On-The-Job Training Management through Web Base Application for Vocational College Students: A Qualitative Study

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ABSTRACT

This qualitative study represents the first phase in developing a specialized On-the-Job Training (OJT) web application for a vocational college's Construction Technology Program. The research aimed to gather insights and requirements from On-The Job Training experts from vocational college, Technical and Vocational Education Division officials and industry experts to design On-The Job Training web application. 10 experts in construction technology and vocational education were interviewed to understand the specific needs of students and instructors within this field. Key findings reveal that there is a strong emphasis on the need for digital solutions to streamline OJT management processes. This includes the proposal of a comprehensive web application or digital platform that could facilitate remote monitoring of student activities, manage documentation more efficiently, and improve communication. Key features suggested for these digital solutions include online assessments, logbooks, daily task updates, a comprehensive database of industrial partners, and a three-party access system for students, supervisors, and lecturers. Experts emphasized the importance of interactive features, such as virtual simulations and real-time project tracking, to enhance learning outcomes. Moreover, the study uncovered a demand for a flexible and user-friendly interface that accommodates different learning paces and styles. The study's outcomes provide a foundational understanding of the essential components for the OJT web application. These insights will guide the next phase of development, focusing on technical specifications and pilot testing. This project aims to revolutionize vocational education in construction technology, aligning it more closely with industry needs and modern educational practices.

INTRODUCTION

On-the-Job Training (OJT) is a critical component of vocational education, particularly in fields that require hands-on experience, such as construction technology. The integration of practical work experience with academic learning helps students develop essential skills, understand industry standards, and become workforce-ready upon graduation. However, managing OJT programs can be complex, involving coordination between students, academic supervisors, and industry partners (Norhidayah et al., 2021). This complexity underscores the need for a robust, user-friendly web application to streamline the OJT process, enhance communication, and improve overall efficiency. Despite the recognized importance of OJT in vocational education, there remains a gap in the literature regarding effective digital solutions that facilitate these programs. This study addresses this gap by exploring the development of an OJT web application tailored specifically for a vocational college's construction technology program. The primary objective is to design a system that not only simplifies administrative tasks but also enriches the student learning experience through better data management, enhanced accessibility, and seamless interaction among all stakeholders (Vasanthi & Rabiyathul, 2019).

The research employs a qualitative approach, gathering insights from various experts in the field, including academic supervisors, industry professionals, and students. Expert opinions are crucial in identifying the key features and functionalities that the OJT web application must possess to be effective. For instance, the ability to update and track attendance, generate and print student profiles, and provide a platform for regular performance evaluations are highlighted as essential components (Na, 2021). Additionally, the system should be capable of handling capacity issues and ensuring user-friendliness to facilitate easy navigation and usage. One significant finding from expert consultations is the necessity of comprehensive guidelines and manuals to assist users in navigating the application. General information, student data, lecturer inputs, and industry contributions emerges as a recommended practice to enhance usability and ensure that all users can efficiently access and utilize the available resources. This study contributes to the ongoing discourse on vocational education by proposing a practical, scalable solution for OJT management (Musid et al., 2019). By leveraging expert insights and focusing on user-centric design, the developed web application aims to support vocational colleges in delivering effective, high-quality training programs that align with industry needs and standards. The findings and recommendations presented in this research are expected to inform future developments in educational technology, particularly in the context of vocational training and education.

LITERATURE REVIEW

Industrial training has emerged as a crucial element in higher education, serving not only to furnish students with practical experience but also to enhance their employability in the competitive job market. Such exposure not only acquaints students with the realities of the workplace but also immerses them in cutting-edge technologies not typically covered in academic syllabi, thereby ensuring their relevance in a dynamically evolving job market.

It's imperative that students judiciously select their training placements, considering living, accommodation, and transportation costs to avoid undue financial burden. Moreover, while allowances might not be substantial, the real value lies in the acquired knowledge and skills which are vital for future career prospects. Through this program, students also learn to navigate organizational dynamics, enhancing interpersonal and communication skills that build confidence and personal development (Azmi et al., 2018). They must uphold professionalism and confidentiality, reflecting the image of their educational institutions. Overall, industrial training is a significant step in preparing students for their professional journeys, urging them to adopt a mature, diligent approach and recognize the need for adaptability and continual improvement in practices.

Vocational Colleges have an important role to supply manpower that can meet the needs of the job market (Azmi et al., 2018; Land & Menzel, 2022; Yasin et al., 2013). Career readiness can explain whether an individual is ready or not to venture into the chosen career field. The main role of vocational colleges is to provide education and skills training to students in accordance with the skills required by the industry (Noor Mala Othman & Azman Hassan, 2019). However, the big challenge is to ensure that students who have been trained are ready to enter and explore the field of work in line with the skills they possess like graduates from other educational institutions in the country. Therefore, in an effort to realize the needs of a competitive workforce, the education system in Vocational Colleges must comply with a system that is efficient, flexible, facilitates and supports the national economic transformation process guided by the New Economic Model (Mohd Yusof et al., 2020).

