EDUCATION, COMMUNITY ENGAGEMENT AND DIGITIZATION: A MALAYSIAN PERSPECTIVE

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ABSTRACT

The convergence of education, digitization, and community engagement is transforming how societies address sustainability, particularly in the context of rapid technological advancement and disruptive global events such as the COVID-19 pandemic. This research explores the evolving role of universities and communities in Malaysia in fostering sustainable development through digital technology, inclusive education, and grassroots participation. By analyzing case studies and initiatives—including social enterprises like Arus Academy and Biji-biji Initiative, rural digitization efforts like Digital Desa, and national programs such as eRezeki—the paper demonstrates how digital tools empower marginalized groups, support community-driven environmental action, and bridge the urban-rural divide. It highlights how digital platforms enable co-creation of value, promote entrepreneurship, and catalyze heritage preservation through AR/VR technologies. Furthermore, it emphasizes that education is not merely theoretical but a driver of real-world impact, particularly when combined with community involvement and digital literacy. The findings underline the need for inclusive, experiential, and context-sensitive educational frameworks that embed sustainability and engagement into curricula. Ultimately, this study positions education, community engagement, and digitization as interdependent pillars for building resilient, equitable, and sustainable societies, calling for collaborative action from all societal sectors to ensure long-term impact.

Keywords: Education for Sustainability, Community Engagement, Digitization, Social Innovation, Digital Inclusion, Malaysia, Sustainable Development, Online Communities, Digital Literacy, Social Enterprises, AR/VR in Education, Urban-Rural Divide, COVID-19 Response, Empowerment, Co-creation.

1. INTRODUCTION

Recent evolutions, such as pervasive networking and other enabling technologies, have been dramatically changing human life, knowledge acquisition, and the way works are performed and how people learn. In this societal change, universities must maintain their leading role. Historically, they set trends primarily in education but now they are called to drive the change in other aspects too, such as management, safety, and environment protection. The availability of newer and newer technology reflects on how the relevant processes should be performed in the current fast changing digital era.

Three key drivers of change are education, community engagement and digitization. Education provides the foundation—enabling individuals with the knowledge, skills, and motivation to pursue sustainable practices. Community engagement, on the other hand, ensures that these practices are implemented effectively, as people work together toward shared goals and digitization enables content creators to disseminate information with depth, breadth and creativity.

Malaysian studies show that digital technologies, including social media platforms and ICT hubs, support sustainable community development through various communication channels while addressing environmental, social, and economic dimensions. Ever since the COVID-19 pandemic outbreak, it has changed the way businesses are done, and the behavior of online users in the online community has gradually changed as well. Many countries have temporary suspended business activities and have adopted social distancing to avoid human-to-human transmission of the virus to slow down the pandemic. Lockdowns is one of the ways that implemented by the government with the purpose of preventing the spread of virus, same as the Movement Control Order (MCO) in Malaysia. To continue connecting and reaching the community during the MCO, organizations are adopting online communities as one of its communication tools. The community have become vital in the conversation between organizations and also among individuals themselves in the social media brand community (He & Negahban, 2017). Online community creates opportunities for the users to integrate their own brand-related experiences and opinions into the process of brand community building. Consumers are now more empowered to react and share their opinions, consumption experiences, and review of other users' comments and rates (He & Negahban, 2017; Tajvidi & Tajvidi, 2020). As a result, customers are actually co-creating value with

organizations (Tajvidi & Tajvidi, 2020). Additionally, the transformation, supported by digital technology, is considered as one of the strategies that are used to respond to disruptive environmental changes (Richter, 2020). Based on the reasons mentioned above, digital technology is much suitable to be used during the COVID-19 pandemic, a disruptive environmental change (Priyono, Moin, & Putri, 2020). According to Tajvidi and Tajvidi (2020), business activities rely on new technology advancements especially with the challenges from pandemics. Changes in business practices with the technologies in social networks have opened new windows with greater opportunities for entrepreneurs (Nakara et al., 2012, as cited in Tajvidi & Tajvidi, 2020). Nowadays, social media is considered a fresh marketing tool for businesses, and the most distinguishing feature of these social networks is the shifting in interaction degree between customers and organizations (Tajvidi & Tajvidi, 2020). Users' engagement in the online community during pandemic circumstances such as COVID-19 can be developed by cyber entrepreneurship (Tajvidi & Tajvidi, 2020).

