Indonesian Journal of Electrical Engineering and Informatics (IJEEI)
Vol. 12, No. 3, December 2024, pp. 950~962
ISSN: 2089-3272, DOI: 10.52549/ijeei.v12i3.6041

Collaborative Online International Learning to Address Mental Health Across Cultures with an Islamic Perspective

Teddy Surya Gunawan[1], Mira Kartiwi[2], Asmuliadi Lubis[3], Muhamad Arifin[4]
[1]Department of Electrical and Computer Engineering, International Islamic University Malaysia, Malaysia
[2]Department of Information Systems, International Islamic University Malaysia, Malaysia
[3]Department of Syariah and Management, Universiti Malaya, Malaysia
[4]Royal Perth Hospital, Perth, Australia

Article Info

Article history:

Received Nov 11, 2024
Revised Nov 30, 2024
Accepted Dec 2, 2024

Keywords:

Collaborative Online International Learning (COIL)
Cross-cultural competence
Mental health technology
Global mental health awareness
Intercultural collaboration
Islamic perspectives on mental health

ABSTRACT

This study examines the impact of a Collaborative Online International Learning (COIL) project on enhancing students' cross-cultural understanding, collaborative skills, and problem-solving abilities in addressing mental health issues through technology, enriched by insights from an Islamic perspective. The project connected students from the International Islamic University Malaysia's (IIUM) Operating Systems course and Shenandoah University's Occupational Therapy in Mental Health Practice course, fostering a dynamic, interdisciplinary learning environment. Students worked in diverse teams, engaging in activities such as video introductions, infographic creation, and presentations on technological applications in mental health, facilitated by platforms like Zoom, Google Sites, and WhatsApp. Evaluations, including Programme Outcome (PO) analyses, revealed that over 80% of students achieved "Acceptable" or higher levels in applying engineering knowledge (PO1) and problem analysis (PO2), reflecting the success of the project in meeting its learning objectives. Student reflections captured on Flipgrid further underscored the project's impact, with participants highlighting improved cultural sensitivity, adaptability to a global professional context, and collaborative problem-solving despite challenges such as time zone differences. The inclusion of Islamic perspectives provided a holistic lens, emphasizing spiritual and technological solutions to mental health issues through values such as patience (*sabr*), gratitude (*shukr*), and trust in Allah (*tawakkul*). This study underscores COIL's potential as a transformative pedagogical approach for preparing students to navigate multicultural, technology-driven environments while fostering global mental health awareness. It offers actionable insights for educators and policymakers seeking to integrate cultural and religious perspectives into interdisciplinary education.

Corresponding Author:

Asmuliadi Lubis
Department of Syariah and Management
Universiti Malaysia
50603 Kuala Lumpur, Malaysia
Email: asmuliadilubis@um.edu.my

1. INTRODUCTION

The COVID-19 pandemic has accelerated the adoption and advancement of Collaborative Online International Learning (COIL). This innovative pedagogical approach utilizes digital platforms to establish meaningful connections between students and educators across borders, fostering global collaboration and preserving educational continuity amidst social distancing measures and travel restrictions. By promoting intercultural competencies and immersive cross-cultural exchanges, COIL has become an indispensable tool in preparing students to navigate the complexities of a globalized world.

Recent research highlights COIL's efficacy in improving students' cultural sensitivity, collaborative skills, and comprehension of global issues. During the pandemic, COIL was pivotal in addressing technological constraints and mitigating learning loss, reducing educational inequalities further exacerbated by remote learning environments [1]. Meta-narrative reviews emphasize that COIL ensured educational continuity and promoted resilience and adaptability in both students and educators through digital pedagogy [2]. Integrating multimodal online teaching tools within COIL platforms has enhanced instructional effectiveness, improving students' comprehension and engagement with course material [3].

In today's dynamic job market, skills such as analytical thinking, creativity, and social influence have become critical. According to the World Economic Forum, analytical thinking alone accounts for 9.1% of essential core competencies, highlighting its importance in shaping future-ready professionals. Resilience, self-awareness, and adaptability—key components of COIL—align closely with these critical abilities, enabling students to thrive in disrupted and multicultural work environments [4]. UNESCO's Education 4.0 framework underscores the importance of adaptability, collaboration, and problem-solving skills, with cultural competence emerging as a critical attribute for fostering inclusive teamwork in increasingly diverse societies [5, 6].

A critical dimension of cross-cultural education is addressing global mental health challenges, which vary widely in prevalence and impact across regions. In Malaysia, for instance, mental health issues have risen significantly, with approximately 29.2% of Malaysians experiencing mental health problems—a figure that has tripled over the past decade. Similar trends are observed in Australia and the United States, where mental health conditions such as anxiety and depression have become prevalent, affecting quality of life, employment, and social stability [7-10]. These statistics underscore the urgent need for integrated and accessible mental health interventions complemented by technology and educational efforts to foster societal understanding.

Islamic teachings offer a unique and holistic perspective on mental health, integrating spiritual, mental, and physical dimensions. Central to Islamic practices are values such as patience (*sabr*), gratitude (*shukr*), trust in Allah (*tawakkul*), and positive thinking (*husnudzon*), which collectively foster resilience and emotional stability. Rituals like daily prayers (salah), remembrance (dhikr), and supplication (dua) provide spiritual grounding, helping individuals manage stress and anxiety. Contemporary research underscores the role of spirituality in mental health, highlighting how Islamic principles complement technological solutions in fostering a culturally sensitive approach to mental well-being [11-13]. Integrating these perspectives into COIL projects enhances cultural relevance and deepens students' understanding of the interplay between faith and mental health management.

Advancements in technology have also paved the way for innovative mental health solutions. Tools such as telehealth platforms, mobile health apps, and AI-driven assessments provide remote access to services, real-time monitoring, and personalized interventions. Emerging technologies like virtual reality (VR) and AI chatbots redefine mental health care, offering immersive and interactive therapeutic experiences while enhancing accessibility across diverse populations [14-18]. Within COIL projects, these technological tools can be effectively utilized to teach students about the global challenges of mental health management, fostering practical and interdisciplinary problem-solving skills

This study addresses the cultural disparities in understanding and managing mental health issues through the lens of COIL. Students from Shenandoah University's Occupational Therapy in Mental Health Practice course and the International Islamic University Malaysia's (IIUM) Operating Systems course collaborated on a COIL project to improve their cultural competencies, collaborative abilities, and global awareness of mental health issues. Activities included the creation of infographics, video introductions, and presentations on technological applications in mental health, facilitated through platforms such as Zoom, Google Sites, and WhatsApp. Student reflections captured on Flipgrid revealed substantial improvements in their appreciation of cultural diversity, collaborative problem-solving, and receptivity to different mental health perspectives. These outcomes highlight COIL's potential to bridge cultural gaps and equip students with essential skills for professional environments that emphasize cross-cultural collaboration and technological integration. The findings underscore the importance of embedding COIL into educational frameworks to prepare students for the interconnected challenges of a globalized world.