Vocational College is one of the formal educational institutions in the country that produces students with knowledge in various fields, the various courses and fields offered indirectly open up various career opportunities that students will pursue after completing their studies. However, the majority of students lack self-preparation, so many of these students have to wait for months before getting any job (Musid et al., 2018). In addition, the growth of the global economy and the rapid development of the country's progress have an impact on educational institutions. Jie & Yasin (2022) have emphasized that the Malaysian education system is also moving towards the development of skills in the technical field where there is a growing need for students to venture into the industry. In line with that, Malaysian national leaders encourage Technical and Vocational Education (TVET) institutions to offer more competitive programs and training and meet the needs of the

industry, with guaranteed employment for graduates.

Data analysis of the previous study shows four main problems have been identified which are evaluation in OJT, OJT duration, OJT placement and scope of work at the workplace, syllabus, and the type of technology used in Vocational Colleges (Al Barwani & Azam, 2023). This study also shows deficiencies in the implementation of OJT for Diploma in Construction Technology and needs to be improved. Therefore, it is suggested that further research be carried out to examine the competency level of Malaysian Vocational College Construction Technology students after they undergo OJT. As the need for an appropriately skilled workforce is critical to economic growth in the digital age, expectations are high for TVET schools and institutions to achieve this (Husain et al., 2020; Sunny & Ismail, 2023; Wafi et al., 2023). Governments around the world are working to drive the digitization of the education sector and further align schooling with the needs of the private sector such as ("Digital Transformation Strategy for Africa", African Union 2020). Public discourse usually refers to digital innovation as an opportunity to improve the quality of education and offer solutions to long-standing problems (Langthaler & Bazafkan, 2020).

Research Questions

Thematic areas related to the implementation and impact of web base technologies in vocational settings is crucial. This will allow stakeholders to align the application's functionalities with the overarching educational goals and industry requirements. Thus, this study pursues to answer the following main research questions:

1) What are the elements needed to deveop web base On-The Job Training application?

2) What are the themes related to the study?

METHODOLOGY

The first phase in the Design and Development study (DDR) is the needs analysis phase (Sukor et al., 2021). Needs analysis is carried out in application development research, to ensure that the product produced can meet the needs of users. This needs analysis is carried out to identify the elements and specifications of On-The-Job Training applications that are able to meet the needs of lecturers, students and the industry. According to Nurulrabihah Mat Noh, (2020), the needs analysis phase data collection is through semi-structured interviews and the sampling technique is purposive sampling. Rejab et al., (2018) asserted that in phase 1, needs analysis is carried out to identify the needs of the model, module, framework or any innovation to be built. According to him, a needs assessment lager should also be conducted to determine product specifications. In addition, this phase can help researchers identify basic questions before developing applications (Sukor Beram & Marinah Awang, 2020).

In this phase, OJT management problems, the purpose and objectives of OJT application development as well as OJT application requirements can be carefully identified. The researcher will use semi-structured questions during the interview process. Ante-Lezama & González-Villanueva, (2022) has stated that by using a set of semi-structured questions in the interview session, the questions can be reused by other researchers in the future. Thus,the researcher can compare the findings across different studies and increase the reliability of the research. On the other hand, Ali & Marwan, (2019) states that researchers have control over certain variables that they want to investigate. These controls ensure that relevant data is collected and research objectives are met. Besides,semi-structured questions also generate data that can be easily categorized and analyzed and enable efficient data coding and facilitate qualitative analysis (Ali & Marwan, 2019; Meyer & Norman, 2020; Rouvrais et al., 2020). Semi-structured question interviews can minimize interviewer bias because the interviewer asks the same questions in the same way to all participants. This reduces the potential for subjective interpretation and ensures objectivity in data collection. Therefore, in this study, the interview method was chosen by using semi-structured questions, where it allows in-depth exploration but at the same time puts the scope of the study so as not to go beyond the extent of the information required. Figure 1 below shows the flow chart of the interview protocol.
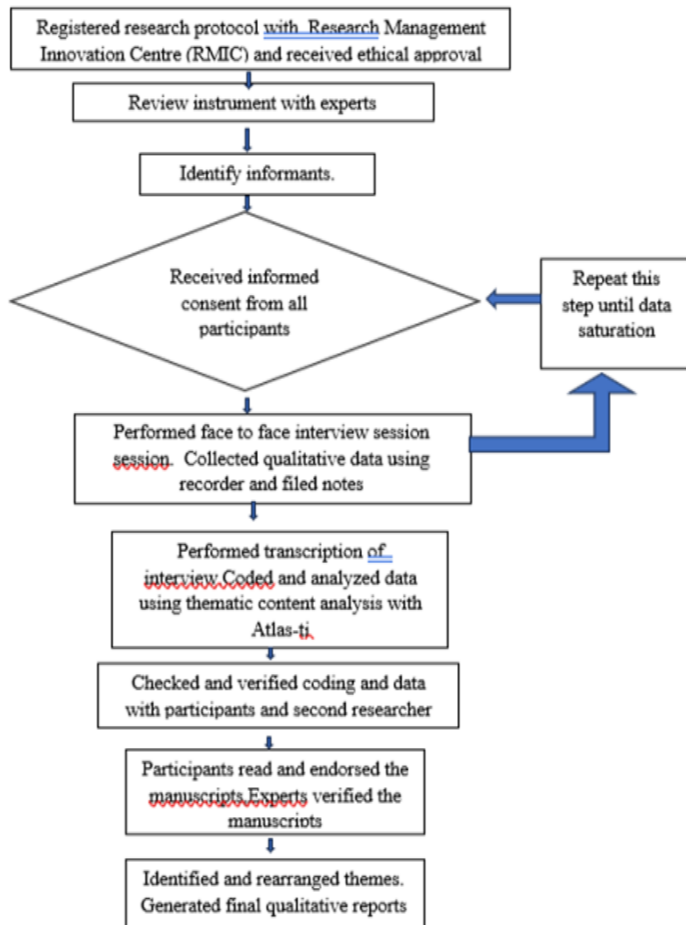
Fig 1 Flow chart of the interview protocol