Studies in Malaysia demonstrate that digital technology and innovative products support sustainable community development through diverse media and communication channels. Social media platforms enable grassroots environmental mobilization in both rural and urban settings (Tim, Pan, Bahri, & Fauzi, 2018). The inclusive Digital World (2024) reports that affordability is the main barrier to digital inclusion for the Bottom 40 percent income group (B40) in Kuala Lumpur. Access to devices and internet services is limited by low income. There are no significant digital gender gap, with both men and women facing similar challenges in digital access within this demographic. Community technology centers such as Kedai.Kom contribute to improved Information and Communication Technology (ICT) skills and expanded social networks, supporting digital inclusion (Ibrahim and Ainin Sulaiman, 2013).

Yenni Tim et al., 2018, and C. Leong et al., 2015, both report that social media enables grassroots environmental movements and collective action without formal leadership. Both studies mention the possibility of unintended consequences from social media use, but do not detail specific outcomes. Meanwhile Gan et al., 2018, finds that Information and Communication Technologies (ICTs) in community-based tourism (homestays) have direct and indirect impacts on various livelihood assets, suggesting enhancement of human, social, and economic capital. Social media and web applications support productivity and digital community development in a social enterprise, with high staff readiness to adopt these tools, as described by Sivapalan, 2025.

While Noor, 2021, highlights that rural telecentres help bridge the digital divide for lower-income (B40) groups, though challenges such as funding and resource limitations are still existent. Digitally enabled affordances for community-driven environmental movement in rural Malaysia and community ICT hubs and telecentres boost digital inclusion and improve ICT skills among lower-income groups (Nawi, Shukor, Basaruddin, Omar, Abdul, Rahman, & Jaya (2013). A persuasive waste management app and digitalization efforts in tourism and social enterprises are linked to improvements in environmental practices and economic productivity while initiatives address multiple sustainability dimensions such as environmental social/cultural, and economic/financial. (Azmin, Akbar, & Mohd Mohadis, (2025); Noor, (2021) Sivapalan, Afsharian, Shafiq, & Sivapalan, (2017); Ibrahim, & Ainin, (2013). Affordability and digital literacy emerge as central factors in technology adoption, with one study noting that low-income groups face significant access barriers, yet no study identifies a significant digital gender gap, user-cantered design, staff readiness, and integration with local contexts are common success factors in fostering community engagement and supporting decentralized digital practices

Nevertheless, before anything can be implemented it is important to note how knowledge or education in this context and digitization can be used for community building.

2. KNOWLEDGE AS A CATALYST FOR CHANGE

Education is the foundation of any societal transformation. It provides individuals with the knowledge, skills, and critical thinking abilities needed to address environmental, social, and economic sustainability challenges. The way we educate future generations will determine how they respond to pressing global crises such as climate change, biodiversity loss, and resource depletion. For example, Malaysia has taken significant strides in integrating sustainability, community engagement and digitization into its educational curriculum. Universities have developed specialized courses on digitization and community engagement, equipping students with the expertise to lead and to be holistic individuals.

While education provides the theoretical knowledge, community engagement ensures that knowledge translates into tangible action. Local communities, particularly those that have lived in harmony with nature for generations, possess valuable traditional wisdom that can be integrated with modern scientific solutions such as virtual reality.

By involving communities in sustainability projects, we not only empower them but also ensure long-term success.

A prime example of this in Malaysia is the implementation of community-driven digital heritage projects to encourage urban regeneration and cultural heritage. The use of AR/VR, digital archives such as done in Brickfieds, Kuala Lumpur and George Town, Penang, and geospatial tools such as StoryMap apps to document and share Malaysia's urban heritage has not only successfully engaged younger audiences but tourists in interactive heritage storytelling. One of the most critical impacts of education is that it equips individuals with the knowledge and motivation to take action. When people understand the far-reaching consequences of heritage degradation, they make more conscious decisions—whether in conserving a part of history, or advocating for sustainable policies.

Another educational example is Arus Academy, a Malaysian social enterprise dedicated to transforming education for marginalized and underserved communities through innovative, student-centered learning. Founded by former teachers, Arus emphasizes project-based and inquiry-driven education, particularly in STEM, digital literacy, and civic engagement. The academy designs and delivers interactive educational content both online and offline, ensuring inclusivity for students from diverse backgrounds, including refugees, Orang Asli children, and those in B40 (low-income) households. Through digital platforms and gamified modules, Arus fosters critical thinking, creativity, and problem-solving skills. Its flagship initiatives—like "Empowered" (civic education) and "TechDiGi" (digital skills)—have reached thousands of students across Malaysia, helping bridge the educational divide and preparing youth for a digitally connected future.

