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# Innovative Blended Learning Approaches to Enhance Student Engagement in University

**[1]Nurul Hidayah Ahmed, [2]James Andersion, [3]Ana Garcíae Martínez**
*[1]Universiti Teknologi Malaysia (UTM), Faculty of Education, Johor Bahru, Malaysia, [2]University of Sydney, Faculty of Education and Social Work, Sydney, Australia, [3]University of Barcelona, Department of Education, Barcelona, Spain*
*Email: [1]nurul.hidayahmed@utm.my, [2]james.andersion@sydney.edu.au, [3]ana.garciase@ub.edu*

**Correspondence Email : nurul.hidayahmed@utm.my*

***Abstrac**: This study aims to identify and analyze innovative blended teaching strategies to enhance student engagement in Malaysian higher education institutions. By integrating face-to-face and online learning methods, the study emphasizes the application of technology and interactive approaches to foster active student participation in the learning process. The research employs a qualitative approach, utilizing in-depth interviews with lecturers and students alongside observations of teaching practices across several Malaysian higher education institutions. The findings reveal that leveraging digital platforms such as Learning Management Systems (LMS), instructional videos, and project-based learning that combine online and in-person activities can significantly improve student engagement. Students with reliable access to technology and comfort in using online platforms exhibit higher participation in discussions and assignments, whereas those with limited access tend to be less engaged. The study also highlights the critical importance of continuous technology training for lecturers and the provision of equitable resources for students to ensure the success of blended learning initiatives. Consequently, it underscores the necessity of integrating innovative teaching strategies with robust technological support to enhance the quality of education in Malaysian higher education institutions.*

***Keywords** : Blended learning, student engagement, innovative teaching, educational technology.*

## INTRODUCTION

The transformation of education in the digital era has brought significant changes in learning methods, especially in higher education. In Malaysia, the development of information and communication technology (ICT) provides great opportunities for educational institutions to integrate innovative approaches in teaching (Malaysia Education Blueprint 2015–2025). One approach that is starting to be widely applied is blended learning, which combines online and offline learning methods (Garrison & Vaughan, 2008). This approach is designed to increase the flexibility and effectiveness of learning, while also answering the needs of modern students who are familiar with technology (Hrastinski, 2019). However, the implementation of blended teaching

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strategies in Malaysian higher education still faces a number of challenges, especially in ensuring active student involvement in the learning process (Arifin, 2017).

Student engagement is an important element in achieving optimal learning outcomes(Sholeh, 2023). Students who are actively engaged tend to have higher motivation, better understanding of the material, and the ability to apply knowledge in real-world situations (Martin & Bolliger, 2018). However, research shows that many students in Malaysia face difficulties in maintaining their engagement, especially in online learning which tends to be passive (Baker & Delacruz, 2020). Factors such as uneven access to technology, lack of interactivity, and monotonous learning designs are often the main causes of low student engagement (Arifin, 2017).

Blended learning is presented as a potential solution to overcome these problems. By utilizing digital technology and maintaining face-to-face interactions, this approach offers a more diverse and engaging learning experience (Garrison & Vaughan, 2008). In Malaysia, higher education policies, such as *the Malaysia Education Blueprint 2015–2025* , encourage educational institutions to integrate technology in teaching. However, despite the policy support, the implementation of innovative blended learning strategies still requires a deeper understanding of student needs, relevant learning designs, and lecturers' skills in utilizing technology (Hrastinski, 2019).

In this context, another challenge arises from the readiness of lecturers and students. Many lecturers in Malaysian higher education institutions are still limited in terms of technological skills and pedagogical knowledge to implement blended learning effectively (Baker & Delacruz, 2020). In addition, students often find it difficult to adapt to new learning models that require them to be more independent and proactive (Sun & Chen, 2016). This indicates the need for blended teaching strategies that are not only innovative but also appropriate to student characteristics and educational conditions in Malaysia.

