, the specific forms and implementation of WBLs in Malaysia's higher education sector remain unclear. As WBL is a new learning culture in Malaysia, challenges such as the industry's low involvement rate, students' adaptation to the learning style, and the status of the higher education institutions are yet to be discovered. This qualitative study employed semi-structured interviews with five coaches from ViTrox Technologies and eight students from University Tunku Abdul Rahman, University Technology Malaysia, and Forward School. A total of twelve interviews were conducted, focusing on the common practices of WBL, student experiences, and opinions towards WBL. Thematic analysis was used to systematically identify and interpret recurring themes within the qualitative data. The study found six key areas for enhancing WBL implementation: communication between industry coaches, lecturers, and students; roles of higher education institutions, industry, and students; WBL placement duration; coaching time; self-learning support; and WBL assessment standards. This study recommends a more practical application of WBL in the Malaysian context to promote WBL in Malaysia and strengthen collaboration between industry and academics in WBL.

Keywords: *Work-Based Learning, University-Industry Collaboration, Collaborative Learning, Industry Centric Learning, Implementation of WBL*

INTRODUCTION

Work-Based Learning (WBL) has become a hot topic in higher education due to the need to close the industry-education knowledge gap. WBL is a teaching and learning approach where the industry is directly involved in the knowledge delivery process. To Mohamad et al. (2021) and Watisin (2017), the WBL students study the fundamental principles and theories in the classroom. Also, they learn the practical applications in the industry. Besides, WBL emphasises learning through working experience and fosters collaboration between higher educational institutions and enterprises.

Meanwhile, Konstantinou and Miller (2021) further emphasise the value of WBL, highlighting that problem-based, experiential learning embedded in work-based modules creates the real potential to get students to bridge the gaps between the workplace (the industry) and the classroom (the higher education institution).

The polytechnic and community colleges in Malaysia are the forerunners of this WBL approach. The first WBL implemented in Malaysia was the collaboration between Proton automotive manufacturers and community colleges. The WBL structure at Proton Training Centre (PTC) is made up of industry teachers who teach the lessons based on a 25% and 75 % ratio of on-the-job training in the classroom at Proton Edar Service Centres (PESC) (Ismail, et al., 2015). 25% of the learning and teaching are conducted in the classroom, whereas 75% are done in the industry. Following the success of the WBL model in the automobile industry, polytechnics in Malaysia began using it in advanced diploma courses. In February 2007, eleven Kolej Komuniti implemented the WBL Programme (Rahim et al., 2007).

"2u2i" is another framework of WBL in Malaysia. This 2u2i system was introduced by the Ministry of Higher Education (MOHE) Malaysia in 2015, aligned with the Malaysia Education Blueprint 2015-2025 (Higher Education), the 2u2i system offers a structured approach to WBL. The letter 'u' in 2u2i stands for 'university,' which refers to universities, colleges, polytechnics, and community colleges, with the number 2 denoting two years. The letter 'i' stands for 'industry,' which refers to workplace learning, with one denoting one year. Of course, besides 2u2i, there are other options, such as 3u1i and 1u3i. The numbering represents the year of graduation attached to the Higher Education Institution (HEI) and industry. With this innovative degree programme format, students can expand their network, acquire suitable exposure, and earn work experience early in their degree programme. With such an arrangement, the students can improve their academic and practical skills, thus being better prepared to enter the industry with relevant skills and competencies (Yusof et al., 2020). Until 2017, this 2u2i learning model was used by six public universities in Malaysia.

WBL is an increasingly important approach in higher education in Malaysia, aiming to bridge the gap between academia and industry by immersing students in real-world experiences (Ibrahim, et al., 2019). While the concept holds promise, several critical challenges hinder its full realisation.

