International Journal of Modern Education
IJMOE
EISSN: 2637-0905
Volume 6 Issue 22 (September 2024) PP. 660-681
DOI: 10.35631/IJMOE.622045

INTERNATIONAL JOURNAL OF MODERN EDUCATION (IJMOE)
www.ijmoe.com

FROM LOGBOOKS TO logBlog: AN EXPLORATORY STUDY OF DIGITAL DOCUMENTATION IN INDUSTRIAL TRAINING

Khairul Adilah Ahmad[1], Sharunizam Shari[2*], Anis Faradella Abdul Malik[3], Ahmad Afif Ahmarofi[4], Chantorn Chaiprasurt[5]

[1] School of Computing Science, College of Computing, Informatics, and Mathematics, Universiti Teknologi MARA Cawangan Kedah, 08400 Merbok Malaysia
Email: adilah475@uitm.edu.my
[2] School of Information Science, College of Computing, Informatics, and Mathematics, Universiti Teknologi MARA Cawangan Kedah, 08400 Merbok Malaysia
Email: nizam057@uitm.edu.my
[3] School of Information Science, College of Computing, Informatics, and Mathematics, Universiti Teknologi MARA Cawangan Kedah, 08400 Merbok Malaysia
Email: anisfaradella@uitm.edu.my
[4] School of Computing Science, College of Computing, Informatics, and Mathematics, Universiti Teknologi MARA Cawangan Kedah, 08400 Merbok Malaysia
Email: ahmadafif@uitm.edu.my
[5] Faculty of Information Technology, Thepsatri Rajabhat University, Muang Lop Buri District, Lop Buri, 15000 Thailand
Email: chantorn.c@lawasri.tru.ac.th
[*] Corresponding Author

Article Info:

Article history:
Received date: 30.06.2024
Revised date: 15.07.2022
Accepted date: 23.09.2024
Published date: 30.09.2024

To cite this document:

Ahmad, K. A., Shari, S., Abdul Malik, A. F., Ahmarofi, A. A., & Chaiprasurt, C. (2024). From Logbooks To logBlog: An Exploratory Study Of Digital Documentation In Industrial Training. *International Journal of Modern Education, 6* (22), 660-681.

Abstract:

This exploratory study investigates the use of logBlog, a digital platform created with Google Sites, as a modern alternative to traditional logbooks in industrial training. The study's primary objective is to determine whether multimedia-rich digital platforms can overcome the limitations of traditional, text-based logbooks, which struggle to fully capture the complexity and variety of modern industrial training experiences. By allowing students to incorporate multimedia elements such as images, videos, and audio, logBlog offers a more dynamic and comprehensive method of documenting learning experiences. This study aims to explore how this approach can improve student engagement, reflection, and real-time communication with supervisors. The methodology employed in the study is primarily conceptual, focusing on theoretical analysis. It evaluates how logBlog enhances the documentation process through multimedia integration, allowing for deeper, more meaningful reflections on students' training experiences. The paper also identifies key challenges associated with adopting digital documentation tools, such as the need for

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digital literacy, potential resistance to change from both students and supervisors, and concerns over privacy and security in handling sensitive data during industrial training. These challenges form part of the critical analysis of the platform's effectiveness and broader adoption in educational settings. The results suggest that logBlog offers significant improvements over traditional logbooks by fostering increased student engagement, deeper reflection, and improved real-time feedback from supervisors. However, overcoming the technical barriers, ensuring the necessary infrastructure, and addressing concerns regarding data privacy remain critical to its successful adoption. The significance of the study lies in its potential contribution to the modernization of documentation practices in industrial training. By leveraging digital tools, logBlog can enhance learning outcomes and contribute to the ongoing digital transformation in education. The paper highlights the need for future research to evaluate the platform's scalability, real-world effectiveness, and security in diverse training environments.

Keywords:

Digital Documentation, Industrial Training, Experiential Learning, Multimedia Integration, Reflective Learning, Educational Technology, Logbook Replacement

Introduction

Industrial training is a key aspect of higher education, especially in areas like engineering, business, and computing. It acts as a connection between academic theory and practical skills necessary in professional settings. Industrial training is highlighted for its crucial role in improving students' readiness for the job market by offering them essential hands-on experience to aid their professional growth (Redzuwan et al., 2022). Additionally, it is crucial to combine industry and education in order to develop practical skills in students through hands-on experiences with real-life issues and demands (Jiang et al., 2019).

In the past, students typically relied on logbooks to record their activities during their industrial training, including descriptions of daily duties, reflections, and the abilities they gained over time. These records offer a systematic method for documenting and assessing student achievement (Jørgensen et al., 2020). The logbook technique has been utilized in different situations, such as exposure evaluations in industrial environments, as a means to monitor and assess occurrences (Jørgensen et al., 2020). Nevertheless, with the advancement of educational methods and changes in industrial settings, traditional logbooks are now seen as inadequate for documenting all aspects of contemporary industrial training. The necessity for increasingly dynamic and interactive forms of documentation is evident, given that students need tools that can accurately represent their learning and experiences in a quickly evolving industrial environment (Adekunle et al., 2024).

During a time characterized by digital change, industrial training settings have grown more intricate and fuller of multimedia. Students frequently participate in activities that include working with digital media, hands-on projects, and communicating in real-time with their supervisors. Traditional logbooks are not suitable for modern documentation as they do not effectively communicate certain activities that cannot be expressed through text alone. It is well acknowledged that text-based logbooks have limitations in capturing the complex modern training experiences as they do not support the various media forms used by students in their learning (Barnová et al., 2022; Agarwal, 2023).

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Consequently, there is an increasing need for digital resources that can improve the reflective and documentation procedures by including multimedia features like photos, videos, and audio clips. These tools are necessary not just for enhancing student reflections but also for facilitating better supervision and immediate assessment (Simões et al., 2021). Incorporating multimedia into documentation methods aligns with the overall shift towards digital transformation, highlighting the significance of leveraging advanced technologies to enhance educational results and operational efficiencies (Raj et al., 2020).

Furthermore, the transition to digital records demonstrates a larger trend in various sectors to conform to the requirements of Industry 4.0, where the blending of digital tools and conventional methods is essential for staying competitive (Muktevi, 2024; Ghobakhloo & Iranmanesh, 2021). Using digital platforms, students can develop more interactive and detailed logs of their training experiences, leading to improved feedback and learning results (Xiao et al., 2023). This shift in how documentation is done aids students in learning and improves the overall impact of industrial training programs, making sure they stay up-to-date in a digital world (Okano et al., 2021).

This study investigates the possibilities of logBlog, a digital platform created with Google Sites to replace conventional logbooks. Different from traditional logbooks that only use text entries, logBlog enables students to record their industrial training experiences with various multimedia options such as images, videos, and audio. This investigative study explores if utilizing a digital method can provide a more thorough and engaging way of documenting and reviewing industrial training, ultimately improving the learning experience for students and supervisors. The study seeks to investigate how students can be more involved in their training experiences by moving to a digital platform, providing more in-depth insights into their progress, and enabling instant feedback and communication with supervisors.

The aim of this exploratory study is to assess the viability, possible advantages, and obstacles of implementing logBlog as a substitute for conventional logbooks. Unlike research focusing on conclusive findings, this paper aims to raise and investigate critical questions about utilizing digital platforms in education. In particular, this investigation is guided by the following research queries:

1. What are some ways logBlog and other digital platforms can overcome the drawbacks of traditional logbooks for recording industrial training?
2. How does incorporating multimedia content (videos, images, audio) enhance the student reflection process?
3. What difficulties could students and supervisors encounter when implementing digital platforms for documentation in industrial training?

