

Empowering the Future: Digital Literacy and New Media Communication in the Anak Orang Asli Community

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Abstract

Empowering sustainability through creativity, innovation, and digitalization is vital for societal well-being and economic growth. This study investigates digital literacy among high school students, specifically the anak Orang Asli community at SMK Petra in Gua Musang, with a strong emphasis on communication and new media. As digital communication increasingly shapes education and social interaction, understanding the digital literacy of marginalized communities is essential for ensuring equitable access to information and technology. Employing a qualitative approach, this research utilizes in-depth interviews with students to explore their experiences, perceptions, and competencies in using new media for communication. The interviews examine students' familiarity with digital platforms, their engagement with social media, and the barriers they face in navigating these technologies. Preliminary findings indicate that while students actively use digital tools for social interaction, they exhibit limited skills in evaluating online content and managing digital safety. These insights highlight both the potential and challenges in fostering digital empowerment among the Orang Asli youth. Ultimately, the study aims to inform educators and policymakers on strategies to strengthen digital literacy programs, enhance communication competencies, and empower the Orang Asli community to thrive in the digital age, contributing to sustainable social and economic development.

Keywords: *Digital Literacy, Anak Orang Asli, Communication, New Media, Sustainability*

1.0 Introduction

By foregrounding the voices of Orang Asli youth, this study contributes original insights to the underexplored domain of Indigenous digital literacy in Malaysia, enriching global discussions on equitable access to technology.

In the contemporary landscape, the interplay of sustainability, creativity, innovation, and digitalization emerges as a pressing priority for societal well-being and economic growth. As societies grapple with complex global challenges, the role of digital technologies becomes increasingly critical in driving transformative change across various sectors, including education. Harnessing the power of digitalization not only fosters innovation but also enables communities to engage more effectively in creative solutions that promote sustainability. However, the benefits of these advancements are often unevenly distributed, particularly among marginalized communities, raising concerns about equity and inclusion in the digital era.

Digital literacy, defined as the ability to effectively utilize digital tools and platforms for communication, information processing, and engagement in society, has become a crucial competency in

today's interconnected world. For marginalized groups, such as the anak orang asli in Malaysia, possessing robust digital literacy skills is essential for accessing educational resources, participating in social discourse, and ultimately contributing to their community's economic development [2]. Despite its significance, there exists a substantial gap in understanding the digital literacy levels among these populations. While existing literature highlights the challenges faced by marginalized communities in the digital realm, there is limited focused research on the digital experiences of Orang Asli high school students.

This study seeks to address this research gap by investigating the digital literacy of anak orang asli students at SMK Petra in Gua Musang, with a particular emphasis on their communication and engagement with new media. We aim to answer the following research questions: What are the experiences and perceptions of anak orang asli students regarding digital communication? What competencies do they demonstrate in utilizing various digital platforms? What barriers do they face in navigating these platforms? By exploring these questions, this research aims to illuminate the unique challenges and opportunities that the Orang Asli youth encounter in the digital landscape.

The research employs a qualitative methodology, conducting in-depth interviews with 12 Orang Asli high school students to gather rich insights into their experiences and perceptions regarding digital communication. The collected data will be transcribed and subjected to thematic analysis to identify recurring patterns and themes in the students' responses. Through this investigation, we anticipate generating valuable insights that can inform strategies for educational practitioners and policymakers in designing effective digital literacy programs tailored to the needs of the Orang Asli community. Ultimately, the findings are expected to contribute to empowering these students to thrive in the digital age, thus enhancing their engagement and fostering greater sustainability and economic growth within their community.

While the sample size of 12 participants limits the generalizability of findings, it allows for in-depth exploration of individual experiences and contextual nuances, which aligns with the qualitative nature of the study. Participants were selected based on criteria such as socioeconomic background, digital exposure, and gender balance to ensure a range of perspectives reflective of the Orang Asli student population.

2.0 Literature Reviews

Global studies on Indigenous digital literacy, such as among Aboriginal youth in Australia [18] and First Nations communities in Canada, similarly highlight the role of cultural identity in shaping digital engagement. Integrating these perspectives situates the Orang Asli experience within broader global discourses on digital inclusion.