Table 1.1 presents a detailed overview of the experts involved in identifying elements for the development of an On-the-Job Training (OJT) application. It includes professionals from both educational and industrial backgrounds, ensuring a comprehensive approach. The group comprises OJT Coordinators from Vocational Colleges (KV), each with over 15 to 20 years of experience, who also serve as lecturers. Additionally, it includes curriculum development experts from the Vocational Education Training Division (BPLTV), with experience ranging from over 15 to 20 years, holding positions as heads of curriculum development panels. The table also lists industry professionals from the construction sector, with roles such as Project Manager and Site Supervisor, boasting experience levels between 15 and 22 years. This diverse group of highly experienced professionals brings a wealth of knowledge from both academic and practical perspectives, ensuring that the development of the OJT application is well-informed and addresses real-world needs effectively.

Table 1.1 Experts Demography

Respondent	Experience	Position	Field of Work
E1	> 15 years	OJT Coordinator KV	KV Lecturer
E2	> 15 years	OJT Coordinator KV	KV Lecturer
E3	> 15 years	OJT Coordinator KV	KV Lecturer
E4	> 20 years	OJT Coordinator KV	KV Lecturer
E5	> 20 years	OJT Coordinator KV	KV Lecturer
E6	> 15 years	Head of Curriculum Development Panel, Construction Technology Program (BPLTV)	BPLTV Officer
E7	> 20 years	Head of Curriculum Development Panel (BPLTV)	BPLTV Officer
E8	> 20 years	Construction Site Project Manager (Student Employer)	Building Construction
P9	> 20 years	Construction Site Supervisor	Building Construction
E10	> 15 years	Construction Site Supervisor	Building Construction

FINDINGS

The development of an OJT web application to manage On-The Job Training (OJT) in vocational college construction technology programs requires a comprehensive understanding of various themes identified through expert interviews and analyzed using Atlas. ti software. This theme covers core aspects of the OJT process, from industry alignment to cyber security that can benefit all stakeholders. Industry information forms the basis of the OJT web application by emphasizing the need to connect students with real-world industry needs. The elements formed under industry information are career opportunities, industry list, job description and E-Certificate. This includes the need for students to engage and understand the industry they will be entering. This alignment not only prepares students for immediate employment opportunities but also familiarizes them with industry standards, expectations, and the dynamic nature of job roles in their chosen fields. Student documentation information and monitoring information are essential to track student progress and engagement in their OJT placement. The OJT web application facilitates the management of important documents such as log books, OJT manuals, student profiles and forms, while providing a platform for regular attendance tracking and reporting.

This documentation serves as a record of the student's journey, offering insight into their daily activities, the learning and supervision they receive. A comprehensive documentation system helps in streamlining the OJT process and making it more manageable for students, educators and industry supervisors. Assessment information management and OJT data analysis focus on the assessment of student performance and the effectiveness of OJT placements. Online scores and analysis of student employability data offer a quantitative measure of student achievement and the impact of OJT on their readiness for the workforce. Meanwhile, access and limitation elements and cybersecurity help address the usability of web applications and the protection of sensitive data. Easy access to necessary information while maintaining strict data protection measures is essential to the integrity and success of the OJT process. The inclusion of general info such as a user manual, and a suggestion box further support the application's goal of being a comprehensive, secure and user-friendly platform to manage the OJT experience. The next section is on the findings of the phase 1 study.

Theme 1: Industry Information

Table 1.2 reveals key insights from experts on elements that should be incorporated into an On-the-Job Training (OJT) web application to enhance its effectiveness for students. Expert E6 suggests including a list of companies that have previously hosted OJT students. This feature would facilitate networking opportunities and provide current students with guidance and insights from alumni, thereby broadening their career perspectives and improving their preparedness for the job market. Expert E8 emphasizes the importance of highlighting the career growth and development opportunities within companies. This would attract students who are looking for long-term career advancement, motivating them to engage with the application and the OJT program. Finally, Expert E10 recommends utilizing an industry database to provide career information to students. Such a database would offer valuable insights into various career options, trends, and required skills, serving as a comprehensive resource for students to explore different industries and make informed career choices. Together, these enhancements aim to create a robust OJT web application that not only facilitates placements but also supports students' long-term career planning and development.

