

The Implementation of Collaborative Industry Practices in Malaysian Vocational Colleges

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Abstract

Collaborative relationships between vocational colleges and the industrial sector are essential for preparing highly skilled graduates aligned with the job market needs. The need for collaborative implementation with the industrial sector in Malaysian vocational colleges (KV) is an initiative to provide competitive training programs through the empowerment of strategic industrial collaborative relationships to balance the current supply and demand of the workforce. Hence, this study is conducted to explore the implementation of industrial collaborative relationships in KV based on the Head of Industrial Relations and Training Unit Officer (KUPLI) perspective. This study uses a qualitative approach, while the multiple embedded case study has been used as a research design. The data was gathered through interviews and document analysis. The units of analysis for this study consist of KUPLI informants and informants from the Industrial Cooperation and Relations Unit Officer (UKHI) from the Department of Technical and Vocational Education, Malaysia Ministry of Education (BPLTV). The study samples were determined through a purposive sampling method. This study uses the thematic analysis method, and the data was analyzed using the NVIVO12 software. The result indicates that four collaborative relationships are being implemented in Malaysian vocational colleges (KV), including students' On-The-Job Training (OJT) programs, study programs quality assurance, the development of quality human capital, and professional sharing programs between KV and industries. The findings of this study provide an overview of the current practices of industrial collaboration in vocational colleges (KV). The researcher hoped this study would benefit KV and their industrial collaborators by providing an idea for effective industrial collaborative relationships.

Keywords: Industrial Collaboration, KUPLI, Head of Industrial Relations and Training Unit, Malaysian Vocational College, Qualitative Research, Multiple Embedded Case Study

Background of The Study

The "Industry4WRD" policy paper, tabled by the Malaysian Ministry of International Trade and Industry (MITI) in October 2018, has emerged as a crucial reference for preparing businesses and manufacturing sectors in Malaysia to navigate the Fourth Industrial

Revolution (IR4.0) (Shukri, 2020). The transition of the industrial landscape towards an era increasingly dominated by artificial intelligence (AI) in IR4.0 has sparked a debate regarding the preparation of skilled labor in the country to achieve industrial competitiveness in line with government policies. The challenge of producing highly skilled workers for this technological shift has prompted a paradigm shift in educational institutions to nurture talent and skills aligned with industry needs. Consequently, educational institutions must enhance their competitiveness by offering cutting-edge training programs and fostering strategic industrial collaborations to address the current workforce's supply and demand dynamics (Rahim, 2021).

The Malaysia Education Development Plan 2015-2025 (Higher Education) outlines various initiatives aimed at bolstering cooperation between industry stakeholders and educational institutions through collaborative relationships, including expertise sharing and advisory services. These initiatives encompass the development of industry-driven curricula, facilitation of industrial training placements and student internships, implementation of apprenticeship programs, establishment of industrial training facilities, and enhancement of teaching staff quality and program delivery standards. Concurrently, the evolving learning landscape in vocational colleges (KV), facilitated by the Implementation of Vocational Education Transformation (TPV) initiated by the Malaysian Ministry of Education (KPM) in 2011, underscores the significance of collaborative partnerships with industry players. Such partnerships are crucial for aligning program curriculum structures, academic management practices, and accreditation standards with evolving industry requirements.

Objectives of The Study

The collaboration between educational institutions and the industrial sector is increasingly recognized as crucial for enhancing a country's economic development (Belfield, 2012). Consequently, direct involvement of the industry in the education system of vocational colleges (KV) is deemed essential for nurturing and supporting the development of highly skilled human capital proficient in both technical and non-technical skills, thus fostering competitiveness (Rahim, 2021). However, establishing effective industrial collaborative relationships in KV faces several challenges, including concerns regarding the examination-oriented learning culture implemented in KV (Zahir and Sattar, 2015). In addition, the diverse geographical locations of KV present hurdles in implementing industrial collaboration, making it challenging to engage industries suitable for collaborative needs.