Firstly, the commitment required from industry stakeholders, including time and financial resources, poses a significant barrier to their active participation in WBL programs. Additionally, the lack of pedagogical training among industry coaches can hinder the effectiveness of knowledge delivery to students. This reluctance of the industry to engage with WBL diminishes its potential impact on student learning and workforce development. As mentioned by Valencia et al. (2019) there is a significant barrier to conducting WBL due to the high commitment that is required. Implementing WBL requires collaborative efforts among three WBL stakeholders: the industry, the HEI, and the students. Unfortunately, industry coaches confront difficulties in teaching and guiding students due to a lack of pedagogical exposure and formal educational training. (Punjabi, 2020).

Secondly, there is a notable misalignment among the key stakeholders involved in WBL—students, HEI lecturers, and industry coaches. Effective communication and coordination between these parties are crucial for a successful WBL experience. However, existing practices often fail to establish clear lines of communication, leading to potential gaps in students' learning experiences.

Okolie et al. (2020) stated that the effectiveness of communication between HEI and industry has a direct impact on the learning experience of WBL for students.

Thirdly, the high level of dedication required from industry coaches, can limit the industry's capacity to accept WBL students. The coach must commit a certain amount of time to each student throughout the WBL session to guarantee that they are appropriately exposed and educated. Other than time, the cost of preparing student study materials in WBL sessions is a price the industry must incur. This financial burden, coupled with the time commitment, can deter some industry partners from participating in WBL programs. Bergeson et al. (2008) mentioned that industries have high teaching costs and little cooperation from HEIs, contributing to these limitations.

Lastly, there is a lack of standardised practices and guidelines for implementing WBL in Malaysia, which can hinder its scalability and impact. Without a clear roadmap for all stakeholders, WBL programs may vary widely in quality and effectiveness. In the book of Larmer et al. (2015) the authors mentioned that lack of standardisation in carrying out the learning will affect the outcome of learning as different may have different teaching. Despite the successful implementation of WBL in the community college and the university, the WBL learning approach is still working towards standardising the structure and effort among the parties involved. There is still a misalignment between three stakeholders: the industry, the HEI, and students in the practical implementation of the WBL (Watisin et al., 2018). Besides, there are concerns that WBL has been overlooked as a form of learning and that students do not engage enough in workplaces, as mentioned by Musset (2019). This means that the industry is not familiar with the learning model, which seems like it only benefits the learning institute and student. This is also the reason for the industry's least participation in WBL in Malaysia.

In light of these challenges, this study aims to investigate the perspectives of industry representatives on WBL in Malaysia, with a focus on improving industry engagement and addressing the misalignment among stakeholders. By doing so, the research seeks to provide insights and recommendations that can enhance the implementation and effectiveness of WBL, benefiting not only educational institutions and students but also industries seeking to actively participate in this innovative learning approach. As mentioned by Ali and Marwan (2019) WBL is one of the platforms for students to gain actual working experience and create the students who are able to meet the demand of the workforce.

With that being said, this study hopes to offer a new perspective on WBL to the public and provide a guideline of common practice to the industry that would like to participate in WBL. Additionally, the issues of handling the engagement between coach and student and misalignment between stakeholders of WBL can also be resolved.

OBJECTIVES OF THE STUDY

The industry is often reluctant to engage with WBL due to the high commitment required, for instance, cost and time, as mentioned in the preceding discussion. Consequently, the number of industry participants in WBL is not satisfactory. Thus, it is essential to provide the industry with a clearer picture of what WBL entails and is and how it is conducted to encourage greater involvement.

There is a lack of alignment between the three key stakeholders of WBL: students, lecturers and industry coaches. Ensuring open communication lines in the WBL process is a challenge for both the HEI and industry partners. To guarantee an optimal student learning experience, the documentation of the WBL practices and execution must be regularly updated. (Atkinson, 2016).

Therefore, to enhance industry understanding and participation in WBL and to address communication issues within WBL, this study has the following objectives:

i. Identify the implementation plan for Work-Based Learning in Malaysia.
ii. Identify the effective Industry-Higher Education Institution Collaboration method in enhancing Work-Based Learning in Malaysia.
iii. Identify the roles and responsibilities of Higher Education Institutions, industry partners and students in carrying out the Work-Based Learning programs in Malaysia.