These inquiries are the basis for a more extensive investigation into digital documentation in higher education, aiming to uncover the advantages and challenges of moving from text-focused to multimedia-enhanced platforms.

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Literature Review

The Role of Traditional Logbooks in Industrial Training

For many years, classic logbooks have been a fundamental aspect of industrial training in higher education. These tangible, written materials offer a systematic way for students to record their daily activities, thoughts, and progress in developing skills throughout their training. Logbooks are especially important in areas like engineering, business, and healthcare, where hands-on experience is essential for learning (McAlpine, Cash, & Hicks, 2017). By writing about their experiences, students can think critically, absorb their lessons, and relate theory to real-world applications (Alotaibi et al., 2022).

Research has highlighted the importance of organized documentation in improving student academic performance. In Shek et al. (2014) study, it was found that consistently writing reflections in a logbook prompts students to participate in more extensive learning by critically analyzing their actions and reflecting on the wider consequences of their work. Moreover, Akhtar and colleagues (2020) discovered that logbooks offer supervisors insight into students' experiences, enabling more focused feedback and individualized guidance.

Nevertheless, despite their important role in the past, traditional logbooks are now considered inadequate for the interactive nature of modern education, which often includes multimedia, real-time communication, and more dynamic documentation forms (Fernando et al., 2020). Traditional logbooks are restricted by their lack of support for multimedia content, which is increasingly important as students participate in activities requiring images, videos, and other non-text formats (Yusuf et al., 2022).

Limitations of Traditional Logbooks

A major drawback of conventional logbooks is their dependence on text, which might not adequately encompass the intricacies of contemporary industrial training occurrences. According to Fernando et al. (2020), students nowadays frequently engage in activities in educational settings that include visual or auditory components that are not effectively communicated through written explanations. Lack of multimedia integration may lead to incomplete or superficial reflections, as students find it hard to convert their practical experiences into written text (Shek et al., 2014).

Furthermore, keeping a physical logbook can be challenging and susceptible to logistic challenges. Physical logbooks are at risk of being lost or damaged, making it challenging for students to keep a consistent record throughout their training. These restrictions may impact the accuracy of the documentation process, causing deficiencies in the student's reflective learning and impeding the supervisor's capacity to give prompt feedback (Gray et al., 2016).

Furthermore, the evaluation process can be further complicated by the subjective nature of text-based logbooks, in addition to practical challenges. According to Ningtyas (2021), the absence of uniform criteria for assessing reflective writing can lead to uneven grading and feedback given by supervisors. This partiality can hinder the educational benefit of the logbook, as students may not get the constructive feedback they require to enhance.

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The Emergence of Digital Logbooks

As a solution to these restrictions, digital logbooks have become a hopeful substitute for conventional documentation techniques. Digital logbooks provide a versatile and interactive method for recording industrial training progress, enabling students to integrate various forms of media in their reflective exercises. For instance, Mahzan and colleagues (2020) unveiled a system called the "smart logbook" which streamlines documentation and supervision tasks, offering students and supervisors immediate access to entries and feedback. This system improves both the documentation process and student reflections by enabling the addition of multimedia elements, leading to enhanced depth and quality.

Abdullah (2020) mentions that in many educational environments, traditional logbooks have been substituted by digital platforms like Google Forms and Google Docs. These platforms enable students to produce posts which contain visuals, videos, and links, offering a more complete documentation of their learning experiences. The transition from paper to electronic logbooks also deals with numerous logistical issues related to conventional approaches. For instance, electronic records can be efficiently saved, accessed, and exchanged with managers, minimizing the chance of documentation being lost or harmed.

A significant advancement in the digital logbook sector is the incorporation of real-time communication tools, enabling better supervision of student advancement by supervisors. Suhaimi et al. (2016) created a platform for internships and careers with an online logbook system for supervisors to monitor students' daily entries and give prompt feedback. This high level of live communication enhances a more active mentoring connection, enabling supervisors to tackle problems as they occur instead of holding off until formal assessments at the training period's conclusion.

Advantages of Multimedia Integration in Educational Documentation

Incorporating multimedia components like pictures, videos, and sound into educational materials has been proven to improve student involvement and academic results. Coudray (2020) suggests that multimedia content enables students to more thoroughly and genuinely document their experiences, offering a more comprehensive portrayal of their learning journeys. When students can reflect using writing, visuals, and sound, their reflections become more detailed and thorough.

This multimedia strategy supports the experiential learning principles, highlighting the significance of active participation and reflection during the learning journey (Sumarmi et al., 2020). By integrating multimedia into their documentation, students can enhance their understanding by connecting practical experiences with theoretical knowledge, resulting in more profound insights and meaningful learning. Furthermore, the inclusion of multimedia materials enhances student interest in documentation, leading to increased levels of reflection, as noted by Waddell (2021).

Including multimedia content gives supervisors a better understanding of the student's progress and accomplishments. Supervisors can observe the student's work directly using images and videos, rather than just relying on written descriptions, which enables more precise and unbiased evaluations (Karunaratne & Niroshani, 2019). This method minimizes the bias in text evaluations and offers a comprehensive understanding of the student’s abilities and growth.

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Challenges of Adopting Digital Platforms in Education

Despite the numerous benefits of digital logbooks, implementing them comes with obstacles. A major obstacle to incorporating digital platforms in education is the level of digital literacy among students and instructors. As stated by Bilgihan (2023), the success of digital tools in enhancing education relies on how well users can effectively use and navigate them. In logBlog, students must have mastery of digital platforms, and supervisors should feel at ease giving feedback using online systems.

Another obstacle is the reluctance to accept change by both students and faculty. Traditional logbooks are firmly embedded in the industrial training culture, and there could be resistance from various parties to switch to new approaches. Ikechukwu (2016) states that transitioning from traditional tools to digital platforms may face resistance, especially from individuals accustomed to conventional methods. This reluctance could impede the uptake of digital logbooks, despite their clear benefits compared to traditional approaches.

Finally, privacy and security issues arise when utilizing digital platforms for documentation. Even though platforms such as Google Sites provide strong security measures, there is still a possibility of data breaches or unauthorized entry to confidential data. In the logBlog context, this matter is especially important because students might be recording their interactions with actual companies and organizations. It is essential to guarantee the security of digital platforms and protect student data for the successful use of digital logbooks in education (Mahzan et al., 2020).

The Case for logBlog

Due to the constraints of regular logbooks and the advantages of digital platforms, there is a compelling argument for considering logBlog as a tool for recording industrial training. logBlog utilizes the flexibility of Google Sites to establish a multimedia-driven space for students to record their experiences in a more immersive and thorough way. Through the use of images, videos, and audio recordings, logBlog allows students to document their training activities more comprehensively than traditional logbooks, providing a more detailed representation. In order to highlight the contrasts between traditional logbooks and digital platforms such as logBlog, Table 1 offers a comparative evaluation of key elements such as documentation format, reflection processes, content type, feedback mechanisms, logistical concerns, and adoption difficulties.

