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IRANDAU 2025: INTERNATIONAL SYMPOSIUM OF SOCIAL SCIENCES, MANAGEMENT, SCIENCE & TECHNOLOGY

1st – 3rd October 2025

Universiti Putra Malaysia Sarawak (UPMS)

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Chan Siaw Leng
Karmilah Abdullah
Nurul Hidayu Mat Jusoh
Yasmin Yaccob
Ribka Alan
Steward Gimán Stephen

Typesetting: Malisah Latip
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PREFACE

iRandau 2025: International Symposium of Social Sciences, Management, Science & Technology was held from 1 to 3 October 2025 at the longhouse community of Lebu' Kulit, Sungai Asap, Belaga, Sarawak. Surrounded by the green hills of Ulu Rajang, this setting offered more than a venue; it offered meaning. The longhouse, where families share a roof and conversations unfold naturally, became a living symbol of unity, learning, and shared purpose.

The theme “Bridging the Gap, Fostering Sustainability” came to life within this environment. Inside the long house, participants from many disciplines and backgrounds gathered under one roof, sharing perspectives as freely as neighbours exchanging stories by the “*ruai*” (verandah). The Sarawakian spirit of *randau*, a tradition of open and respectful dialogue, guided every discussion and created a space for connection and reflection.

The choice of Lebu' Kulit held deep significance. As a resettled community in Sungai Asap, it reflects resilience, adaptation, and the enduring strength of collective identity. Holding the symposium there reminded us that sustainability is not only discussed in theories or policies but also practiced daily by communities that live in harmony with one another and with nature.

This e-Proceeding captures that same spirit of collaboration and curiosity. Each paper presented here represents dedication, creativity, and the pursuit of knowledge that connects research to real lives. Together, these contributions show how ideas can cross boundaries and inspire meaningful change.

To all contributors, reviewers, and participants, we express our deepest gratitude. May this iRandau 2025 e-Proceeding continue to inspire thoughtful dialogue, lasting partnerships, and the ongoing spirit of *randau* among all who read it.

Dr. Malisah binti Latip

Editor-in-Chief

iRandau 2025: International Symposium of Social Sciences,
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CAMPUS DIRECTOR'S FOREWORD



Assalamualaikum Warahmatullahi Wabarakatuh and Salam Sejahtera.

It is my great pleasure to welcome all delegates to the International Symposium on Social Sciences, Management, Science and Technology (iRandau 2025), hosted by the Faculty of Humanities, Management and Science, Universiti Putra Malaysia Sarawak (UPMS).

The theme of iRandau 2025, “Bridging the Gap, Fostering Sustainability,” reflects our shared commitment to building stronger connections across disciplines while advancing ideas that promote long-term social, economic, and environmental well-being. This symposium provides an important platform for scholars, practitioners, and students to exchange knowledge, share innovative ideas, and develop collaborations that extend beyond geographical and institutional boundaries.

Equally significant is the active participation of representatives from government agencies, industries, NGOs, and academic institutions, whose engagement ensures that the discussions and outcomes of this symposium remain relevant and impactful to real-world challenges. Through such collaboration, iRandau 2025 seeks to strengthen community resilience and contribute toward inclusive and sustainable progress.

On behalf of Universiti Putra Malaysia Sarawak, I would like to extend my sincere appreciation to the organising committee and all partners for their commitment and hard work in realising this meaningful event.

To all participants, I wish you a productive and enriching experience at *iRandau 2025*.

Thank you.

Prof. Dr. Shahrul Razid bin Sarbini

Director

Universiti Putra Malaysia Sarawak

CHAIRMAN'S FOREWORD



Assalamualaikum Warahmatullahi Wabarakatuh and Salam Sejahtera.

It gives me great pleasure to welcome you to iRandau 2025: International Symposium on Social Sciences, Management, Science & Technology. iRandau 2025 is organised by the Faculty of Humanities, Management and Science, Universiti Putra Malaysia Sarawak (UPMS), in collaboration with our distinguished co-organisers: the Ministry of Digital, Malaysia, the Faculty of Human Ecology (UPM), the Faculty of Educational Studies (UPM), and the Institute of Ecosystem Science Borneo (UPMS). We are also grateful for the support of Business Events Sarawak, which further strengthens the impact of this symposium.

This three-day symposium brings together diverse fields within the social sciences, management, science, and technology under the theme “Bridging the Gap, Fostering Sustainability”. With emphasis on the Sustainable Development Goals (SDGs) and Environmental, Social and Governance (ESG) perspectives, the programme spans a broad range of disciplines, from community development and education to economics, sociology, resource management, technology, and communication. With presenters and participants from Malaysia and abroad, this platform provides a valuable avenue for the exchange of ideas, knowledge, and experiences. We believe that the sharing of research findings will contribute meaningfully to sustainable community development and inspire future collaborations across disciplines.

In closing, I extend my deepest gratitude to all presenters, participants, sponsors, and every individual who has contributed, directly or indirectly, to the success of iRandau 2025. A special word of thanks is also due to the dedicated members of the organising committee for their commitment and hard work. May this gathering in Sarawak be a source of new ideas, lasting partnerships, and meaningful steps towards a more sustainable future.

Thank you.

Dr. Nurul Hidayu binti Mat Jusoh

Chairwoman

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THE ESG PERFORMANCE OF CHINESE LISTED COMPANIES

Sun Shiru¹, Malisah Latip², Ismawati Sharkawi³

^{1, 2, 3}Faculty of Humanities, Management and Science, Universiti Putra Malaysia Sarawak,
Malaysia

Email: 845823735@qq.com; malisah@upm.edu.my; ismawat@upm.edu.my

ABSTRACT

ESG (Environmental, Social, and Governance) has become a core issue in achieving high-quality development for enterprises. As a significant extension of corporate social responsibility, the ESG concept emphasizes that while pursuing economic benefits, enterprises must also focus on environmental protection, social responsibility, and improving governance standards. Based on data from A-share listed companies on the Shanghai and Shenzhen stock exchanges from 2010 to 2023, this paper uses a fixed-effects regression model to examine the impact of different strategic orientations on corporate ESG performance. The empirical results show that a profit-oriented strategy significantly enhances ESG performance, while a growth-oriented strategy is significantly negatively correlated with ESG levels. These findings provide policy and practical insights for optimizing corporate strategic choices and promoting high-quality ESG development.

Keywords: Environmental, Social, and Governance (ESG); Corporate Strategic Orientation; High-Quality Development

INTRODUCTION

In recent years, the concept of Environmental, Social, and Corporate Governance (ESG) has garnered increasing attention in China's capital markets, emerging as a critical metric for evaluating a firm's sustainability and long-term value creation. ESG performance not only reflects the scope and depth of corporate social responsibility (CSR), but also signals strategic adaptation and governance transformation in the context of China's broader push for high-quality development.

Driven by national priorities such as high-quality economic growth and the "Dual Carbon" goals (carbon peaking and carbon neutrality), ESG has become a focal point for regulatory bodies, institutional investors, and public discourse. However, the strategic orientation adopted by firms plays a potentially pivotal role in shaping ESG outcomes. As a core framework guiding corporate resource allocation and strategic decision-making, strategic orientation is generally classified into two dominant types: profit-oriented strategies, which prioritize profitability and operational efficiency; and growth-oriented strategies, which emphasize rapid expansion and increased market share.

This paper seeks to address a key question: How do different strategic orientations influence corporate ESG performance? By investigating this relationship, the study aims to contribute to a deeper understanding of how internal strategic choices impact firms' alignment with sustainable development goals and broader societal expectations.

METHODOLOGY

1. Data Sources

This study selects A-share listed companies on the Shanghai and Shenzhen stock exchanges from 2010 to 2023 as the research sample. Special treatment (ST) firms and financial institutions are excluded to ensure data consistency and comparability, resulting in a relatively complete panel dataset.

ESG scores are obtained from the Bloomberg ESG Rating Database, while financial indicators and control variables are sourced from the Wind Database.

2. Variable Definitions

- a) Dependent Variable: Corporate ESG Score - ESG performance is measured using the Bloomberg ESG rating.
- b) Independent Variables: Strategic Orientation of Firms, divided into two categories:
 1. Profit Orientation
 2. Growth Orientation

Following Zhou & Park (2020), return on total assets (ROA) and total asset growth rate are used as proxies for firm profitability and growth capability, respectively. The classification method is as follows:

1. A firm is classified as profit-oriented (assigned a value of 1) if its average ROA over the sample period exceeds the industry average, while its asset growth rate is below the industry average. Otherwise, it is assigned a value of 0.
 2. A firm is classified as growth-oriented (assigned a value of 1) if its asset growth rate exceeds the industry average, while its ROA is below the industry average. Otherwise, it is assigned a value of 0.
- c) Control Variables: Firm size, leverage (debt-to-asset ratio), profitability, industry classification, and year-fixed effects are included as control variables.

3. Model Specification

To examine the impact of corporate strategic orientation on ESG performance (testing Hypotheses H1 and H2), while controlling for unobservable heterogeneity across industries and years, a fixed effects model is employed. The model controls for both industry and year fixed effects. The baseline regression model is specified as follows:

$$ESG_{i,t} = \alpha_0 + \alpha_1 \text{Profit}_{i,t} + \alpha_n C_{i,t} + \text{Year}_{i,t} + \text{Ind}_{i,t} + \varepsilon_{i,t} \quad (1)$$

$$ESG_{i,t} = \beta_0 + \beta_1 \text{Growth}_{i,t} + \beta_n C_{i,t} + \text{Year}_{i,t} + \text{Ind}_{i,t} + \varepsilon_{i,t} \quad (2)$$

Where I denotes the firm and t denotes the year, α and the coefficients represent the parameters to be estimated, C represents the vector of control variables, and Year and Ind denote year and industry fixed effects, respectively. ε is the error term.

4. Research Hypotheses

H1: Based on resource dependence theory, profit-oriented firms are more inclined to fulfill ESG responsibilities in order to gain access to critical external resources, thereby enhancing their capacity for sustainable development.

H2: Based on cost effect theory, growth-oriented firms prioritize rapid expansion and short-term profit maximization, often at the expense of ESG practices, as a means to reduce costs and maintain competitive speed.

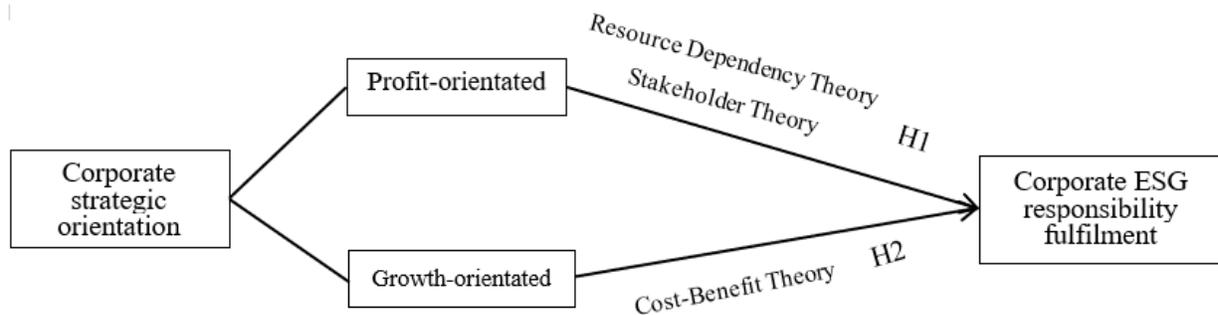


Figure 1: Theoretical framework

RESULTS

1. Interpretation of Main Findings

Table 1: Main Findings

Variables	(1) ESG	(2) ESG
Profit	0.399*** (3.49)	
Growth		-1.195*** (-6.06)
_cons	-40.89*** (-28.83)	-40.93*** (-28.86)
Control	YES	YES
Year/Ind	YES	YES
N	14089	14089

t statistics in parentheses, * p<0.05, ** p<0.01, *** p<0.001.
 company-level clustered standard errors are given in parenthesis.