Meanwhile in terms of sustainability, Malaysia's Biji-biji Initiative, a social enterprise focused on sustainability through creative upcycling conducts educational workshops that teach people how to transform waste materials into functional products, Biji-biji fosters a culture of sustainability while also promoting innovation and entrepreneurship. Founded in 2012, this Malaysian social enterprise focuses on environmental sustainability through upcycling, green technology, and educational workshops. Their approach is simple yet revolutionary: repurposing waste materials into functional and aesthetically appealing products, from furniture to fashion accessories. But their impact goes beyond repurposing waste. Through workshops and public installations, they educate communities on sustainable living, proving that innovation and sustainability can go hand in hand.

Similarly, Digital Desa, also known as the *Smart Kampung* initiative in Malaysia, is a rural development program aimed at bridging the digital divide by integrating digital technologies into village life. Spearheaded by various government agencies such as the Ministry of Rural and Regional Development and supported by private-sector collaborations, the initiative brings internet connectivity, digital infrastructure, and tech-based services to remote and underserved communities. Components include high-speed broadband access, smart agriculture (using IoT sensors), digital entrepreneurship training, e-commerce platforms for local products, and digital literacy programs. Villages like Kampung Batu 23 in Hulu Langat have become models for this transformation, where residents use digital tools to improve livelihoods, education, and healthcare access. Digital Desa empowers rural populations to participate in the digital economy and enhances the overall quality of life through inclusive and sustainable technological integration.

To bridge the urban – rural divide a social enterprise called Epic-Homes was created to rally the communities to build modular, durable homes for Malaysia's Orang Asli families. Launched in 2010, EPIC Homes leverages volunteer-driven, 3–4 day build events with lightweight, IKEA-inspired modular kits adaptable to varying family sizes and terrains. Beyond constructing more than 200 homes across over 20 villages and mobilizing 8,000 volunteers, the program prioritizes relationship-building—connecting rural families with urban supporters and corporate partners to foster long-term community resilience (epichome.org). Each successful build also includes a "Pay-It-Forward" component, empowering homeowners to support neighbours and further nurture local agency.

Under the Malaysian Digital Economy Corporation (MDEC) digital inclusion initiative programme e-Rezeki, enabled B40 (lower income) and M40 (middle income) individuals to earn supplementary income through digital gig work. Launched in 2015 and part of the broader Saya Digital campaign, participants receive training to perform online microtasks, freelance projects, and digitally-enabled services such as surveys or home-based tasks . As of late 2021, approximately 312,735 participants have taken part, generating around RM2.51 billion in income (opengovasia.com). e-Rezeki has been pivotal in upskilling communities for the gig economy, empowering them to engage in flexible digital work—ranging from data entry and image labeling to rideshare and on-site services—thus promoting economic upliftment through technology (mdec.my).

Community engagement fosters collaboration, collective action, and shared responsibility. When people work together to solve sustainability challenges, they build resilience and develop leadership skills. Strong communities are better equipped to address environmental crises and adapt to changing conditions. The SOLS Foundation, which has been operational in Malaysia since 2007, embodies this principle by providing free English and digital literacy courses to underprivileged communities. By equipping individuals with essential skills, they open new economic opportunities and reduce social inequality, ultimately fostering sustainable community development. Education must be inclusive. The SOLS Foundation, operational since 2007, exemplifies this principle by providing free education and vocational training to underserved communities across Malaysia. Their programs focus on three key areas: English language proficiency, digital literacy, and personal development. By equipping individuals with these fundamental skills, SOLS Foundation ensures that even the most marginalized communities have access to opportunities for growth and self-sufficiency. One of their flagship initiatives is the Skills Hub, which offers free online classes, enabling learners to gain knowledge at their own pace. The result? Individuals who were once limited by circumstances are now gaining the tools to transform their lives.

3. THE IMPACT ON ACADEMICS, RESEARCHERS, AND STUDENTS

For scholars and researchers, community engagement and digitization presents a vast field of exploration. From sustainable urban planning, there are limitless opportunities to contribute meaningful research that can drive policy and real-world applications. For example, universities in Malaysia are currently working on smart city projects, where researchers collaborate with local governments to design energy-efficient urban landscapes. This interdisciplinary approach is crucial in solving complex sustainability challenges.