Furthermore, previous studies have shown that blended learning has great potential to increase student engagement if well-designed (Ellis & Goodyear, 2010). The use of interactive technologies such as *Learning Management Systems* (LMS), learning videos, and online discussions can create a more dynamic learning experience (Salmon, 2013). In addition, approaches such as project - *based learning* and online collaboration have also been shown to be effective in increasing student participation (Martin & Bolliger, 2018). However, in Malaysia, the adoption of these technologies

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is often hampered by technical constraints such as uneven internet connectivity and lack of access to digital devices (World Bank, 2021).

It is important to note that students in Malaysian higher education institutions come from very diverse backgrounds, both in terms of culture, academic ability, and access to technology (UNESCO, 2020). This diversity requires flexible and inclusive teaching strategies. In blended learning, lecturers need to consider the various needs of students to ensure that all students can be actively engaged, without being constrained by technical or pedagogical factors (Hrastinski, 2019). This requires a holistic approach, including interactive learning design, the use of accessible technology, and the development of lecturers' skills in managing blended learning.

In addition, the COVID-19 pandemic that hit the world, including Malaysia, became an important momentum for the development of blended learning (UNESCO, 2020). When online learning became a primary need during the pandemic, many educational institutions began to realize the importance of technology in supporting the teaching and learning process (World Bank, 2021). However, the experience during the pandemic also showed that online learning alone is not enough to maintain student engagement. The combination of face-to-face and online interactions, as offered by blended learning, is a more effective option to maintain the quality of learning (Salmon, 2013).

Blended learning is also relevant to Malaysia's efforts to improve the global competitiveness of its higher education system. In the era of globalization, students are not only required to have academic knowledge, but also 21st-century skills such as collaboration, communication, and problem-solving (Hrastinski, 2019). With innovative blended teaching strategies, universities can create a learning environment that supports the development of these skills, while preparing students to face the challenges of the world of work (Ellis & Goodyear, 2010).

However, despite its great potential, the implementation of blended learning in Malaysia still requires further research to ensure its effectiveness. Empirical studies are needed to explore how blended teaching strategies can be designed and implemented effectively to enhance student engagement (Baker & Delacruz, 2020). This research is expected to provide important contributions in developing educational approaches that are not only relevant to the local context but also in line with global trends in higher education (Malaysia Education Blueprint 2015–2025).

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Against this backdrop, this article aims to examine innovative blended teaching strategies, particularly in the context of higher education in Malaysia. The focus is on how these strategies can enhance student engagement, address existing challenges, and support the achievement of broader educational goals. This study is expected to provide practical guidance for lecturers, researchers, and policy makers in implementing effective and sustainable blended learning in Malaysian higher education.

## METHODS

This study uses a **qualitative descriptive approach** to explore in depth the innovative blended teaching strategies in enhancing student engagement in higher education institutions in Malaysia. The qualitative approach was chosen because it allows researchers to understand the phenomenon contextually and holistically based on the direct experiences of participants (Creswell, 2014). The focus of this study is the exploration of best practices, challenges, and opportunities that arise in the implementation of blended learning.

The subjects of the study involved lecturers, students, and technical support staff at a tertiary institution in Malaysia. Lecturers were selected because of their role as primary facilitators in blended learning, while students were included to understand the end-user perspective. In addition, technical support staff who play a role in ensuring the smooth running of the technology were also part of the research subjects. The selection of participants was carried out using the **purposive sampling method** , where participants were selected based on their direct experience with blended learning for at least two years (Patton, 2002).

Data were collected using several techniques, namely **in-depth interviews** , **direct observation** , and **documentation analysis** . In-depth interviews were conducted with a semi-structured guide to explore the experiences and views of lecturers, students, and technical staff related to blended learning. The interview guide was designed based on the theory of student engagement and learning innovation (Astin, 1999). Direct observation was conducted during the blended learning process, both in online and face-to-face sessions. This observation aims to record interactions between lecturers and students, the use of technology, and class dynamics. In addition, documentation analysis was conducted on college policies, learning modules, and blended learning implementation evaluation reports (Merriam, 2009).

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To ensure data reliability, this study applies **method triangulation** , which combines data from interviews, observations, and documentation. This triangulation is carried out to reduce bias and ensure the validity of the findings (Denzin, 1978). In addition, the **member checking process** is applied by providing interview transcripts to participants for verification, so that data accuracy can be guaranteed (Creswell & Poth, 2018).