Table 1: Comparison of Traditional Logbooks vs. logBlog

Aspect	Traditional Logbooks	logBlog
Documentation Format	Text-based, physical format	Digital, multimedia-rich format
Reflection Process	Reflection through written descriptions	Reflection through multimedia elements (text, images, videos
Content Type	Limited to text only	Incorporates text, images, videos, and audio
Feedback Mechanism	Feedback provided periodically after submission	Real-time feedback and communication

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Logistical Issues	Prone to loss/damage, cumbersome to maintain	Easily stored, retrieved, and shared; reduces risk of damage
Assessment Objectivity	Subjective assessment due to text-only reflections	More objective with visual/auditory documentation
Adoption Challenges	Resistance to change, lack of multimedia support	Requires digital literacy, concerns over privacy and security

Additionally, logBlog has the capability to improve the connection between students and supervisors. By utilizing live communication tools and the option to share various media, supervisors can enhance their comprehension of the student's development and offer more specific feedback. This preliminary study aims to examine how logBlog can overcome the drawbacks of conventional logbooks and the potential challenges in its execution.

Conceptual Framework and Exploratory Focus

Theoretical Foundations

The basis for this preliminary research is rooted in the theory of experiential learning (Kolb, 1984), which highlights the significance of reflection as a crucial element in learning through experience. During industrial training, students participate in practical activities that connect academic theories with real-world applications. In Kolb's theory, learning takes place in a sequence of experience, reflection, conceptualization, and experimentation. Tools for reflection, like logbooks, are important for helping students reflect on their experiences and gain insights, as they offer a structured platform for such reflection. Figure 1 (taken from Van der Horst & Albertyn, 2018) depicts Kolb's learning cycle and experiential learning styles, showcasing the different stages of learning and how they apply to cross-cultural coaching.

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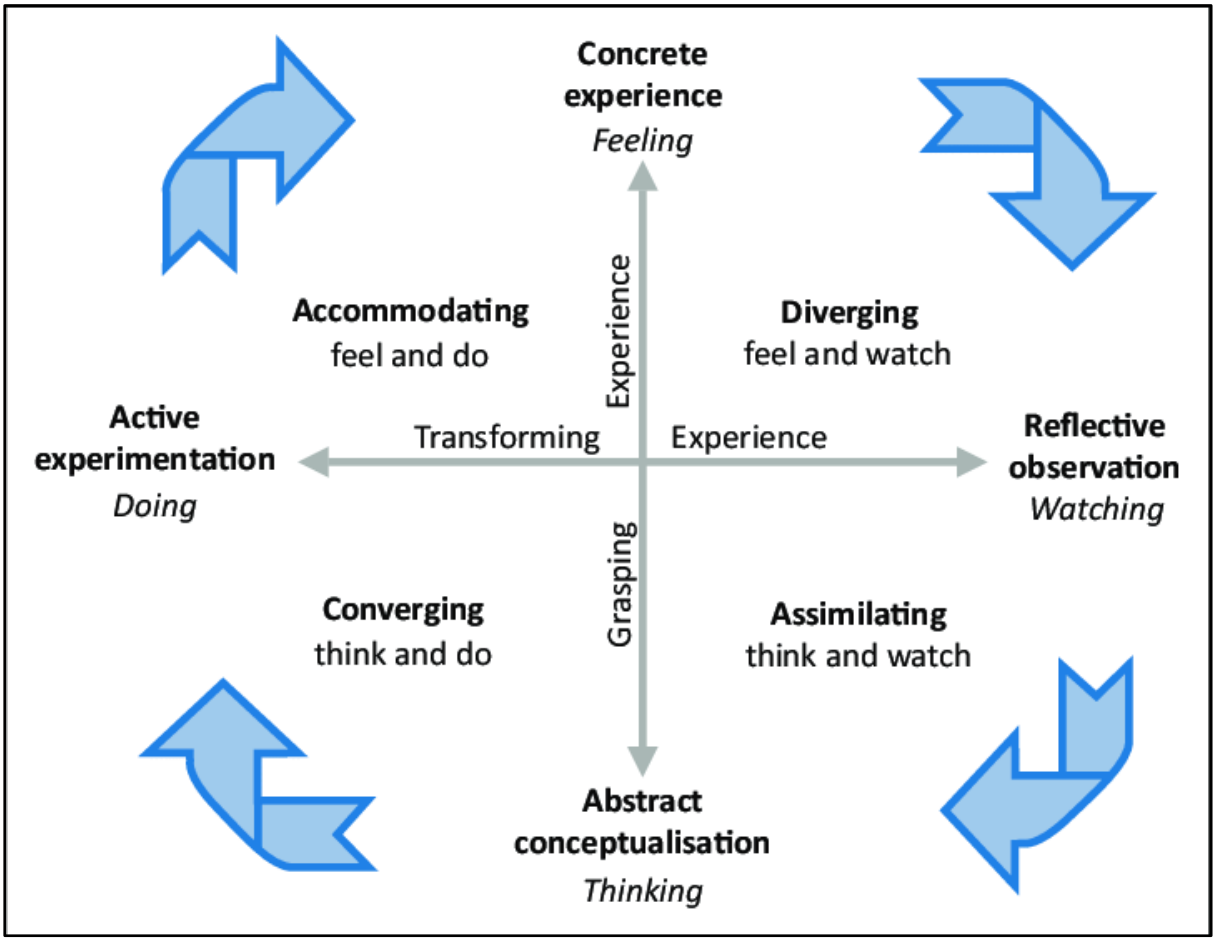

Figure 1: Kolb's Learning Cycle And Experiential Learning Styles

Source: Adopted from Van der Horst, C. A., & Albertyn, R. M. (2018). Kolb's learning cycle and experiential learning styles. The importance of metacognition and the experiential learning process within a cultural intelligence–based approach to cross-cultural coaching. SA Journal of Human Resource Management, 16, Article a951. https://doi.org/10.4102/sajhrm.v16i0.951.

Figure 1 displays Kolb's model of experiential learning cycle and the corresponding learning preferences. According to Kolb's model, learning is an ongoing process consisting of four phases: Concrete Experience involves hands-on activities; Reflective Observation involves reflecting on experiences; Abstract Conceptualization involves deriving theoretical insights; Active Experimentation involves applying concepts in real-world settings. This process highlights how people build knowledge by engaging in hands-on learning, thinking back on their experiences, and trying out new ideas.

In addition, Kolb's model recognizes four experiential learning styles that align with various preferences within this cycle. The different styles include Diverging (based on feeling and observing), Assimilating (involving thinking and observing), Converging (involving thinking and doing), and Accommodating (involving feeling and doing). Every style signifies a unique method of handling information and gaining knowledge from life events. By participating in this process, students can adjust their knowledge to different situations, making it a useful tool for educational environments that focus on hands-on learning, like vocational training or career advancement programs.

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Nevertheless, according to the literature, conventional text-based logbooks may not fully accommodate the diverse, multimedia aspect of contemporary industrial training encounters (Shek et al., 2014; Fernando et al., 2020). The shift to digital platforms like logBlog signifies an advancement in reflective documentation, enabling students to interact with a wider variety of sensory and cognitive stimuli using multimedia features. This change corresponds to the beliefs of multimodal learning theory, which suggests that students learn better when they interact with material using different forms of communication like text, visuals, and audio (Moreno & Mayer, 2007). logBlog supports a more in-depth learning process that caters to different learning styles by allowing the incorporation of multimedia in student reflections.

Moreover, this framework includes aspects of connectivist learning theory (Siemens, 2005), emphasizing the importance of technology in forming learning networks. Within a digital documentation system such as logBlog, students, supervisors, and peers are able to participate in immediate communication, creating a learning environment where knowledge is consistently exchanged and enhanced. This connection improves learning and provides important feedback promptly and appropriately, which is essential for learning from experience in an iterative way.

Conceptualizing logBlog as a Digital Documentation Tool

The main focus of this research is on defining logBlog as a cutting-edge digital logbook tool that overcomes the restrictions of traditional documenting methods. Crafted with Google Sites, logBlog enables students to establish an engaging, multimedia-filled space for recording their industrial training encounters. The key components in the conceptual model for logBlog correspond to the theoretical foundations previously mentioned.