Table 1.2 Expert's View on Industry Information

CODE	EXPERT	QUOTE
17:10 ¶ 77 in Expert Transcript 6	E6	I think it's better to enter the list of companies that used to be OJT students. These students are happy to consult or find an OJT place. Actually, this can also be a platform to open students' minds towards their careers
19:3 ¶ 41 in Expert Transcript 8	E8	….the company has career growth. Career development in the company
21:2 ¶17 in Expert Transcript 10	E10	This industry database is actually able to provide career information to students

Theme 2 : Student Documentation Information

Table 1.3 highlights expert insights on the incorporation of student profiles into an On-the-Job Training (OJT) web application. Expert E9 (in Expert Transcript 9, Quote ¶ 98) emphasizes the importance of having students fill out an OJT student profile form online, referencing specific forms (KVOJT01 to KVOJT06). The expert suggests that once students complete these forms online, they will automatically generate a comprehensive student profile. This integration would streamline the process of creating and maintaining student profiles, ensuring that all necessary information is readily available and up-to-date. Expert E1 (in Expert Transcript 1, Quote ¶ 42) stresses the need for students to provide various types of personal information, including details like their blood type, in their profiles. This highlights the importance of capturing detailed personal information to create a thorough and useful student profile. By implementing these suggestions, the OJT web application can ensure that each student's profile is complete and contains all necessary personal information. This would not only facilitate better matching of students to suitable OJT placements but also provide employers with comprehensive profiles to review, thereby enhancing the overall efficiency and effectiveness of the OJT program.

Table 1.3 Expert's View on Student's Documentation Information

CODE	EXPERT	QUOTE
20:3 ¶ 98 in Expert Transcript 9	E9	Students have an OJT student profile form...Ok...remember the KVOJT01 to KVOJT06 forms..mmmmh...I think when students fill out the form online, it will automatically become a student profile.
12:3 ¶ 42 in Expert Transcript 1	E1	so the student must fill in all kinds of personal information..blood type..in the student's profile

Theme 3 : Monitoring

Table 1.4 illustrates expert opinions on the importance of incorporating attendance tracking features into an On-the-Job Training (OJT) web application. Expert E4 (in Expert Transcript 4, Quote ¶ 56) highlights the need for a system that continuously updates student attendance within the application. This implies a real-time or regularly updated feature that records when a student is present, ensuring accurate and up-to-date attendance records. Such a system would enhance transparency and accountability, providing both students and administrators with a clear record of attendance. Expert E2 (in Expert Transcript 2, Quote ¶ 69) suggests that students should be able to upload their attendance records. In cases where a student cannot attend, they should upload a medical certificate (MC) as proof of their absence. Furthermore, the system should allow for the uploading of monthly attendance records. This feature would provide flexibility in attendance management, ensuring that all attendance data, including justifications for absences, is comprehensively documented. By incorporating these features, the OJT web application can ensure accurate and detailed attendance tracking. This would not only facilitate better management and oversight of student attendance but also provide a reliable record for both students and employers, enhancing the overall effectiveness and accountability of the OJT program.

Table 1.4 Expert's View on Monitoring On-The-Job Training

CODE	EXPERT	QUOTE
15:2 ¶ 56 in Expert Transcript 4	E4	if there is a system that shows when the student is present, he continues to update the attendance in the application.....
13:4 ¶ 69 in Expert Transcript 2	E2	You can also upload attendance. If the student cannot attend, he has to upload his MC. Even monthly attendance can be uploaded.

Theme 4 : Evaluation

Table 1.5 provided offers expert insights on the necessity of online marking and evaluation forms for supervisors within an On-the-Job Training (OJT) web application. Expert E4 (in Expert Transcript 4, Quotes ¶

257 and ¶ 275) discusses two key aspects of the evaluation process. Firstly, E4 emphasizes the need for supervisors to have an online mark form that is prepared with a rubric. This suggests the creation of standardized evaluation criteria that can be consistently applied, ensuring fair and objective assessment of student performance. The online availability of this form enhances accessibility and ease of use for supervisors. Secondly, E4 suggests that the mark form should be filled in periodically, ideally every month, amounting to six monitoring times throughout the OJT period. This regular evaluation allows for continuous monitoring and feedback, helping students to improve and develop their skills progressively. The expert also mentions that the average score should be given, and students should be provided with opportunities to improve their performance based on the feedback received. Incorporating these features into the OJT web application would facilitate a structured and transparent evaluation process. It ensures that supervisors can easily and consistently assess student performance, while students receive regular feedback and opportunities for improvement, ultimately enhancing the learning and development experience within the OJT program.