Students meanwhile are the torchbearers of the future, and as digital natives, they have a unique ability to create content and drive change that benefits society. Engaging with the community through education not only equips them with the tools to build a greener, more equitable world but also deepens their understanding of real-world challenges. Experiential learning—through hands-on projects, internships, and fieldwork—allows students to apply classroom knowledge in practical, impactful ways. This not only enhances their academic experience but also prepares them for careers in a job market that increasingly values sustainability and social responsibility. More importantly, such engagement cultivates empowered, thoughtful citizens who are motivated to take initiative, think critically, and contribute meaningfully to solving the pressing issues of our time. The impact of the initiatives mentioned is profound. Many of the facilitators themselves are students from top universities worldwide, who return to Malaysia to mentor and guide the next generation. By fostering aspirations and creating pathways for success these projects and others like these ensure that knowledge is not confined to textbooks but is translated into action and empowerment.

Community engagement and digitization must be embedded within the education system to create long-term impact. Malaysia's universities and schools are increasingly integrating these themes into the courses and programs into their curricula. The Universiti Tunku Abdul Rahman (UTAR) Community and Voluntary Engagement Programme or UTAR CARE Programme represents a new system that recognizes students' achievements toward community engagement. Undergraduates who have a high level of involvement in community service would show positive changes in behaviour, values, aspirations and career preparation. From the social aspect, they also learn empathy, positive attitude and higher level of internalized moral standards. Through these types of programmes, student learn volunteering and it gives them the opportunity to practice crucial skills to better prepare them for the future workplace. This real-world learning gives them an opportunity to experience out of the classroom learning, where they are exposed to the current issues faced by the communities in the real world. Students engage in projects like recycling campaigns, organic gardening, energy conservation, online fraud prevention and misinformation and fake news. These initiatives don't just teach students about the subject or topic but empowers them to be mentors in their communities.

4. CONCLUSION: A CALL TO ACTION

The Malaysian case studies presented highlight the immense power of education and community engagement in achieving its goals of a harmonious nation. However, this is not merely a discussion—it is a call to action.

Education, community engagement and digitization are not just theoretical concepts—they are practical tools that can create a more just, resilient, and sustainable world. As academics, researchers, educators, policymakers, and students, we each have a role to play in shaping the future. Together, we can develop innovative solutions and educational frameworks that empower communities worldwide to achieve sustainable development. The Malaysian initiatives mentioned are shining examples of how education and community engagement can

empower communities and transform futures. But these are just a few of many efforts worldwide. Every single one of us has a role to play in driving sustainability forward. Three important elements needs to be understood. Education is the catalyst for sustainable change. We must integrate sustainability education at all levels to empower the next generation. Secondly, Community engagement transforms knowledge into action**.** Without involvement from local stakeholders, sustainability efforts will not achieve their full potential and collaboration is essential**.** Whether as a a student, an academic, a policymaker, or a business leader, contribution and collaboration matters.

REFERENCE

Anidah Robani, A., Ahamat, A., Kamarudin, M. F., & Mohd Zubir, S. A. (2024). Nexus between solidarity economy, cooperative and digital economy at the local level: The case of Malaysia. *Environment-Behaviour Proceedings Journal*.

Gan, S., Inversini, A., & Rega, I. (2018). Tourism, development and digital technologies: Insights from Malaysian homestays. In *Information and Communication Technologies in Tourism*.

Ibrahim, Z., & Sulaiman, A. (2013). Community technology project in Malaysia: Kedai.Kom. *Journal of Community Informatics*.

Inclusive digital world: Examining access, affordability and ability in Malaysian underserved community. (2024). *Journal of Information & Knowledge Management*.

Leong, C., Pan, S., Bahri, S., & Fauzi, A. (2015). Digital enablement: Social media in empowering the grassroot environmental movement of Malaysia. *International Conference on Interaction Sciences*.

Mohd Mohadis, H., & Shompa, Z. A. (2024). Designing persuasive sustainable waste management application for urban community in Malaysia: Understanding end-user perspectives. *Journal of Advanced Research in Applied Sciences and Engineering Technology*.

Nawi, H., Nur Syufiza, A., Shukor, A., Basaruddin, S., Omar, S. F., Abdul, A., Abu Hassan, R., Ashri, M., Abu Hassan, A., & Bestari Jaya. (2013). Sustainability criteria model: A field study of ICT4D project.

Noor, M. M. (2021). A sustainable rural telecentre concept on sustainability pillars. *Journal of Sustainable Development*.

Sivapalan, M. (2025). Multi-purpose apps and the social media: What's in it for the sustainable development goals and commerce to a social enterprise? *RA Journal of Applied Research*.

Tim, Y., Pan, S., Bahri, S., & Khan, A. (2018). Digitally enabled affordances for community-driven environmental movement in rural Malaysia. *Information Systems Journal*.