THEORETICAL FRAMEWORK

The theoretical framework underpinning this study is based on experiential learning theory, a well-established theory that aligns with the objectives and methodology of WBL. Experiential learning, as conceptualised by Kolb et al. (2014), underscores the paramount importance of experiential engagement in the learning process. It posits that learners effectively acquire knowledge by actively engaging in the world, reflecting on these experiences, and subsequently applying insights gained to further learning. Experiential learning is a constructivist learning theory defined as ‘learning by doing’. The learner is an active participant in the educational process, and learning is achieved through a continuous cycle of inquiry, reflection, analysis, and synthesis (Bartle, 2015).

In essence, experiential learning epitomises a cyclical process wherein learners "touch all the bases" through experience, reflection, critical thinking, and action. This constructivist approach, commonly termed as 'learning by doing,' advocates for learners to be active participants in their educational journey. It emphasises continuous inquiry, reflection, analysis, and synthesis, thereby fostering deep understanding and skill development.

In the context of WBL, experiential learning serves as the foundational principle driving the educational paradigm. WBL seeks to bridge the gap between theoretical knowledge acquired in academic settings and practical skills demanded by the industry. As noted by Adan et al. (2021), WBL integrates theoretical and practical learning within real-life contexts, offering students opportunities to apply classroom knowledge to authentic workplace scenarios.

Therefore, by embracing experiential learning theory within the framework of WBL, this study aims to elucidate how experiential learning principles enhance learning outcomes and facilitate the seamless transition of students from academia to the workforce. Through an exploration of experiential learning processes within the context of WBL, this research endeavours to contribute to the advancement of effective pedagogical strategies in vocational education.

METHODOLOGY

Research Design

This study explores the implementation plan of WBL in Malaysia through qualitative method, using semi-structured interviews. The study aimed to capture rich, detailed insights from students who have undergone WBL at ViTrox Technologies Sdn Bhd by employing semi-structured interviews. Students who participated in the WBL approach at ViTrox Technologies Sdn Bhd were from three HEIs: UTAR, Forward School, and UTM while the industry coaches involved in the interviews were from ViTrox Technologies Sdn Bhd who guided the WBL students. The interviews were conducted individually, focusing on three aspects: the common practice of WBL,student experiences with WBL, and participant views on WBL.

Sampling of Participants

This study adopted the purposive sampling technique due to its qualitative nature. Individual interviews were chosen to ensure that participants with direct experience in WBL programs were included. Purposive sampling allows for the targeted selection of individuals who possess rich and relevant insights into the phenomenon under investigation, thereby enhancing the study's depth and validity. In this case, the rationale for adopting purposive sampling is that the coaches and students that have been chosen were involved directly in the WBL, specifically in ViTrox Technologies Sdn Bhd.

The interviewees' feedback and perspectives on implementing the WBL learning model are vital to strengthening its structure.

Data Collection: Semi-Structured Interview

Semi-structured interviews were chosen as the primary data collection method due to their flexibility in eliciting detailed responses while maintaining a focus on specific research questions related to WBL implementation (Guest et al., 2013). This approach allows for a balance between guiding the conversation and allowing participants to elaborate on their experiences, providing nuanced insights that contribute to a comprehensive understanding of the research topic.

The interview guide was designed with three thematic categories to facilitate data collection for both student and coach participants: existing WBL structure, experiences with WBL, and participant opinions on WBL. The "existing structure" category aimed to understand how HEIs support industry partners and students throughout the WBL process. The "experiences" category focused on capturing the personal experiences of both coaches and students during the WBL program. Finally, the "opinions" category explored participants' personal perspectives and insights on WBL.