1. Multimedia Integration: Incorporating various types of media in logBlog, as proposed by multimodal learning theory, enhances the reflection process by making it more engaging and richer. This allows students to record their experiences in ways that surpass written explanations, possibly resulting in greater understanding and improved retention of information (Moreno & Mayer, 2007). Multimedia documentation helps supervisors by offering a more complete perspective of the student's work, enhancing the evaluation procedure (Karunaratne & Niroshani, 2019).
2. Real-Time Feedback: Through connectivism principles, logBlog promotes immediate communication between students and supervisors. Supervisors can track students' progress in real-time by reviewing their documented experiences, allowing for instant feedback instead of waiting for scheduled evaluations. This ongoing involvement promotes a more interactive learning experience, allowing for real-time problem-solving and adaptive strategies by students (Suhaimi et al., 2016).
3. Reflective Learning: According to Kolb (1984), reflection is crucial in transforming experiences into learning, as emphasized in the experiential learning cycle. logBlog facilitates this reflective process by enabling students to revisit their multimedia entries and engage in more profound reflection on their experiences. Being able to watch videos or look at photos again after training sessions allows students to analyze their actions and pinpoint areas that need improvement. This process of reflection is crucial for the enhancement of critical thinking and problem-solving abilities, both of which are vital results of vocational training (Alotaibi et al., 2022).

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4. Ease of Use and Accessibility: The simplicity of logBlog is a crucial element in terms of usability and accessibility. Google Sites was selected due to its easy-to-use interface and smooth compatibility with other Google services like Google Drive, Docs, and Sheets. This integration enables students to easily upload and arrange their documentation, while also simplifying supervisors' access and review of student submissions. The availability of the platform allows students and supervisors to access the content from anywhere with internet access, promoting a flexible and adaptable learning environment.

Exploratory Focus: Potential Benefits of logBlog

This investigative research examines the possible advantages of utilizing logBlog as a digital tool to record industrial training. Drawing on the conceptual framework, the main focal points for investigation consist of:

1. Improved Analysis: This research will investigate if the multimedia features of logBlog lead to deeper and more significant student reflections in comparison to conventional text-only logbooks. Students can enhance their documentation by incorporating videos, images, and audio to vividly capture and convey their experiences, offering more detailed content for reflection. This investigation's emphasis is consistent with earlier studies indicating that multimedia materials can enhance students' involvement in the reflection process (Waddell, 2021).
2. Enhanced Oversight and Feedback: logBlog is expected to allow for supervisors to offer feedback that is more specific and delivered in a timelier manner. The research will explore if the real-time feedback capabilities of logBlog improve the supervision and mentorship quality in industrial training. Supervisors can engage with students' submissions in real-time, fostering continuous discussion instead of periodic, structured assessments. The ongoing interaction has the potential to enhance the learning experience through fostering more dynamic mentorship (Suhaimi et al., 2016).
3. Exploration of Engagement and Motivation: The study will also investigate if logBlog can enhance student engagement and motivation when it comes to recording their industrial training experiences. The engaging and visually pleasing characteristics of the platform could motivate students to put in more effort in their reflections, which could result in better and consistent documentation quality (Fernando et al., 2020). In this regard, logBlog has the potential to serve as an inspiring instrument by making the task of documenting easier and more enjoyable for students.
4. Addressing shortcomings of conventional logbooks: According to the literature review, traditional logbooks have various limitations, such as the incapacity to record multimedia elements and logistical issues such as physical harm or misplacement. This research will investigate how logBlog overcomes these constraints by providing a long-lasting, convenient, and multimedia-rich platform. Storing content digitally in a secure and organized way minimizes the chances of loss or damage, and the worldwide availability of Google Sites allows students and supervisors to access the logbook from any location (Mahzan et al., 2020).

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Exploratory Focus: Challenges and Barriers

While logBlog presents numerous advantages, this research will also investigate the difficulties and obstacles linked to its adoption. Some of these challenges are:

1. Digital Literacy: The differing levels of digital literacy in students and supervisors pose a significant challenge when implementing a digital logbook platform. Even though logBlog is made for ease of use, it still demands a minimal level of technological skill. The research will investigate if students and supervisors encounter challenges in effectively utilizing the platform and if extra training or assistance is needed to guarantee successful implementation (Bilgihan, 2023).
2. Resistance to Change: Another obstacle could be the reluctance to embrace new digital tools, especially within supervisors or institutions that prefer traditional methods. According to Ikechukwu (2016), reluctance to change can hinder the implementation of new educational technologies. This research will explore whether students or supervisors are hesitant to switch from traditional logbooks to logBlog, and what reasons are behind this resistance.
3. Privacy and Security Concerns: Concerns about privacy and security may arise due to the digital aspect of logBlog, as users may worry about the safety of their uploaded content. Industrial training frequently includes actual companies and institutions, with students potentially recording confidential data. The research will investigate if students and supervisors trust the security features of Google Sites and if privacy worries hinder the use of logBlog.
4. Technical Challenges: Finally, this research will examine potential technical hurdles that could occur while utilizing logBlog, including connectivity problems, platform restrictions, or compatibility issues with other software. Recognizing these obstacles will guide enhancements to the platform and guarantee it fulfils the requirements of students and supervisors.

This exploratory study is based on experiential, multimodal, and connectivist learning theories, forming the conceptual framework for using logBlog as a digital platform to document industrial training experiences. logBlog provides a possible response to the constraints of conventional logbooks by incorporating multimedia, encouraging live feedback, and supporting more profound contemplation. Nevertheless, the exploratory approach also takes into account potential obstacles like digital literacy, reluctance to change, and privacy worries. This study seeks to explore the advantages and challenges linked to the implementation of logBlog, offering important understanding for the future of digital record-keeping in higher education.

Case Study: Development of a Student logBlog

This section showcases a case study on how the logBlog framework was used by a final-semester student in the Diploma in Computer Science program at Universiti Teknologi MARA, Kedah branch, to develop a digital logbook. The student finished his hands-on training at Thepsatri Rajabhat University in Thailand from March 2023 to August 2023. The logBlog is available through a link to logBlog, providing a detailed look at the student's internship documentation.

The student was able to create a well-organized logBlog using Google Sites, with sections like Home, Journey, Project, About, and Credits (refer to Figure 2) due to the platform's flexibility.

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These parts offer a structured layout for recording daily activities, project tasks, and overall training thoughts, showcasing how the platform can easily meet the documentation requirements of contemporary industrial training.

Figure 2: Overview of logBlog

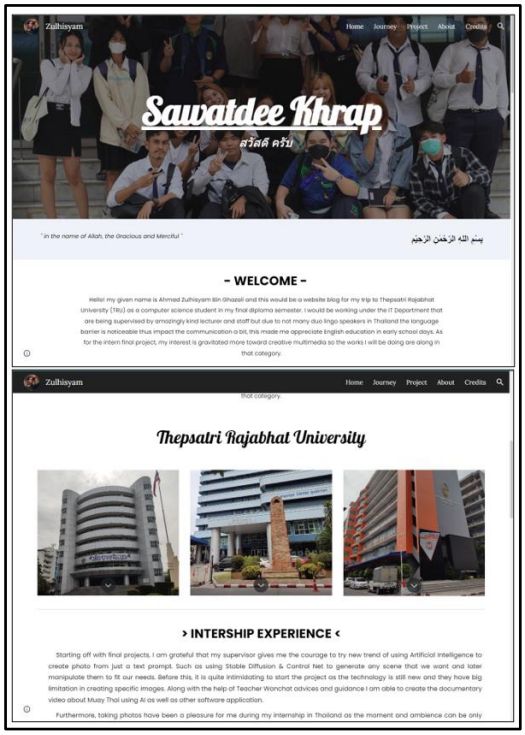

Figure 3: Home page of logBlog

The homepage presents the student's academic background, key skills, and career goals in a concise yet powerful manner, enhanced by visually engaging elements such as images and links to social media profiles (refer to Figure 3). This page aims to make a lasting first impression and facilitate networking opportunities.