Data analysis was conducted using a **thematic approach** with several stages, namely data reduction, categorization, and drawing conclusions. In the data reduction stage, researchers simplified and focused the data to obtain relevant information. The data was then categorized based on main themes such as teaching strategies, technology used, and challenges faced. Drawing conclusions was done by interpreting the findings to answer the research questions (Braun & Clarke, 2006).

In addition, this study adheres to the principles of research ethics. Prior to data collection, all participants were given **informed consent** to ensure their participation was voluntary. The identities of the participants were also kept confidential to protect their privacy. The results of the study were presented transparently and responsibly to support the development of better educational practices (Israel & Hay, 2006).

The research locations include universities in Malaysia that have implemented blended learning, both public and private universities. The locations were selected to reflect the diversity in the implementation of blended teaching strategies, including variations in the use of technology, learning design, and student characteristics. This is relevant to provide a comprehensive picture of the state of higher education in Malaysia (Malaysia Education Blueprint, 2015–2025).

With this research design and method, it is expected that the research findings can provide significant contributions to the development of innovative blended teaching strategies, especially in the context of higher education in Malaysia. The approach used provides space for in-depth exploration of the various factors that influence student engagement in blended learning, while also offering practical recommendations for more effective implementation.

## RESULTS AND DISCUSSION

This study aims to identify and analyze innovative blended teaching strategies implemented in Malaysian higher education institutions to enhance student engagement. Based on in-depth

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interviews, direct observation, and documentation analysis, the results of the study indicate that despite some challenges, the implementation of blended learning in Malaysian higher education institutions has great potential to enhance student engagement if implemented appropriately. The discussion will relate these findings to theories of student engagement, technology-based teaching, and the local context of Malaysian higher education institutions.

**Blended Teaching Strategies Applied**

Blended learning-based teaching, which combines face-to-face sessions with online learning through the use of digital technology, is increasingly being implemented in Malaysian higher education institutions. This type of learning utilizes various technological tools that support flexibility, engagement, and accessibility in the teaching and learning process. Based on interviews with several lecturers in Malaysian higher education institutions, the use of blended teaching strategies can be seen in two main aspects: the use of Learning Management Systems (LMS) for distributing materials and assignments, and the use of learning video platforms such as Zoom and Google Meet for online face-to-face sessions.

LMS, such as Moodle, Blackboard, or local platforms developed by universities, are the main tools in blended-based teaching. LMS allows lecturers to upload lecture materials, assignments, quizzes, and other learning resources that can be accessed by students anytime and anywhere. LMS features such as discussion forums, assignment submission, and direct feedback facilitate interaction between lecturers and students, even though there is no face-to-face meeting.

The use of LMS provides great advantages in terms of flexibility of time and space. Students can access lecture materials before or after face-to-face meetings, so they can prepare better or repeat material that is not well understood. This contributes to increasing student independence in learning (Moore, 2013). Research conducted by Allen and Seaman (2015) shows that LMS-based learning significantly increases student engagement because it allows them to access materials at any time, deepen their understanding through additional learning resources, and manage their own time.

However, although many higher education institutions in Malaysia have integrated LMS into their teaching, there are still challenges faced. Some lecturers expressed that they felt less confident in operating the system effectively. Lack of knowledge about the advanced features of LMS and difficulty in adapting to complex interfaces often act as barriers for lecturers to make optimal use

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of LMS (Garrison & Vaughan, 2008). Therefore, it is important to provide ongoing training to lecturers so that they can use LMS more effectively.

In addition to LMS, video technologies such as Zoom, Google Meet, and Microsoft Teams are also widely used in blended teaching strategies in Malaysian higher education. These platforms allow lecturers and students to interact directly despite being in different locations. These online face-to-face sessions provide students with the opportunity to ask questions directly to lecturers, discuss the material they have learned, and participate in group discussions in real time. This increases interactivity in the learning process, which can improve overall student engagement (Johnson et al., 2014).