According to Zuhdi et al. (2017), mismatches in geographical features between urban and rural areas lead to variations in the types of industries present in a particular area. Besides, Norzaini and Morshidi (2021) mentioned in their study that challenges in implementing collaboration between educational institutions and industries stem from cultural conflicts, resulting in differing values and goals that hinder the formation of collaborative relationships among both parties. Meanwhile, the study conducted by Awasthi et al (2020) found that the success of an effective industrial collaborative relationship requires significant effort, good understanding, and profound experience. Additionally, to achieve a successful collaborative relationship, both parties must establish clear goals and possess critical skills in setting planned goals (Ramli and Senin, 2019). However, Awasthi et al (2020) found that behavioural barriers such as trust crises and mindset issues are more challenging than the goals for establishing an industrial collaborative relationship.

Hence, a literature review of previous studies on industrial collaborative relationships

revealed a predominant focus on indicators determining the success of such partnerships (Ramli and Senin, 2021). Additionally, there is significant emphasis on elements associated with expectations within collaborative relationships between educational institutions and industries, particularly in generating high-quality human capital (Dasgupta, 2017). Consequently, this study has been conducted to investigate various practices of collaborative implementation between vocational colleges (KV) and industries, as perceived by the Head of Industrial Relations and Training Unit (KUPLI).

Methodology

In this study, the researcher employs a qualitative approach utilizing a multiple-embedded case study design to investigate the current practices of industrial collaborative implementation in vocational colleges (KV). The data collection process incorporates a combination of interview methods and document analysis. Table 1.0 presents the matrix of data collection methods based on the required data type. For the primary data source of the study, the interview method is utilized to gather in-depth information from the study informants. Secondary data for the study is acquired through content analysis of documents pertinent to implementing industrial collaboration. Triangulation, which involves the use of multiple data collection techniques, is employed as a vital method to ensure the interrelatedness of data or methods used during data collection, thereby forming a cohesive conclusion in the draft research report (Creswell and Creswell, 2018; Merriam and Tisdell, 2016; Tobi, 2017).

Table 1.0

Matrix Schedule of Data Collection by Researcher

Type of Data	Data Collection Method	Item Types
1. Primary	1. Interview	1. Interview Protocol (Semi-structured)
2. Secondary	2. Document Analysis	2.1 Collaborative Activity Reports 2.2 Training Placement Reports 2.3 MoU/NoU Documents

Sampling

The purposive sampling method has been employed to select the informants involved in this study. The selection of informants is based on the Head of Industrial Relations and Training Unit (KUPLI) at KV, who serves as the informant (IK) for the first study unit. Meanwhile, an informant (IU) from the Industrial Cooperation and Relations Unit (UKHI), BPLTV, is selected as the informant for the second study unit. To determine the sample size for the study, it will not be predetermined at the outset. As noted by Othman Lebar (2018), in qualitative research, the sample size cannot be fixed initially because sample selection and data analysis are continuous processes until a saturation point is reached. In this study, the researcher will commence with a small number of informants and continue data collection until saturation is achieved.