Semi-Structured Interview Protocol

The semi-structured interviews explored coaches' and students' existing structures, experiences and opinions on Work-Based Learning (WBL). The coaches were interviewed to uncover various aspects of their interaction with university lecturers, the guidelines and syllabus provided, the marking rubrics, as well as their workload, time allocation, and communication with students. Additionally, the study sought the coach's perspectives on the overall effectiveness and areas for improvement in the WBL system.

Meanwhile, interviews with students were to gain insights into their experiences with Work-Based Learning (WBL). The questions aimed to uncover various aspects of their interaction with lecturers and coaches, their practical experiences, and their opinions on the WBL system.

Data Analysis

Thematic analysis serves as the chosen method for data analysis in this study. This approach was deemed suitable for identifying patterns, themes, and underlying meanings within the collected interview data (Braun & Clarke, 2006). By employing thematic analysis, this study aimed to uncover the rich tapestry of insights embedded within the dataset, allowing for a comprehensive exploration of the research questions at hand. Thematic analysis allows for the identification of patterns and themes within the data collected from WBL participants, enabling this study to explore and understand the complex dynamics of WBL implementation. By systematically analysing the data, this study can uncover key insights into the challenges, successes, and best practices associated with WBL.

The decision to opt for manual analysis, without relying on automated software, enhances researcher's immersion in the data and fosters a deeper understanding of the nuances inherent in WBL experiences. The hands-on approach enabled researcher to meticulously sift through the data, facilitating a nuanced exploration of emerging themes and meanings. By eschewing automated tools, this study sought to foster a deeper understanding of the contextual intricacies and subtle nuances inherent in the dataset.

Furthermore, manual analysis empowered the exercise of flexibility and adaptability in the approach. This iterative process of data exploration, coding, and interpretation facilitated the generation of rich and contextually embedded insights. This iterative approach facilitates the generation of rich and contextually embedded insights that resonate authentically with the lived experiences of WBL participants. Ultimately, the adoption of thematic analysis and manual data analysis techniques in the WBL study contributes to a nuanced understanding of WBL implementation and informs recommendations for enhancing its effectiveness in practice.

Data Credibility and Trustworthiness

Ensuring data credibility and trustworthiness is paramount in research, particularly in studies involving qualitative data analysis. In this study, rigorous measures were employed to enhance the credibility and trustworthiness of the data analysis process. Firstly, data triangulation was utilised by collecting data from multiple sources, including students and industry coaches participating in WBL programs at ViTrox Technologies Sdn Bhd. This approach allowed for the validation of findings through the convergence of perspectives from different stakeholders. Additionally, member checking was conducted, whereby participants were given the opportunity to review and provide feedback on the thematic analysis, ensuring that their perspectives were accurately represented. Furthermore, researcher reflexivity was maintained throughout the study, by critically reflecting on own biases, assumptions, and preconceptions that may have influenced the data collection and analysis process. By adhering to these rigorous methodological strategies, the study enhances the credibility and trustworthiness of its findings, thereby contributing to the validity and reliability of the research outcomes.

Ethical Consideration and the Researcher's Role

Ethical considerations are important throughout the study. Stringent guidelines ensured participants' rights, privacy, and confidentiality. Approval was obtained, informed consent was secured, and anonymity was assured. Transparency and integrity were upheld, ensuring the validity of findings and participants' welfare.

FINDINGS

The findings of this study are based on the industry's perspective and how the industry thinks the WBL should be. With that being said, based on the result from the interview, the findings resulted in six themes presented below.

Theme One: Communication Between Industry Coaches, Lecturers and Students

The involvement and collaboration of the three parties in this WBL model are crucial. Constant discussion and feedback mechanisms among the three parties are needed to ensure the smooth execution of WBL. Industry coach 3 & 5 believes that the communication is to align the expectation between three stakeholders.

"*Industry coaches need to align their expectations with the students too to make the WBL more efficient."*

Industry Coach 3

"The communication between the school, the industry and the student needs to be very smooth to make sure that the WBL system can run better."