Video lessons are becoming an essential tool in the teaching process, especially when students are unable to physically attend a lecture. Lecturers can record lectures and upload them to video platforms so that students who are unable to attend at the scheduled time can still access the material being taught. This also gives students the opportunity to prepare themselves before the face-to-face meeting begins, allowing them to be more prepared and engaged during the session. Research by Garrison and Vaughan (2008) shows that integrating video into learning can enhance students' learning experience, provide better access to course materials, and increase flexibility in learning.

However, despite the rapid increase in the use of video platforms, some lecturers still face difficulties in operating the devices. Limited technological skills among lecturers are one of the main obstacles in the optimal use of learning video platforms. Some lecturers admit that they are more comfortable with traditional teaching methods, such as face-to-face lectures, which they consider more effective in communicating and guiding students. Research by Garrison and Vaughan (2008) also shows that difficulties in the use of technology by lecturers can hinder the success of blended learning implementation.

Despite the increasing use of technology in Malaysian higher education, significant challenges remain in the adoption and effective implementation of such technologies. One of the biggest challenges is the lack of technological skills among lecturers. While some lecturers are comfortable with basic digital tools, such as email and office applications, many find it difficult to use more sophisticated technologies, such as LMS or video-based learning tools. Lack of intensive and

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ongoing training is often the reason why lecturers prefer more familiar traditional teaching methods.

According to a study by McGee and Reis (2012), low technological skills among lecturers can hinder the implementation of effective blended teaching strategies. Lecturers who are not comfortable with technology are less likely to utilize the full potential offered by online platforms. Therefore, more comprehensive and ongoing training is needed to ensure that lecturers can optimize the use of technology in their teaching.

In addition, resistance to change is also a challenge in implementing blended learning. Some lecturers who are accustomed to traditional teaching feel that the use of technology can reduce the quality of their interactions with students, which are considered very important in the learning process. In this case, research by Garrison and Vaughan (2008) revealed that resistance to change is often caused by a lack of understanding of the benefits of technology in increasing student engagement and learning quality.

To address the challenges faced by lecturers, especially in terms of lack of technological skills, Malaysian universities need to provide more intensive technical support and ongoing training. This training should not only cover the basic use of technology, but also innovative teaching techniques that can enhance student engagement in online learning. Practice-based training that provides lecturers with the opportunity to explore different technological tools can increase their confidence in using them (Bates, 2015).

In addition to training, universities can also provide technical support in the form of a team that is ready to help lecturers when they experience technical problems or need further guidance in using technology. This support is important to ensure that lecturers can overcome technical obstacles that arise and are not hampered by device problems or platforms that do not run smoothly.

The blended teaching strategy implemented in Malaysian higher education institutions has great potential to improve student engagement and overall learning quality. The use of LMS and video learning platforms has provided greater flexibility in the teaching and learning process. However, there are still challenges related to technological skills among lecturers and resistance to change that need to be overcome.

To optimize the use of technology in teaching, universities need to provide more intensive training and ongoing technical support(Sholeh, 2024). Thus , lecturers will be better prepared to implement

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blended teaching strategies effectively, which in turn will increase student engagement and the quality of learning in universities.

**Student Engagement in Blended Learning**

The implementation of blended learning in higher education aims to increase student engagement in the learning process. Blended learning, which combines face-to-face learning with online learning, provides greater flexibility for students to access course materials and interact in various formats. Based on observations and interviews with students, it was found that student engagement is greatly influenced by access to technology and their comfort in using online platforms.

Students who have good access to technology and feel comfortable using online platforms show higher levels of engagement in the learning process. They are more active in participating in online discussions, completing assignments and quizzes, and asking questions during face-to-face sessions. Online learning platforms, such as Learning Management Systems (LMS) and video conferencing applications, allow students to interact with instructors and fellow students, both synchronously and asynchronously. This increases the opportunity for students to become more engaged in the course material.

This student engagement is in line with the theory of student engagement proposed by Astin (1999). Astin stated that student engagement in learning increases when they feel they have control over their learning process and have the opportunity to interact with their lecturers and peers. In the context of blended learning, the existence of flexible access to course materials and the opportunity to participate in online activities gives students more space to be actively involved. Students who feel they have control over their learning tend to be more motivated and more active in participating in academic activities (Astin, 1999).