2. COLLABORATIVE ONLINE INTERNATIONAL LEARNING

The Barzinji Project at Shenandoah University is a collaborative initiative to improve global virtual learning by utilizing Collaborative Online International Learning (COIL). This project facilitates the collaboration of students on shared projects across cultural and geographic boundaries by connecting Shenandoah University with international partners to develop joint educational modules. Faculty members from both institutions meticulously design COIL modules, cultivating a dynamic environment for collaborative learning and cross-cultural exchange. The program underscores the importance of mutual understanding and intercultural competencies, indispensable in the contemporary interconnected world.

A substantial service component is also incorporated into the Barzinji Project, designed to address global challenges by the UN Sustainable Development Goals (SDGs). The "Zero Hunger Project" is a noteworthy project within this initiative. It is a partnership with Yarmouk University in Jordan that addresses food insecurity in local communities. The Barzinji Project fosters educational excellence and innovation and motivates students to participate in meaningful service and research activities that have a tangible impact on global issues through these initiatives. This comprehensive educational strategy, which integrates academic rigor with social responsibility, indicates the project's dedication to cultivating a globally aware and well-rounded student body.

Comprehensive online training will be provided to participating lecturers from Shenandoah University and IIUM (or other universities) to replicate the student experience in the COIL program. This training encompasses practical sessions on using various tools for online discussion, e-portfolio creation, project management, and ice-breaking exercises that utilize cultural artifacts and Superpower videos to foster relationships. Furthermore, lecturers will be guided in developing reflective practices and effective rubrics to improve the learning experience. These meticulous preparations guarantee that lecturers are adequately prepared to encourage and facilitate student participation in the COIL projects.

To further foster collaboration, each lecturer from Shenandoah will be paired with a counterpart from IIUM, thereby promoting a bilateral exchange of ideas and teaching methods. The program also includes feedback sessions with facilitators to address any questions or challenges during implementation. During these sessions, lecturers can exchange insights and receive support from their peers, guaranteeing the efficient and effective execution of the COIL modules. The program's quality and consistency are essential for the benefit of educators and students in their cross-cultural learning journey, and this structured support system is essential for their preservation.

3. COIL IMPLEMENTATION

As illustrated in Figure 1, IIUM's ECIE4314 Operating Systems course and Shenandoah University's OT624 Occupational Therapy in Mental Health Practice course collaborated on assessments and activities. The collaboration involved 40 Electrical Engineering students from IIUM and 28 psychology students from Shenandoah. One of the primary challenges during the implementation process was the synchronization of semesters, as Shenandoah's semester began earlier than IIUM's. To overcome this obstacle, scheduling adjustments and careful coordination were implemented. Students were organized into mixed teams of six to seven members from both universities, ensuring diverse group dynamics.

The project commenced with relationship-building activities to cultivate mutual understanding and rapport among team members. These activities included exchanging cultural artifacts and creating superpower videos, which allowed students to share their personal and cultural identities engagingly. Each group was given autonomy to select their preferred collaboration technologies, ensuring flexibility and enhancing communication efficiency. Popular platforms included Zoom, Google Sites, and WhatsApp, facilitating synchronous and asynchronous interactions.

The academic assessments comprised two assignments, both measured using detailed rubrics. Assignment 1, mapped to Programme Outcome 1 (PO1) in the context of engineering education, required students to create an infographic contrasting the perceptions of depression in the United States and Malaysian cultures. In the engineering education framework, PO1 emphasizes applying engineering knowledge by integrating mathematics, science, and fundamental principles to solve complex problems. This assignment encouraged students to demonstrate their ability to synthesize cultural and statistical data into visually compelling and logically structured outputs, fostering critical cultural insights.

Assignment 2, mapped to Programme Outcome 2 (PO2), tasked students with exploring how various technologies could be utilized to address mental health issues across cultures. PO2 in engineering education focuses on problem analysis, specifically the ability to identify, formulate, and analyze complex problems using the first principles of engineering and natural sciences. Students demonstrated their analytical skills through this assignment by proposing innovative, interdisciplinary solutions that combined technological and cultural perspectives.

Student reflections captured on Flipgrid reinforced the effectiveness of the COIL project in achieving its learning objectives. Many students expressed that the project broadened their horizons, enhanced their cultural sensitivity, and provided valuable preparation for working in multicultural, global professional environments. Despite the logistical challenges, such as time zone differences and semester misalignments, students adapted effectively by leveraging flexible communication tools and proactive collaboration strategies.

Figure 1. COIL Implementation between IIUM and Shenandoah University

The synchronization of semesters and the teams' interdisciplinary nature presented challenges and unique growth opportunities. By allowing students to select their collaboration tools, the project capitalized on their familiarity with existing technologies, which improved productivity and communication. The structured yet adaptable framework of the COIL project facilitated meaningful intercultural exchanges and the development of practical solutions to global mental health challenges. The combination of culturally rich assignments, innovative problem-solving, and reflective learning emphasized the significance of adaptability, collaboration, and proactive problem-solving in international educational settings.

This implementation underscored the effectiveness of mapping assessments to specific Programme Outcomes (POs) to ensure alignment with engineering and interdisciplinary education educational goals. The success of the COIL project highlights the potential of similar initiatives to equip students with essential skills for addressing global challenges in culturally diverse and technologically driven environments.

4. RESULTS AND DISCUSSION

This section evaluates the diverse elements of the COIL project, including cultural artifacts, superpower videos, infographics, and reviews of technological approaches to mental health. These elements offer insights into how cross-cultural and interdisciplinary collaboration can enhance understanding and sensitivity toward mental health issues across varied cultural contexts. Additionally, this section explores the integration of an Islamic perspective on mental health, highlighting how Islamic principles contribute to a holistic approach to addressing mental health challenges. The findings from the COIL project, enriched by both technological and spiritual frameworks, provide valuable implications for fostering global mental health awareness and cooperation.