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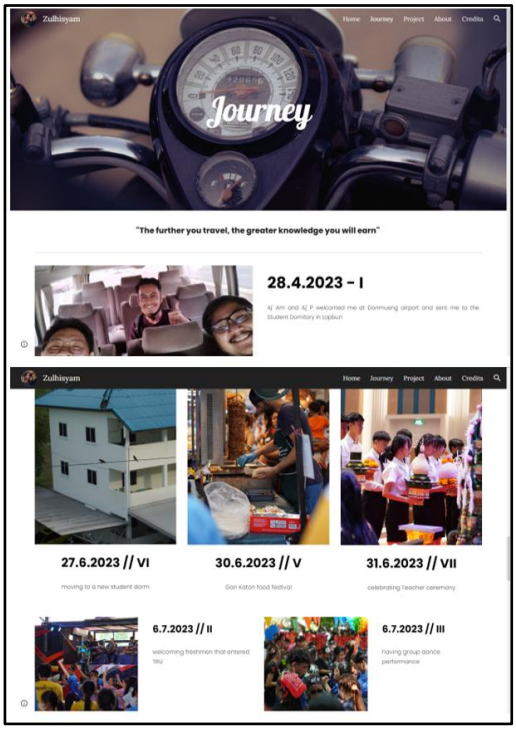

Figure 4: Journey page of logBlog

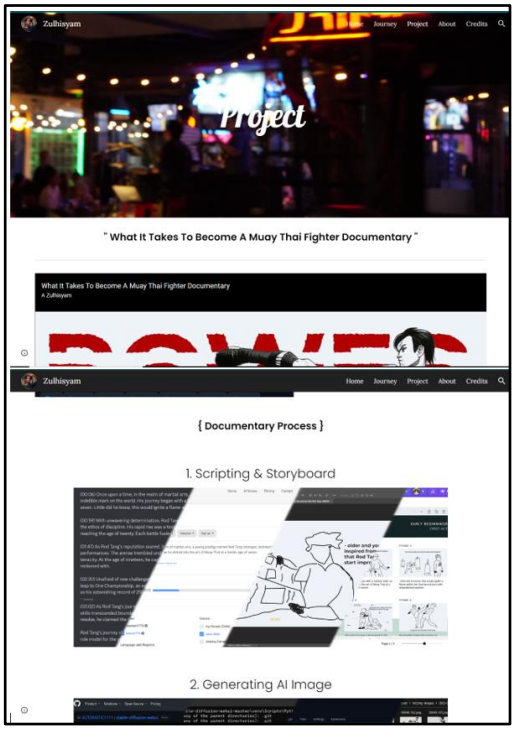

Figure 5: Project page of logBlog

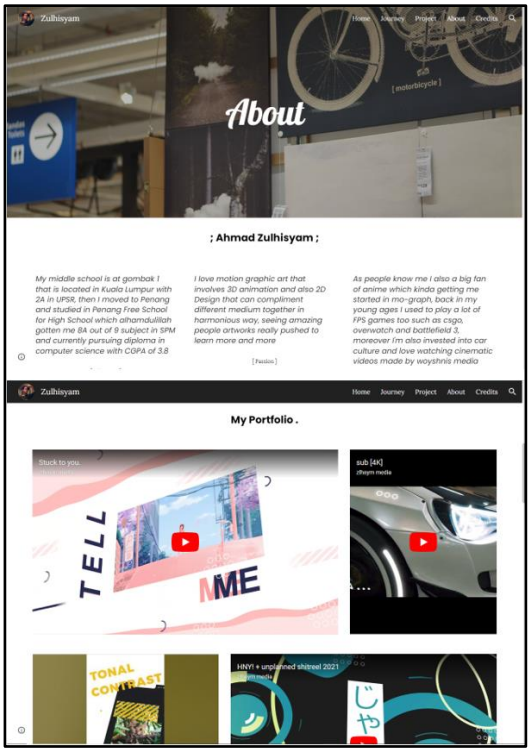

Figure 6: About page of logBlog

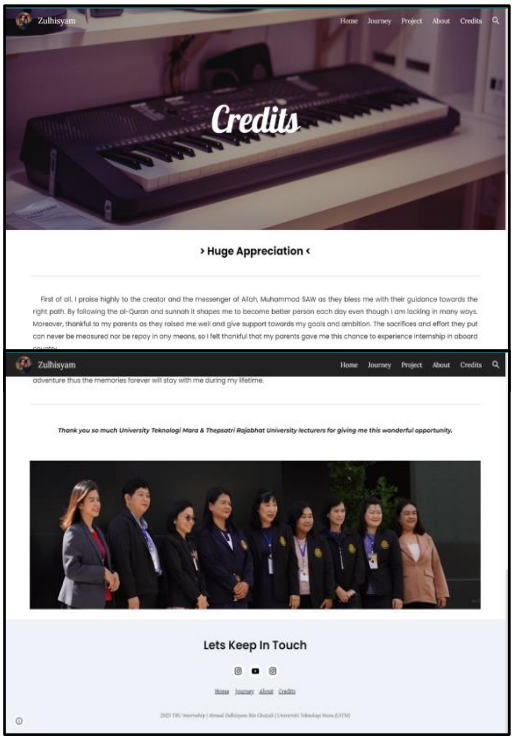

Figure 7: Credit page of logBlog

The Journey page, shown in Figure 4, outlines the student's daily responsibilities during the internship in a well-organized way, including interactive features such as thumbnails and

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clickable titles for easy navigation. This interactive aspect greatly improves the reader's capacity to interact with the student's recorded experiences.

The Project page (as shown in Figure 5) provides a thorough examination of the projects assigned to students, outlining the project's background, methods used, and results obtained. This part is essential for showing how the student implemented theoretical knowledge in practical situations.

The personal introduction can be found on the About page (refer to Figure 6), and the individuals and organizations who helped the student succeed are acknowledged on the Credit page (refer to Figure 7), along with reflections on the main lessons learned during the industrial training experience.

In this instance, logBlog showcases how its structured layout, interactive elements, and multimedia incorporation can successfully capture all aspects of a student's learning journey in industrial training. Utilizing the adaptability of Google Sites, the logBlog serves as both a means for introspection and a professional showcase of the student's abilities and background for potential employers.

Exploratory Analysis

The focus of the Exploratory Analysis section will be to evaluate logBlog's potential as a tool for documenting industrial training experiences. Because this paper is exploratory and not grounded in empirical data, the analysis will depend on conceptual understanding, qualitative observations, and the use of theoretical frameworks from the literature review and conceptual framework. This section will examine the potential benefits of logBlog, possible obstacles, and the consequences of moving from paper logbooks to an online platform.