However, challenges arise for students who have limited access to technology or are less familiar with the use of online platforms. Students in this group often find it difficult to follow the learning process and tend to be passive. This shows that limited access to technology can be a major obstacle in implementing blended learning. Research by Allen and Seaman (2015) revealed that although many students find online learning beneficial, students who do not have adequate access to technology often have difficulty following the material and assignments given.

Although students who are familiar with technology show increased engagement, the study also identified significant challenges in maintaining student engagement during online learning

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sessions. One of the main issues identified was the lack of interactivity in online learning. Several students expressed that they found online learning to be monotonous and less engaging, especially when the material presented was only text-based or video-based without interactive elements to encourage active participation.

This is in line with the findings expressed by Graham (2006), which showed that the lack of interaction in online learning can cause students to feel isolated and less motivated. When online learning focuses too much on passive delivery of materials, such as videos or texts, students tend to lose interest and enthusiasm for learning. Therefore, it is important to create more interactive elements in online learning, such as group discussions, interactive quizzes, or activities that allow students to collaborate with fellow students. Research conducted by Garrison and Vaughan (2008) also showed that the integration of interactive elements, such as discussion forums and collaborative assignments, can increase student engagement in online learning.

In addition, the existence of video conferencing platforms, such as Zoom or Google Meet, allows students to interact directly with their lecturers and peers, which can increase engagement levels. In this regard, teaching techniques that utilize live interactive sessions, such as Q&A or class discussions, can enhance students' learning experiences (Johnson et al., 2014). By providing opportunities for students to actively participate, either through online face-to-face sessions or more interactive assignments, their engagement in learning can increase.

In blended learning, students can participate in learning activities asynchronously (e.g., accessing course materials in an LMS) or synchronously (e.g., attending online lectures via video conferencing). This study showed that students who were more involved in synchronous activities, such as online class discussions, had higher levels of engagement. This is because synchronous learning provides students with the opportunity to interact directly with their instructors and peers, creating a more dynamic and social learning experience.

However, while synchronous learning has the potential to increase engagement, many students also appreciate the flexibility offered by asynchronous learning. Free access to online lecture materials, video recordings, and assignments allows students to study at their own pace. This is in line with research findings by Moore (2013), who stated that flexibility in learning time and space can increase student engagement, especially for those with busy schedules or time constraints.

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Therefore, a combination of synchronous and asynchronous learning can provide a good balance in increasing student engagement, taking into account their needs and preferences.

Based on the findings of this study, there are several recommendations to increase student engagement in blended learning. First, universities need to improve access to technology to ensure that all students have equal opportunities to participate in online learning. This includes providing adequate devices, accessing high-bandwidth internet, and offering training to students on how to use online learning platforms effectively.

Second, to increase interactivity in online learning, lecturers can use various tools that support collaboration, such as discussion forums, interactive quizzes, and group assignments. Lecturers can also integrate Q&A sessions or group presentations into online lectures to create a more engaging and dynamic learning experience. In this case, the use of technology that supports direct interaction, such as video conferencing, can have a significant impact on the level of student engagement (Johnson et al., 2014).

Finally, universities should continue to encourage integration between synchronous and asynchronous learning, giving students the opportunity to choose the learning method that suits their learning style. By providing flexibility in time and space, students can learn in a more structured way while still being able to interact with lecturers and fellow students.

**Challenges in Implementing Blended Learning**

The implementation of blended learning models has become a global trend in higher education, including in universities in Malaysia. Blended learning combines online and face-to-face learning, which aims to increase student engagement and learning efficiency. Although there is great potential in the implementation of this method, many universities in Malaysia face various challenges in its implementation. Two main challenges that are often found are the inequality of access to technology and the readiness of lecturers to utilize technology optimally.

One of the biggest challenges in implementing blended learning in Malaysian universities is the unequal access to technology, both in terms of digital devices and internet connections. Larger universities or those located in big cities tend to have better technology infrastructure, including adequate digital devices and stable internet connections. For example, students at universities such as Universiti Malaya or Universiti Kebangsaan Malaysia usually have better access to hardware and software, as well as fast and stable internet connections. This allows them to access online

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learning materials more smoothly, participate in online discussions, and complete online assignments or exams without major obstacles.