4.1. Evaluation of Cultural Artifacts and Superpower Video

The COIL project commenced with activities that stimulated cross-cultural communication and understanding among students by cultivating relationships. The initial activity entailed students creating individual videos on Flipgrid to introduce themselves and exhibit cultural artifacts. These videos, which were restricted to three minutes by Flipgrid's regulations, enabled students to exchange personal and cultural

perspectives, thereby fostering an initial connection. Figure 2 exhibits an example of a Flipgrid video demonstrating how students effectively used this platform to share their personal stories and cultural heritage.

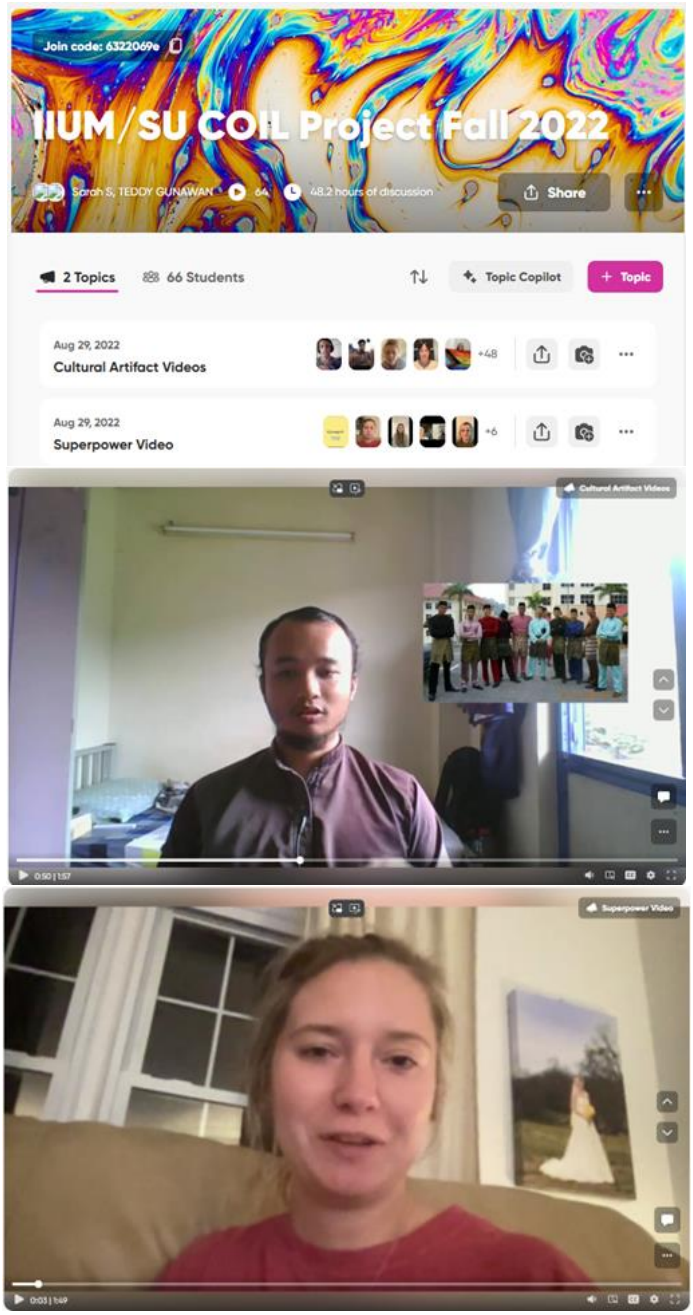

Figure 2. Samples of 3 Minutes Cultural Artifact and Superpower Videos in Flipgrid

Students collaborated with partners from the collaborating university to produce "superpower" videos after the cultural artifacts videos. In these videos, students introduced themselves to their designated partners and organized virtual meetings to collaborate on creating their content. Zoom was the primary platform for these interactions, with student emails utilized to establish dedicated Zoom channels. Nevertheless, students could utilize alternative communication methods, including email, WhatsApp, Telegram, and Signal, facilitating a versatile and accessible interaction framework.

The cultural artifacts videos were highly effective in breaking the ice and providing a rich context for students to understand each other's backgrounds, as evident in the evaluation of these activities. These videos' structured yet personal nature allowed students to emphasize distinctive cultural elements, cultivating a sense of respect and curiosity. Similarly, the superpower videos promoted more profound interpersonal relationships

and teamwork. Students gained a practical understanding of each other's communication styles and preferences through collaboration on these videos, which was advantageous for subsequent collaborative tasks.

Students' feedback suggested that these initial activities were essential for establishing a robust collaboration. The integration of cultural artifacts and superpower videos not only increased cultural awareness but also fostered trust and rapport among group members. This positive beginning was crucial in establishing the project's success, as students felt more at ease and connected to their international peers, facilitating effective and meaningful collaboration throughout the COIL project.

4.2. Evaluation of Infographic on Mental Health Issues Across Cultures

The second significant activity of the COIL project was the development of infographics to encourage student collaboration. Each group's objective, consisting of members from Shenandoah University and IIUM, was to investigate the perceptions of depression in the United States and Malaysia. This necessitated the examination of cultural attitudes, societal effects, and statistical data regarding depression. The goal was to create an infographic that effectively contrasted and compared these perceptions, enhancing the students' comprehension of mental health issues in various cultural contexts. Students needed to include at least two supporting references in their assignment to guarantee that their work was based on reliable research.

The rubric that evaluated the infographic assignment, which mapped to Programme Outcome 1 (PO1), was comprehensive and assessed various criteria, including essential elements, visual appeal, APA citations, and overall grammar and spelling. Students were required to provide a concise definition of depression, statistics on its prevalence in the United States, Malaysia, and globally, and at least one statistic demonstrating its impact (e.g., financial burden, quality of life, employment). The visual representation was required to clearly emphasize the similarities and differences in the perception of depression in the two cultures. This task necessitates high analytical thinking and creativity, as illustrated in Figure 3.