Table 1.5 Expert's View on Ojt Evaluation

CODE	EXPERT	QUOTE
15:15 ¶ 257 in Expert Transcript 4	E4	The supervisor must have a mark form that can b filled out online. The form must be prepared with th rubric once
15:17 ¶ 275 in Expert Transcript 4	E4	My view is that the mark form is filled i periodically. It is better if the score is filled in ever month which is 6 monitoring times .. The averag score is given and students are given a chance

Theme 5: OJT Data Analysis

Table 1.6 highlights expert insights on the benefits and functionalities of incorporating data management features into an On-the-Job Training (OJT) web application. Expert E1 (in Expert Transcript 1, Quote ¶ 106) discusses the broader impact of the developed apps, noting that they can significantly aid various parties, including Technical Vocational Education and Training Division (TVETD), Ministry Of Education (MOE) and Vocational College. E1 emphasizes that these apps facilitate the tracing and management of OJT student data, which is crucial for smooth management processes and marks an important step toward digitization. This move to digitization ensures more efficient handling of student data and supports the overall management of the OJT program. Expert E6 (in Expert Transcript 6, Quote ¶ 112) underscores the importance of enabling lecturers to easily generate and print student data within the application. This functionality would simplify the process of analyzing student performance and progress. By allowing data to be easily accessed and printed, the application would support more effective and timely evaluations. Incorporating these features into the OJT web application would provide significant benefits: enhanced data management, which facilitates efficient tracing and handling of student data; support for multiple stakeholders, by providing accessible and organized data to various parties (e.g., BPLTV, KPM, KV); and ease of data generation and analysis, allowing lecturers to streamline the evaluation process and perform comprehensive analysis. These functionalities would collectively enhance the efficiency, transparency, and effectiveness of the OJT program, benefiting both students and administrators.

Table 1.6 Expert's View on Ojt Data Analysis

CODE	EXPERT	QUOTE
12:10 ¶ 106 in Expert Transcript 1	E1	The developed apps can help many partie especially BPLTV, KPM and also KV. And wit these apps to trace the data of OJT students.. smoot management and .. the important thing is that we ar moving to digitization...
17:15 ¶ 112 in Expert Transcript 6	E6	lecturers if possible... generate student data easily i these apps.. I mean this student data can be printed. making it easier to analyze students…..

Theme 6: Access And Limitations

Table 1.7 highlights expert insights on the accessibility and monitoring features that should be incorporated into an On-the-Job Training (OJT) web application. Expert E1 (in Expert Transcript 4, Quote ¶ 93) suggests that the system should be accessible to the student and monitored by both the student's supervisor and the industry supervisor, ensuring comprehensive oversight and support. Expert E6 (in Expert Transcript 5, Quote ¶ 56) recommends including a checklist of the forms that students need to submit online, along with the marks that are displayed exclusively for students. Incorporating these features into the OJT web application would enhance transparency and accountability, allowing for better monitoring and support from supervisors while ensuring that students are well-informed about their progress and requirements.

Table 1.7 Expert's View on Access and Limitation

CODE	EXPERT	QUOTE
15:4 ¶ 93 in Expert Transcript 4	E1	The system can be accessed by the student himsel and monitored by his supervisor and industr supervisor
16:8 ¶ 56 in Expert Transcript 5	E6	Checklist of the forms that he needs to send onlin and the marks that are displayed for students only.

Theme 7: General Information

Table 1.8 highlights expert insights on the need for general information that should be accessible to all users of the On-the-Job Training (OJT) web application. Expert E2 (in Expert Transcript 2, Quote ¶ 78) emphasizes the importance of preparing a manual to guide users in navigating and utilizing the application effectively. Additionally, Expert E6 (in Expert Transcript 6, Quote ¶ 65) suggests organizing the information according to categories such as general information, student information, lecturers, industry, and so on. This structured approach would ensure that the information is well-organized and easily accessible, enhancing the user experience and ensuring that all users, including students, lecturers, and industry supervisors, have the necessary guidelines and information to use the OJT web application efficiently.

Table 1.8 Expert's View on General Information

CODE	EXPERT	QUOTE
13:7 ¶ 78 in Expert Transcript 2	E2	Also prepare a manual for user use.......
17:8 ¶ 65 in Expert Transcript 6	E6	I think it's better to organize it according to genera information,student information....eeeeeeeermmmmmmmm lecturer industry and so on. So with this I think th information is more organized.

Theme 9: Function

Table 1.9 highlights expert views on the functionality of the On-the-Job Training (OJT) web application. Expert E2 (in Expert Transcript 2, Quote ¶ 146) notes that while there are not many issues in terms of achievements, there are occasional problems with development and access, often related to capacity, indicating a need for ongoing review and improvement. Expert E6 (in Expert Transcript 6, Quote ¶ 118) stresses that the application should be user-friendly and effectively facilitate the OJT process for the vocational college. Together, these insights suggest that ensuring ease of use and addressing capacity-related issues are crucial for the optimal functioning of the OJT web application.