Industry Coach 5

The communication needs to happen in every stage of the WBL even before the students are attached to the industry to sync the outcome of the study. As mentioned by Industry Coach 2.

"Communicating with the lecturer at the beginning of WBL to sync the learning outcomes."

Industry Coach 2

Problems may occur if the alignment is not done correctly, especially the communication between lecturer and coach. The problem may happen because the coach doesn't know what to teach to the student.

"The lecturer gave the overall topic to the student and had no communication between the coach and the lecturer."

Industry Coach 4

Student 1 believes that if the coach can review the project that was given by the lecturer together with them then it would be best fit to the objective of having this WBL program.

"It's very good that the coach can review the project with them."

Student 1

Theme Two: Role of Higher Education Institutions, Industry Partners and Students

The role of each stakeholder is equally important during the WBL. The participants have pointed out what they expect and what has been done by each stakeholder during the WBL. The stakeholders here are referring to the Higher Learning Institute, Industry (Coach) and students.

a. Higher Education Institution

Student 2 believes that the fundamentals have to be taught in the school and students need to do self-learning to increase their knowledge before and during the WBL. Especially the theory of the particular subject. While students 1 & 3 think that there is a gap between theory understanding and practical understanding.

"The lecturer only teaches the basics of certain subjects in the school, and a lot of self-learning needs to be carried out."

Student 2

"There is a huge difference between what I had learnt in school and what I did in WBL."

Student 1 & 3

Even for coaches who find it the same way, as mentioned by Industry Coach 1, the biggest challenge of handling WBL is the fundamental knowledge of the student is not strong and this may affect the learning outcome for the student.

"The students don't have fundamental knowledge before entering WBL is the biggest obstacle so far."

Industry Coach 1

b. Industry Coach

In the context of workplace learning, the dynamics between lecturers and industry coaches often vary. As observed by Industry Coach 3, while lecturers may prioritize content delivery, industry coaches are tasked with determining the practical projects assigned to students.

"The lecturer focuses more on the content, and the coach needs to decide what kind of project to be given to the students."

Industry Coach 3

Preparation and training are crucial for effective coaching in the workplace learning environment. As noted by Industry Coach 2, attending institute-provided coach training is a foundational step before commencing student coaching.

"Attended the coach training provided by the institute before starting to coach the student."

Industry Coach 2

Industry Coach 1 highlighted the challenge posed by unclear guidelines from schools, particularly noting that engineers may struggle with educational terminology due to their unfamiliarity with academic language. Industry Coach 2 emphasised the importance of self-exploration in WBL, stressing the need for students to develop self-learning capabilities as they engage in practical learning experiences.

"The guidelines from the schools are not clear enough because engineers are very fresh to all the educational terms."

Industry Coach 1

"WBL is more on the self-exploration by the students themselves. The WBL students should be equipped with the self-learning capability."

Industry Coach 2

c. Student

Reflecting on their experience, Student 1 highlighted the substantial project they were tasked with during the WBL period. This project, which likely involved real-world applications and industry-specific tasks, provided a valuable opportunity for practical learning and skill development. Students 5, 3, and 6 conveyed their active involvement in industry-related projects throughout their WBL engagement. These projects, tailored to the needs and demands of the industry, allowed them to apply theoretical knowledge in practical settings, fostering a deeper understanding of industry processes and requirements.

"I have a major project to work on during the WBL."

Student 1

"I got the industry-related projects during my WBL."

Student 5, 3 & 6

Students need to be constantly aware of what's happening in the department they are attached to and ensure they understand the tasks and projects given by the industry coaches.

Theme Three: The Placement Period for the WBL Students

Student 3 expressed frustration with the brevity of the WBL period, stating that by the time they grasped the operations of the department, it was time to transition to another area. This sentiment underscores the challenge of fully immersing oneself in the learning experience within a limited timeframe, highlighting the need for a more extended duration to achieve comprehensive understanding and skill development.