The growing influence of digital communication on education and social interaction underscores the necessity of understanding digital literacy among marginalized communities. Digital literacy encompasses a multifaceted set of competencies, including access to technology, the skills to use various digital tools, and the ability to critically evaluate information gathered from digital sources. These components are vital for fostering educational development, social inclusion, and economic opportunities [10; 21]. [17] Studies have demonstrated that strong digital literacy is a prerequisite for meaningful engagement in the modern economy, allowing individuals to access information, communicate effectively, and engage in lifelong learning [9].

In Malaysia, the importance of digital literacy for students cannot be overstated. As highlighted by [20] digital literacy is essential for students to navigate a rapidly evolving information landscape, which increasingly incorporates various information and communication technologies. This is especially relevant for students from marginalized backgrounds, who may not only lack access to technology but also the skills necessary to leverage these resources effectively.

In the specific context of Orang Asli communities in Malaysia, the dynamics of digital literacy take on additional complexity. The socio-economic background of the Orang Asli has historically been characterized by geographic isolation and limited access to educational resources, which further exacerbates their digital divide. Traditional cultural practices and oral histories may also influence how digital literacy is perceived and developed within these communities. Importantly, while governmental initiatives have aimed to enhance digital access among the Orang Asli, challenges remain, especially in relation to the lack of tailored educational support [17].

3.0 Methodology

While the sample size of 12 participants limits the generalizability of findings, it allows for in-depth exploration of individual experiences and contextual nuances, which aligns with the qualitative nature of the study.

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4.0 Research Approach

This study employed a qualitative research approach to gain an in-depth understanding of the digital literacy experiences of high school students from the Orang Asli community in Gua Musang. By focusing on qualitative methods, the researchers aimed to capture nuanced perspectives and insights regarding the participants' access to, use of, and attitudes toward digital technologies[20]

This aligns with the research on digital inclusion and literacy transformation among the Orang Asli, which highlights the need to understand the digital literacy levels and challenges faced by these indigenous communities in Malaysia [9].

5.0 Research Setting And Participant Selection

The research was conducted in Gua Musang, Malaysia, specifically at SMK Petra, a secondary school attended by students from the Orang Asli community. The participant selection process was purposive, aimed at capturing the experiences of students aged 16 to 19 years old who identify as anak orang asli. A total of 12 students were selected to participate in the study, ensuring a diverse representation in terms of gender and socio-economic background [21]. Students were approached through school announcements and consent was sought from both participants and their guardians prior to the study.

The purposeful selection of Orang Asli students aligns with previous research that has highlighted the digital divide and challenges faced by these indigenous communities in accessing and utilizing digital technologies[9]

6.0 Data Collection Method

Data collection was conducted through in-depth interviews, which allowed for a rich exploration of participants' experiences and perceptions of digital literacy. Each interview lasted approximately 45 to 60 minutes and was guided by a structured interview protocol that included both closed and open-ended questions. The interview guide was developed based on the literature review and designed to explore various dimensions of digital literacy, including access to technology, skills, usage patterns, and challenges faced.

All interviews were audio-recorded with the participants' consent to ensure accurate data capture. The recordings were subsequently transcribed for data analysis.

This approach to data collection is consistent with the qualitative research on digital literacy experiences of indigenous communities, which often relies on in-depth interviews to capture the nuanced perspectives of the participants.

7.0 Data Analysis Techniques

Data analysis was conducted using thematic analysis, which involves identifying, analyzing, and reporting patterns (themes) within the data. This method was chosen for its flexibility and ability to provide insights into participants' experiences and perspectives.

The use of thematic analysis aligns with the research on digital literacy and inclusion among Orang Asli communities, which often employs qualitative methods to gain a deeper understanding of the challenges and opportunities faced by these groups.

8.0 Findings And Discussions

Beyond challenges of access, this study reveals culturally distinctive ways Orang Asli youth integrate technology to preserve identity and strengthen social cohesion—insights that extend beyond existing digital divide narratives.

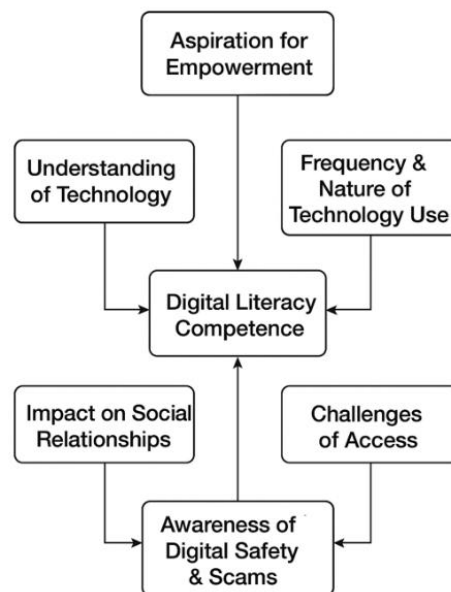


Figure 1: Conceptual Summary of Digital Literacy Themes Among Orang Asli Youth (placeholder for visual model).