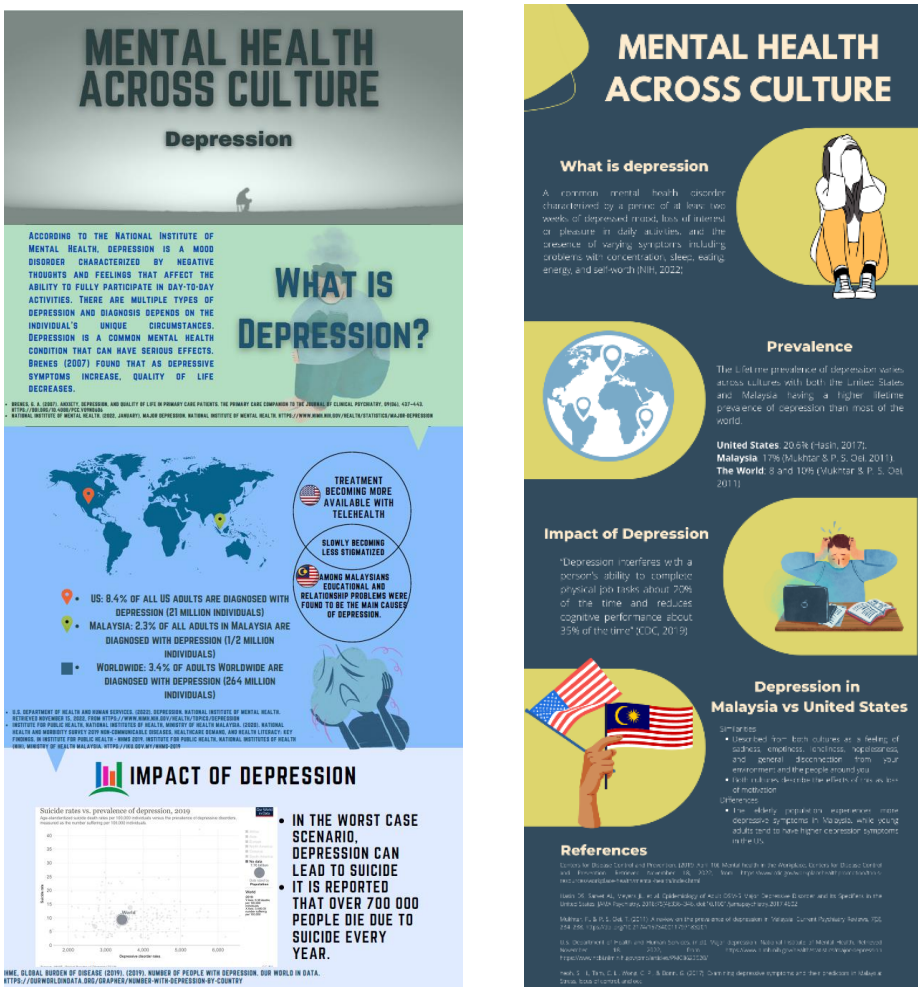

Figure 3. Samples of Infographic on the Mental Health Across Culture

The infographic evaluations provided feedback that most groups successfully met the assignment criteria, resulting in visually appealing and informative infographics. The students' capacity to effectively communicate intricate information was evident in their high praise for the visual content, logical flow, and ease of comprehension. Nevertheless, specific organizations encountered difficulties with the APA citation format and the comprehensive inclusion of all necessary criteria. The feedback sessions emphasize these areas to assist students in enhancing their academic writing and research presentation abilities.

4.3. Evaluation of Review on Technologies Addressing Mental Health Issues

In the third major assignment of the COIL project, which mapped to Programme Outcome 2 (PO2), students collaborated to investigate the potential of technology to address mental health issues, particularly depression, across various cultures. Students utilized platforms such as Google Slides to collaborate asynchronously and communicate via email or phone with their partners. Their assignment was to develop a presentation demonstrating technology's current and potential applications in diagnosing and treating depression in Malaysia and the United States. This involved incorporating information from their infographics, including definitions, prevalence statistics, and cultural perceptions of depression, as well as the expansion of the role of technology in mental health care.

To address depression across cultural contexts, students were obligated to investigate the current utilization of technology for mental health diagnosis and treatment, emerging technologies that could be applied, and their innovative ideas for leveraging technology. This thorough investigation enabled students to develop a profound understanding of the subject matter, utilizing their interdisciplinary backgrounds to suggest technological solutions that were both practical and culturally sensitive. The presentations, which were required to be between 12 and 15 minutes long, were shared virtually with both classes, facilitating cross-cultural dialogue and learning.

The evaluation of these presentations was centered on the accuracy of spelling and grammar, adherence to the time limit, logical flow and visual appeal, and the inclusion of all required criteria. The majority of groups could effectively integrate their infographic content into their presentations, which allowed them to compare and contrast the perceptions of depression and demonstrate technological innovations. The collaborative nature of this assignment underscored the students' capacity to collaborate across time zones and cultural barriers, utilizing technology to facilitate their interactions and improve their learning outcomes. The feedback emphasized the significance of diverse perspectives and clear communication in addressing global mental health challenges.

4.4. Programme Outcomes Attainment and Comparison

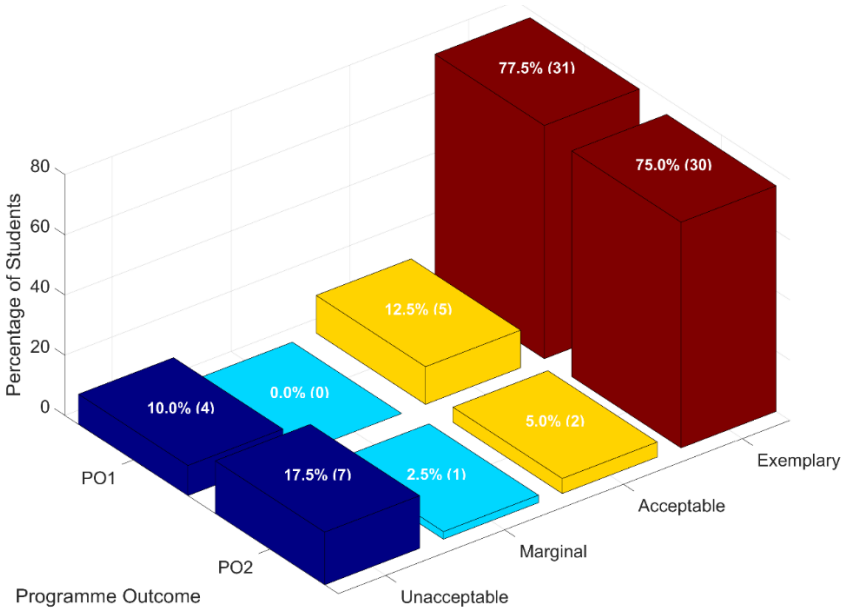

Figure 4. PO1 and PO2 Attainment Levels (Percentage and Actual Number of Students)