"The WBL period is too short. I need to transfer to another department when I finally get to understand what's going on in the department".

Student 3

Industry Coach 5 expressed a desire for students to remain with the single department for a full semester, spanning 14 weeks. This extended period would allow sufficient time for students to delve deeply into their assigned tasks, absorb essential knowledge, and actively participate in meaningful projects. By spending an entire semester within the industry, students would have ample opportunities to gain valuable insights, develop practical skills, and fully integrate into the industry culture, ultimately enhancing their overall learning experience.

"I wish to have the students to be with us at least one full semester which is 14 weeks to ensure they really learn from us."

Industry Coach 5

"I would like to have one semester of WBL for each academic year."

Student 1

Student 1 expresses a preference for one semester of WBL per academic year. This suggests a desire for an extended duration of practical experience within the industry setting, possibly to gain a deeper understanding of real-world applications related to their field of study.

Theme Four: The Ideal Coaching Time from Coaches to Students

"I faced the obstacle when I wanted to find my coach to ask some relevant questions, but the coach was too busy, no time to meet him."

Student 2

Student 2 highlights a challenge encountered during their WBL experience - difficulty in accessing their coach for relevant inquiries. This obstacle suggests a potential communication gap between students and coaches, impacting the effectiveness of mentorship and guidance within the WBL program.

Industry Coach 3 emphasises the commitment to providing daily guidance and task briefings to the student, demonstrating a structured approach to mentor, and ensuring clarity in task assignments within the WBL program. This consistent engagement and direction-setting likely contribute to the student's understanding of their responsibilities and expectations, fostering a conducive learning environment.

'I spent every day 8 am - 9 am brief about the task list with the student".

Industry Coach 3

Theme Five: Self-Learning Support for Students by the Higher Education Institution

In the discussion with Student 8 and Industry Coach 2, they emphasise the significance of self-directed learning in WBL. They highlighted the importance of students taking initiative and responsibility for their own learning process, demonstrating self-dedication and the ability to explore and learn independently. This self-learning capability is considered essential for success in WBL, as it empowers students to actively engage with their work environment, seek out learning opportunities, and enhance their skills and knowledge autonomously.

"Self-dedication is very important for WBL. Students need to take the initiative to learn by themself."

Student 8

"WBL is more on the self-exploration by the students themselves. The WBL students should be equipped with the self-learning capability."

Industry Coach 2

Not only that, Student 7 emphasises the importance of having access to an online library provided by the school, highlighting its significance in the context of WBL. The quote suggests that in WBL, where self-learning plays a crucial role, having access to an online library facilitates independent learning and research. It implies that access to online resources enables students to supplement their learning, gather relevant information, and enhance their understanding of the subject matter, contributing to their overall learning experience during WBL.

"Online library access provided by the school is very important because WBL requires a lot of self-learning."

Student 7

Student 3 suggests that providing notes to students before WBL can support their self-learning efforts. This indicates that preparatory materials, such as notes or resources, offered prior to the commencement of WBL, can assist students in acquiring foundational knowledge or understanding essential concepts related to their field of study. By providing notes beforehand, students can familiarise themselves with the subject matter, enabling them to engage more effectively during their WBL experience.

On the other hand, Industry Coach 2 advocates for a two-week period of full training for students before WBL. This proposal implies that offering an intensive training program prior to the commencement of WBL can better prepare students for their practical experiences in the industry. This training period allows students to acquire necessary skills, knowledge, and competencies relevant to their WBL placements, ensuring they are adequately equipped to undertake their assigned tasks and responsibilities effectively.

"Notes can be provided to the students before the WBL to support student's self-learning."

Student 3

"The students should have two weeks of full training before WBL."