Advantages of logBlog in Industrial Training Documentation

An important benefit of logBlog is its incorporation of multimedia elements like pictures, videos, and audio, enabling students to record their workplace training in a more visually engaging way than with traditional written logbooks. Text-only documentation frequently results in superficial reflections, especially in tasks that involve multimedia elements (Shek et al., 2014). By merging written content with visuals and sounds, students can develop a richer story of their experiences by adding videos of tools or pictures of designs to their written reflections, in line with multimodal learning theory, which indicates that using different channels improves learning (Moreno & Mayer, 2007). This blending of multimedia facilitates deeper involvement and richer contemplation, enabling students to reexamine and evaluate their work critically, ultimately nurturing the growth of advanced cognitive abilities like problem-solving and critical analysis (Kolb, 1984).

logBlog offers a major benefit in enabling instant communication between students and supervisors, eliminating the usual delays seen in traditional logbooks, which only offer feedback at set intervals. The ongoing documentation and real-time review allow supervisors to deal with problems right away, providing timely guidance that can be essential during times when students need immediate help (Suhaimi et al., 2016). Supervisors can watch videos of student techniques or processes and give immediate feedback for improvement, strengthening the mentorship bond. This active engagement follows connectivist learning theory, which highlights the importance of learning networks and ongoing sharing of information (Siemens,

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2005). Moreover, immediate feedback aids in an iterative learning process, allowing students to quickly incorporate guidance and improve their skills as they progress in their training. This is in line with Kolb's model of experiential learning, which highlights the importance of ongoing reflection and action for enhancing learning (Kolb, 1984).

The preliminary investigation suggests that logBlog could greatly enhance student involvement and enthusiasm in recording industrial training experiences. In contrast to old-fashioned logbooks, which are typically considered boring necessities, logBlog's engaging and attractive design fosters creativity through options for layout customization, media insertion, and personalization of entries. This change improves the documentation process, creating a feeling of ownership and pride in their work, which also makes it more enjoyable. Consequently, students might generate reflections that are more reliable and contemplative. Furthermore, the professional look of logBlog, constructed with Google Sites, increases its worth as a digital portfolio that can be distributed to prospective employers, encouraging students to interact more with the platform (Karunaratne & Niroshani, 2019).

Challenges and Barriers to Adoption

While logBlog offers numerous potential benefits, this exploratory analysis must also consider the challenges and barriers associated with its adoption. Transitioning from traditional logbooks to a digital platform is not without its difficulties, and understanding these challenges is critical for determining the feasibility of widespread implementation.

One major obstacle in the logBlog implementation is the different levels of digital skills among students and supervisors, who need to use Google Sites, upload media, and handle reflections efficiently. Despite being user-friendly, logBlog still demands basic technological skills, which could pose challenges for students without digital platform experience or steady internet access (Bilgihan, 2023). The difference can affect the quality of documentation and feedback, leading institutions to offer training, support, and resources like workshops, help desks, and reliable internet access to ensure all users can effectively utilize logBlog.

The challenge of implementing logBlog is greatly affected by the resistance towards new technologies, given the strong presence of traditional logbooks in industrial training culture. A number of students, supervisors, and institutions might resist change because they prefer traditional methods, doubt the reliability of digital platforms, or lack confidence in using new tools (Ikechukwu, 2016). Specifically, supervisors may be hesitant to transition from paper-based to digital documentation. Clear communication about the benefits of logBlog, institutional support, and pilot programs are necessary to overcome this resistance and ease the transition.

Privacy and security are essential considerations when utilizing logBlog because of the sensitive nature of industrial training, which frequently includes real-world businesses and confidential project information. Despite the security features provided by Google Sites such as encryption and access control, concerns still exist regarding unauthorized access, data privacy, and the retention period of documentation as stated by Mahzan et al. in 2020. These worries might deter people from using the platform, especially when dealing with sensitive data. In order to address this issue, organizations need to clearly communicate security measures and offer choices for limiting access to entrances. Furthermore, organizations must

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establish protocols for storing and keeping data, ensuring that information is only accessible when necessary and securely deleted afterwards.

Potential for Future Development

While logBlog already offers a range of features that address many of the limitations of traditional logbooks, there is potential for further development. As this exploratory analysis has highlighted, the platform's multimedia integration, real-time feedback capabilities, and user-friendly design make it a promising tool for industrial training documentation. However, future iterations of logBlog could incorporate additional features that enhance its functionality and address the challenges identified in this analysis.

For example, incorporating more advanced analytics tools could allow supervisors to track student progress more effectively, identifying patterns in their reflections or areas where they may need additional support. Additionally, integrating logBlog with other educational platforms—such as learning management systems (LMS)—could streamline the documentation process, allowing students to submit assignments, receive grades, and communicate with supervisors all within the same platform.

Further research is needed to explore these possibilities, as well as to assess the long-term impact of logBlog on student learning outcomes and employability. Pilot studies that implement logBlog in real-world industrial training settings could provide valuable insights into the platform's effectiveness and areas for improvement.

Challenges and Limitations

While the exploratory analysis of logBlog reveals many potential benefits for enhancing industrial training documentation, it is important to recognize the challenges and limitations that may hinder its widespread adoption and implementation. Addressing these challenges is crucial for ensuring that logBlog can effectively serve as a tool for educational institutions and students. This section will delve into the key challenges and limitations related to digital literacy, technological infrastructure, resistance to change, privacy concerns, and the evolving nature of industrial training documentation.

One of the main obstacles when it comes to using logBlog is the different degrees of digital literacy found in students and supervisors, even though the platform is easy to use. Certain students, particularly those who are not as familiar with technology, might feel overwhelmed by tasks that involve making multimedia-rich entries and navigating Google Sites, and supervisors could have difficulty giving instant feedback (Bilgihan, 2023). Moreover, unequal access to technology, like inconsistent availability of devices and reliable internet, can also hinder involvement with the platform. In order to tackle these problems, establishments should provide digital literacy instruction through workshops or tutorials, guarantee access to essential resources like laptops and internet connections, and offer assistance services like help desks. Adding tutorials within the platform can enhance accessibility and make the switch to digital documentation smoother.

The adoption of logBlog faces a major obstacle due to resistance to change, as traditional logbooks are deeply entrenched in industrial training culture, with students and supervisors familiar with established documentation methods. The move to digital platforms such as logBlog necessitates a change in thinking, not just technical changes. Doubts regarding the

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dependability of digital tools, apprehension towards unfamiliarity, and hesitance to dedicate time to mastering new systems can contribute to resistance (Ikechukwu, 2016). Institutional biases towards conventional approaches could also hinder progress, particularly in settings unwilling to embrace change. In order to address this issue, organizations must effectively convey the advantages of logBlog by providing proof from trial runs or real-life instances to showcase enhancements in reflection, feedback, and engagement. Initiating small-scale trials of logBlog through pilot programs can aid in the transition process, and providing continued support like technical help and mentorship can enhance acceptance. Getting faculty members who are early adopters and supporters of digital innovation involved can also lead to wider acceptance within the institution.

The success of logBlog relies significantly on the presence of dependable technological infrastructure for students and institutions. To be used effectively, the platform as a service depends on consistent internet connection and operational devices like computers, tablets, or smartphones. This facilitates students in producing multimedia content and enables supervisors to give prompt feedback. Insufficient infrastructure may limit the platform's possibilities, especially in areas with poor internet access or lack of IT assistance, resulting in incomplete documentation and annoyances. In order to tackle these difficulties, schools need to put resources into essential infrastructure, guaranteeing all students can access the necessary tools equally. This involves giving internet connectivity, particularly in areas with limited access, and providing computer labs or loaning equipment to individuals lacking sufficient hardware. Moreover, organizations must guarantee strong IT assistance to handle data security, maintain platforms, and solve issues by collaborating with IT departments to set up protocols for uninterrupted operation during the training phase.