The attainment of Programme Outcomes (PO1 and PO2) through the COIL project demonstrates its success in meeting key educational objectives for the selected culminating course, ECIE4314 Operating Sytems [19]. Assignment 1 (infographic) was mapped to PO1, which focuses on applying engineering

knowledge to solve complex problems. Assignment 2 (technology presentation) was mapped to PO2, emphasizing problem analysis and the ability to evaluate and solve interdisciplinary challenges. Figure 4 illustrates the percentage of students achieving each attainment level—Unacceptable, Marginal, Acceptable, and Exemplary—for both outcomes, visually representing the project's measurable success. The attainment threshold for culminating courses at the Kulliyyah of Engineering, IIUM, is set at 70% of the total population achieving an "Acceptable" level or higher. This threshold is subject to periodic evaluation and adjustment as part of the institution's Continuous Quality Improvement (CQI) process to ensure alignment with evolving academic and industry standards.

The attainment analysis for PO1 reveals that 90.0% (36 students) achieved "Acceptable" and "Exemplary" levels, demonstrating strong proficiency in applying theoretical engineering knowledge to practical tasks. The infographic assignment required students to synthesize cultural and statistical data on depression into visually compelling outputs. Many excelled in integrating logical flow, visual appeal, and cultural contrasts, effectively communicating complex information. However, challenges such as non-participation and struggles with APA citation formatting resulted in 10% (4 students) falling into the "Unacceptable" category. Targeted data synthesis and academic writing workshops are recommended to address these gaps and improve outcomes.

For PO2, 80.0% (32 students) achieved "Acceptable" and "Exemplary" levels, meeting the attainment threshold. The technology presentation tasked students with proposing innovative solutions for addressing mental health issues across cultures, requiring the integration of cultural insights and technological applications. While many students demonstrated strong analytical and interdisciplinary skills, 17.5% (7 students) fell into the "Unacceptable" category, indicating challenges with the task's analytical depth and technical demands. Structured guidance on evaluating emerging technologies and fostering critical thinking could enhance students' problem-solving capabilities.

A comparative analysis of PO1 and PO2 shows that students performed better in tasks requiring applying knowledge (PO1) than problem analysis (PO2). This reflects a greater familiarity with data synthesis and cultural comparisons over in-depth engineering analysis. Nevertheless, integrating cultural and engineering perspectives in both assignments underscores the importance of cross-disciplinary learning in preparing students for global challenges. Student reflections support these findings, highlighting the COIL project's role in enhancing cultural sensitivity, collaborative problem-solving, and readiness to navigate multicultural professional environments. While the project has achieved notable success, these insights identify opportunities for refinement to ensure more equitable and comprehensive learning outcomes.

4.5. Student's Reflection

As the final component of the COIL project, each student submitted a two-minute video reflection on Flipgrid to evaluate their experiences. This ungraded assignment encouraged candid deliberation on the benefits, challenges, and personal growth gained through the project. Despite logistical challenges, such as the 12-hour time difference between the United States and Malaysia, most students reported a highly positive experience. They highlighted the unique opportunity to interact with peers from diverse cultural backgrounds, significantly enhancing their intercultural communication skills and global awareness.

Students consistently noted that the COIL project profoundly impacted their cultural competence. Through collaboration on activities such as infographics and presentations, they developed a deeper appreciation for incorporating diverse perspectives and cultural nuances when addressing global issues. This exposure enriched their academic experience and gave them vital skills to thrive in today's interconnected world. The emphasis on collaboration fostered an environment that encouraged innovative solutions to complex, real-world problems.

Reflections also emphasized the pivotal role of technology in facilitating seamless cross-cultural interactions. Students honed their technical abilities by navigating various communication platforms like Flipgrid, Zoom, and Google Slides. These tools enhanced their ability to collaborate virtually, providing practical experience managing remote teamwork—a skill increasingly valued across professional fields. Students expressed pride in their adaptability and the successful exchange of ideas despite the geographical and temporal distances.

The reflections underscored the transformative nature of the COIL project. Many students described the experience as enlightening, noting that it broadened their academic and personal horizons. They felt better prepared to engage in multicultural professional environments and valued their relationships with international peers. Figure 5 illustrates a student's reflection, capturing the significant personal and professional growth fostered by this collaborative learning experience.