Table 1.9 Expert's View on Ojt Application Function

CODE	EXPERT	QUOTE
13:18 ¶ 146 in Expert Transcript 2	E2	in terms of achievement... there aren't many issues. sometimes it's developed... sometimes you can't ge in... it's... the issue is his issue... the issue c capacity... you have to look back
17:17 ¶ 118 in Expert Transcript 6	E6	this application should work as user-friendly an facilitates the OJT process of this vocational colleg

Code Distribution

Based on the analysis of expert views, a bar chart was created using Atlas-ti to show the distribution of theme codes. The theme code distribution is shown in Figure 2 below. The highest distribution of theme codes focused on industry information, followed by student documentation information. Next, access and limitations, monitoring information, evaluation, general information, OJT data analysis management and finally cyber security. The provided charts highlight the areas of focus and expert contributions in the development of an On-the-Job Training (OJT) web application. The top chart shows that 'Information on Industry' (37 mentions) and 'Students Documentation' (32 mentions) are the most emphasized categories, indicating their critical importance. 'Access & Limitation' (21 mentions) and 'Monitoring Information' (20 mentions) also receive significant attention. The bottom chart illustrates that Expert 4 (D 15) made the most extensive and diverse contributions, particularly in 'Evaluation Information' and 'Students Documentation'. Overall, the data underscores the necessity of robust information management and documentation features, with expert feedback emphasizing the need for comprehensive and user-friendly solutions in these areas.
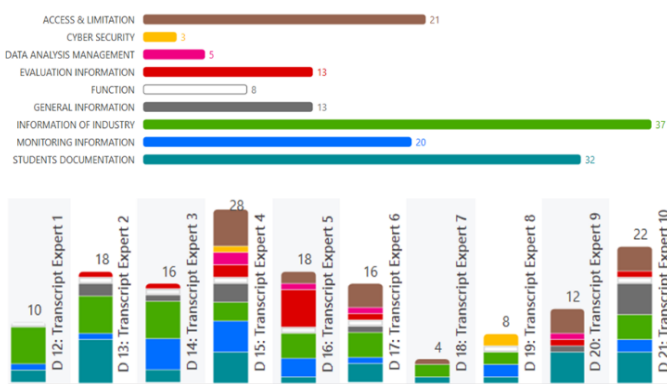
Fig 2: Theme and code distribution by document

Table 1.10 shows the data analysis of expert interviews where P1-P10 represent the number of experts. This section discusses the findings of the study that has been conducted in phase 1, which is the needs analysis phase. Phase 1 in implementation aims to answer research question 1, which is to identify the elements that must be present in the OJT web application to meet the requirements of the OJT course at the vocational college.

Table 1.10 Analysis of Experts View

ELEMENTS	E1	E2	E3	E4	E5	E6	E7	E8	E9	E10
1 INDUSTRY INFORMATION										
Career Opportunity		/		/		/	/	/		/
Industry list	/	/	/	/	/	/	/	/	/	/
Job Description	/		/			/	/	/		
E-Certification	/				/				/	/
2 STUDENTS DOCUMENTATION INFO										
Log book	/		/	/	/	/	/		/	/
OJT Guideline	/		/			/	/			/
Students Profile	/				/	/	/			/
Students information		/	/	/		/				
3 OBSERVATION INFRMATION										
Students Attendance	/	/	/	/	/	/	/	/	/	/
Attenndance Report	/			/	/	/	/		/	/
Attendance Confirmation	/		/	/	/					/
Issue			/	/	/					
4 Evaluation Information										
Progress Marks	/	/	/	/	/	/		/		/
The score form is filled in periodically (3 times or 6 times)		/							/	/
Organizational supervisor score display	/	/		/	/	/			/	/
Display of supervisor lecturer marks	/	/		/	/	/			/	/
5 DATA ANALYSIS										
Students marketability Report	/	/	/	/	/	/			/	/
Individual analysis		/		/	/				/	
6 ACCESS AND LIMITATION										
Student										
List of Industry		/	/		/		/		/	/
Students Marks		/	/	/	/				/	/
Job Advertisement	/	/	/	/	/	/	/	/	/	/
Industry										
Company Profile							/	/		
Supervisors marks		/		/	/		/	/		
No Access limits for lectures	/	/	/	/					/	/
7 GENERAL INFORMATION										
Users Guide		/		/					/	
Suggestion Box		/		/						
8 SAFETY										
Data Security				/			/			
Limited Data Sharing				/			/	/		
9 FUNCTION										
Capacity		/		/						/

Based on expert's opinion in Table 1.10, it was found that industry information, student documentation, monitoring and evaluation information, access and limitation and data security are important aspects that are taken into account when developing this web base OJT application.