Industry Coach 2

Theme Six: WBL Assessment Criteria

Industry Coach 2 emphasizes the importance of ensuring that projects assigned to WBL students do not involve any private or confidential information. This statement underscores the need for caution when selecting tasks for WBL students, as they typically do not sign non-disclosure agreements (NDAs) with the hosting industry. By avoiding projects that entail sensitive or proprietary data, industry can mitigate the risk of inadvertent disclosure and uphold confidentiality standards. This approach helps maintain trust between the industry partner and the higher learning institute while safeguarding proprietary information from unauthorized access or disclosure during WBL placements.

"The projects that were given to the WBL student should not involve any private and confidential issue because the student did not sign a non-disclosure agreement with us."

Industry Coach 2

Industry Coach 4 highlights the significance of selecting impactful projects for students during WBL experiences. This statement underscores the mutual benefit that arises when students engage in projects that contribute positively to both their learning journey and the industry hosting them. By assigning meaningful tasks that align with the industry's objectives, students can gain valuable hands-on experience while also making tangible contributions to the industry. This symbiotic relationship fosters a dynamic learning environment where students acquire practical skills and knowledge while helping address real-world challenges faced by the industry. Ultimately, such impactful projects enhance the overall effectiveness and value of WBL programs for both students and industry partners.

"The projects that are able to make an impact on the company is a good thing for student and the company at the same time."

Industry Coach 4

Industry Coach 1 emphasises the strategic approach taken when assigning projects to students, focusing on process improvement initiatives that enhance operational efficiency without compromising manufacturing productivity. By selecting projects aligned with this criterion, the coach ensures that student involvement contributes positively to the industry's goals while offering valuable learning opportunities. This approach reflects a balance between leveraging student contributions for continuous improvement efforts and safeguarding essential production processes. It also underscores the importance of aligning student projects with industry priorities to maximise their impact and relevance within the industrial setting.

"The projects I gave to my students are more on process improvement, as it will not drag the manufacturing productivity but if workable is a plus point for us."

Industry Coach 1

DISCUSSION

The successful implementation of Work-Based Learning (WBL) in Malaysia hinges on the dynamic collaboration and communication between Higher Education Institutions (HEIs), industry partners, and students. Central to this model is the concept of co-creation pedagogy, where students, lecturers, and industry coaches work together to create a cohesive and effective learning environment (Jussila et al., 2020; Kunnari et al., 2019). The "Golden Triangle of WBL Stakeholders" underscores the importance of this triad's collaboration at various stages of the WBL process, ensuring that students are well-prepared, motivated, and supported throughout their learning journey.

Pre-WBL discussions, occurring at least one month before the placement starts, are crucial for aligning expectations and requirements among all stakeholders. These discussions enable industry coaches to understand students' abilities and prepare them mentally for the challenges ahead, thereby boosting their self-confidence, self-efficacy, and motivation (European Training Foundation, 2013). Such preparation is vital, as mentoring academics in industry settings remains a relatively new and evolving practice (Stephen et al., 2014). Continuous communication during the WBL period, facilitated by regular check-ins, ensures that the guidance provided by industry coaches aligns with the learning outcomes, maintaining students' interest and engagement. The discussion happens during WBL and is named ‘WBL Check-Ins Discussion’. To obtain information from the student and industry coach to see if there are things to improve, the industry coach will need to provide feedback on how the students can do better with the projects assigned by the industry coach or the competency of the student that needs to be acknowledged. This discussion will be named ‘Post-WBL Discussion’.

The roles of HEIs, industry partners, and students are distinct yet interconnected. HEIs play a pivotal role in bridging the gap between academic theory and industry practice by ensuring that the curriculum aligns with course learning outcomes (CLOs) and program learning outcomes (PLOs) (Brennan, 2005; Costley & Armsby, 2007; Raelin, 2010; Linehan & Sheridan, 2009; Emelo, 2011; White, 2012). Lecturers act as mediators, fostering communication and collaboration between students and industry coaches, and providing the necessary self-learning support to enhance student autonomy and initiative (Alten, 2020).