The findings presented in this research paper provide a nuanced understanding of the experiences and perceptions of technology among the Orang Asli community at SMK Petra in Gua Musang. Through in-depth interviews with eight participants aged 15 to 19, the study uncovers the diverse ways in which this community engages with and views technology.

Theme 1: Understanding and Perceptions of Technology

Participants articulated a clear understanding of technology as encompassing the internet and social media platforms that serve as tools for accessing information, expressing creativity, and maintaining social connections [25]. Khairunisa (16 years) described technology's role in culture, stating, "Saya dapat menggunakan internet untuk berkongsi budaya." (I can use the internet to share culture.) ([5] Khairiah reflected on social media's importance, saying, "Teknologi adalah internet; social media tempat untuk mengakses semua benda." [26]. This indicates a recognition of technology not merely as a communication tool but as a platform for cultural engagement and information exchange [26].

Theme 2: Frequency and Nature of Technology Use

The interviewees reported significant variations in their frequency of technology use, ranging from 2 to 12 hours a day. While engaging primarily with platforms such as WhatsApp, Instagram, and TikTok, participants highlighted the critical role of these technologies in their daily lives, whether for entertainment, learning, or social interaction. Rizal provided insight into his heavy usage: "Saya gunakan gadget, repair computer/electronic... 12 jam." Khairiah noted the use of WhatsApp for communication: "Saya gunakan WhatsApp untuk berhubung chat, tengok msg dari guru-guru." This spectrum of use demonstrates a duality in technology's impact, with both positive and negative implications for the Orang Asli youth's academic and social development. [21 ; 26].

Theme 3: Impact on Social Relationships

Orang Asli youth have embraced the use of technology, particularly social media platforms, as a means to strengthen their social relationships with family and friends. Participants in the study consistently highlighted the positive influence of digital tools on their interpersonal connections, facilitating communication and bridging geographical distances [18]

Husna, a 16-year-old participant, noted that social media has fostered a greater sense of closeness with her family and friends, stating, "Media sosial hubungan dgn keluarga dan rakan-rakan: lebih rapat berbanding tiada teknologi". This sentiment reflects the perceived value of these platforms in enhancing social bonds. Similarly, Aliyana, a 19-year-old participant, emphasized the convenience and accessibility offered by social media in maintaining family relationships, stating, "Media sosial memudahkan hubungan saya dengan keluarga"[1;18; 25].

These responses align with existing research, which suggests that strong cultural identity, community, and family connections can be strengthened through the use of social media, leading to improved educational and health outcomes for Indigenous youth. [18] The confidence that Orang Asli youth demonstrate in their approach to digital technology invites further exploration of its potential applications, including in research and health promotion interventions. [18])

While the benefits of technology, particularly social media, are evident in the lives of Orang Asli youth, it is essential to consider the potential challenges and limitations associated with their use. As the world continues to rapidly evolve with new digital technologies, it is crucial to strike a balance between maximizing the positive potential of these tools and minimizing their misuse.

Theme 4: Challenges of Technology Access

The increasing reliance on digital technologies has revolutionized how individuals access information, communicate, and participate in various aspects of modern life. However, the benefits of this digital

transformation have not been equally distributed, as many communities, particularly in rural areas, continue to face significant barriers in accessing essential technological resources. [24 ;6]

One of the primary challenges highlighted by the study participants was the issue of inadequate internet connectivity. Khairunisa's frustration with the lack of reliable internet access in her rural location is a testament to the digital divide that hinders equal opportunities for individuals in these underserved communities. [6;8] Similarly, Sudan's experience of slow internet coverage further underscores the need to address the infrastructure gaps that limit the ability of rural residents to fully engage with digital resources.