2. Empirical Results

The empirical findings indicate that strategic orientation has a significant impact on corporate ESG performance. Profit orientation is significantly positively correlated with ESG performance, with a positive coefficient that is statistically significant at the 1% level. This suggests that profit-oriented firms tend to enhance ESG management to improve brand value and investor confidence, thereby achieving long-term financial returns.

Growth orientation is significantly negatively correlated with ESG performance, also significant at the 1% level. This implies that growth-oriented firms may neglect investments in non-financial dimensions such as environmental governance and social responsibility in their pursuit of rapid expansion. These results remain robust across different model specifications, providing further support for the hypotheses proposed in this study.

CONCLUSION

Based on data from China's A-share listed companies from 2010 to 2023, this study examines the impact of different strategic orientations on corporate ESG performance. The findings reveal that a profit-oriented strategy contributes positively to enhancing ESG performance, whereas a growth-oriented strategy tends to inhibit firms' investment in ESG practices to some extent.

These findings carry important policy implications. Against the backdrop of China's ongoing push for high-quality development and sustainable transformation, regulators and investors should pay close attention to firms' strategic orientations. By implementing appropriate incentive mechanisms, they can encourage companies to strengthen ESG management and investment while pursuing profitability. Moreover, firms themselves should strive to balance economic objectives with social responsibilities when formulating strategies, avoiding a "growth-at-all-costs" mindset that may undermine long-term sustainability.

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HOW AIGC EMPOWERS VIRTUAL REALITY PUBLISHING FROM THE PERSPECTIVE OF NEW QUALITY PRODUCTIVITY: A CASE STUDY OF ZHAOXUN COMPANY'S VR PROJECT

Jingfu Lu^{1,2}, Adrian Daud^{2*}, Neilson Teruki², Yifan Lai^{2,3}

¹School of Literature and Media, Dongguan University of Technology, Guangdong Province,
China

Email: gs69866@student.upm.edu.my

²Faculty of Humanities, Management and Science, Universiti Putra Malaysia Sarawak, Malaysia

*Email: adrian@upm.edu.my

³Business School, Zhuhai College of Science and Technology, Zhuhai City, Guangdong Province,
China

Email: gs67715@student.upm.edu.my

ABSTRACT

The academic research on virtual reality publishing focuses more on the theoretical level, and the research on industrial practice, under the background of the development of new productivity, has yet to be deepened. This study is based on the theory of new productivity and explores the path of AIGC-enabled virtual reality publishing through a single case study of the immersive VR space project of Zhaoxun Company in China. The aim is to understand the cultural production mechanism in the era of human-computer collaboration from the intersectional perspective of technological philosophy and political economics. The study found that AIGC, as a new type of productive force, promotes the release of the efficiency of labor materials by expanding the labor force, and ultimately presents technological dividends at the level of labor object value. Specifically, it reshapes the creative model through human-computer collaboration, reconstructs the content ecosystem through data-driven, and ultimately promotes the transformation of virtual publishing to high efficiency, immersion, and personalization.

Keywords: new quality productivity, AIGC, smart publishing, virtual reality publishing

INTRODUCTION

The publishing industry is transforming from linear communication to immersive storytelling. While VR publishing offers transformative potential through its conceptual, immersive and interactive nature, it remains constrained by high costs, technical barriers and lengthy development cycles. Generative AI technologies like ChatGPT from the USA and DeepSeek from China present solutions by automating workflows and enabling natural language interaction. This study employs New Quality Productivity theory to examine AIGC's transformative impact through three dimensions: laborer expansion, means of labor efficacy, and object of labor value enhancement. The research investigates how AIGC restructures production processes and what technical-industrial-institutional synergies are required for effective implementation.

METHODOLOGY

A qualitative case study of Zhaoxun Media was conducted, selected for its pioneering role in immersive experiences since 2020. The company's interdisciplinary team and "human-AI" collaborative model exemplify industry transformation. Data collection involved semi-structured interviews with project planners, designers, asset managers and animators, analyzed through the established theoretical framework.

RESULTS

1. **Laborer Transformation: From User to Curator** AIGC redefines laborers as "technology curators" who must: understand various AIGC models' capabilities; integrate multiple tools into workflows; and critically evaluate AI outputs. One designer noted the need for both "programming understanding and aesthetic foundation." AIGC also bridges communication gaps by enabling rapid prototyping between planners and technical teams.
2. **Means of Labor: Dual Efficacy** AIGC demonstrates efficiency in inspiration generation and basic modeling through its "randomness." However, significant constraints include poor editability with professional tools like Maya; low platform compatibility creating workflow fragmentation; and high computational costs burdening smaller firms. An asset manager reported avoiding AIGC due to precision requirements.
3. **Object of Labor: Contextual Value** AIGC's impact varies by domain: content creators prioritize originality, animators require consistency, and educational publishers demand accuracy, so they

cannot fully trust the AIGC. In addition to the domain of use, successful implementation also depends on aligning AIGC use with audience expectations, applying it more freely for general audiences while restricting use in precision-sensitive contexts.

CONCLUSION

AIGC systematically transforms VR publishing by creating "technology curators," intelligent tools, and contextually enhanced content. However, this transformation is constrained by technical limitations and ethical-industrial challenges. Future development requires evolving AIGC into collaborative platforms; establishing industry standards and governance; and cultivating technical-creative hybrid talent. Realizing AIGC's potential necessitates coordinated evolution across technology, industry and institutions.

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INTERGENERATIONAL PARTICIPATION IN COMMUNITY-BASED TOURISM (CBT) AND ITS INFLUENCE ON SOCIAL COHESION IN SABAH

Steward Gimman anak Stephen

Department of Social Science and Management, Faculty of Humanities, Management and Science,
Universiti Putra Malaysia Sarawak

Email: stewardgiman@upm.edu.my

ABSTRACT

This qualitative study examines the role of intergenerational participation in Community-Based Tourism (CBT) and its impact on social cohesion within rural communities in Sabah, Malaysia. As tourism increasingly serves as a catalyst for local economic growth and cultural preservation, involving both the older and younger generations presents a unique avenue for reinforcing community ties and sustaining heritage practices. The study investigates how collaborative tourism activities such as homestays, traditional crafts, and eco-cultural tours facilitate mutual learning, respect, and shared identity between elders and youths. Data were collected through semi-structured interviews, focus group discussions, and participant observations across selected villages actively engaged in CBT initiatives. Findings indicate that intergenerational participation not only strengthens communal bonds but also fosters inclusivity, empathy, and social trust, reducing generational gaps that often arise in rapidly modernizing societies. Youths gain cultural awareness and pride, while elders find renewed purpose and validation in sharing their knowledge. Ultimately, intergenerational CBT serves as a mechanism for promoting social cohesion, cultural continuity, and community resilience. The study concludes by emphasizing the importance of integrating intergenerational frameworks into tourism development policies to ensure that cultural heritage and social harmony remain at the core of sustainable rural transformation.

Keywords: intergenerational tourism, community-based tourism, social cohesion, cultural continuity, Sabah, indigenous communities

INTRODUCTION

Sabah, situated on the island of Borneo, is renowned for its rich ethnic diversity, cultural heritage, and striking natural landscapes. With over 30 ethnic groups including the Kadazan-Dusun, Murut, Bajau, and Rungus, the state has increasingly adopted Community-Based Tourism (CBT) as a strategy to drive rural development and cultural preservation. CBT empowers local communities by involving them in tourism planning, management, and equitable benefit-sharing, while promoting sustainability and environmental stewardship (Wearing & McDonald, 2002; Hamzah & Hampton, 2013). However, while CBT has succeeded in enhancing local ownership and economic resilience, its intergenerational dimension remains relatively overlooked. Collaboration between elders and youths where elders act as custodians of tradition and youths contribute digital skills and innovative ideas offers great potential for bridging generational divides and safeguarding intangible cultural heritage such as oral storytelling, rituals, and crafts (Kaplan, 2002; UNWTO, 2019). This study centres on rural Sabah communities, where challenges such as modernisation, youth migration, and the erosion of indigenous knowledge threaten traditional ways of life (Yaman & Mohd, 2004). It investigates how intergenerational collaboration within CBT can serve as a medium to reconnect generations, strengthen social ties, and foster a shared sense of identity and belonging. By unpacking these dynamics, the study contributes to the broader understanding of how intergenerational participation can support sustainable tourism, cultural continuity, and inclusive rural development offering key insights for tourism policymakers, community leaders, and development practitioners in Sabah and similar multicultural contexts.

LITERATURE REVIEW

The literature review reveals that Community-Based Tourism (CBT) in Malaysia has become a key strategy for sustainable development by encouraging local participation, preserving culture, and distributing economic benefits equitably (Hamzah & Hampton, 2013). In Sabah, areas like Kiulu and Kundasang showcase how CBT has empowered indigenous communities by leveraging their cultural assets and natural beauty to attract tourists seeking authentic experiences (Musa et al., 2011). Governmental and non-governmental efforts, including policies and capacity-building initiatives, have further enhanced local involvement and resilience (MOTAC, 2020). Beyond economic gains, CBT supports the preservation of intangible cultural heritage through practices such as traditional crafts and storytelling (Yusof et al., 2022), yet the role of intergenerational

engagement remains underexplored despite its relevance for sustainability. Intergenerational engagement has long been recognised for building social capital by fostering trust, empathy, and collaboration between age groups (Kaplan, 2002; Bowlby & Lloyd-Evans, 2009). In tourism contexts, collaboration between elders and youth particularly in storytelling, guiding, or planning, enhances mutual respect and reduces stereotypes, with elders contributing cultural insight and youth bringing digital fluency and contemporary viewpoints (Guerrero & Tinkler, 2010). This synergy supports inclusive tourism development and strengthens collective identity, particularly in transitioning societies (Loeffler & Christiansen, 2013). Furthermore, social cohesion, defined as the level of connectedness, trust, and shared values, is vital for the wellbeing of rural communities (Putnam, 2000; Chan et al., 2006). CBT can foster such cohesion when it involves inclusive and culturally respectful development that enhances pride and unity (Beaumont, 2011). Given challenges in Sabah such as youth outmigration and cultural loss, intergenerational collaboration in CBT offers a valuable mechanism for rebuilding community bonds and sustaining cultural continuity through shared goals and dialogue (Ritchie & Crouch, 2003).

RESEARCH OBJECTIVES

1. To explore the nature of intergenerational collaboration in selected CBT projects in Sabah.
2. To understand how such collaboration contributes to mutual respect and learning between elders and youths.
3. To examine the role of intergenerational tourism engagement in promoting cultural continuity and social cohesion.

METHODOLOGY

The study employed a qualitative case study design to examine intergenerational collaboration in Community-Based Tourism (CBT) in Sabah, enabling in-depth exploration through multiple data sources in natural settings (Yin, 2018). Three culturally diverse rural villages Kiulu, Kundasang, and Kudat were purposively selected based on active CBT engagement and cross-generational participation (Hamzah & Hampton, 2013). A total of 25 participants were chosen via purposive sampling: 10 elders (aged 50+), 10 youths (aged 18–30), and 5 CBT organisers or NGO representatives. Data were collected through semi-structured interviews, focus group discussions (FGDs), and participant observation during CBT activities like homestays, storytelling, and eco-

tours (Creswell & Poth, 2018). Thematic analysis using NVivo software identified key themes such as mutual learning, cultural pride, role negotiation, social trust, and generational gaps, with coding carried out iteratively and reflexively to ensure reliability (Braun & Clarke, 2006).