Industry partners, represented by industry coaches, are responsible for mentoring students, providing technical guidance, and assigning projects that allow practical application of theoretical knowledge. Regular check-ins ensure that students can perform tasks effectively, and clear guidelines from HEIs help industry coaches fulfill their roles without overwhelming them with administrative burdens. This balance is crucial for maintaining long-term collaboration and the overall success of WBL programs.

Students, as active participants in WBL, must adopt a proactive learning-to-learn attitude, engaging in self-learning and staying informed about their departmental activities. This engagement is essential for bridging the gap between academic knowledge and real-world application, preparing students for professional challenges (Toorani & Khorshidi, 2011).

The duration of WBL placements is also a critical factor. Current models, such as those at University Tunku Abdul Rahman in collaboration with ViTrox Technologies, range from 6 to 14 weeks. However, the WBL period to a full semester which is 14 weeks in total can provide students with adequate time for adaptation, self-learning, and project correction. This extended period allows students to fully engage with industry practices and complete their projects effectively, ensuring a more comprehensive learning experience.

Coaching time is another essential component of WBL. Industry coaches should ideally dedicate around 15% - 20% of their workweek to mentoring students, equivalent to 1 - 2 hours per day. This allocation aligns with best practices and ensures that students can seek guidance without disrupting the coaches' regular work activities (Aini et al., 2016). Establishing this optimal coaching time fosters a supportive learning environment and enhances the overall WBL experience.

Self-learning support from HEIs is crucial for empowering students to bridge the gap between theoretical knowledge and practical application. HEIs can provide online learning resources and access to libraries, allowing students to prepare adequately for their WBL placements. The preparatory period before WBL is a golden opportunity for students to build foundational knowledge related to their projects, with guidance from lecturers on navigating available resources effectively (Moos & Bonde, 2016).

Finally, the assessment criteria in WBL should focus on project-based evaluation, emphasizing student ownership and a learner-centred approach (Gray, 2001). Projects should be impactful, avoiding confidential information, and not hindering industry productivity. This approach ensures that WBL experiences are relevant and beneficial for both students and industry partners, promoting long-term collaboration.

In conclusion, the successful implementation of WBL in Malaysia depends on seamless collaboration and communication among HEIs, industry partners, and students. By aligning their roles and responsibilities, providing adequate support, and ensuring effective assessment methods, WBL programs can bridge the gap between academic theory and industry practice, preparing students for professional success.

CONCLUSION

Overall, Work-Based Learning (WBL) is a beneficial learning module for adoption in Malaysia's Higher Education Institutions (HEIs). It enables students to learn directly from industry practitioners, thereby reducing the knowledge transfer period after graduation. This paper provides a comprehensive overview for WBL practitioners, especially industry coaches and students who will participate in WBL. It also offers suggestions for implementing the WBL model based on the perspectives of industry coaches and students who have previously participated in WBL.

To ensure the successful implementation of WBL, three key discussions need to be conducted: Pre-WBL Alignment Discussion, WBL Check-Ins Discussion, and Post-WBL Discussion. HEIs must ensure that students receive sufficient self-learning support and regularly monitor their progress. Concurrently, coaches need to allocate adequate time for students, and students must be prepared to take the initiative in their self-learning. The ideal placement period suggested by coaches and students is 14 weeks, equivalent to one semester. The recommended coaching time is 1 to 2 hours per day with the students. Projects assigned to students should meet three criteria: they should not involve private and confidential information, they should be impactful, and they should not negatively affect the productivity of ongoing work.

While WBL is an excellent learning module to adopt, its execution presents additional responsibilities for HEIs, particularly in managing the involvement of industry partners. This study suggests specific strategies for implementing WBL in the Malaysian context to promote its adoption and address industry concerns regarding participation in WBL. By following these guidelines, HEIs can better facilitate the integration of WBL, ensuring that both students and industry partners benefit from this collaborative educational approach.

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RESEARCH ETHICS

The research obtained approval from the participants, with due consideration given to ethical concerns, including safeguarding participants' confidentiality, and respecting their right to withdraw from the study.

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