The digital divide is not merely a technological problem but a multifaceted issue that intersects with social, economic, and geographical factors. As noted in the literature, the lack of investment in expanding internet infrastructure and the associated costs of accessing these services often create significant barriers for rural communities, hindering their ability to participate in the digital economy, access educational resources, and stay connected with the broader society[24]

To bridge this digital divide, a holistic approach is required that addresses both the technical and socioeconomic aspects of the problem. Policymakers and community leaders must prioritize the development of robust and accessible internet infrastructure in rural areas, ensuring that these communities are not left behind in the digital age. Additionally, targeted educational programs and digital literacy initiatives can empower rural residents with the necessary skills and knowledge to navigate and leverage digital technologies effectively[24]

Theme 5: Awareness of Digital Safety and Scams

This study revealed a mixed level of awareness regarding digital safety practices and online scam recognition among participants. While a general understanding of online risks, including scams and privacy breaches, was observed, many participants expressed a desire for further education and resources on these crucial topics. This suggests a gap between awareness and practical application, highlighting the need for more comprehensive digital literacy interventions) [12]

The qualitative data provided rich insights into this awareness gap. Maria's (18 years old) personal experience of being scammed through WhatsApp ("Saya pernah kena scam. Saya kena tipu di WhatsApp") underscores the real-world impact of these threats, even among younger digital natives. While some participants, like Husna, possess a basic understanding of scammers, this knowledge appears insufficient to protect them from actual scams. This discrepancy emphasizes the importance of not only raising awareness but also equipping individuals with the practical skills and strategies to identify, avoid, and report online scams.

These findings align with previous research indicating that mere awareness of online threats is not enough to prevent victimization [7; 13; 14]. In fact, studies have shown that despite a high percentage of self-reported scam victims, many individuals still lack the knowledge and skills to protect themselves online, underscoring the need for interventions that go beyond awareness-raising and address the vulnerabilities that make individuals susceptible to cyber-related threats.

The expressed desire for more education and resources on digital safety practices and online scam recognition suggests that a more comprehensive approach is needed to bridge this awareness gap. Interventions should focus on not only increasing general knowledge about online risks but also providing practical, hands-on training to empower individuals with the necessary skills to navigate the digital landscape safely and confidently.

Theme 6: Aspiration for digital empowerment

Participants in the discussions expressed a strong desire for improved digital access and skills development, underscoring the need for enhanced technological infrastructure and targeted training programs. A common theme was the importance of community-wide digital literacy campaigns to bridge existing skill gaps and empower individuals to fully participate in the digital age. This suggests a proactive and aspirational outlook, seeking not merely adaptation to technological advancements but active utilization of these tools for personal and collective growth.

Yusliza's (19 years old) call for increased digital training and awareness programs ("Perlukan lebihkan latihan digital dan program awareness") reflects this desire for enhanced digital literacy. Similarly, Rizal's focus on the potential benefits for the Indigenous people highlights the potential for technology to empower marginalized communities and promote inclusive development [11]. These aspirations align with the broader goals of digital inclusion initiatives, which aim to provide equitable access to technology and digital literacy resources [3; 11; 15].

The emphasis on digital skills development resonates with the findings of, which explores the digital inclusion and lifestyle transformation among the Orang Asli in Malaysia. This study highlights the importance of digital literacy in enabling indigenous communities to participate in the digital economy and improve their livelihoods. Furthermore, the call for community-based educational campaigns aligns with the approach described in, which examines the role of change agents in community empowerment through ICT in Desa Kaliabu, Central Java [15].

The successful implementation of digital literacy programs in this village underscores the transformative potential of such initiatives, as they can bridge the digital divide and empower marginalized communities to actively engage with technology for their own development [5;15; 3; 4]

TABLE 1
Summaries of the findings

Theme	Key Findings
Understanding of Technology	Technology is seen as vital for culture and information access.
Frequency of Use	Engagement ranges from 2 to 12 hours; WhatsApp and Instagram are favored.
Impact on Relationships	Technology enhances closeness with family and friends.
Challenges Accessing Technology	Internet connectivity remains a significant barrier.
Awareness of Digital Safety	Mixed awareness of scams, indicating a need for education.
Aspirations for Advancement	Desire for improved digital literacy and access.

9.0 Recommendations

Develop specific digital safety modules that can be integrated into school co-curricular activities, focusing on scam awareness, privacy protection, and online ethics. Encourage structured collaborations between schools, NGOs, and telecommunication providers to design localized digital literacy programs.

Based on the insights gained from this study, several key recommendations emerge for educators, policymakers, and the Orang Asli community that aim to enhance digital literacy and support socio-economic development. Develop specific digital safety modules that can be integrated into school co-

curricular activities, focusing on scam awareness, privacy protection, and online ethics. Encourage structured collaborations between schools, NGOs, and telecommunication providers to design localized digital literacy programs.