FINDINGS AND DISCUSSION

This study explored intergenerational participation in Community-Based Tourism (CBT) across three Sabah villages Kiulu, Kundasang, and Kudat through thematic analysis, identifying five core themes: mutual respect and skill exchange, shared ownership, bridging generational gaps, cultural continuity, and social cohesion. Mutual learning was evident as elders contributed traditional knowledge such as storytelling and crafts, while youths offered digital and promotional skills: “They teach us how to use Facebook for our crafts. In return, we tell them the stories behind every pattern we weave,” shared a female elder from Kiulu, while a youth from Kundasang noted, “I never knew the meaning behind the woven patterns. Now I do, and I appreciate them more.” This mutual exchange fostered empowerment and challenged generational stereotypes. Shared ownership emerged through collaborative planning, like meal preparation and tour guiding, reinforcing belonging: “We planned the food itinerary together,” said a youth from Kudat, and a CBT leader in Kiulu added, “Now we have group meetings with the youth.

Everyone feels heard.” Generational gaps were initially marked by tension, but continuous cooperation nurtured empathy and understanding: “We thought elders didn’t want change, but now we see the reasons behind traditions,” explained a youth from Kundasang, while an elder in Kiulu remarked, “At first I thought they only cared about TikTok but they really wanted to learn.” CBT also served as a medium for experiential cultural education cooking, rituals, and storytelling strengthening heritage transmission: “We learned to cook hinava... not something you get from Google,” shared a youth from Kiulu, and an elder from Kundasang stated, “Explaining to tourists why we wear this necklace makes us remember its meaning.” Lastly, CBT enhanced social cohesion through sustained, meaningful intergenerational interaction: “We used to only meet at festivals. Now we plan tours together weekly,” said a youth from Kudat, while an elder from Kundasang noted, “After retirement, I felt useless. Now, they ask for my help every week.” These outcomes affirm CBT’s potential not only for economic gains but also for fostering community resilience, inclusion, and identity.

IMPLICATIONS

This study demonstrates that intergenerational participation in Community-Based Tourism (CBT) is a valuable mechanism for social development in rural and culturally diverse regions such as Sabah. Engaging both elders and youths helps preserve intangible cultural heritage (ICH) through reciprocal knowledge exchange: elders share traditional practices and craftsmanship, while youths apply digital tools to modernise and promote them, reflecting UNESCO's (2003) emphasis on intergenerational heritage transmission. Moreover, CBT reduces generational conflict by transforming tensions into collaboration and mutual respect through shared activities like cultural performances and homestay management, which foster empathy, dialogue, and cooperation. These sustained interactions strengthen social capital, trust, and a shared sense of belonging within the community. Intergenerational collaboration also enhances resilience and adaptability, enabling communities to balance traditional wisdom with youthful innovation in the face of economic and cultural change. Ultimately, CBT evolves beyond a tourism enterprise into a socially cohesive and sustainable framework that preserves cultural heritage while empowering communities for long-term development, unity, and identity continuity.

CONCLUSION

Intergenerational participation in Community-Based Tourism (CBT) in rural Sabah significantly contributes to social cohesion, cultural continuity, and sustainable community development. By actively involving both elders and youths, CBT transcends economic objectives, becoming a platform for mutual learning, heritage preservation, and social integration. Elders gain renewed recognition as custodians of cultural wisdom, while youths bridge tradition and modernity through digital skills and entrepreneurship. This reciprocal collaboration strengthens community resilience, inclusivity, and trust—critical elements for long-term sustainability. Furthermore, the intergenerational model provides a replicable framework for broader community development, warranting intentional integration into policy, training, and funding structures. Institutionalising such collaboration ensures that CBT remains culturally grounded, socially cohesive, and economically viable. In addressing pressing issues like youth migration, cultural erosion, and environmental change, intergenerational CBT emerges as a holistic and empowering strategy that equips Sabah's communities to thrive in an increasingly dynamic

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HOW DOES DIGITAL TRANSFORMATION ENHANCE MEDIA CORPORATE VALUE? AN EMPIRICAL STUDY BASED ON PANEL DATA OF CHINESE LISTED COMPANIES

Yifan Lai ^{1,2}, Adrian Daud^{2*}, Anita Rosli² & Jingfu Lu^{2,3}

¹Business School, Zhuhai College of Science and Technology, Zhuhai, China
Email: gs67715@student.upm.edu.my

²Faculty of Humanities, Management and Science, Universiti Putra Malaysia Sarawak, Malaysia
*Email: adrian@upm.edu.my

³School of Literature and Media, Dongguan University of Technology, Dongguan, China
Email: gs69866@student.upm.edu.my

ABSTRACT

Economic downturn sweeps across the globe caused by COVID-19. Under the background, digital transformation is particularly significant for boosting China's economy. However, in Chinese media industry, digital transformation is still in its infancy, and empirical research is insufficient that discusses whether digital transformation facilitates economy of media industry. In this study, it mainly explores panel data of listed media companies in 2011 - 2020 to reveal relationship between digital transformation and media corporate value through text analysis and econometric model based on Python. The findings are as follows: Digital transformation can enhance corporate value of media companies, but such positive effects will decline in a highly uncertain environment. The findings provide empirical theoretical implications for government to build a stable policy environment of media industry.

Keywords: media digitization, media corporate value, environmental uncertainty, text analysis

INTRODUCTION

The digital economy's vital role in China's post-COVID recovery makes media sector transformation imperative, yet rigorous evidence on its corporate value impact remains scarce. Current research either focuses on manufacturing or employs qualitative approaches, creating a theory-practice gap. This study addresses how digital transformation affects Chinese media firms' value under environmental uncertainty by empirically testing this relationship, examining uncertainty's moderating role, and providing managerial and policy insights.

METHODOLOGY

Using panel data from Chinese A-share listed media companies (2011-2020), this study employs a quantitative design to analyze digital transformation's impact. The final sample includes 149 firms (914 firm-year observations) after screening CSMAR and WIND databases and excluding problematic entities.

Corporate value is measured by Tobin's Q, reflecting long-term growth expectations. The key innovation lies in measuring digital transformation through Python-based text analysis of annual reports. This involved: (1) building a three-dimensional keyword lexicon through expert consultation; (2) extracting and counting keyword frequencies using crawlers and text mining; (3) creating the final index by logarithmizing total frequencies.

Table 1: Dimensions of Digital Transformation of Media Companies and Their Characteristic Words

Dimension	Keywords
Digital business model	Digitization, intelligence, business intelligence, video-on-demand, online video, live TV, online on-demand, network media, online media, streaming media, e-commerce, catalytic communication, full-time media, holographic media, full-staff media, intelligent media, digital information, digital video, digital communications, data communications, digital audio, digital transmission, digital television, digital books, digital publishing, digital reading
Digital technology of media companies	5G, big data, cloud computing, internet of things, blockchain, artificial intelligence, digital image, data mining, data center, text mining, data visualization, augmented reality, mixed reality, virtual reality, cloud

	storage, cloud platform, cloud, information technology, intelligent technology, natural language processing, neural network, deep learning, information security, internet
Digital channels	Short video, e-commerce live broadcast, Tik Tok, Kuaishou, WeChat group, Applet, Weibo, Toutiao, We Media, New Media, Xiaohongshu, Official Account

Moderating Variable is environmental Uncertainty. Following established academic practice, it was measured using the coefficient of variation of a company's sales revenue over the past five years (standard deviation divided by the mean). Control Variables is to isolate the effects of other factors, the model controlled for firm Size, firm Age, Return on Assets (Roa), Leverage ratio (Lev), Cash flow ratio (Cash), Fixed asset ratio (Fix), and the shareholding ratio of the largest shareholder (Top1). The variable can be seen in table 2.

Table 2: Definition of Variables

Type	Variable	Symbol	Computational formula
Explained variable	Corporate value	TobinQ	(market value of circulation stock + market value of preferred stock + liabilities) / book value of total assets
Explanatory variable	Digital transformation of media companies	MediaDT	In Table 3, add 1 to frequency of keywords of digital transformation in annual report and take the logarithm
Moderating variable	Environmental uncertainty	EU	Variable coefficient of annual sales revenue of company in the past 5 years
Controlled variable	Size	Size	The natural logarithm after total assets of company in the observation year add 1
	Age	Age	The natural logarithm after age adds 1 in the observation year
	Roa	Roa	Roa in the observation year: Net Profit/Total Assets
	Lev	Lev	Lev in the observation year: total liabilities/total assets

	Cash	Cash	Net cash flow from operating activities/total assets in the observation year
	Fix	Fix	Fixed assets/total assets in the observation year
	Top 1	Top	The largest shareholder's ratio in the observation year

Analysis Models: To test the hypotheses, the following two panel fixed-effects models were constructed.

Model (1.2) - Testing H₁:

$$\text{TobinQ}_{it} = \beta_0 + \beta_1 \text{MediaDT}_{it} + \Sigma \beta_{\text{controls}} + \mu_i + \varepsilon_{it}$$

Model (1.3) - Testing H₂:

$$\text{TobinQ}_{it} = \beta_0 + \beta_1 \text{MediaDT}_{it} + \beta_2 \text{EU}_{it} + \beta_3 (\text{MediaDT}_{it} \times \text{EU}_{it}) + \Sigma \beta_{\text{controls}} + \mu_i + \varepsilon_{it}$$

Where *i* denotes the company, *t* denotes the year, μ_i represents firm individual fixed effects, and ε_{it} is the random error term. All continuous variables were winsorized at the 1st and 99th percentiles, and relevant variables were mean-centered before creating the interaction term.

RESULTS

Descriptive statistics show substantial variations in both corporate value (Tobin's Q) and digital transformation levels across firms, with no multicollinearity detected. Regression results confirm digital transformation significantly enhances corporate value ($\beta=0.146$, $p<0.05$). Furthermore, environmental uncertainty demonstrates a strong negative moderating effect (interaction term $\beta=-0.110$, $p<0.001$), weakening the positive impact of digital transformation.

Table 3: Regression Results

Variable		Model (1)	Model (2)	Model (3)	Model (4)
		TobinQ	TobinQ	TobinQ	TobinQ
Controlled variable	Size	-2.166*** (0.129)	-2.217*** (0.131)	-2.217*** (0.131)	-2.235*** (0.130)
	Age	1.017* (0.530)	0.568 (0.573)	0.558 (0.575)	0.377 (0.572)
	Roa	2.718*** (0.520)	2.779*** (0.519)	2.776*** (0.520)	2.736*** (0.515)
	Lev	0.795* (0.448)	0.869* (0.449)	0.882* (0.451)	0.835* (0.447)
	Cash	1.179 (1.022)	1.069 (1.021)	1.063 (1.022)	0.941 (1.013)
	Fix	-2.173*** (0.831)	-1.880** (0.842)	-1.890** (0.843)	-1.647** (0.838)
	Top1	-4.652*** (1.262)	-4.709*** (1.260)	-4.721*** (1.261)	-4.844*** (1.250)
Explanatory variables	MediaDT		0.146** (0.072)	0.146** (0.072)	0.211*** (0.073)
	EU			-0.016 (0.054)	-0.063 (0.054)
Moderating variable	EU			-0.016 (0.054)	-0.063 (0.054)
Interaction term	MediaDT				-
Constant term	_cons	48.664*** (2.867)	50.521*** (3.004)	50.573*** (3.010)	51.331*** (2.990)
	N	914	914	914	914
	r2	0.322	0.326	0.326	0.339

CONCLUSION

This study empirically establishes that digital transformation significantly enhances Chinese media companies' corporate value, though environmental uncertainty negatively moderates this relationship. The research contributes to media industry studies by introducing embeddedness theory to explain uncertainty's boundary effect and demonstrating innovative methodology through Python text analysis of corporate disclosures.