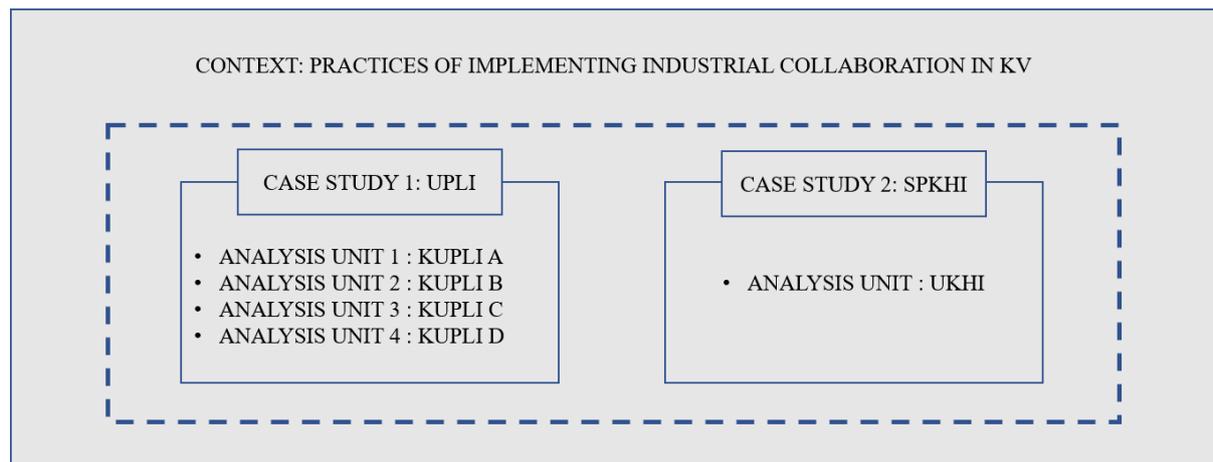


Diagram 1.0: Multiple Embedded Case Study Design

Diagram 1.0 illustrates the relationship between the study context and the informants focused on by the researcher. Within this study context, the case study is conducted based on two different informant groups: individuals from the Industrial Relations and Training Unit (UPLI) and the Vocational Development and Industrial Relations Sector (SPKHI), BPLTV. Meanwhile, the units of analysis for this study involve the Head of Industrial Relations and Training Unit (KUPLI) and the individual responsible for industrial collaborative relationships in the Industrial Cooperation and Relations Unit (UKHI).

Interviews

The interview process with the informants was conducted with five (5) participants, comprised of four (4) informants from KUPLI and one (1) informant from UKHI, who holds responsibility for industrial collaborative relationships at KV. Employing the multiple embedded case study method, the researcher categorized the case groups for KUPLI (Case A) and for UKHI (Case B) based on the suitability of the conducted case study.

The informants from KUPLI are personnel working in four (4) vocational colleges in Perak, Malaysia. In contrast, the informant from BPLTV is affiliated with UKHI and oversees the implementation of industrial collaboration at all of the Malaysian Vocational Colleges (KV). Below is a brief profile of the informants involved in this study.

Table 2.0

Informant Profile

No.	Informant	Experience as KUPLI/UKHI	Work Experience
1.	KUPLI A	5 years	> 8 years
2.	KUPLI B	3 years	> 8 years
3.	KUPLI C	4 years	> 8 years
4.	KUPLI D	2 years	> 8 years
5.	UKHI	2 years	> 8 years

For the acquisition of interview data, the researcher utilized a semi-structured interview protocol to explore the practices of industrial collaboration implementation in KV with the participating informants. As Othman Lebar (2018) described, semi-structured interviews integrate the flexibility of open-ended interviews with directive and consistent features. In this study, the researcher formulated two protocols based on the predetermined informant

groups outlined in Diagram 1.0. The interview questions crafted by the researcher were derived from the research questions and informed by a review of past studies. Subsequently, the interview records were transcribed verbatim and subjected to analysis to identify emerging themes and sub-themes.

The transcript analysis of interviews was performed using NVIVO12 software, employing a thematic analysis approach. Thematic analysis identifies, analyzes, and reports themes or patterns within the acquired data. As outlined by Junaid (2016), the themes developed after the coding process must be categorized based on principles of hierarchy, structure, or scope pertinent to the study. Therefore, in the generation of categories or concepts during the analysis, the researcher will scrutinize and observe the relationships between each emerging theme through an inductive analytical process

Research Findings

Student Training Placements in Industries Through the On-The-Job Training (OJT) Program

The transcript analysis of interviews was performed using NVIVO12 software, employing a thematic analysis approach. Thematic analysis identifies, analyzes, and reports themes or patterns within the acquired data. As outlined by Junaid (2016), the themes developed after the coding process must be categorized based on principles of hierarchy, structure, or scope pertinent to the study. Therefore, in generating categories or concepts during the analysis, the researcher will scrutinize and observe the relationships between each emerging theme through an inductive analytical process.

IK C: OJT is emphasized more because it is included in academic management as it determines whether students pass or fail.

The prioritization of the On-the-Job Training (OJT) program by KUPLI underscores its commitment to ensuring that no student is left behind during this crucial period. As a result, the collaborative efforts are concentrated on facilitating student placements for OJT in industries through mutual agreements or established Memorandums of Understanding (MoUs). This statement can be referenced as follows:

IK A: The focus of the MoU is indeed on student OJT training.

IK B: The priority of collaboration is certainly student OJT.

Due to the critical role of On-the-Job Training (OJT) in ensuring students' eligibility for graduation, the majority of core collaborative initiatives prioritize OJT over other collaborative benefits.

IK B: So far, what we are trying to achieve mostly focuses on student OJT training alone.