Privacy and security are of utmost importance when utilizing digital platforms like logBlog, particularly when documenting sensitive information from industrial training involving actual companies (Mahzan et al., 2020). Despite Google Sites providing robust security measures like encrypted connections and access controls, worries about data breaches or unauthorized sharing remain. Supervisors might also be reluctant to rely on third-party platforms for sensitive information. Institutions need to create specific guidelines outlining content access, data storage duration, and measures for preventing unauthorized access in order to tackle these problems. It is important for students to be able to manage the privacy settings of their logbooks, restricting who can view them to supervisors and faculty members. Offering digital security training to students and supervisors can enhance their understanding of risks, best practices, and the platform’s security features, ultimately boosting confidence in logBlog's reliability and data protection.

One of the key advantages of logBlog is its versatility, enabling students to record their experiences using different types of multimedia. Yet, this adaptability may present difficulties in upholding uniformity among submissions, especially in assessment and scoring. Supervisors may find it challenging to evaluate students' work effectively if there is a significant difference in the format and content, as some students may choose text-based reflections while others may opt for videos or images. Institutions should establish precise guidelines and rubrics for logBlog use, detailing the required content and evaluation criteria for student entries. This structure guarantees uniformity while retaining artistic liberty. Moreover, supervisor training programs can aid in the development of strategies for assessing multimedia content impartially

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by implementing standardized criteria to ensure consistent grading across various entry formats.

Conclusion

The exploration of logBlog as a digital tool for documenting industrial training experiences represents a significant advancement in bridging the gap between traditional logbook methods and the evolving needs of contemporary education. As higher education institutions continue to integrate digital technologies into their curricula, tools like logBlog offer innovative solutions that reflect the increasingly multimedia-rich and interactive nature of both the learning environment and the workplace. By replacing static, text-based logbooks with dynamic, multimedia-enhanced documentation platforms, logBlog can transform how students reflect on their training experiences, how supervisors provide feedback, and how institutions evaluate learning outcomes.

Contributions to the Field

This paper contributes to the field of educational technology and industrial training by proposing logBlog as a novel solution to the limitations of traditional logbooks. The integration of multimedia elements and real-time feedback capabilities represents a significant step forward in how students document, reflect on, and communicate their industrial training experiences. By framing this paper as an exploratory study, it opens the door for future empirical research that can evaluate the real-world effectiveness of logBlog across diverse educational settings.

In doing so, this paper positions logBlog as not only a digital tool for enhancing industrial training documentation but also a potential model for how educational institutions can integrate technology to improve experiential learning processes. As industries continue to evolve in the digital era, it is increasingly important that educational documentation tools like logBlog keep pace, ensuring that students are well-equipped to navigate the demands of the modern workplace.

Implications for Practice

The findings of this study have several important implications for educators, institutions, and policymakers:

1. For Educators: The adoption of logBlog has the potential to revolutionize how supervisors engage with students during industrial training. Real-time feedback mechanisms offer opportunities for more effective mentoring, helping students address challenges as they arise. Educators can also use the multimedia documentation to gain deeper insights into students' experiences and provide more tailored guidance.
2. For Institutions: Implementing logBlog requires institutions to invest in digital infrastructure, provide training and support for both students and supervisors, and establish clear guidelines for using the platform. The potential benefits—such as improved student engagement, enhanced reflective learning, and more streamlined supervision—make this investment worthwhile. Institutions should also ensure that appropriate privacy and security measures are in place to protect sensitive information.

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3. For Policymakers: The exploration of logBlog has broader implications for the development of policies that support the digital transformation of education. As more educational institutions shift toward digital platforms, policymakers must ensure that issues of digital equity, privacy, and security are adequately addressed. Encouraging the use of innovative tools like logBlog can help institutions better prepare students for the challenges of the modern workforce while maintaining high standards of academic rigor.

Future studies on logBlog should prioritize various important areas, beginning with longitudinal research to evaluate its long-term effects on student growth, memory, and job prospects. These research projects would offer actual data to back up the potential advantages mentioned in the initial analysis, like improved contemplation, oversight, and involvement. It is essential to conduct comparative research between logBlog and traditional logbooks in order to assess variations in reflection quality, supervision feedback, and student engagement. Moreover, by merging logBlog with current educational technologies like learning management systems (LMS), it could enhance workflows and enhance supervision processes. Investigating scalability is another crucial avenue to consider, since introducing logBlog for bigger student groups comes with logistical and technical hurdles. Research must also focus on addressing concerns regarding privacy and data security, particularly when students are dealing with sensitive information in the course of their industrial training. Furthermore, upcoming developments such as artificial intelligence, virtual reality, and gamification may improve the platform's features, increasing its interactivity and flexibility. By examining these regions, organizations can guarantee that logBlog continues to be a valuable resource for improving student learning and professional growth in a quickly changing educational environment.

In conclusion, logBlog offers a promising solution for addressing the limitations of traditional logbooks in industrial training. By enabling students to document their experiences through multimedia, receive real-time feedback, and engage more deeply with the reflective process, logBlog has the potential to enhance the overall quality of industrial training documentation. However, to fully realize its potential, institutions must carefully navigate the challenges of digital literacy, resistance to change, and data security. Through continued research and development, logBlog can become a valuable tool for modernizing educational documentation and preparing students for the demands of the digital workforce.

Acknowledegment
The authors express their sincere gratitude to the Research Management Unit of Universiti Teknologi MARA (UiTM) Cawangan Kedah for their valuable assistance, direction, and provision of resources during this study. We are grateful for the support received from our colleagues and faculty, along with the helpful feedback from the reviewers, which enhanced the quality of this publication.

References

Abdullah, A. D. (2020). Digital log-book in the setting of MMed (Internal Medicine) training at Universiti Sains Malaysia: A do-it-yourself experience. Abstract Proceedings of the 3rd International Conference on Medical and Health Sciences (3rd ICMHS) and the 24th National Conference on Medical and Health Sciences (24th NCMHS) 2019, 27, 36–36. http://www.mjms.usm.my/MJMS27si2020/01MJMS27si2020.pdf

International Journal of Modern Education
IJMOE
EISSN: 2637-0905
Volume 6 Issue 22 (September 2024) PP. 660-681
DOI: 10.35631/IJMOE.622045

Adekunle, K. O., Ganiyu, M., & Enigbokan, O. Y. (2024). Development of electronic logbook system for students' industrial work experience scheme (Case study: Federal Polytechnic Ile-Oluji, Ondo State). International Journal of Computer Science and Mobile Computing, 13(8), 32-40. https://doi.org/10.47760/ijcsmc.2024.v13i08.004

Agarwal, A., & Alathur, S. (2023). Metaverse revolution and the digital transformation: Intersectional analysis of Industry 5.0. Transforming Government: People, Process and Policy, 17(4), 688-707. https://doi.org/10.1108/tg-03-2023-0036

Akhtar, R., Neo, E. Y., McDonald, J., & Teo, S. S. S. (2020). A paediatric logbook: Millstone or milestone? Journal of Paediatrics and Child Health, 56(10), 1500-1503. https://doi.org/10.1111/jpc.15121

Alotaibi, H. M., Alharithy, R., & Alotaibi, H. M. (2022). Importance of the reflective logbook in improving the residents' perception of reflective learning in the dermatology residency program in Saudi Arabia: Findings from a cross-sectional study. BMC Medical Education, 22(1). https://doi.org/10.1186/s12909-022-03948-w