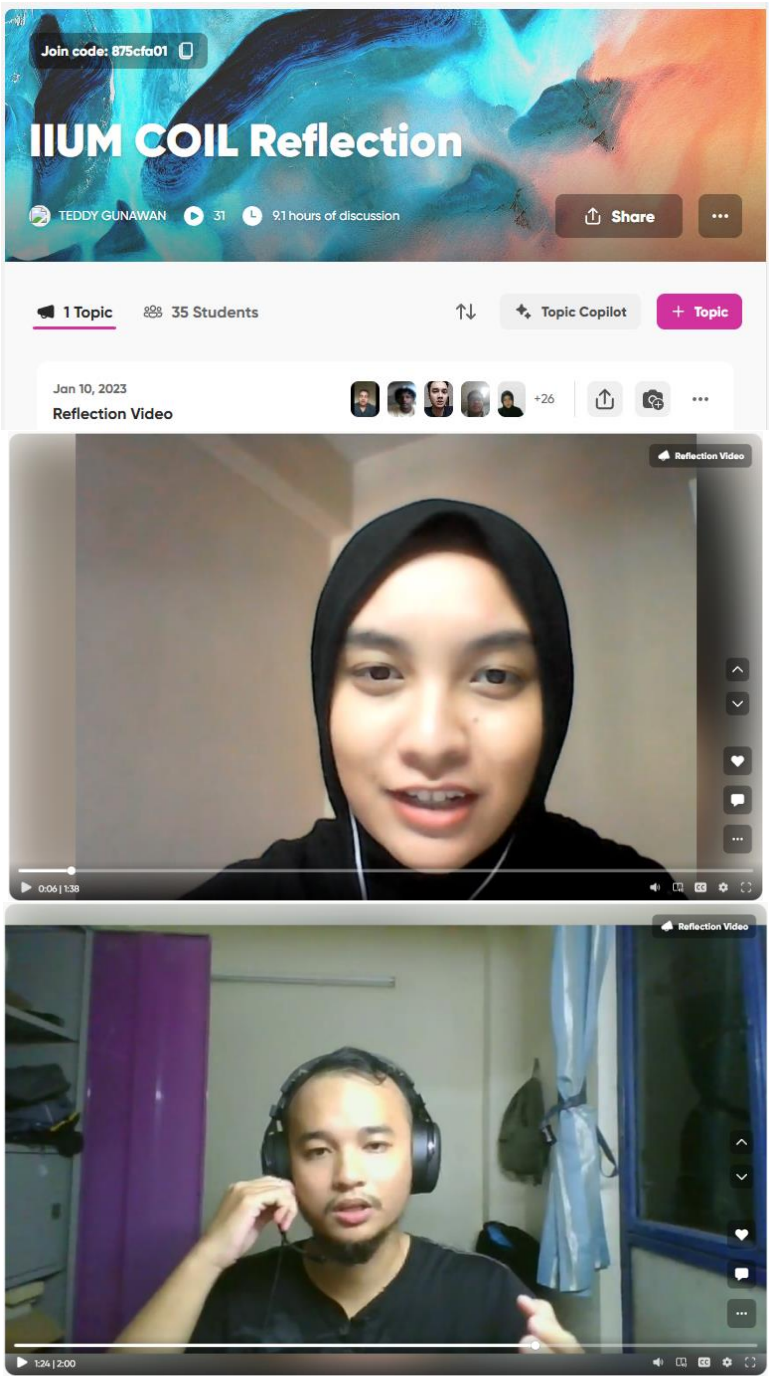

Figure 5. Student's Reflection in Flipgrid

4.6. Discussion

From the initial tasks to the final reflections, a critical analysis of the COIL project reveals substantial insights into its effectiveness and impact on student learning experiences. The cultural artifacts and superpower videos, which served as relationship-building activities, successfully established a foundation of mutual respect and understanding. These activities set the tone for subsequent collaborative assignments, ensuring students felt connected and engaged. The culturally nuanced discussions on mental health, facilitated by the infographic and technology presentations, reinforced this foundation by highlighting shared and divergent perspectives across cultures.

The attainment of Programme Outcomes (PO1 and PO2) among the 40 students in the ECIE4314 Operating Systems course demonstrates the COIL project's effectiveness in achieving its educational objectives while revealing areas for further refinement. PO1, focused on applying engineering knowledge, was assessed through the infographic assignment, with 90.0% of students achieving "Acceptable" and "Exemplary"

levels, surpassing the 70% threshold. This reflects students' ability to synthesize and present cultural and statistical data effectively, showcasing their ability to translate theoretical knowledge into practical, impactful outputs. Meanwhile, PO2, emphasizing problem analysis, was evaluated through the technology presentation assignment, where 80.0% of students achieved the same attainment levels, meeting the threshold but highlighting challenges for the remaining 20% who struggled with analytical depth and integrating interdisciplinary insights. While the high attainment rates confirm the COIL project's success in fostering critical interdisciplinary skills such as problem-solving, cultural awareness, and collaborative innovation, the lower performance in PO2 suggests enhanced support in guiding students through complex analytical tasks. Structured interventions, such as workshops on critical thinking, technological evaluation, and interdisciplinary analysis, could further strengthen these outcomes, ensuring a more balanced and comprehensive development of skills necessary for tackling global challenges in cross-cultural professional contexts.

Despite these successes, the project also revealed areas for improvement. Challenges included the logistical complexity of managing a 12-hour time difference between the United States and Malaysia, which required careful coordination and flexibility. Some students faced difficulties fully engaging with the assignments, as indicated by the 10% "Unacceptable" attainment in PO1 and the 17.5% "Marginal" attainment in PO2. These challenges suggest additional support for students struggling with academic writing, data analysis, and effective collaboration in virtual teams.

To enhance future COIL implementations, several strategies are recommended:

1. *Improving the Preparation Phase*: Incorporate workshops on critical skills such as APA citation formatting, cross-cultural analysis, and virtual collaboration. This will help address common challenges and ensure students are better prepared for collaborative assignments.
2. *Enhancing Engagement*: Introduce incentives for participation and accountability in group tasks, such as peer reviews or individual contributions within team projects, to encourage consistent engagement from all members.
3. *Optimizing Scheduling*: Explore methods to reduce the impact of time zone differences, such as asynchronous collaboration tools, flexible deadlines, or scheduled periods of overlap for synchronous activities.
4. *Expanding Assessment Frameworks*: Include more detailed rubrics and interim evaluations to provide ongoing feedback and support, helping students refine their outputs before final submissions.

The specific emphasis on mental health provided a valuable context for the COIL project, particularly by incorporating cultural and religious perspectives into the discussions. For instance, IIUM students' integration of Islamic teachings on mental health added depth to the dialogue, demonstrating how spiritual frameworks can complement technological and scientific approaches. This interdisciplinary collaboration fostered a holistic understanding of mental health issues and the diverse methods by which they can be addressed across societies.

Looking ahead, increasing the frequency and scope of COIL projects would offer students more opportunities to participate in meaningful cross-cultural exchanges. Expanding these initiatives to include additional cultural contexts and disciplines can further enrich the learning experience and enhance global competence. The positive outcomes of this COIL project indicate that similar programs should become integral to academic curricula, cultivating an environment of global learning and collaboration. By refining the implementation process and addressing identified challenges, future COIL projects can achieve even greater success in preparing students for the complexities of the interconnected world.

4.7. Islamic Perspectives on Mental Health

Integrating Islamic perspectives on mental health in the COIL project added a distinct and meaningful dimension to the discussions, enriching interdisciplinary and cross-cultural collaboration. Islam offers a holistic paradigm for mental health, emphasizing the importance of equilibrium among spiritual, mental, and physical wellness. Mental health in Islam is not merely the absence of illness but the attainment of balance, enabling individuals to manage life's challenges while maintaining spiritual purity and mental resilience. This perspective aligns with the COIL project's emphasis on contextual and culturally sensitive approaches to mental health, fostering a deeper understanding of diverse solutions.