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BRIDGING GAPS, FOSTERING SUSTAINABILITY: AN INTERDISCIPLINARY FRAMEWORK FOR INCLUSIVE AND RESILIENT DEVELOPMENT

Jiang Xue^{1*}, Nurul Hidayu Binti Mat Jusoh², Ribka Alan³, Tunung Robin⁴

^{1,2,3,4} Department of Social Science and Management Faculty of Humanities, Management and
Science, Universiti Putra Malaysia Sarawak, Malaysia

Email: jiangxue0921@gmail.com

ABSTRACT

Sustainability transitions are increasingly urgent but Sustainability transitions are hindered by structural gaps—such as the disconnect between policy and practice, weak knowledge–action linkages, limited capacity, and poor coordination. This study addresses the need for an integrated framework to understand and bridge these barriers. The objective is to develop a conceptual model that categorizes four key gaps and explores strategies to overcome them. Based on a comprehensive literature review and comparative case studies from both high-income and emerging economies, the study highlights how institutional logics, digital infrastructure, and governance mechanisms can support more effective transitions. Findings underscore the potential of data-driven decision-making, stakeholder collaboration, and technologies like AI and IoT, while stressing the importance of inclusive, ethical governance. The research offers practical insights and a unified framework to guide policymakers and practitioners in advancing sustainable development.

Keywords: sustainability transitions, interdisciplinary framework, policy–implementation gap, inclusive development, data-driven governance.

INTRODUCTION

Global commitments to the 2030 Agenda reveal a persistent implementation deficit: well-formulated sustainability policies frequently fail on the ground because of misaligned institutions, opaque data, capability deficits and fragmented coordination (Najam, 1995; OECD, 2006). Although digital innovations promise real-time monitoring and stakeholder integration, they can deepen inequalities without ethical governance (Crawford, 2021). Existing transition models (Geels, 2002; Markard et al., 2012) rarely unify institutional, technological and capacity dimensions. This study addresses the gap by developing an integrative framework that catalogues four structural barriers and demonstrates how data-driven, inclusive governance can overcome them.

METHODOLOGY

A systematic literature review (2000-2023) was first conducted in Scopus and Web of Science to identify documented bottlenecks in sustainability transitions. Comparative case analysis was then employed: Germany (high-income, energy transition) and Cape Town (middle-income, water-security crisis) were selected using theoretical replication logic. Document analysis, policy evaluation and 22 semi-structured interviews (government, utilities, NGOs) were triangulated to validate gap manifestations. Pattern-matching against the proposed framework established construct validity, while cross-case synthesis assessed contextual contingencies.

RESULTS

The framework distinguishes four inter-dependent gaps:

Institutional – fragmented mandates hindering policy integration;

Informational – lack of timely, transparent data for decision-making;

Capability – misalignment between sustainability objectives and local skills/resources;

Coordination – stakeholder misalignment producing duplicated or conflicting actions.

Germany exhibited pronounced coordination and informational gaps: despite advanced smart-grid pilots (IoT, AI), slow federal-state alignment delayed storage roll-out. Cape Town faced acute capacity and institutional gaps: limited municipal finance and weak inter-governmental coordination intensified water-supply volatility, culminating in the 2018 “Day-Zero” threat. In both contexts, digital tools (blockchain-based energy certificates; smart-water meters with mobile

dashboards) partially closed gaps when embedded in adaptive governance structures that featured iterative learning loops and inclusive participation. Quantitative meta-matrix further revealed that longer performance-appraisal cycles flattened the policy-impact curve, corroborating the moderating role of institutionalised feedback mechanisms.

CONCLUSION

The study corroborates that bridging structural gaps is a prerequisite for effective sustainability transitions. Digital technologies act as enhancers rather than substitutes: their benefits materialise only under adaptive, multi-level governance that institutionalises continuous feedback, capacity-building and equity safeguards. The framework offers scholars an integrated lens to theorise technology-enabled transitions and provides practitioners with a diagnostic tool to design context-sensitive, inclusive and resilient development pathways.

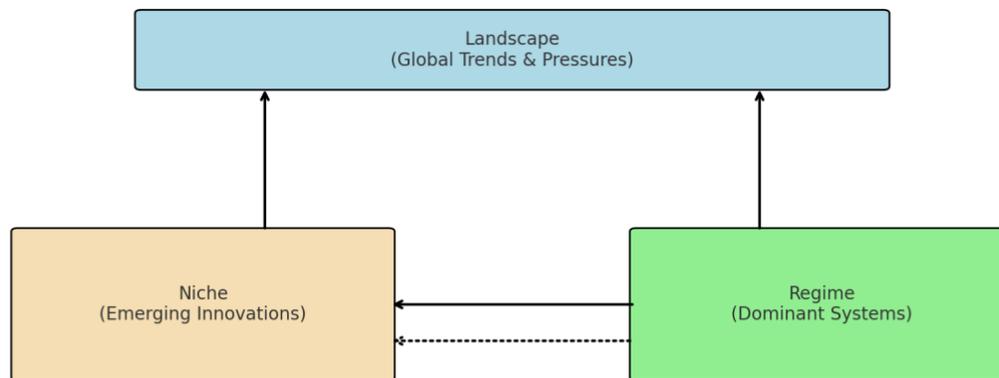


Figure 1: Conceptual Model of Sustainability Transitions (Geels, 2024)

Table 1: Typology of Key Gaps in Sustainability Transitions

Gap Type	Description	Bridging Mechanism	Key References
Institutional	Fragmented policies, unclear mandates	Cross-level governance alignment	Ostrom (2010); North (1990)
Informational	Lack of timely, transparent data	Open-data platforms, digital twins	Florini (2009); Mazzucato (2021)
Capability	Skill/resource mismatch	Capacity-building, green finance access	Senge (2008); OECD (2019)
Coordination	Stakeholder misalignment	Collaborative governance, shared roadmaps	Kanie et al. (2017); Ansell & Gash (2008)

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AN INTEGRATED FRAMEWORK FOR COMMUNICATION-DRIVEN AGRICULTURAL RESILIENCE: A CONCEPTUAL-THEORETICAL SYNTHESIS

Paul Joseph A. Nuval^{1,2}, Ribka Alan², Tunung Robin², Nurul Hidayu Bt Mat Jusoh²

¹College of Information Sciences, Benguet State University, Benguet, Philippines

Email: pj.nuval@bsu.edu.ph

²Faculty of Humanities, Management, and Science, Universiti Putra Malaysia Sarawak, Malaysia

Email: gs68026@student.upm.edu.my / ribka@upm.edu.my / nurulhidayu@upm.edu.my /

tunungrobin@upm.edu.my

ABSTRACT

Climate change posed high risk to agricultural productivity, food security, and rural livelihoods. In enhancing the adaptive capacities and resilience of farmers, the role of farmer-centered communication has been increasingly recognized, yet it remains underexplored. This review examines the relationship of climate change adaptation and communication practices moderated by the farmer's socio-demographic characteristics in enhancing agricultural resilience. Guided by theories on Diffusion of Innovations, Uses and Gratifications, and Agenda Setting, the review explains how farmers respond to climate change through information seeking and adoption of innovations. The review revealed three surfacing themes: (1) how adaptation and communication are not just tool, but complements and drivers in farmer's overall resilience; (2) how these theories actually apply in real-farmer communities communicating climate change; and (3) a new combined framework is proposed that shows farmers are not passive recipients but as active seekers and adapters influenced by media and innovation. The review integrated a practical lens to understand and support resilient farming as it opens pathways for empirical researches central to farmers' unique background and community.

Keywords: climate change adaptation strategies, communication practices, agricultural resilience, integrated conceptual-theoretical framework, communication theories

INTRODUCTION

Climate change has become a worldwide issue for most countries, especially the developing countries (The World Bank & ADB, 2021; Tarhule, 2012). Among the development sectors most affected and susceptible to the increasing effects of climate change is the agriculture sector. This is especially observable to smallholder and vegetable production system as they have been linked to weather sensitive production systems. More than food production and sustainability, economic and social stability is being endangered caused by changing temperatures, unpredictable rainfall, pest and disease outbreaks, among other climatic risks. Thus, agricultural resilience emerged as an urgent and vital policy and research agenda (Tallaksen, 2021; Boahen et al., 2023) tailored to a more inclusive, equitable, and farmer centered strategies.

Communication, on one hand, becomes one of the key and pivotal variables in determining the adaptive responses of farmers (Filho et al., 2017). Communication is a key source of behavior change and impacts how farmers perceive risks, adopt innovations, and make informed decisions. Aside from its role to channel information delivery, in the context of the review, communication becomes an ally to build farmers' resilience.

However, existing literatures tends to consider climate change, adaptation, and communication practices as distinct spheres which lead to undefined and disjointed relationships. Theoretical integration such as of the Diffusion of Innovations, Uses and Gratifications, and Agenda Setting has not been taken into one analysis. Much so with the moderating role of the socio-demographic factors has not received enough attention when considering agricultural resilience. Hence, the review aimed to synthesize conceptual and theoretical insights on the dynamics of climate change adaptation, communication practices, and socio-demographic environments leading towards agricultural resilience.

DISCUSSIONS

1. Conceptual Tensions in Framing Adaptation-Communication Linkage in Agricultural Resilience

The relationship of climate change adaptation, communication and agricultural resilience reflects some conceptual tensions brought by the disintegrated disciplinary practices. Climate change

inevitably affects agricultural productivity through its farming practices and ecosystem. Adaptation to climate change, on the other hand, is often regarded as technical processes, while communication is considered as a social process that is dynamic and context-based in information delivery. In addition, the socio-demographic factors such as age, education, and farm profile, moderate access, trust, and affirmative actions towards resilience building. The disintegration of these key variables overlooks the interpretive and relational aspects in which farmers make sense of climate information. As such, the review establishes the conceptual relationship of these variables and how these variables intersect towards building agricultural resilience (Figure 1).

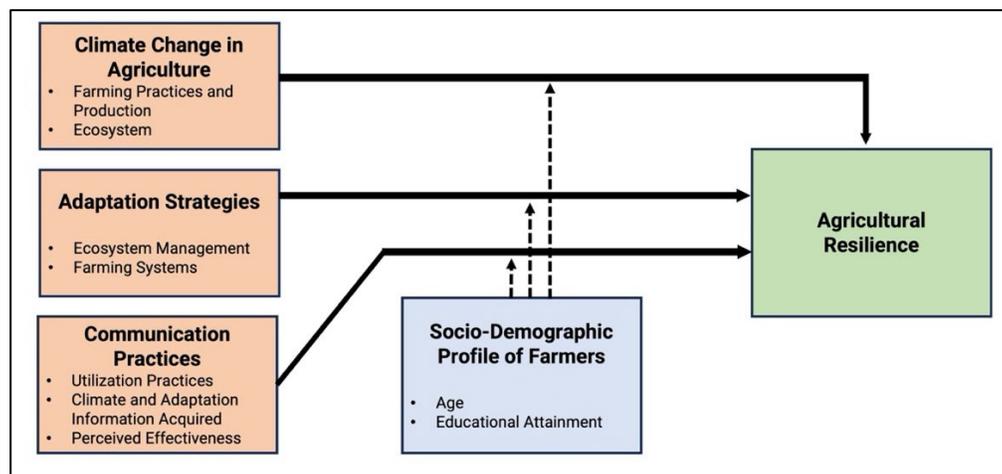


Figure 1: Conceptual Framework

2. Theoretical Applications Informing Climate Change Communication in Farming

Three communication theories frame the understanding of communication-adaptation interface towards agricultural resilience. First, the Diffusion of Innovations Theory (Rogers, 2003) helps the review see how new ideas and tools spread among farmers based on perceived benefits and social influence. The Uses and Gratifications Theory (Katz et al., 1973) explains why and how farmers actively look for certain climate information to satisfy adaptive requirements. Lastly, the Agenda-Setting Theory (McCombs, 2009) shows how media can shape the conversation by focusing attention on particular climate issues. To enlighten us understand the interplay of the three communication models in the review, an inclusion of a linear progression highlights the governing principle of the theory as it is applied in contextual objectives.

3. Integrated Conceptual-Theoretical Framework for Agricultural Resilience.

The proposed integrated conceptual-theoretical framework positions communication as the central integrative mechanism that links agricultural resilience (Figure 2). The framework highlights that resilience is co-produced. It depends not only on technologies and strategies but on how information is accessed, framed, negotiated, and acted upon across different concepts (i.e., perceptions and experiences of climate change, utilization of adaptation strategies, and communication practices). It integrates the methods through which DOI centered its attention on innovation diffusion, UGT centered its attention on the use of information, and AST structured its framing of adaptation priorities in a dynamic, iterative model. In this context, these linkages are moderated by socio-demographic aspects which determine information access, interpretation and application.