CONCLUSION

The prioritization of key elements in the development of an on-the-job training (OJT) web application is essential to create an effective and efficient learning platform. Critical components such as Monitoring and Evaluation are fundamental, as they ensure the training provided is continuously assessed and improved based on performance feedback. These mechanisms enable trainers and managers to tailor their approaches according to individual progress and the effectiveness of different training modules. Additionally, a strong focus on OJT Data Analysis empowers the application to utilize data-driven strategies to enhance learning outcomes, making the application not only a tool for training but also for strategic decision-making. Functionality remains a cornerstone of any successful application. The user interface must be intuitive and engaging, simplifying complex processes and encouraging frequent usage without overwhelming the users. Equally important is the robustness of Access and Limitations settings, which protect user data and ensure compliance with privacy regulations. This dual focus helps in maintaining a secure yet flexible environment where users can navigate easily and access necessary training resources efficiently. Incorporating detailed Industry and General Information within the training content significantly elevates the utility and relevance of the training modules. By aligning the content with current industry practices and standards, the application ensures that learners are not only well-trained but also up-to-date with industry norms and expectations. Furthermore, maintaining a comprehensive system for Student Documentation Information enables personalized learning experiences, with adjustable training pathways that reflect individual achievements and areas needing improvement, thus maximizing educational impact. Looking ahead, the continuous integration of user feedback into the development process will be crucial in refining the application and ensuring it remains aligned with user needs and industry trends. Future enhancements should consider advanced analytics and adaptive learning technologies to further customize the learning experience, catering more specifically to the diverse needs of users. By staying responsive to technological advancements and the evolving landscape of workplace training, the OJT web application can sustain its relevance and effectiveness as a critical educational tool in various industries. As development progresses, it will be important to continuously gather and integrate user feedback to refine and adapt the application. This iterative process should focus on enhancing user interaction and ensuring that the application evolves in line with changing industry standards and educational needs. Additionally, future expansions could include more advanced analytical tools and learning algorithms to further tailor and enhance the learning experience, thereby maintaining the application's relevance and effectiveness in a rapidly changing work environment. Such enhancements should be guided by ongoing research and user engagement metrics to align with the actual needs and challenges faced by trainees.

The development of an on-the-job training (OJT) web application requires a focused approach on critical elements identified through expert feedback to ensure it is both effective and user-centric. Prioritizing Monitoring and Evaluation is crucial as these components allow for continuous assessment of the program's effectiveness and the adaptation of training strategies to meet specific objectives. Similarly, leveraging OJT Data Analysis is essential to drive personalized training experiences and optimize learning outcomes, making the training not only responsive but also predictive. Functionality must be user-friendly, intuitive, and integrate seamlessly across different modules and features, supporting a wide range of user needs from accessibility to complex data handling. The emphasis on Access and Limitations suggests a dual need for ease of use and stringent security measures to protect sensitive information and comply with data privacy laws. This balance is paramount in fostering a secure yet accessible environment where users feel confident in the platform's ability to handle their data responsibly. Furthermore, incorporating detailed Industry and General Information within the training modules can significantly enhance the relevance and applicability of the training content, thereby increasing engagement and the practical value of the training. The role of comprehensive Student Documentation Information is also vital as it supports customized learning paths and feedback mechanisms, which are key to individual development and improvement. As development progresses, it will be important to continuously gather and integrate user feedback to refine and adapt the application. This iterative process should focus on enhancing user interaction and ensuring that the application evolves in line with changing

industry standards and educational needs. Additionally, future expansions could include more advanced analytical tools and learning algorithms to further tailor and enhance the learning experience, thereby maintaining the application's relevance and effectiveness in a rapidly changing work environment. Such enhancements should be guided by ongoing research and user engagement metrics to align with the actual needs and challenges faced by trainees.

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REFERENCES

1. Al Barwani, A., & Azam, S. M. F. (2023). Assessing The Effect Of Ojt Training Quality Factors On Tvet Students' Satisfaction In Preparing For Employment In Oman. European Journal of Education Studies. https://doi.org/10.46827/ejes.v10i8.4910
2. Ali, A., & Marwan, H. (2019). Exploring Career Management Competencies in Work Based Learning (WBL) Implementation. 1, 159–166.
3. Ante-Lezama, M., & González-Villanueva, M. (2022). Community life perceived by young people in a region in agricultural-industrial transition. Interdisciplinaria, 39(2), 281–296. https://doi.org/10.16888/interd.2022.39.2.18
4. Azmi, A. N., Kamin, Y., Noordin, M. K., & Ahmad, A. N. (2018). Towards industrial revolution 4.0: Employers' expectations on fresh engineering graduates. International Journal of Engineering and Technology(UAE), 7(4), 267–272. https://doi.org/10.14419/ijet.v7i4.28.22593
5. Husain, S. H., Che-Ani, A. I., Affandi, H. M., Nasri, N. M., & Musid, N. A. (2020). Mismatch in supply and demand of building surveying graduates' skills: A triangulation perspective. Journal of Technical Education and Training, 12(4), 70–80. https://doi.org/10.30880/jtet.2020.12.04.007
6. Isa, Z. C., & Azid, N. (2021). Embracing TVET education: The effectiveness of project based learning on secondary school students' achievement. International Journal of Evaluation and Research in Education, 10(3), 1072–1079. https://doi.org/10.11591/IJERE.V10I3.21392
7. Jie, B. G., & Yasin, R. M. (2022). Usaha Meningkatkan Kesedaran Pelajar dan Ibu Bapa Terhadap Kebolehpasaran Pekerjaan dalam Bidang TVET. Jurnal Dunia Pendidikan, 4(1), 529–539. https://doi.org/10.55057/jdpd.2022.4.1.43
8. Land, M., & Menzel, M. (2022). Digital assistance systems for practical vocational training in inter-company training centres in the metal industry. 19, 1–17.
9. Langthaler, M., & Bazafkan, H. (2020). Digitalization, education and skills development in the global South: An assessment of the debate with a focus on Sub-Saharan Africa. Austrian Foundation for Development Research, 28, 1–24. https://www.econstor.eu/handle/10419/228970%0Ahttp://hdl.handle.net/10419/228970%0AStandard-Nutzungsbedingungen:
10. Meyer, M. W., & Norman, D. (2020). Changing Design Education for the 21st Century. She Ji, 6(1), 13–49. https://doi.org/10.1016/j.sheji.2019.12.002
11. Mohd Yusof, M. H., Arsat, M., Amin, N. F., & Abdul Latif, A. (2020). Issue and Challenge for Vocational Teaching Quality in the Vocational College Lecturers: A Systematic Review/ Isu dan Cabaran Kualiti Penyampaian Pengajaran Bidang Vokasional dalam Kalangan Pensyarah Kolej Vokasional: Satu Ulasan Sistematik. Sains Humanika, 12(2–2), 9–13. https://doi.org/10.11113/sh.v12n2-2.1779
12. Musid, N. A., Affandi, H. M., Abas, N. H., & Kamal, M. F. M. (2019). The soft skill elements in an on-job training (OJT) (organisation) assessment rubric for construction technology students in Malaysian vocational colleges. Journal of Technical Education and Training, 11(3), 84–93. https://doi.org/10.30880/jtet.2019.11.03.011
13. Musid, N. A., Firdaus, M., Kamal, M., Yunus, F. A., Mohd Affandi, H., Amin, F., & Yunus, N. (2018). The Identification of On Job Training (OJT) Problems among Malaysian Vocational College Construction Technology Students Safety and Health Perception among Students in Workshop View project The Identification of On Job Training (OJT) Problems among Malays. Article in International