However, according to the Industrial Unit (IU) during the initial stage of industrial collaborative implementation, the primary objective was to facilitate student placement in industrial training. Nevertheless, the collaborative priorities in KV have evolved, moving beyond solely focusing on student On-the-Job Training (OJT) placements. Currently, the focus of industrial collaborative implementation in KV is broader, encompassing the enhancement of specific criteria to align with current academic needs.

IU: Initially, the implementation of industrial collaboration was done as long as it was possible when the industry could place our students for training or OJT internships. But now, we have upgraded our priority criteria if possible, not just limited to OJT.

Quality Assurance for Study Programs at KV

The research findings reveal that the conclusive phase of the collaborative process between KV and industry involves the signing of a Memorandum of Understanding (MoU), delineating the mutually agreed-upon goals. This MoU serves as tangible evidence of the specifics of the ongoing collaboration, outlining the terms and conditions established by BPLTV.

IK A: The collaborative MoU draft is from BPLTV, and its content cannot be altered.

This alignment means that all forms of collaborative procedures, outcomes, and objectives have been established equally for all KV to ensure the desired collaborative quality consistently. Informant *IK A's* statement is consistent with document KPM.100-9/2/1 Vol.5 (46), which characterizes the content of this document as legislative and issued by BPLTV. However, based on the current situation of industrial collaboration implementation at KV, UPLI at KV is more inclined to use the Note of Understanding (NoU) method as a means of stating the understanding relationship with the industry compared to MoU, which is more complex in terms of procedures and implementation. This statement can be referred to as follows:

IK A: Most KV nowadays prefer to adopt NoU over MoU because the NoU implementation process only involves KV and the industry.

IK C: In our KV now, we emphasize more on using NoU.

IK B: Every year, there is a target number of NoU that we need to achieve

The Note of Understanding (NoU) implementation process is also perceived as easier and more flexible to manage, thus becoming the preferred choice of UPLI as a form of collaboration agreement. This preference aligns with document KPM.600-12/1/1 JLD.23(88), which suggests that the implementation of NoU is regarded as more adaptable and can be tailored to suit the collaborative objectives based on the nature of the organization. However, contrasting findings were obtained from informants IU, who stress that the implementation of Memorandums of Understanding (MoUs) at KV should not solely prioritize quantity but should instead concentrate on the impact of their implementation.

IU: We now don't want to focus solely on the quantity of MoUs signed for industrial relations but without impact.

Focusing on Quality Human Capital Development

In an attempt to cultivate human capital aligned with current industry demands, KV undertakes various initiatives to offer comprehensive training encompassing theoretical and practical aspects. Nonetheless, these endeavors prove insufficient once students confront the actual work realities in the field. Thus, students gain exposure to the cultural practices and operational procedures prevalent in various industries nationwide through industrial training. Additionally, high-impact industry criteria are pivotal in shaping the collaborations to be established.

IU: Our current focus is on industries that can make a high impact, namely industries with potential in terms of facilities, expertise, skills, and better technology levels.

To achieve this goal, KUPLI needs to play a more focused role in effective collaboration with high-impact industries. This inclination can be observed through statements from informants such as the following:

IK D: In this KV, involving mostly technology courses, most of the collaborations we pursue are with high-impact companies.

Furthermore, with the increasing brand recognition of KV in the Malaysian industry market, industries have begun to show open interest by approaching KV to obtain students for industrial training in their companies. This progress allowed KUPLI to filter only potential and high-impact companies to approach for Collaboration.

IK A: Industries have begun to approach students, and naturally, we will only select high-impact companies.

Professional Partnership Between KV and Industry

In addition to collaborative efforts encompassing the placement and supervision of students during On-the-Job Training (OJT), the collaborative frameworks implemented in KV also require professional partnerships with the industry. Through such partnerships, diverse expertise and emerging industry technologies can be periodically shared with instructors at KV. However, the current emphasis of these partnerships lies on forging high-impact industrial alliances

IK D: Through this partnership, the company can offer training to staff on new and advanced machines, and the company is also willing to come to KV to share expertise.

IU: Currently, our focus is on high-impact industries, and we concentrate on skills and technology expertise partnerships to ensure quality outcomes, thus, we believe the collaboration between KV and the industry will be enduring.