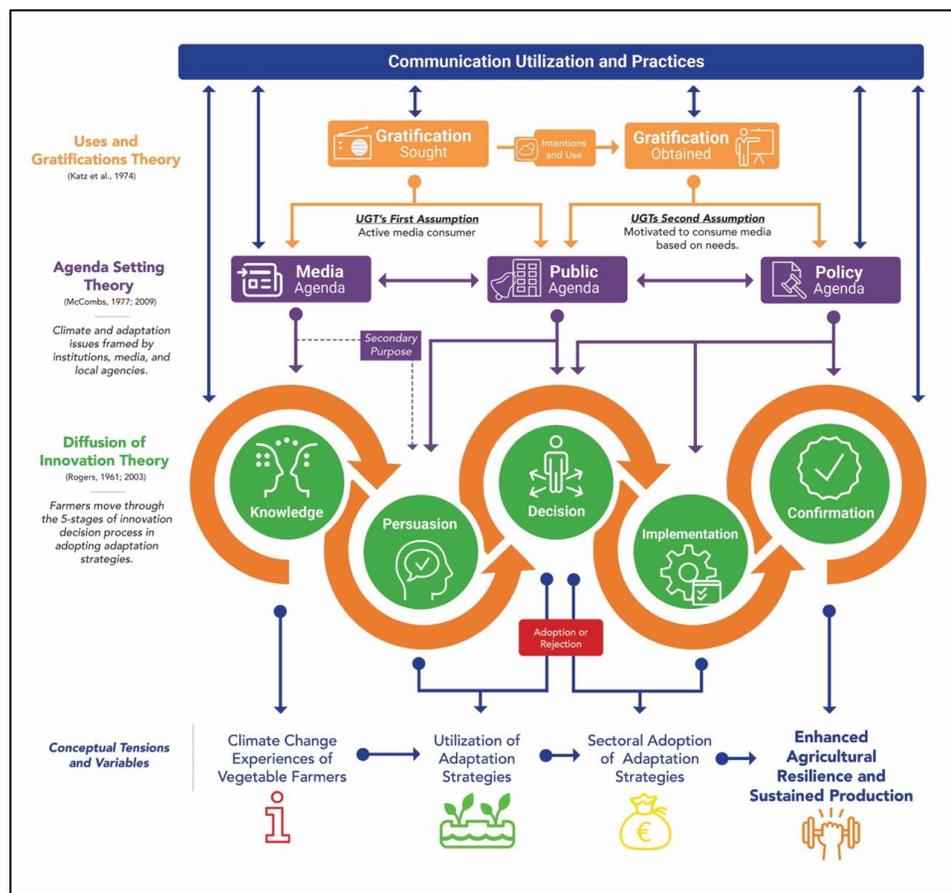


Figure 2: Integrated Framework for Communication-Driven Agricultural Resilience

CONCLUSION

Agricultural resilience is not solely depends on the use of technology to adapt to climate change but more importantly towards developing an inclusive, participatory, and context-sensitive communication systems. The integration of communication theories in studies enabled to holistically and comprehensively understand communication as complement and driver to farmer's resilience. The review also highlights that accessibility, consumption, trust, and interpretation of climate information depends on the socio-demographic factors of farmers. The integrated conceptual-theoretical framework positions communication as a process that bridge scientific knowledge and local decision-making, thereby, can be applied in empirical research. Finally, an inclusive, equitable, and farmer-centered climate communication policy can be forwarded to enhance the resilience of various farming communities.

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A PILOT INVESTIGATION OF GRATIFICATIONS BEHIND WECHAT STICKERS USAGE AMONG CHINESE GEN Z

Jiaqi Hu¹, Ribka Alan², Nurul Hidayu Mat Jusoh³, Yasmin Yacob⁴

^{1,2,3,4}Faculty of Humanities, Management and Science, Universiti Putra Malaysia Sarawak,
Malaysia

Email: gs65611@student.upm.edu.my

ABSTRACT

As a vibrant component of China’s digital communication ecosystem, stickers, also named as “Biaoqingbao”, encompassing memes, emoticons, emojis, and GIFs, have become indispensable linguistic tools for Generation Z on WeChat. It transcends mere entertainment to shape platform-specific sub-culture. While existing studies have established their communicative utility, this study explores more about gratifications behind its usage underlying the Uses and Gratifications Theory (UGT) frameworks. The framework constructs with social gratifications (social presence, social identity, social interaction, and peer pressure) and hedonic gratifications (perceived entertainment and humor) as primary drivers, while exploring whether social identity and perceived humor can be established as novel dimensions within UGT. A pilot test, conducted as a preliminary phase prior to the final study, is integral to refining the research design and assessing the feasibility of the study. This study, involving a sample of 45 participants, is designed to refine the research framework before proceeding with large-scale data collection and subsequent analysis. The finding underscores the critical role of a pilot study in ensuring measurement validity and addressing potential limitations within the online survey instrument. It also contributes to a more precise and coherent research framework, which ultimately enhances the reliability and validity of the final study outcomes.

Keywords: pilot test, social gratification, hedonic gratification, WeChat stickers, Chinese Generation Z

INTRODUCTION

Social media has transformed communication among younger generations, shifting interactions from face-to-face conversations to mobile and networked exchanges (Green & Singleton, 2007). Generation Z, born between the mid-1990s and early 2010s, has grown up in a highly digitalized environment where online communication and visual culture shape their daily interactions and sense of identity (Twenge, 2017). Within this landscape, emojis and stickers, particularly on WeChat, have become essential tools for emotional and symbolic expression (Yuan & Yu, 2022). Unlike other social media platforms, WeChat emphasizes close, familiar circles, making sticker use highly personalized and context-driven (He, 2019).

Previous research based on the UGT has mainly focused on hedonic gratifications such as entertainment and enjoyment (Tossell et al., 2012), while the social dimensions, including group identity and peer connection, remain less explored (Tajfel, 1978). Moreover, China's self-regulated digital environment fosters the growth of unique online communities and cultural expressions (Chen & Yang, 2023), offering a rich context for understanding how such visual symbols mediate social interaction.

This study, grounded in the UGT framework, serves as a pilot investigation aimed at refining the research design for a larger study on WeChat sticker use among Chinese Generation Z (Hu et al., 2023). Building on the methodological significance of pilot studies (Prescott & Soeken, 1989; Fraser et al., 2018), it focuses on evaluating instrument validity, assessing recruitment feasibility, and testing analytical procedures. Pilot studies not only identify potential design challenges but also enhance the reliability and practicality of subsequent full-scale research (Thabane et al., 2010). As a result, this research contributes to establishing a more rigorous foundation for examining media gratification and digital communication behavior in future studies.

METHODOLOGY

This study adopted a pilot research design as defined by Doody and Doody (2015) that a small-scale preliminary study conducted with participants similar to those in the intended main research. The pilot aimed to enhance the feasibility and reliability of the larger study by testing recruitment and retention procedures, assessing content and face validity, and evaluating the usability of the online

survey platform. It also helped refine the measurement of constructs and extend gratification research to the context of WeChat stickers use.

A quantitative approach was employed to explore WeChat stickers usage among Chinese Generation Z, focusing on hedonic and social gratifications. The survey, created on Wenjuanxing, comprised three sections: (A) demographics, (B) WeChat usage patterns, and (C) attitude items measured on a five-point Likert scale. The instrument contained 37 items adapted from prior studies, reviewed by six communication and psychology experts to ensure validity (Hew & Kadir, 2016).

The pilot test, lasting one month, involved 45 respondents from Dongguan, Chengdu, and Changsha, three representative Chinese cities. Surveys were distributed via WeChat links to active users, following ethical approval from Universiti Putra Malaysia (JKEUPM-2024-689). Data were analyzed using SPSS 27.0, with Cronbach's $\alpha \geq 0.70$ indicating internal consistency (Nunnally, 1978). Demographic and usage data were also reviewed to refine item clarity and ensure the reliability of constructs for the subsequent full-scale study.

RESULTS

Pilot studies evaluate feasibility and guide refinements to ensure the success of the main research, typically using descriptive statistics to assess key factors (Tickle-Degnen, 2013). In this pilot, data analysis using SPSS showed statistical reliability, with all constructs achieving Cronbach's α values above 0.70 (see Table 1), indicating acceptable internal consistency (Creswell, 2012). While this suggests reliable measurement of constructs, excessively high α values (above 0.9) may indicate redundancy (Izah et al., 2023).

Based on participant feedback regarding length and item overlap, several revisions were made. Two similar items under social presence were merged, one redundant item under perceived humor was removed, and one overlapping item from WeChat sticker use intensity was deleted. These adjustments reduced the total number of items to 33 (18 social, 8 hedonic, and 7 usage items), improving clarity and reducing fatigue (Conn et al., 2010).

Demographic analysis suggested refining the age range to 16–29, aligning with the Gen Z definition (born 1995–2009). For the final study, stratified sampling will be applied using recent provincial data (Hongheiku, 2023), targeting 384 participants across Dongguan, Changsha, and Chengdu (Krejcie & Morgan, 1970). The pilot also highlighted the need to increase responses from Chengdu. As pilot studies are not intended for hypothesis testing (Thabane et al., 2010), this phase focused solely on improving instrument design and procedural feasibility.

Table 1: Findings of CA Result for Pilot Test (n=45)

Item	Total Item	Cronbach Alpha Values
Social Gratifications	20	0.955
Social presence	7	0.916
Social identity	4	0.861
Social interaction	4	0.859
Peer Influence	5	0.840
Hedonic Gratification	9	0.922
Perceived Entertainment	4	0.797
Perceived Humor	5	0.964
WeChat stickers Use Behavior	8	0.915
WeChat stickers Use Intensity	4	0.896
Frequency of WeChat stickers Use	4	0.785

CONCLUSION

The study confirmed the construct validity and revised the online questionnaire, reducing the number of items from 37 to 33, based on feedback from participants regarding wording and clarity. In terms of descriptive data, the study also highlighted the need to focus more on the diversity of the population, specifically by gathering additional data from Gen Z individuals under 18 and those living in Chengdu, to ensure the effective application of stratified sampling. While the pilot study did not provide results for hypothesis testing, it served a broader purpose by guiding the development of the research design, refining methods, and providing empirical insights to address design challenges. These adjustments were crucial for ensuring the success of the main research.

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EXPLORING THE IMPACT OF AI CHATBOT ON ELDERLY: A NARRATIVE REVIEW OF TECHNOLOGY ACCEPTANCE, SATISFACTION AND SELF-ESTEEM

Zhu Wenjie^{1*}, Nurul Hidayu Mat Jusoh ², Ribka Alan³, Malisah Latip⁴, Juniza Md Saad⁵ & Jiang
Luodi⁶

¹²³⁴⁵Faculty of Humanities, Management & Science, Universiti Putra Malaysia Sarawak,
Malaysia.

Email: GS66643@student.upm.edu.my

⁶ Faculty of Business Administration, University of Macau, Macao.

Email: YC37050@um.edu.mo

ABSTRACT

The rapid advancement of AI technologies offers significant opportunities to enhance the quality of life for elderly. This narrative review examines the role of AI technologies, particularly their impact on satisfaction, self-esteem, and technology acceptance within this demographic. Literature searches were conducted across Web of Science and Scopus using keywords such as "Elderly," "AI Chatbot," "Satisfaction," "Self-Esteem," and "Technology Acceptance," focusing on studies published between 2021 and 2025. An initial pool of 466 articles was refined through a rigorous screening process, resulting in 16 relevant studies. These studies, employing diverse methodologies such as experimental designs and mixed-methods approaches, explore themes including the psychological benefits of AI technologies, barriers to adoption, and the moderating role of technological proficiency. The findings highlight the potential of AI to improve satisfaction, particularly when systems prioritize accessibility and personalization. However, research on its impact on self-esteem remains limited, especially regarding the decline in self-esteem among older adults who struggle to adapt to these technologies. Future research should emphasize interdisciplinary approaches, integrating insights from management, consumer psychology, and human-computer interaction to design inclusive AI systems. These advancements are crucial for meeting the needs of aging populations and advancing understanding.