Journal of Engineering & Technology, 7(January), 123–125. https://www.researchgate.net/publication/355585304

14. Na, K. (2021). The Effect of On-the-Job Training and Education Level of Employees on Innovation in Emerging Markets. https://doi.org/10.3390/joitmc

15. Noor Mala Othman, & Azman Hassan. (2019). Elemen Kesediaan Kerjaya ke Arah Kebolehpasaran Graduan Kolej Vokasional Bidang Hospitaliti di Malaysia Berdasarkan Keperluan Pensyarah. NO 20 Journal of Management and Operation Research, 1(20), 9.

16. Norhidayah, M. H., Nursabila, R., & Shahnun, M. (2021). Keberkesanan Latihan Industri Ke Atas Pelajar Tahun Akhir- Satu Ulasan. 3(1), 228–231.

17. Nurulrabihah Mat Noh. (2020). Pembangunan Model Pengajaran Pemikiran Reka Bentuk Sekolah Rendah Nurulrabihah Bt Mat Noh Fakulti Pendidikan. 348.

18. Rejab, M. M., Chuprat, S., & Azmi, N. huda F. M. (2018). Proposed Methodology using Design Development Research (DDR) Improving Traceability Model with Test Effort Estimation. International Journal of Academic Research in Business and Social Sciences, 8(8), 686–699. https://doi.org/10.6007/ijarbss/v8-i8/4625

19. Rouvrais, S., Remaud, B., & Saveuse, M. (2020). Work-based learning models in engineering curricula: insight from the French experience. European Journal of Engineering Education, 45(1), 89–102. https://doi.org/10.1080/03043797.2018.1450846

20. Sukor, B., Marinah, A., Ramlee, I., & Norzalina, N. (2021). Aplikasi fuzzy delphi method terhadap kompetensi kepimpinan organisasi bagi pemimpin pertengahan pendidikan. Management Research Journal, 10(October), 82–93. https://doi.org/10.37134/mrj.vol10.sp.7.2021

21. Sunny, R., & Ismail, A. (2023). Exploring Strategies to Enhance TVET Engagement in Maldives to Improve Youth Career Development. Journal of Technical Education and Training, 15(1), 265–276. https://doi.org/10.30880/jtet.2023.15.01.023

22. Vasanthi, S., & Rabiyathul, S. (2019). On the Job Training Implementation and Its Benefits. International Journal of Research and Analytical Reviews (IJRAR), 6(1), 210–215.

23. Wafi, A. A., Subri, U. S., Asshaari, I., Zulkifli, R. M., Mohamed, S., Hanapi, Z., Che' Rus, R., & Kamal, M. F. M. (2023). 'Turning Job Seekers to Job Creators': Talent Management Module Development for TVET Graduates. Journal of Technical Education and Training, 15(1), 102–115. https://doi.org/10.30880/jtet.2023.15.01.010

24. Yasin, R. M., Amin Nur, Y. F., Ridzwan, C. R., Ashikin, H. T., & Bekri, R. M. (2013). Current trends in technical and vocational education research: A meta-analysis. Asian Social Science, 9(13), 243–251. https://doi.org/10.5539/ass.v9n13p243