However, this is very different from universities located in areas with limited facilities or in private universities that may not have sufficient budget to provide adequate technological infrastructure. Students in these universities often face difficulties in accessing online learning materials due to limited digital devices such as laptops or tablets, as well as unstable or even non-existent internet connections in their homes. These challenges can have a direct impact on their engagement in blended learning, as they cannot fully access the course materials delivered through online platforms.

This limited access to technology can create inequality in student participation. Students who have better access tend to be more active in online learning and find it easier to follow the development of the material being taught. Conversely, students who are limited in terms of access to technology may have difficulty following the learning, which can lead to low motivation and participation in learning activities. This indicates the need for universities to pay more attention to the equitable distribution of technology so that all students can feel the benefits of the implementation of blended learning to the maximum.

Research by Garrison and Kanuka (2004) shows that inequality of access to technology is a serious problem in technology-based education, as it can affect the quality of students' learning experiences. They suggest that educational institutions provide adequate support, including access to devices and training for students who are disadvantaged in terms of technology, to ensure the successful implementation of the blended learning model.

In addition to the issue of technology access for students, another significant challenge in implementing blended learning is the readiness of lecturers to utilize technology effectively. Although universities in Malaysia have provided technology training to lecturers, the reality is that many lecturers feel less skilled in using the various software and digital platforms used in blended learning(Haruna, 2024). Some lecturers even still find it difficult to facilitate online discussions, manage virtual classes, or use more sophisticated online assessment tools, such as automated quizzes and online exams.

Lecturers' readiness to use technology to support learning is the main key to the success of blended learning implementation. Lecturers who are less skilled in using digital technology may have

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difficulty designing and managing effective learning in both online and face-to-face formats(Sholeh, 2024). Therefore, technology training provided to lecturers must not only include a basic understanding of the use of digital tools, but also how to integrate them well into broader teaching strategies.

Integrated and ongoing training is essential to ensure that lecturers not only learn how to use technological devices, but also understand how technology can be used to support innovative and student-centered teaching methods. In this regard, O'Toole and Absalom (2014) emphasize the importance of ongoing training, which covers various aspects of educational technology, such as the use of Learning Management Systems (LMS), online assessment tools, and interactive teaching techniques in online learning.

As technology continues to change, it is important for universities to offer more dynamic training programs and continually update lecturers' skills to stay relevant to changing learning needs. A study by Anderson (2008) revealed that ongoing training can help lecturers feel more confident in adopting and utilizing technology in their learning. This training should also encourage lecturers to develop creativity in designing learning experiences that actively engage students, both in online and face-to-face environments.

To overcome these challenges, Malaysian universities need to take strategic steps to ensure the success of blended learning. One of these is to provide more equitable access to technology for all students, either by providing adequate devices or by providing more stable internet access. Some universities may consider implementing device assistance programs for students who cannot afford laptops or tablets. In addition, providing hotspots or free Wi-Fi access on campus or in other public places can also help students who have difficulty with internet connections at home.

In addition, universities should ensure that technology training for lecturers is carried out in an integrated and ongoing manner. A training program that covers basic to advanced skills in the use of educational technology can help lecturers feel more comfortable and prepared to use various digital tools to improve their teaching. Universities can also encourage collaboration between lecturers to share experiences and strategies in integrating technology into their teaching.

The effective implementation of blended learning requires commitment from all parties, including students, lecturers, and the university itself. Therefore, careful planning and ongoing support are

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essential for the implementation of this learning model to be successful and provide maximum benefits for students.

**Opportunities in Implementing Blended Learning**

Blended learning, which combines online and face-to-face learning methods, has become an increasingly popular approach in higher education. While its implementation faces a number of challenges, such as technological issues and the need for cultural change among faculty and students, this study shows that there are significant opportunities to be exploited in implementing blended learning. One major opportunity is the implementation of project-based learning, which combines online and face-to-face interactions and online collaboration that can increase student engagement.