Keywords: AI Chatbot, Elderly, Technology Acceptance, Satisfaction, Self-Esteem.

INTRODUCTION

Population aging has become a critical global issue, with the number of people aged 60 and above expected to reach 2.1 billion by 2050 (Organization, 2020). In China, nearly one-fifth of the population is over 60 (Liu et al., 2022), prompting growing attention to how digital technologies can support aging well. Artificial intelligence (AI) chatbots have emerged as promising tools to enhance autonomy and well-being among elderly users (Lalwani et al., 2018). Yet, despite advances in natural language processing, current chatbots still struggle with personalization and emotional understanding, posing usability barriers for older adults (Ryu et al., 2020). Prior research has shown mixed findings: while some users report increased confidence and reduced loneliness, others experience frustration and diminished self-esteem due to low technological proficiency (Yang et al., 2021). However, limited studies have systematically explored how proficiency and satisfaction jointly affect self-esteem in AI chatbot use. This study aims to address this gap by reviewing existing evidence and identifying pathways for designing inclusive AI solutions for aging populations.

METHODOLOGY

This narrative review explores the interrelationships among AI technologies, satisfaction, self-esteem, and technology acceptance among elderly users. Unlike systematic reviews that follow rigid frameworks such as PRISMA (Green et al., 2006), a narrative approach allows iterative refinement of search strategies and inclusion criteria, making it suitable for synthesizing emerging and diverse perspectives (Byrne, 2016). A multi-stage search was conducted using Web of Science and Scopus, combining keywords such as “Elderly,” “AI,” “Satisfaction,” “Self-Esteem,” and “Technology Acceptance” with Boolean operators. To capture broader psychological outcomes, additional terms like “Digital Divide” and “User Experience” were included. Literature published between 2021 and 2025 was prioritized, with earlier seminal works retained when relevant. From an initial pool of 466 studies, screening and full-text review yielded 16 core articles focusing on elderly users and AI-related psychological experiences. The analysis synthesized methodologies, key findings, and theoretical implications to clarify how AI technologies influence satisfaction, self-esteem, and technology acceptance.

RESULTS

1. Acceptance of AI Chatbots Among Elderly

The adoption of AI-powered chatbots among elderly users is largely explained by the Technology Acceptance Model (TAM), emphasizing perceived usefulness and ease of use. Studies show that anthropomorphism, virtual identity, and cognitive age positively influence elderly users' perceptions of AI usefulness and satisfaction, thereby enhancing usage intentions (Cheng et al., 2024a). Personalization features such as tailored responses foster emotional attachment and continued use (Xie et al., 2024). However, contextual factors like privacy and security concerns especially during the COVID 19 pandemic also affect acceptance (Balki et al., 2023). Perceived risks and technological anxiety remain key deterrents, often rooted in complexity and psychological apprehension (Liu et al., 2024). To overcome these barriers, education, intuitive design, and social influence have been recommended to strengthen digital competence and trust among elderly users (Wang et al., 2024; Corte et al., 2022).

2. Satisfaction with AI Chatbots Among Elderly

Elderly satisfaction with AI technologies depends on usability, accessibility, and emotional engagement. Adaptive systems, such as AI-driven virtual reality and health chatbots, improve satisfaction by adjusting interfaces and functionalities to users' physical and cognitive needs (Li & Liao, 2025; Khamaj, 2025). Digital literacy further moderates satisfaction those with higher proficiency report smoother, more satisfying experiences, while low-proficiency users encounter frustration (Tao et al., 2023). Anthropomorphism and perceived intelligence also foster satisfaction through human-like interaction (Cheng et al., 2024). Moreover, personalization and emotional design elements, such as adjustable difficulty levels and feedback mechanisms, sustain user engagement and enhance perceived value (Eun et al., 2023; Yang et al., 2025). These findings underscore the importance of human-centered AI design in fostering satisfaction and long-term adoption among elderly populations.

3. Self-Esteem and AI Chatbot Use Among Elderly

Self-esteem plays a vital role in elderly well-being and can be influenced by interactions with AI technologies. Social robots that engage in empathetic listening and positive feedback have been shown to enhance self-disclosure and self-worth among older adults (Nakamura & Umemuro,

2022). Similarly, digital engagement through social media can foster perceived social support, strengthening self-esteem, particularly among male users (Wang & Xu, 2024). However, digital exclusion continues to erode self-esteem among rural elderly, where limited access to digital healthcare reinforces dependence and feelings of inadequacy (Zhu et al., 2024). Moreover, not all forms of digital use contribute equally entertainment-driven engagement has limited impact on self-esteem and social integration (Zhao, 2023). These findings highlight that while AI and digital technologies can empower elderly users, unequal access and poor design risk exacerbating psychological vulnerability.

DISCUSSION

The literature on AI chatbot use among elderly highlights both opportunities and inconsistencies in understanding its psychological effects. While some studies report that emotionally supportive AI interactions enhance self-esteem and social inclusion (Nakamura & Umemuro, 2022), others find limited or context-dependent outcomes (Zhao, 2023). These discrepancies indicate that factors such as demographic diversity, cultural context, and individual differences play critical roles in shaping user experiences. Bridging insights from management, consumer psychology, and human-computer interaction (HCI) can advance understanding of how satisfaction and self-esteem influence technology acceptance. This interdisciplinary integration not only informs user-centered AI design but also has policy implications promoting digital inclusion, reducing the digital divide, and ensuring equitable access to AI technologies in aging societies.

CONCLUSIONS

AI chatbots possess great potential to enhance satisfaction and psychological well-being among elderly users through personalization and accessibility. However, the influence of chatbot use on self-esteem remains underexplored, especially concerning those with low technological adaptability. Future research should consider the heterogeneity of aging populations and compare experiences across cultural and socioeconomic contexts. Theoretical integration of management, consumer psychology, and HCI frameworks will enable more holistic understanding of adoption behaviors. Ethical considerations and data privacy must also be prioritized to foster user trust. Cross-disciplinary collaboration spanning psychology, sociology, public health, and engineering can further support inclusive AI design. Policymakers and practitioners are encouraged to promote

digital literacy training, develop emotionally engaging interfaces, and implement strong ethical safeguards to ensure that AI technologies truly enhance the well-being of aging populations.

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SHATTERING STIGMAS: BUILDING TRUST AND SOCIAL WELL-BEING THROUGH SOLUTIONS JOURNALISM IN *ADUAN RAKYAT*

Khairul Rizuan Azizan¹, Rohaizahtulamni Radzlan^{2*}, & Yasmin Yacob²

¹Faculty of Communication and Media Studies, Universiti Teknologi MARA, Shah Alam, Selangor, Malaysia

²Faculty of Humanities, Management and Science, Universiti Putra Malaysia Sarawak, 97008 Bintulu, Sarawak, Malaysia

*Email: rohaizahtulamni@upm.edu.my

ABSTRACT

Mass media serves as a vital instrument in shaping how societies perceive reality and interact within social structures. Nevertheless, conventional journalism has frequently been criticized for its heavy focus on conflict, sensationalism, and elite narratives, often overlooking the daily struggles of ordinary communities. In contrast, solutions journalism introduces a constructive paradigm that focuses on how individuals and institutions respond to social challenges and how such responses produce measurable outcomes. This study examines the role of *Aduan Rakyat*, a long-standing segment on TV3, as an exemplary of solutions-oriented reporting that can reframe public perception and promote social well-being. Employing a qualitative design, the research integrates content analysis of 16 selected episodes with semi-structured interviews involving six participants, comprising both viewers and complainants. The findings reveal that *Aduan Rakyat* effectively amplifies public voices, portrays institutional accountability, and cultivates trust, empowerment, and social cohesion among audiences. However, the study also identifies persistent gaps such as limited long-term evaluation and instances of superficial interventions. Overall, the study underscores that when implemented with integrity, transparency, and analytical depth, solutions journalism holds significant potential to reshape audience perceptions, reinforce civic trust, and advance collective social well-being—particularly in multicultural contexts like Malaysia.

Keywords: solutions journalism, perception, social well-being, media, *Aduan Rakyat*

INTRODUCTION

Social well-being in Malaysia continues to face complex challenges arising from inequality, digital divides, and declining public trust in institutions (Rahim & Selvaratnam, 2023). Media serves as a key platform for shaping social awareness and civic engagement, yet traditional journalism has often been criticized for amplifying negativity and elite perspectives (Ng & Lee, 2024). Solutions journalism, by contrast, offers a constructive alternative that focuses on evidence-based responses to social problems and institutional accountability (Lough & McIntyre, 2019). TV3's *Aduan Rakyat* segment exemplifies this model by featuring citizens' complaints alongside authorities' responses (Bernama, 2024). Such framing not only highlights accountability but also creates opportunities to restore media credibility and strengthen social cohesion (Powers & Curry, 2019).

METHODOLOGY

A qualitative research design was adopted to examine how *Aduan Rakyat* integrates the principles of solutions journalism and how it influences mind perception and social well-being among audiences. Two data collection methods were employed: (1) content analysis of sixteen episodes aired between January and April 2023 based on the four pillars of the Solutions Journalism Network (2019)—response, evidence, insight, and limitations; and (2) semi-structured interviews with six informants, including four regular viewers and two complainants. Thematic analysis (Braun & Clarke, 2021) was applied to identify patterns related to trust, authenticity, and empowerment. Data triangulation enhanced analytical credibility and contextual understanding.

RESULTS AND DISCUSSION

Three major themes emerged, reflecting both the strengths and limitations of *Aduan Rakyat* as a form of solutions journalism.

Theme 1: Response and Institutional Trust

Most episodes showcased immediate responses from authorities, such as road repairs or administrative follow-ups, reinforcing public trust in traditional media as an intermediary between citizens and institutions (Thier et al., 2021). However, such trust proved conditional on the perceived transparency and sustainability of the actions taken (Powers & Curry, 2019).

Theme 2: Evidence, Skepticism, and Transparency

While visual evidence and testimonials enhanced the vividness of coverage, the absence of systematic data and long-term monitoring invited skepticism (Hanitzsch, McIntyre & Lough, 2025). Some participants perceived that actions were performed ‘for the camera,’ echoing concerns by Lough & McIntyre (2019) regarding the importance of empirical rigor in maintaining credibility.

Theme 3: Empowerment and Community Cohesion

Exposure through *Aduan Rakyat* provided complainants with a sense of validation and inspired solidarity among audiences. Seeing shared struggles fostered empathy, collective efficacy, and social cohesion (van Antwerpen, 2025; Žižek, Mulej & Potočnik, 2021). Yet, this empowerment was fragile and depended on perceived authenticity (Ng & Lee, 2024).

Table 1: Themes and Summary of Key Findings

Theme	Brief Description	Example Evidence
Response and Institutional Trust	Coverage highlighted authorities’ rapid actions, enhancing confidence in media as a public intermediary.	“Once it’s on TV, action is taken.” (Participant 3)
Evidence and Skepticism	Limited follow-up data created doubts regarding the sustainability of solutions.	“They fix it for the camera, but the issue returns.” (Participant 5)
Empowerment and Cohesion	Visibility encouraged a sense of shared experience and collective solidarity.	“Seeing others face the same issue makes us feel less alone.” (Participant 2)

CONCLUSION AND IMPLICATIONS

This study demonstrates that *Aduan Rakyat* embodies the principles of solutions journalism by amplifying citizen concerns, showcasing institutional responsiveness, and reinforcing civic trust. However, limitations related to long-term evidence and transparency remain (Powers & Curry, 2019). Theoretically, the study bridges media and social psychology by linking solutions journalism with mind perceptual process influencing empathy, trust, and well-being (Gray et al., 2007). Practically, journalists are encouraged to move beyond short-term fixes and adopt sustained, evidence-based approaches that enhance media credibility and promote social resilience (Žižek et al., 2021).