Central to Islamic teachings is perseverance and reliance on divine wisdom. The Qur'an states, "Allah does not burden a soul beyond that it can bear" (Al-Baqarah [2:286]), which encourages emotional resilience through faith and trust in Allah (*tawakkul*). This foundation is further strengthened by patience (*sabr*), as emphasized in verse, "And give glad tidings to those who are patient" (Al-Baqarah [2:155]). These teachings provide a robust framework for managing adversity by harmonizing faith with proactive efforts. The COIL discussions highlighted how such values resonate with approaches to global mental health, demonstrating the potential for faith-based coping strategies to complement technological and scientific solutions.

Worship and remembrance (*dhikr*) also play a pivotal role in Islamic mental health practices. Rituals such as daily prayers (salah), supplication (*dua*), and consistent reflection are pathways to serenity and emotional stability. The Qur'an reinforces this connection, stating, “Indeed, in the remembrance of Allah do hearts find rest” (Ar-Ra’d [13:28]). These practices anchor individuals spiritually and mentally, fostering stability and mitigating negative emotions. The COIL participants’ exploration of mental health further validated the importance of holistic practices, as these rituals were recognized as tools that complement modern therapeutic approaches.

Islam also emphasizes maintaining equilibrium among life's spiritual, mental, and physical aspects. The Prophet Muhammad (PBUH) encouraged seeking treatments for ailments, affirming that “Allah has made a remedy for every disease” (Sahih Bukhari). This guidance underscores integrating spiritual practices with appropriate medical interventions, such as balanced nutrition, exercise, and sufficient rest, to enhance overall well-being. This comprehensive approach was contextualized in the COIL project as an example of how religious teachings can inform culturally relevant mental health practices. These inspiring solutions respect the values and beliefs of diverse communities.

Optimism and *husnudzon* (positive thinking) are vital Islamic principles that promote mental resilience. The Prophet Muhammad (PBUH) advised maintaining a favorable opinion of Allah even during adversity (Sahih Muslim), cultivating a mindset of hope, courage, and gratitude. Such positivity empowers individuals to confront challenges constructively, fostering mental stability and emotional strength. These values were echoed in the COIL discussions, where participants examined the role of optimism in addressing global mental health challenges, emphasizing its universal applicability across cultural contexts.

Ultimately, Islamic rituals and values offer practical tools for mental well-being, emphasizing emotional acknowledgment, social support, and proactive health management. The Prophet Muhammad (PBUH) likened the Muslim community to a unified body, where the well-being of one part impacts the whole (Hadith in Sahih Bukhari and Muslim). Social connections and community support were key themes in the COIL project, aligning with this principle and underscoring the importance of inclusive and collaborative approaches to mental health. By integrating spiritual, mental, and physical elements, Islamic perspectives provide a holistic framework for addressing mental health challenges, enriching the interdisciplinary insights gained from the COIL project. This alignment underscores the potential of culturally and religiously informed practices to enhance global mental health education and collaboration.

5. CONCLUSION

The COIL initiative between Shenandoah University and IIUM enhanced students’ understanding of global mental health challenges, cultural competency, and collaborative skills through infographic creation, technological evaluations, and cultural artifact presentations. Despite logistical challenges like a 12-hour time difference, the program demonstrated its effectiveness in fostering professional preparedness and global awareness, with measurable attainment of PO1 (engineering knowledge) and PO2 (problem analysis) confirming its impact. The integration of Islamic perspectives enriched the learning experience by providing holistic methodologies for mental health care, emphasizing spiritual, mental, and physical dimensions through principles such as patience (*sabr*), gratitude (*shukr*), and reliance on Allah (*tawakkul*). These insights highlighted the significance of religion and culture in shaping mental health management strategies. Future COIL projects should expand cultural and disciplinary diversity while refining preparatory phases and assignment structures to optimize collaboration and engagement.

ACKNOWLEDGMENTS

Universiti Malaya has financially supported this publication granted to the corresponding author. We are deeply grateful to the COIL Barzinji Project and Dr. Younus Mirza for their invaluable support and guidance during this initiative. We extend our heartfelt appreciation to Dr. Sarah Sidar of Shenandoah University for her unwavering dedication and substantial contributions to the success of this collaboration. Furthermore, we profoundly appreciate the enthusiastic, dedicated, and diligent students of OT624 and ECIE4314, whose participation in this project was a remarkable learning experience for all.

REFERENCES

[1] K. H. D. Tang, "Impacts of COVID-19 on primary, secondary and tertiary education: a comprehensive review and recommendations for educational practices," *Educational Research for Policy and Practice,* vol. 22, no. 1, pp. 23-61, 2023.

[2] A. Bozkurt, K. Karakaya, M. Turk, Ö. Karakaya, and D. Castellanos-Reyes, "The impact of COVID-19 on education: A meta-narrative review," *TechTrends,* vol. 66, no. 5, pp. 883-896, 2022.