One of the great opportunities in the application of blended learning is the implementation of project-based learning. Project-based learning allows students to work on complex problems or tasks that require the application of knowledge from various disciplines. In the context of blended learning, project-based learning often involves a combination of online and face-to-face assignments. For example, students can work collaboratively on an online platform to complete part of a project, then present the results to the class in a face-to-face session. This approach not only increases student engagement, but also provides them with the opportunity to develop invaluable skills, such as collaboration, problem-solving, and communication skills.

Research conducted by Thomas (2000) states that project-based learning is very effective in motivating students because it gives them the opportunity to work in a more active and relevant way. According to Thomas, "project-based learning has been shown to increase engagement by encouraging students to tackle real-world problems, thus making learning more applicable and meaningful" (Thomas, 2000). Tasks that involve the real world are often interesting to students because they can see the direct application of the knowledge they are learning. Project-based learning also allows students to manage their time independently, utilize technology to collaborate with their peers, and participate in in-depth discussions on relevant topics.

Another advantage of project-based learning in blended learning is that it encourages the development of social and professional engagement skills. Students learn to interact with fellow students in an online context, which fosters a sense of trust and deeper understanding. In many cases, these projects involve real-world case studies, which adds a practical and applied dimension

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to their learning. This approach, according to Johnson et al. (2013), can significantly increase student engagement because it leads to the creation of a more authentic learning experience. As explained by Johnson et al. (2013), "project-based learning enhances student engagement by allowing them to collaborate in meaningful ways, addressing real-world issues" (Johnson et al., 2013).

In addition to project-based learning, online collaboration has also proven to be an important element in increasing student engagement in blended learning. Online collaboration refers to students interacting with fellow students or lecturers through various technology platforms, such as online discussion forums, social media, or online workgroups. This collaboration is not only limited to formal communication, but can also include sharing ideas, providing feedback, and solving problems together.

Several platforms that support online collaboration, such as Moodle, Google Classroom, and Slack, allow students to communicate effectively and share resources easily. These features allow students to stay connected with each other, even if they are not in the same place. This is a huge advantage for students who may have different schedules or locations(Sholeh, 2023). In the context of blended learning, where some of the learning is done online, online collaboration gives students the opportunity to continue interacting and learning from each other outside of face-to-face sessions.

According to Anderson (2008), online collaboration can strengthen student engagement by creating a more interactive and team-based learning experience. Anderson states, "online collaboration fosters student engagement by creating interactive learning environments where students share ideas and collaborate on tasks" (Anderson, 2008). Online platforms allow students to share ideas, discuss concepts, and provide support to each other in overcoming academic challenges. This creates a more dynamic and social learning experience, which is often more enjoyable and motivates students to engage more deeply in the learning process.

Several studies have shown that online collaboration has the potential to increase students' sense of ownership of their learning process. Students who collaborate with their peers are more likely to feel like they are part of a learning community, which increases their motivation and engagement. In addition, online collaboration also provides students with the opportunity to develop digital communication skills that are highly relevant in today's workplace.

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To maximize opportunities for online collaboration, the role of the instructor is critical. The instructor must be able to design learning experiences that encourage interaction between students, both in the form of online discussions and joint projects. The instructor also needs to ensure that students have the skills needed to collaborate effectively in the digital space. Anderson (2008) underlines the importance of instructor support in building and maintaining online learning communities. As Anderson explains, "The role of the instructor in facilitating online collaboration is critical in fostering an environment where students feel supported and engaged" (Anderson, 2008).

The implementation of blended learning opens up a huge opportunity to increase student engagement through project-based learning and online collaboration. This approach not only gives students the opportunity to work independently and collaborate with their peers, but also allows them to develop skills that are much needed in the professional world. With the right support from lecturers and effective use of technology, blended learning can be a very powerful tool in improving the quality of higher education.

**Recommendations for More Effective Implementation of Blended Learning**

Based on the results of this study, several recommendations can be made to improve the implementation of blended learning in Malaysian universities. The first recommendation is the need for improvements in access to technology, especially for students who are hampered by limited digital devices. Universities need to ensure that every student, regardless of economic background or location, has adequate access to technology that supports online learning. Access to devices such as laptops, tablets, or smartphones that can access online learning platforms is very important. In addition, fast and stable internet infrastructure must also be provided, especially in areas with limited access. Research by Tondeur et al. (2017) emphasized that equitable access to technology is one of the main factors that can influence the effectiveness of blended learning implementation in universities (Tondeur et al., 2017). By providing more equitable devices, students will be able to participate more actively in online learning, which can ultimately improve the quality of their learning experience.