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PERSUASION IN PROGRESS: A PILOT STUDY ON MALAYSIAN YOUTH RESPONSES TO SEXUAL VIOLENCE ADVOCACY IN SOCIAL MEDIA

Aishah M. K. Annuar¹, Yasmin Yacob², Hanina Halimatusaadia Hamsan³, Karmilah Abdullah⁴

^{1,2,4}Faculty of Humanities, Management and Science, Universiti Putra Malaysia Sarawak

³Faculty of Human Ecology, Universiti Putra Malaysia

ABSTRACT

This pilot study explores how Malaysian youth perceive and engage with social media advocacy on sexual violence prevention. Eight university students aged 19 to 25 participated in semi-structured interviews, comprising three female survivors, three female non-survivors, and two male non-survivors. Each participant responded to three types of advocacy posts: a story-based survivor narrative, a fact-based infographic, and a call-to-action post. Thematic analysis revealed that emotional storytelling elicited the strongest empathetic responses, while fact-based and call-to-action content often felt impersonal or ineffective. Engagement was further shaped by gender norms, stigma, and digital self-presentation. Participants expressed reluctance to share advocacy posts that clashed with their social media aesthetics or risked misinterpretation. Female survivors demonstrated the highest emotional engagement, while male participants viewed sexual violence as a gendered issue. Across all groups, video content and visually appealing designs were perceived as more persuasive. These findings suggest that effective sexual violence advocacy among Malaysian youth requires emotionally resonant, visually engaging, and peer-endorsed strategies that account for cultural taboos and digital identity norms.

Keywords: social media advocacy, persuasion, sexual violence prevention, gender norms

INTRODUCTION

Sexual violence remains a critical yet underreported issue among Malaysian youth. The World Health Organization (WHO, 2022) defines sexual violence broadly to include coercion, harassment, and digital forms such as cyberstalking and non-consensual image sharing. In Malaysia, stigma, shame, and limited institutional trust continue to suppress disclosure and reporting (Yee et al., 2015; Kamaruddin et al., 2021; Mohamad & Suhaimi, 2020). Deeply ingrained gender norms and moral expectations reinforce victim-blaming and silence, particularly among male victims (Fernandez & Mohamad Nor, 2019; Rathakrishnan et al., 2021). The absence of comprehensive sex education further contributes to confusion and disengagement among youth (Shalihin, 2023; Goh, Bong & Kanaanatu, 2020).

In recent years, social media has emerged as a vital space for advocacy to amplify survivor voices and mobilise youth (Goh, 2021; UNFPA, 2021). Yet, engagement with such content remains uneven. Within Malaysia's conservative and multi-religious context, these challenges underscore the need to understand how emotional, cultural, and psychological factors shape youth responses to digital advocacy (Breger, 2014; Tohit & Haque, 2024).

This pilot study explores how Malaysian youth perceive and engage with different types of social media advocacy on sexual violence prevention. By identifying persuasive elements and barriers to engagement, the study contributes to developing a more effective and culturally grounded model of digital advocacy in Malaysia.

METHODOLOGY

This pilot study used a qualitative design with semi-structured interviews to explore how Malaysian youth engage with social media advocacy on sexual violence prevention. Eight university students aged 19 - 25 participated: three female survivors, three female non-survivors, and two male non-survivors, all active social media users. Participation was voluntary with informed consent and confidentiality assured.

Each participant completed a 60-minute interview and viewed three types of advocacy posts: a story-based survivor narrative, a fact-based infographic, and a call-to-action post. They then discussed

their emotional responses, perceived relevance, and willingness to engage or share. Interviews were recorded, transcribed, and analysed thematically following Braun and Clarke's (2006) framework. Coding focused on perceptions of sexual violence, emotional engagement, and barriers to action, leading to themes that captured how gender, experience, and digital identity influence youth engagement with advocacy.

RESULTS

1. Understanding and Perceptions of Sexual Violence

Participants' definitions of sexual violence differed by gender and lived experience. Female survivors demonstrated the broadest and most emotionally grounded understanding, including physical, psychological, and digital forms such as online harassment and AI-generated deepfakes. Female non-survivors tended to view sexual violence as physical assault, often linking prevention to moral or religious expectations like modesty and avoiding "risky" spaces like clubs. Male non-survivors held the narrowest perspective, identifying rape as the main form of violence and describing the topic as "sensitive" or "uncomfortable."

Across groups, sexual violence was recognised as widespread yet silenced in Malaysia. Survivors attributed this to stigma and fear of judgment, while non-survivors saw it as taboo rather than structural. Male participants acknowledged its seriousness but viewed it as sensitive or a "feminist issue," reflecting how cultural silence and gender norms shape awareness and responsibility.

2. Emotional and Cognitive Engagement with Advocacy Content

Participants responded most strongly to story-based survivor narratives, which evoked empathy, validation, and emotional connection. Survivors found them empowering, while others described them as eye-opening and relatable. Fact-based infographics were seen as informative but lacking visual appeal, producing awareness without emotional impact. Call-to-action posts generated minimal engagement; most participants questioned their effectiveness and were motivated only if peers or influencers were involved. Engagement was thus influenced by social validation and perceived impact, with emotional resonance emerging as the most persuasive factor.

3. Barriers to Engagement and Action

Stigma and discomfort remained key barriers. Participants described the topic as “awkward,” fearing that sharing advocacy posts might lead others to assume they were victims. This reflects how self-presentation norms on social media constrain open participation. Aesthetic preferences also shaped engagement. Most participants shared they would avoid sharing posts that clashed with their social media “aesthetic,” while male participants found it “weird” to post about sexual violence to predominantly male audiences in their social media feeds. Even survivors preferred visually appealing or video-based content, especially when shared by trusted NGOs or peers. These findings indicate that digital advocacy competes with social image and aesthetic identity, making emotional and visual appeal critical for effective engagement.

CONCLUSION

This pilot study shows that Malaysian youths’ engagement with social media advocacy on sexual violence is shaped by intersecting factors of gender, culture, and digital identity. While participants recognise the issue’s seriousness, their willingness to engage depends on emotional resonance, visual appeal, and perceived social safety. Cultural taboos and self-presentation norms further discourage open participation, especially among male users who view the topic as gendered. These findings highlight the need for advocacy that is emotionally engaging, visually compelling, and socially inclusive. Campaigns using relatable narratives and creative media formats may better counter stigma and foster meaningful participation. The pilot provides valuable groundwork for refining a persuasion model tailored to Malaysia’s social context that integrates empathy, identity, and cultural sensitivity to promote more impactful digital action against sexual violence.

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EXPLORING TIKTOK ENGAGEMENT AND ITS INFLUENCE ON MALAYSIAN ADOLESCENTS' BEHAVIOURAL PATTERNS

Suhaila Ngadiron¹, Sharifah Sofiah Syed Zainudin²

¹Faculty of Modern Language & Communication, Universiti Putra Malaysia

Email: suhaila.ngadiron@newinti.edu.my

²Faculty of Modern Language & Communication, Universiti Putra Malaysia

Email: sharifahsofiah@upm.edu.my

ABSTRACT

TikTok's emergence as a leading social media platform has transformed how Malaysian adolescents communicate, express themselves and connect socially. This study explores how engagement and addictive tendencies on TikTok affect adolescents' behavioral patterns. Using a mixed-methods approach, the research combined quantitative surveys (N=100) and qualitative interviews (n=8) to analyze usage patterns, addiction levels and behavioral implications. Findings show that excessive TikTok engagement correlates with reduced productivity, attention span and social interaction, alongside increased influence from digital trends and influencers. Despite these challenges, TikTok also offers educational and creative benefits. Guided by the Technology Acceptance Model (TAM), results indicate that perceived usefulness and ease of use strongly influence adolescents' engagement behavior. The study highlights the need for digital literacy initiatives and balanced usage strategies to promote healthy media consumption among youth.

Keywords: adolescents, behavior, social media, TikTok, Technology Acceptance Model

INTRODUCTION

Social media platforms have become a defining feature of modern youth culture, shaping communication, identity and social interaction. Among these platforms, TikTok stands out for its rapid rise and influence, especially in Malaysia, which recorded over 19 million active users in 2024 (Meltwater, 2024). While TikTok encourages creativity and self-expression, its constant content flow and algorithmic engagement mechanisms have also raised concerns about excessive use and behavioral dependence among adolescents. Prior studies (Kaur & Ang, 2020; Husin et al., 2021) highlighted the risk of social isolation, distraction and academic decline associated with heavy social media use. This study aims to examine how TikTok usage and addiction affect adolescent behavior in Malaysia using the Technology Acceptance Model (TAM) framework, which explains how perceptions of usefulness and ease of use drive technology acceptance.

METHODOLOGY

A mixed-methods design was adopted to capture a comprehensive understanding of TikTok's behavioral impact. The quantitative phase involved a survey of 100 adolescents aged 13–24 years residing in the Klang Valley. Respondents were active TikTok users engaging with the platform for at least one hour daily. Data were gathered using a five-point Likert-scale questionnaire that measured usage intensity, addiction indicators and behavioral outcomes. Statistical analysis using SPSS provided descriptive and correlational insights. The qualitative phase included semi-structured interviews with eight participants who exhibited higher levels of TikTok engagement. Thematic analysis using NVivo identified recurring patterns in behavioral influence. Ethical approval was obtained and participants provided informed consent.

RESULTS AND DISCUSSION

The findings reveal that adolescents spend extended periods on TikTok, often resulting in reduced productivity and focus. High mean scores for items such as 'TikTok causes me to be unproductive' and 'I need to check my TikTok app frequently' indicate a tendency toward habitual checking. Qualitative insights confirmed this behavior with respondents admitted to having difficulty in self-regulating screen time.

Behavioral implications were observed across multiple domains. Socially, adolescents reported substituting face-to-face interactions with virtual communication, while physically, excessive screen exposure contributed to fatigue and inactivity (Ismail, 2023). Furthermore, influencers were found to shape users' sense of identity and confidence (Lajnef, 2023). From the TAM perspective (Davis, 1989), adolescents' perception of TikTok's usefulness for entertainment and self-expression, coupled with its ease of use, reinforces continuous engagement. This dual mechanism illustrates how enjoyment and accessibility contribute to digital dependency. These insights call for proactive digital literacy efforts.

CONCLUSION

This study concludes that TikTok engagement has a profound influence on Malaysian adolescents' behavioral patterns. While the platform promotes creativity and communication, its addictive nature fosters distraction and dependency. Using the Technology Acceptance Model, the findings confirm that perceived usefulness and ease of use are key predictors of continuous engagement. Future studies should expand the demographic scope and explore gender-based differences. Policymakers, educators and parents are encouraged to promote healthy digital practices and responsible technology use among youth.

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TAMIL WORDS THAT ENTERED ENGLISH DIRECTLY: LINGUISTIC TRANSFER AND TRANSLATION PERSPECTIVES

Pavetra Karunanithi¹, Ilangkumaran Sivanathan²

¹Faculty of Language and Communication, Universiti Pendidikan Sultan Idris, Malaysia
Email: pavetrapavi2@gmail.com

² Faculty of Language and Communication, Universiti Pendidikan Sultan Idris, Malaysia
Email: ilangkumaran@fbk.upsi.edu.my

ABSTRACT

This study examines Tamil-origin words that have entered the English language, focusing on their linguistic and cultural significance from translation and historical perspectives. Using a qualitative, cross-disciplinary approach grounded in translation theory and historical linguistics, the research explores how words such as curry, catamaran, and pandal illustrate untranslatability, phonological adaptation, and cultural retention. Data were drawn from historical records, dictionaries, and existing literature to analyse how these lexical items preserve Tamil identity within English. The findings reveal that these borrowings function as instances of “natural translation,” where meaning crosses linguistic boundaries without full domestication. Rather than losing their original cultural resonance, these words enrich English while maintaining a sense of Tamil authenticity. The study argues that such lexical transfers highlight how cross-cultural encounters, especially through colonial contact, shape linguistic evolution and translation ethics. The analysis contributes to translation studies by showing that borrowing can serve as a form of cultural preservation rather than assimilation.