Barnová, S., Duda, M., Matulčíková, M., Gabrhelová, G., & Hrivíková, T. (2022). Further professional on-the-job training of employees in the digital era. International Journal of Engineering Pedagogy (iJEP), 12(5), 54-67. https://doi.org/10.3991/ijep.v12i5.32523

Bilgihan, A., & Ricci, P. (2023). The new era of hotel marketing: Integrating cutting-edge technologies with core marketing principles. Journal of Hospitality and Tourism Technology, 15(1), 123-137. https://doi.org/10.1108/jhtt-04-2023-0095

Coudray, C. B. d. (2020). Theory and praxis in experiential education: Some insights from gestalt therapy. Journal of Experiential Education, 43(2), 156-170. https://doi.org/10.1177/1053825920904387

Fernando, M., Fox, S. L., Bandara, R., & Hartley, D. (2020). Lowering the walls: An integrative approach to first-year undergraduate business education. Journal of International Education in Business, 13(2), 275-295. https://doi.org/10.1108/jieb-04-2020-0027

Ghobakhloo, M. and Iranmanesh, M. (2021). Digital transformation success under industry 4.0: a strategic guideline for manufacturing smes. Journal of Manufacturing Technology Management, 32(8), 1533-1556. https://doi.org/10.1108/jmtm-11-2020-0455

Gray, T., Hood, G., & Farrell, T. (2016). Integration of healthcare supervision logbook smartphone app into clinical practice to record feedback on medical training. BMJ Innovations, 2(2), 48-51. https://doi.org/10.1136/bmjinnov-2015-000089

Ikechukwu, C. (2016). Recommended changes in students' industrial work experience scheme (SIWES) geared towards a decrease in unemployment rate of business education graduates in Nigeria. International Journal of Business and Management, 4(1), 49-68. https://doi.org/10.20472/bm.2016.4.1.003

Jiang, X., Zhang, X., & Chen, P. (2019). Study on the talents training mode promoting of the integration of industry and education in application-oriented colleges and universities. In Proceedings of the 2019 International Conference on Management, Education Technology and Economics (ICMETE 2019). https://doi.org/10.2991/icmete-19.2019.79

Jørgensen, R. B., Kero, I., Blom, A., Grove, E. E., & Svendsen, K. (2020). Exposure to ultrafine particles in the ferroalloy industry using a logbook method. Nanomaterials, 10(12), 2546. https://doi.org/10.3390/nano10122546

International Journal of Modern Education
EISSN: 2637-0905
IJMOE
Volume 6 Issue 22 (September 2024) PP. 660-681
DOI: 10.35631/IJMOE.622045
Karunaratne, P. K., & Niroshani. (2019). Students' perception on the effectiveness of industrial internship programme. Education Quarterly Reviews, 2(4), 822-832. https://doi.org/10.31014/aior.1993.02.04.109

Kolb, D. A. (1984). Experiential learning: Experience as the source of learning and development. Englewood Cliffs, NJ: Prentice Hall.

Mahzan, S., Sadikan, S. F. N., Md Shah, M. A. M., Shahudin, M. H., Saat, Z., & Shafie, S. (2020). Smart logbook sebagai alternatif penyelesaian masalah penyeliaan berterusan latihan industri: Kajian awal persepsi pelajar. Jurnal Inovasi Malaysia, 4(1), 113-132. https://myjurnal.mohe.gov.my/filebank/published_article/102642/JURIM_VOL_4_1_ARTICLE_8.pdf

McAlpine, H., Cash, P., & Hicks, B. (2017). The role of logbooks as mediators of engineering design work. Design Studies, 48, 1-29. https://doi.org/10.1016/j.destud.2016.10.003

Moreno, R., & Mayer, R. E. (2007). Interactive multimodal learning environments: Special issue on interactive learning environments: Contemporary issues and trends. Educational Psychology Review, 19(3), 309-326. https://doi.org/10.1007/s10648-007-9047-2

Muktevi, S. (2024). Digital transformation in the natural resources industry: rethinking the strategic approaches. The American Journal of Applied Sciences, 6(6), 39-48. https://doi.org/10.37547/tajas/volume06issue06-07

Ningtyas, E. Z. (2021). Mathematics communication junior high school students in solving open-ended question based on reflective-impulsive cognitive style. EduTeach: Jurnal Edukasi Dan Teknologi Pembelajaran, 2(1), 31-41. https://doi.org/10.37859/eduteach.v2i1.2410

Okano, M. T., Antunes, S. N., & Fernandes, M. E. (2021). Digital transformation in the manufacturing industry under the optics of digital platforms and ecosystems. Independent Journal of Management & Production, 12(4), 1139-1159. https://doi.org/10.14807/ijmp.v12i4.1375

Raj, A., Dwivedi, G., Sharma, A., Jabbour, A. B. L. d. S., & Rajak, S. (2020). Barriers to the adoption of Industry 4.0 technologies in the manufacturing sector: An inter-country comparative perspective. International Journal of Production Economics, 224, 107546. https://doi.org/10.1016/j.ijpe.2019.107546

Redzuwan, R., Adnan, A. R., & Wahid, R. A. (2022). Implementation of work-based learning among electrical engineering diploma students in an electric utility company. International Journal of Advanced Research in Education and Society, 4(4), 100-107. https://doi.org/10.55057/ijares.2022.4.4.9

Shek, D. T. L., Lin, L., Liu, T. T., & Law, M. Y. (2014). Service leadership education for university students in Hong Kong: Qualitative evaluation. International Journal on Disability and Human Development, 13(4). https://doi.org/10.1515/ijdhd-2014-0350

Siemens, G. (2005). Connectivism: A learning theory for the digital age. International Journal of Instructional Technology and Distance Learning, 2(1), 3-10. http://www.itdl.org/Journal/Jan_05/article01.htm

Simões, A. L. d. A., Ferreira, F., Almeida, A., Zimmermann, R., Castro, H., & Azevedo, A. (2021). Innovative learning scheme to up-skilling and re-skilling – designing a collaborative training program between industry and academia towards digital transformation. In IFIP Advances in Information and Communication Technology (pp. 729-737). https://doi.org/10.1007/978-3-030-85969-5_69

International Journal of Modern Education
EISSN: 2637-0905
IJMOE
Volume 6 Issue 22 (September 2024) PP. 660-681
DOI: 10.35631/IJMOE.622045

Suhaimi Baharudin, A., Karkonasasi, K., & Hussain, M. A. B. M. (2016). USM internship and career portal. International Journal of Applied Engineering Research, 11(20), 10247-10251. Retrieved from https://www.ripublication.com/ijaerv11n20.htm

Sumarmi, S., Bachri, S., Irawan, L. Y., Putra, D. B. P., Risnani, R., & Aliman, M. (2020). The effect of experiential learning models on high school students' learning scores and disaster countermeasures education abilities. Journal for the Education of Gifted Young Scientists, 8(1), 61-85. https://doi.org/10.17478/jegys.635632

Waddell, J. (2015). Bridging the theory/practice divide: Experiential learning for a critical, people-centred economy. Toronto Metropolitan University. Journal contribution. https://doi.org/10.32920/ryerson.14669076.v1

Xiao, Y., Li, X., & Zhao, J. (2023). Challenges and optimization path of digital transformation of the manufacturing industry. Manufacturing and Service Operations Management, 4(5), 80-85. https://doi.org/10.23977/msom.2023.040511

Yusuf, H. T., Odutayo, A. O., & Tuoyo, A. O. (2022). Effectiveness of teaching practice supervision as perceived by student-teachers in Ilorin metropolis, Nigeria. Journal of Educational Sciences, 6(3), 312-319. https://doi.org/10.31258/jes.6.3.p.312-319