[3] M. S. Alsalim, A. A. Al-Eidan, and A. J. Zeyab, "Exploring the Degree of Awareness of Teachers Regarding the Use of Multimodality and Its Influence on Online Teaching: A Case Study of Online Teaching before and during COVID-19 in Kuwait," *International Journal of Education*, vol. 14, no. 1, pp. 48-66, 2022.
[4] A. Di Battista *et al.*, "Future of jobs report 2023," in *World Economic Forum, Geneva, Switzerland. https://www. weforum. org/reports/the-future-of-jobs-report-2023*, 2023.
[5] W. Leeds-Hurwitz, "Intercultural competences: conceptual and operational framework," UNESCO, France, 2013.
[6] UNESCO, "The futures we build: abilities and competencies for the future of education and work," Montevido, 2023.
[7] K. F. Khairi, N. H. Laili, and A. F. Kamarubahrin, "An addressing on risk of mental health disorders through hybrid takaful (Islamic Insurance): a case of Malaysia," *Jurnal Intelek*, vol. 16, no. 1, pp. 74-82, 2021.
[8] S. Raaj, S. Navanathan, M. Tharmaselan, and J. Lally, "Mental disorders in Malaysia: an increase in lifetime prevalence," *BJPsych international*, vol. 18, no. 4, pp. 97-99, 2021.
[9] AIHW. "Mental health services in Australia." Australian Institute of Health and Welfare. https://www.aihw.gov.au/mental-health/overview/mental-health-services (accessed 12 June 2024.
[10] NIMH. "Mental Illness." National Institute of Mental Health. https://www.nimh.nih.gov/health/statistics/mental-illness (accessed 12 June 2024.
[11] A. Tanhan and J. S. Young, "Muslims and mental health services: A concept map and a theoretical framework," *Journal of Religion and Health*, vol. 61, no. 1, pp. 23-63, 2022.
[12] Q. K. Mahmood, S. R. Jafree, M. M. Sohail, and M. B. Akram, "A cross-sectional survey of Pakistani Muslims coping with health anxiety through religiosity during the COVID-19 pandemic," *Journal of Religion and Health*, vol. 60, no. 3, pp. 1462-1474, 2021.
[13] A. Rothman and A. Coyle, "Conceptualizing an Islamic psychotherapy: A grounded theory study," *Spirituality in Clinical Practice*, vol. 7, no. 3, p. 197, 2020.
[14] F. Di Carlo *et al.*, "Telepsychiatry and other cutting-edge technologies in COVID-19 pandemic: Bridging the distance in mental health assistance," *International journal of clinical practice*, vol. 75, no. 1, 2021.
[15] S. A. S. Ashish T. Khanchandani, "Using apps in clinical practice: 8 studies," *Current Psychiatry*, vol. 22, no. 7, pp. 36-42, 2023.
[16] O. Oyebode, J. Fowles, D. Steeves, and R. Orji, "Machine learning techniques in adaptive and personalized systems for health and wellness," *International Journal of Human–Computer Interaction*, vol. 39, no. 9, pp. 1938-1962, 2023.
[17] J. Torous *et al.*, "The growing field of digital psychiatry: current evidence and the future of apps, social media, chatbots, and virtual reality," *World Psychiatry*, vol. 20, no. 3, pp. 318-335, 2021.
[18] A. Ratheesh and M. Alvarez-Jimenez, "The future of digital mental health in the post-pandemic world: Evidence-based, blended, responsive and implementable," vol. 56, ed: SAGE Publications Sage UK: London, England, 2022, pp. 107-109.
[19] T. S. Gunawan, M. Y. Ismail, and S. I. Ihsan, "On the Selection of Culminating Courses for Outcome-Based Education Evaluation at Engineering Education," presented at the International Conference on E-Learning 2019, Kuching, Sarawak, 21-22 August 2019.

BIOGRAPHY OF AUTHORS

Teddy Surya Gunawan (Senior Member, IEEE) is a Professor in the Electrical and Computer Engineering Department at the International Islamic University Malaysia (IIUM). He obtained his B.Eng. degree with cum laude honors in Electrical Engineering from Institut Teknologi Bandung (ITB), Indonesia, in 1998, his M.Eng. from Nanyang Technological University, Singapore, in 2001, and his Ph.D. from the University of New South Wales (UNSW), Australia, in 2007. Prof. Gunawan has held esteemed roles, including Visiting Research Fellow at UNSW (2010–2021) and Adjunct Professor at Telkom University (2022–2023), and he currently serves as a Senior Member of IEEE since 2012, previously chairing the IEEE Instrumentation and Measurement Society – Malaysia Section. Recognized for his contributions to speech and audio processing, biomedical signal processing, image and video processing, and parallel computing, he received IIUM's Best Researcher Award in 2018 and is listed among the World's Top 2% Scientists in Artificial Intelligence and Image Processing by Elsevier for 2023 and 2024. In addition to his academic and research accomplishments, Prof. Gunawan holds multiple professional engineering certifications, including Chartered Engineer (IET, UK), Insinyur Profesional Utama (PII, Indonesia), ASEAN Engineer, ASEAN Chartered Professional Engineer, and APEC Engineer, reflecting his commitment to professional excellence. Within IIUM, he has also served as Head of Department (2015–2016) and Head of Programme Accreditation and Quality Assurance (2017–2018) at the Faculty of Engineering, reinforcing his leadership and expertise in the field.

Mira Kartiwi (Member, IEEE) is a Professor in the Department of Information Systems, Kulliyyah of Information and Communication Technology, and is currently Director of Professional Development at International Islamic University Malaysia (IIUM). She was one of the recipients of the Australia Postgraduate Award (APA) in 2004. She was awarded the Higher Degree Research Award for Excellence in 2007 for her research achievement. She has also been appointed as an Editorial Board member in local and international journals to acknowledge her expertise. Dr. Kartiwi is also an experienced consultant specializing in the health, financial, and manufacturing sectors. Her areas of expertise include health informatics, e-commerce, data mining, information systems strategy, business process improvement, product development, marketing, delivery strategy, workshop facilitation, training, and communications.

Asmuliadi Lubis is a Senior Lecturer in the Department of Shariah and Management at the Academy of Islamic Studies, University of Malaya. He holds a Ph.D. in Islamic Management and an M.A. in Islamic Studies, focusing on the intersection of Islamic principles and modern management practices. With a diverse research portfolio, Dr. Lubis specializes in Islamic wealth management, zakat, waqf, and integrating Shariah-compliant frameworks within financial and organizational systems. He has contributed to numerous publications in renowned journals, exploring how Islamic ethical principles can enhance governance and socioeconomic development. He actively engages in scholarly collaborations and presents at international conferences, emphasizing innovative Islamic finance and social responsibility approaches. His work also extends to practical applications, advising on policies and programs that align with Islamic values to foster sustainable and equitable growth. Known for his dedication to advancing knowledge in Islamic studies, he continues to mentor students and conduct impactful research, contributing significantly to Islamic management and financial ethics.

Muhamad Arifin is a highly experienced nurse and healthcare leader, currently serving as a Nurse at Royal Perth Hospital in Australia. He graduated with a Bachelor's degree in Nursing from the Faculty of Nursing at Universitas Indonesia in 2000. He later earned a Master of Health Service Management with a major in Health Planning from the University of Technology Sydney in 2014. A registered nurse in Australia, Muhamad Arifin has held various roles across prominent hospitals in Sydney, including Royal Perth Hospital, Bankstown Hospital, and War Memorial Hospital in Waverley, where he worked as a Clinical Nurse Specialist, Nurse Unit Manager, Bed Manager, and Discharge Planner. His dedication to professional excellence is reflected in awards such as the Edith Cowan and Bondi RSL scholarships. Beyond his clinical roles, Muhamad has contributed as a visiting lecturer in Nursing Management at Universitas Indonesia and as an international speaker at nursing conferences in Indonesia. His career is marked by a commitment to advancing healthcare standards, leadership in nursing, and nurturing future professionals in the field.