First, educators should prioritize the integration of digital literacy into the school curriculum, ensuring that it is culturally relevant and tailored to meet the specific needs of the Orang Asli students. Curricular content should focus not only on essential skills for digital communication and information evaluation but also on safe online practices. By emphasizing content that resonates with the cultural context of these students, engagement and relevance in learning can be significantly increased.

Moreover, it is imperative for policymakers to enhance infrastructure that ensures reliable internet access in rural and underserved areas. Such improvements necessitate collaborative efforts with telecommunications companies and local governments to extend network coverage while reducing associated costs. The realization of consistent internet accessibility is crucial, as it serves as a foundational element for digital engagement and educational success.

Fostering partnerships with local leaders, non-governmental organizations, and community groups is another vital recommendation. Education initiatives that involve these collaborations will ensure that digital literacy programs are effectively aligned with the cultural and social dynamics of the Orang Asli community. Such alliances can also promote community-driven training that successfully addresses specific local needs.

Additionally, promoting digital safety awareness through comprehensive campaigns within schools and community centers should be a priority. Through training opportunities that educate students and parents on recognizing online threats, maintaining personal privacy, and protecting against scams, the community can cultivate a strong foundation of digital safety knowledge.

This study also highlights the importance of expanding research on digital literacy practices within the Orang Asli community. Future research should aim to include a broader and more diverse cohort of participants from various regions, enabling a more comprehensive understanding of the digital literacy landscape that addresses unique challenges and opportunities faced by different subgroups.

Finally, encouraging lifelong learning through access to ongoing training and skill-building workshops will empower not only youth but also adult community members. Programs focused on digital skills development can ensure that the entire community benefits from technological advancements, thereby fostering a culture of continuous learning and adaptability.

10.0 Conclusion

Future research could include comparative analyses with other marginalized or rural groups, longitudinal tracking of digital literacy development, or evaluation of school-based interventions.

The findings of this research contribute significantly to our understanding of digital literacy among the Orang Asli community, shedding light on both the challenges and opportunities experienced by its youth. Digital literacy emerges as a crucial factor in enhancing educational access and promoting socio-economic advancement within this marginalized population.

Recognizing the specific barriers faced by these students—such as limited internet access and varied levels of digital safety awareness—provides stakeholders with the insight necessary to formulate effective strategies that can lead to empowerment. Prioritizing digital literacy is not merely an educational imperative; it represents a critical path toward fostering sustainability and economic growth within the community.

By equipping Orang Asli youth with the skills and access necessary for success in an increasingly digital landscape, we can support the development of a more equitable and inclusive society. Ultimately, these initiatives will enable future generations to thrive, ensuring that the Orang Asli community can actively participate and contribute to a rapidly evolving digital world.

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12.0 References

- [1] Z. Bock, "Cyber socialising: Emerging genres and registers of intimacy among young South African students," *Language Matters*, vol. 44, no. 2, p. 68, 2013.
- [2] N. Agir and M. E. E. M. Matore, "Literasi dan kewarganegaraan digital: Konsep dan strategi implementasi dalam pendidikan di Malaysia," *Malaysian Journal of Social Sciences and Humanities (MJSSH)*, vol. 7, no. 3, 2022.
- [3] A. Armenta, A. Serrano, M. Cabrera, and R. Conte, "The new digital divide: The confluence of broadband penetration, sustainable development, technology adoption and community participation," *Information Technology for Development*, vol. 18, no. 4, p. 345, 2011.
- [4] P. Bala and C. E. Tan, "Digital inclusion of the Orang Asli of Peninsular Malaysia: Remote virtual mechanism for usability of telecentres amongst indigenous peoples," *The Electronic Journal of Information Systems in Developing Countries*, vol. 87, no. 4, 2021.
- [5] P. Bejaković and Ž. Mrnjavac, "The importance of digital literacy on the labour market," *Employee Relations*, vol. 42, no. 4, p. 921, 2020.
- [6] S. V. Bhada, C. Canfield, and A. M. Wyglinski, "A transdisciplinary socio-technical systems approach: Wireless solutions for the digital divide," in *Proc. IEEE Int. Systems Conf. (SysCon)*, 2021, p. 1.
- [7] P. Datta, S. N. Panda, and S. Bajaj, "Data analysis of cyber security for women in Haryana," in *Proc. IEEE Int. Conf. on Research in Intelligent and Computing in Engineering (RICE)*, 2020, p. 763.
- [8] R. Havinal, "The role and potential of information technology in agricultural development," *International Journal of Engineering Research and Development*, 2020.
- [9] R. Hashim, K. S. Idris, Y. A. Ustadi, and Z. Baharud-din, "Digital inclusion among the indigenous people (Orang Asli Semai) of Perak, Malaysia," in *Proc. Int. Conf. on Computational and Advanced Information Management*, 2011, p. 224.
- [10] I. Ismaya, M. Mahmuddin, A. Tike, and I. Ibrahim, "Literacy education: Communication literacy model in Tudang Sipulung culture in Patondonsalu Village at Enrekang District," *SAGA: Journal of Social Sciences and Humanities*, vol. 1, no. 1, pp. 1–10, 2023.
- [11] A. Kanjilal, O. Manzar, and P. Sharma, "Democratising technological innovation through makerspaces," in *Proc. Tenth Pan-Commonwealth Forum on Open Learning*, 2022.