However, certain industries voluntarily impart their expertise to lecturers and students. This represents a form of skill exposure and technical assistance extended by the industry, enabling students and lecturers to utilize donated machinery for mutual benefit

IK A: Companies provide lecturers and students with the freedom to create special designs for their products using the machinery they donate.

Such cooperation facilitates skill development through hands-on experience with real industrial machinery and enhances students' skills. Moreover, expertise sharing solves shortages of skilled lecturers in study programs and limitations in providing training equipment.

IK B: If KV lacks skills or equipment, what we see is that only the industry can share their expertise with us, and that's what we implement.

The study analysis revealed four (4) identified themes. These themes were constructed through coding and categorization, adhering to the principle of hierarchy, structure, or relevant concepts for this study. The themes and sub-themes can be observed in Table 3.0.

Table 2.0
Findings of Themes and Sub-themes

No.	Theme	Sub-theme
1.	Placement of student training in industry through the On-The Job Training (OJT) program	a. Student training to industry b. Selection of suitable training venues
2.	Quality assurance for study programs at Vocation Colleges	a. Memorandum of Understanding (MoU) b. Key Performance Indicators (KPIs) c. Skills enhancement program d. Recording industry profiles
3.	Focusing on the development of quality human capital	a. High-impact collaborative focus b. Alignment of collaboration with courses at KV c. Involvement of KV and industry in Research and Development (R&D) d. Technical cooperation in student career development
4.	Professional partnership between Vocation Colleges (KV) and industries	a. Expertise sharing b. Benefit sharing c. Knowledge sharing d. Equipment sharing or contribution

Summary

The current practice of collaborative industry implementation in KV encompasses four main objectives includes: i) student training placement in industries through the On-The-Job Training (OJT) program, ii) quality assurance for study programs in KV, iii) a clear focus on the development of quality human capital, and iv) professional sharing programs between KV and industries. The four collaborative industry practices in KV today are depicted in Diagram 2.0.

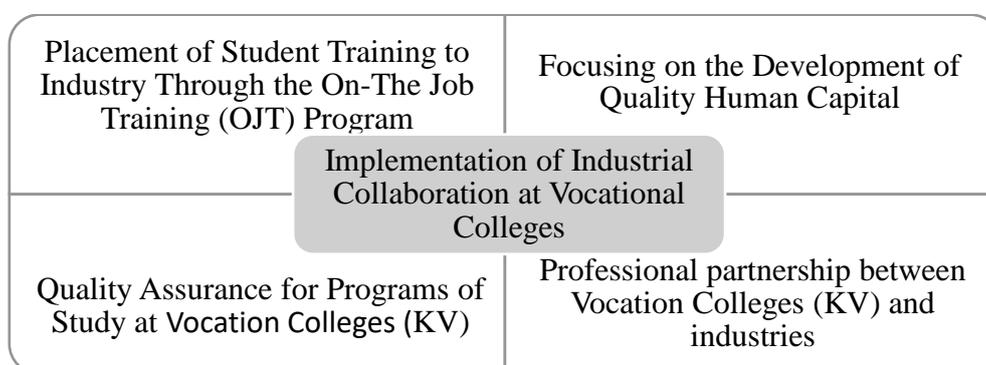


Diagram 2.0: Practices of Collaborative Industry Implementation in Vocational Colleges

Furthermore, prioritizing the fulfilment of requirements for student OJT training, which serves as a graduation qualification, is a key priority in implementing collaborative industry relationships. Additionally, committed key performance indicators (KPIs) are established to

ensure the quality of collaboration meets current industry demands. In addition, the impact of collaborative industries signifies a renewal in the scopes of cooperation, yielding significant implications for quality assurance, quality human capital, and professional partnerships.

The study findings also reveal that the authority governing the implementation of collaborative industries in KV varies based on management circumstances within each KV. As collaborative administrators, KUPLI is pivotal in ensuring that all collaborative industries consistently adhere to guidelines set by the Unit of Cooperation and Industrial Relations (UKHI), BPLTV. The requirements for implementing collaborative industries must also align with course outline guidelines and accreditation standards set forth by the Malaysian Qualifications Agency (MQA) and the Malaysia Board of Technologists (MBOT).

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