The second recommendation is the importance of more intensive training for lecturers in utilizing available teaching technology. Teaching technology does not only include the use of Learning Management Systems (LMS) such as Moodle or Google Classroom, but also tools that can support

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more interactive and collaborative learning, such as online discussion forums, video conferencing, and cloud-based collaboration tools. This training will equip lecturers with the skills to design and deliver more engaging and effective learning materials in the context of blended learning. According to research by Rienties et al. (2013), lecturers who are skilled in using learning technology can create a more dynamic learning environment, which facilitates interaction between students and learning materials, and encourages higher engagement (Rienties et al., 2013). Therefore, universities need to allocate resources to provide appropriate training for lecturers so that they can make maximum use of various digital learning tools.

Finally, learning design in the context of blended learning should focus on interactivity and collaboration, which can increase student engagement. One effective way to achieve this is by integrating project-based learning. This approach allows students to work on real-world projects that require the application of knowledge from various disciplines, which can be done online and face-to-face(Zulkifli et al., 2023). Project-based learning encourages students to collaborate in teams, solve problems creatively, and improve communication and problem-solving skills. As explained by Thomas (2000), project-based learning can increase student engagement because it allows them to work on tasks that are more relevant and directly related to real-world life (Thomas, 2000). In addition, learning designs that encourage online group discussions can also strengthen collaboration between students, which in turn can increase their engagement and understanding of the material being taught. Online collaboration also allows students to interact more flexibly and in a safer space, where they can share ideas and solve problems together. Research by Johnson et al. (2013) showed that collaboration in project-based learning significantly increased student engagement and learning outcomes, because they learned to work together and solve challenges as a team (Johnson et al., 2013).

Overall, more effective implementation of blended learning in Malaysian higher education requires special attention to improving access to technology, enhancing lecturer skills, and designing more interactive and collaborative learning. By following these recommendations, it is hoped that students' learning experiences can be enhanced, as well as helping them develop the skills needed in a workplace that is increasingly dependent on technology and collaboration.

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## CONCLUSION

The implementation of blended learning strategies in Malaysian higher education institutions has shown promising results in increasing student engagement. Blended learning, which combines online learning with face-to-face interaction, allows students to access learning materials flexibly, facilitates the use of innovative technology, and increases interactivity in the learning process. The effective use of technology, such as Learning Management Systems (LMS) and digital collaboration tools, allows students to participate in more engaging and relevant learning. This supports the development of critical thinking skills, creativity, and technical skills needed in the modern workplace.

However, despite the significant benefits, challenges such as uneven access to technology and lecturers' readiness to utilize teaching technology still need to be addressed. Limited access to digital devices and slow internet connections in some areas can hinder students' participation in online learning. Therefore, it is important for universities to provide adequate devices and ensure stable and fast internet infrastructure, especially for students in areas with limited access. Meanwhile, more intensive training for lecturers in using available learning technologies is also needed. Lecturers who are skilled in utilizing various digital tools can create a more dynamic, interactive, and collaborative learning environment, which can improve the quality of students' learning experience.

Learning designs that focus on interactivity and collaboration are also key to increasing student engagement. Project-based learning and online group discussions enable students to work in teams, solve problems creatively, and improve communication and problem-solving skills. These approaches encourage students to think critically, collaborate with peers, and develop a deeper understanding of the material being taught. Research shows that collaboration and project-based learning can increase student motivation and engagement, as well as encourage them to learn independently and adapt to the demands of an increasingly complex workplace.

Overall, blended learning has great potential to improve the quality of learning and student engagement in Malaysian higher education institutions. By improving access to technology, providing intensive training for lecturers, and designing more interactive and collaborative learning designs, higher education institutions can create a more inclusive, effective and competitive learning environment. Addressing these challenges will enable higher education

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institutions to make the most of the benefits of blended learning, helping students develop the skills needed to face global challenges and a changing job market.

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