- [12] O. H. Lowry, N. J. Rosebrough, A. Farr, and R. J. Randall, "Protein measurement with the Folin phenol reagent," *Journal of Biological Chemistry*, vol. 193, no. 1, p. 265, 1951.
- [13] A. M. Manasrah, M. Akour, and E. Alsukhni, "Toward improving university students awareness of spam email and cybercrime: Case study of Jordan," in *Proc. IEEE Int. Conf. on Anti-Cybercrime (ICAC)*, 2015
- [14] V. G. Medina and R. J. Todd, "Building a wall of digital safety: A passport for learning without borders," in *IASL Annual Conference Proceedings*, 2017
- [15] P. Nedungadi, R. Menon, G. Gutjahr, L. Erickson, and R. Raman, "Towards an inclusive digital literacy framework for Digital India," *Education + Training*, vol. 60, no. 6, p. 516, 2018
- [16] "Literacy and development for the Orang Asli in Malaysia: What matters?" *Prospects*, vol. 46, no. 3, p. 479, 2017
- [17] S. Renganathan, "Digital literacy and its impact on education: A Malaysian perspective," *Asian Education Studies*, vol. 1, no. 1, pp. 34–45, 2016.
- [18] E. S. Rice, E. Haynes, P. Royce, and S. Thompson, "Social media and digital technology use among Indigenous young people in Australia: A literature review," *International Journal for Equity in Health*, vol. 15, no. 1, 2016.
- [19] H. Sahharon, J. Bolong, and S. Z. Omar, "Facebook usage pattern among rural youths of 1Malaysia Wireless Village," *International Journal of Academic Research in Business and Social Sciences*, vol. 8, no. 3, 2018.
- [20] T. P. N. T. Shariman, N. A. Razak, and N. F. Mohd Noor, "Digital literacy competence for academic needs: An analysis of Malaysian students in three universities," *Procedia - Social and Behavioral Sciences*, vol. 69, p. 1489, 2012.
- [21] A. S. B. M. Yusof and S. Surat, "Amalan penggunaan media digital dalam kalangan guru-guru sekolah Orang Asli," *Journal of Education and Human Development*, vol. 10, no. 1, 2021.
- [22] S. Anzak and A. Sultana, "Social and economic empowerment of women in the age of digital literacy: A case study of Pakistan, Islamabad-Rawalpindi," *Global Social Sciences Review*, p. 102, 2020.
- [23] M. Y. Darus *et al.*, "A case study on digital divide and access to information communication technologies (ICTs) in Pulau Tuba, Langkawi, Malaysia," *Türk Bilgisayar ve Matematik Eğitimi Dergisi*, vol. 12, no. 5, p. 1710, 2021.
- [24] T. S. El-Bawab, "Toward access equality: Bridging the digital divide," *IEEE Communications Magazine*, vol. 58, no. 12, p. 6, 2020.
- [25] H. Sahharon, J. Bolong, and S. Z. Omar, "Facebook usage pattern among rural youths of 1Malaysia Wireless Village," *International Journal*, 2019. [Online]. Available: UPM e-print repository.
- [26] A. R. Ahlan, Y. Arshad, and M. Lubis, "Implication of human attitude factors toward information security awareness in Malaysia public university," in *Proc. Int. Conf. on Innovation and Management (IAM 2011)*, Kuala Lumpur, Malaysia, Jul. 2011.