Keywords: Tamil loanwords; Translation; Cultural untranslatability; Lexical borrowing; English language

INTRODUCTION

Tamil, one of the world's oldest classical languages, has had a lasting influence on global linguistic history. During British colonial expansion in South India, English speakers encountered Tamil concepts that lacked direct equivalents in English. Words like kari (curry) and kattumaram (catamaran) were directly borrowed, entering English through trade and cultural contact. This study aims to explore how Tamil lexical items became part of English vocabulary, focusing on the cultural, phonological, and translational processes behind these borrowings.

METHODOLOGY

This research adopts a qualitative approach combining historical linguistics and translation theory. Data were collected from dictionaries (OED), colonial texts, and prior linguistic studies (Asher, 2010; Venuti, 1995). The analysis identifies patterns of phonetic retention, semantic change, and cultural transference among Tamil-origin English words. Theoretical frameworks of foreignization, transference, and untranslatability guided interpretation.

RESULTS

The study found that Tamil-origin words often retain strong phonetic and cultural identity in English.

Tamil Word	English Form	Meaning	Retention
கறி (kari)	Curry	Spiced dish	High
கட்டுமரம் (kattumaram)	Catamaran	Tied log raft	Medium
பந்தல் (pandal)	Pandal	Festival tent	High

These borrowings resist domestication, preserving cultural specificity while enriching English vocabulary. Curry shows semantic broadening, while catamaran and pandal retain cultural nuance.

CONCLUSION

Tamil-origin words in English exemplify how language borrowing can act as “natural translation,” preserving culture and identity across linguistic borders. The findings highlight the importance of foreignisation as an ethical translation practice that maintains authenticity and diversity. This research underscores Tamil’s continuing impact on global English and invites future exploration of similar linguistic exchanges in digital and postcolonial contexts.

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THE INFLUENCE OF ATTITUDE, SUBJECTIVE NORM AND BEHAVIOURAL CONTROL ON MEME EXPOSURE AMONG CHILDREN IN THE CENTRAL ZONE OF SARAWAK

Faizul Nizar Bin Anuar¹, Sarina Yusuf²

¹ Department of Social Science, Faculty of Humanities, Management and Science,
Universiti Putra Malaysia Sarawak, Malaysia
Email: nizar.anuar@upm.edu.my

² Department of Communication and Media, Faculty of Language and Communication,
Sultan Idris Education University, Perak, Malaysia
Email: sarinayusuf@fbk.upsi.edu.my

ABSTRACT

The issue of cyberbullying is often debated in academic studies and through the mass media. The advent of communication technology today has made it easier for users to obtain the information they need, which has greatly contributed to the sharing of information content in various texts, whether in the form of videos or images, also known as memes. Some memes contain negative elements and are unsuitable for children. This study aims to identify the influence of attitude, subjective norms, and behavioral control on meme exposure among children. This study focuses on children aged between 10 and 12 years old only. This study was conducted in six schools in the Central Zone of Sarawak. Quantitative research methods were applied in this research. A questionnaire was distributed to 389 respondents. The analysis was carried out using the Structural Equation Modelling (SEM) method with the help of AMOS version 29 software. The results showed that attitude and subjective norms have an influence on meme exposure among children. Besides that, behavioral control does not have an influence on meme exposure among children in Central Zone in Sarawak.

Keywords: Attitude; subjective norm; behavioural control; meme exposure; Internet

INTRODUCTION

The development of technology has brought many changes to the way people communicate today. This situation is also clearly visible through the increasingly diverse process of conveying and sharing information to the point that anyone can use the media and technology anywhere without any limitations of time, place or space. According to S Wood (2013), as cited in Wan Nur Azira (2021), argued that the accessibility of social media at any time, facilitated by the availability of sophisticated gadgets equipped with multiple applications and internet connectivity, contributes to its widespread use. In another study, Grundlingh (2018) highlighted that the Internet allows individuals to communicate with a broader audience, including through the use of memes.

METHODOLOGY

Quantitative methods were used in this research by using questionnaire form. A total of 389 students aged between 10 to 12 years old were selected in this study. All respondents consisted of students from schools in the Central Zone in Sarawak, namely Sekolah Kebangsaan Haji Ismail (Tatau), Sekolah Kebangsaan Cardinal Vaughan (Song), Sekolah Kebangsaan Ulu Segan (Sebauh), Sekolah Kebangsaan Methodist (Kapit), Sekolah Kebangsaan Kuala Beligian (Beligian) and Sekolah Kebangsaan Asyakirin (Bintulu). To analyse this finding, the Structural Equation Modelling (SEM) method with the help of AMOS version 29 software was used in this research.

RESULTS

The results of the study showed that attitude and subjective norms influence meme exposure among children. Besides that, the behavioural control does not have an influence on meme exposure among children.

Table 1: Path Analysis Test on Meme Exposure

Hypotheses	Beta	S.E	C.R.	P	Result
H1 Attitude → Meme Exposure	.341	.064	5.340	0.00	Significant
H2 Subjective Norm → Meme Exposure	.316	.054	5.857	0.00	Significant
H3 Behavioural Control → Meme Exposure	.003	.083	.0350	.971	Not Significant

CONCLUSION

In conclusion, this study shows that the influence of attitudes and subjective norms does indeed influence meme exposure among children in the central zone of Sarawak. Therefore, awareness of these two aspects, namely attitudes and behaviors, needs to be emphasized so that these children are always sensitive to any information content they have obtained on social media and so on. This situation is very important to protect them from being exposed to risks and becoming victims of cyberbullying.

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TRANSFORMING THE TPACK FRAMEWORK FOR CHINA'S DIGITAL TRANSFORMATION IN EDUCATION: FROM STATIC MODEL TO DYNAMIC ECOSYSTEM

Junmin Guo¹, Enio Kang Mohd. Sufian Kang²

¹Faculty of Educational Studies, Universiti Putra Malaysia

E-mail: gs70688@student.upm.edu.my

²Faculty of Educational Studies, Universiti Putra Malaysia

E-mail: enio@upm.edu.my

ABSTRACT

The swift progression of digital technology confronts the rigid framework of the conventional TPACK model, especially within China's varied educational context. This study delineates significant limitations of TPACK, including inadequate flexibility to changing technologies, insufficient reactivity to the urban-rural digital divide, and the lack of clear ethical issues. A dynamic framework is presented to solve these gaps by integrating four elements: Data Literacy, Digital Ethics, Personalized Learning, and Blended Learning. This reconfiguration converts TPACK from a static knowledge framework into a dynamic ecosystem that improves teacher digital proficiency and facilitates China's continuous educational change.

Keywords: TPACK framework, digital transformation, dynamic adaptation, teacher digital literacy

INTRODUCTION

The education system across the globe is shifting rapidly with the influence of artificial intelligence, big data, and cloud computing. In China, initiatives such as Education Informatization 2.0 have also facilitated this shift further with teachers leading the shift. The TPACK model (Mishra & Koehler, 2006) has been greatly used to guide technology integration in education. Albeit that, its classical structure exposes clear weaknesses in the Chinese situation: it is inflexible to fast-emerging technologies, is incapable of addressing the urban–rural digital divide, and fails to consider the presence of critical ethical concerns. For example, Zhong (2019) found rural teachers' levels of TPACK at less than 68% of those in urban areas, with problems with professional development differences. Absent the ethical component, issues in data privacy risks and algorithmic discrimination are still not resolved. These gaps require a dynamic, flexible, and context-sensitive reconfiguration of the TPACK framework to suit China's educational revolution.

METHODOLOGY

This research employs a conceptual and design-oriented methodology to adapt the TPACK framework for the setting of China. The study is theoretical, based on a critical analysis of the current literature about TPACK, Chinese educational reforms, and digital transformation. A design-based research (DBR) methodology was utilized to develop and enhance a dynamic TPACK framework. Data sources comprise secondary literature, national education policy documents, and case studies of digital education practices in China. A comparative analysis of the conventional TPACK model and the growing difficulties in Chinese education was performed. Significant deficiencies were recognized. The identified inadequacies guided the development of an enhanced TPACK model that incorporates four additional components: Data Literacy, Digital Ethics, Personalized Learning, and Blended Learning.

RESULTS

We propose a new TPACK framework with four crucial components to address these challenges. This reconstruction creates a dynamic system where various pieces interact constantly, beyond the Venn diagram. This enables the framework to adapt to new tech and circumstances. Four sections function together:

Data Literacy (DL): Data literacy TK and CK meet at DL. It trains teachers to collect, analyze, evaluate, and use educational data. Teachers become data-driven decision-makers from technology-only users. DL is the new framework's "data engine".

Digital Ethics (DE): DE is the most essential moral code for technology use and combines TK and PK. Good digital citizenship encompasses data privacy, algorithm fairness, and data privacy rules. The framework needs successful, responsible, equitable, and safe technological integration to reduce classroom abuse.

Personalized Learning (PL): PL combines PK and CK. It emphasises instructors' ability to design and implement student-centered teaching strategies. It involves employing knowledge graphs and adaptive learning systems to transform how teachers educate and evaluate students, moving away from a "one size fits all" approach to education and toward individualized learning.

Blended Learning (BL): Creating and delivering online-offline learning experiences. The core connects TK, PK, and CK. Deep integration of Online-Merge-Offline (OMO) models fills resource gaps, accommodates diverse learning styles, and promotes educational equity. This makes it helpful for China, a huge and diverse nation.

The four sections interact dynamically, establishing a continuous feedback loop. Data derived from blended learning informs individualized methods while adhering to ethical norms. This systematic interconnectedness renders the framework flexible to advancing technology and contextual requirements. Implementation approaches, such as tiered teacher training, a shared resource platform, and dynamic evaluation, are delineated but not detailed herein.

CONCLUSION

This study transforms TPACK into a dynamic framework that incorporates data literacy, ethics, personalization, and blended learning. Its efficacy is rooted in technological adaptability, contextual sensitivity, and ethical consciousness. Future study ought to investigate its interplay with developing technologies and policy frameworks to support China's digital transformation.

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EVALUATING THE IMPACT OF THE PROJECT KAMPUNG ANGKAT MADANI, MINISTRY OF YOUTH AND SPORTS MALAYSIA: A CASE STUDY OF LONG LATEI, ULU BARAM, SARAWAK

Mohamed Maliki Mohamed Rapiee^{1*}, Jadzreil Jaafar², Yasmin Yacob³, Rohaizahtulamni Radzlan⁴, Nurul Hidayu Mat Jusoh⁵, Juniza Md Saad⁶, Adrian Daud⁷, Shairilizwan Taasim⁸, Abdul Hadi Samsi⁹

^{1,2} International Youth Centre, Ministry of Youth and Sports Malaysia

^{3,4,5,6,7,8} Universiti Putra Malaysia Sarawak, Malaysia

⁹ Universiti Malaysia Pahang Al-Sultan Abdullah, Pahang, Malaysia

*Corresponding author: maliki@iyckul.org.my

ABSTRACT

This paper evaluates the Project Kampung Angkat MADANI, a community empowerment initiative by the Ministry of Youth and Sports (MOYS) implemented in Long Latei, Ulu Baram, Sarawak. The project sought to uplift the Penan community through enhancements in well-being, livelihoods, and social cohesion while embedding MADANI values via gotong-royong (collective volunteerism). Using a quantitative design, 232 respondents ($\approx 80\%$ of the population) were surveyed to assess impacts across five constructs: social well-being, economic opportunity, infrastructure satisfaction, psychological resilience, and volunteerism. Data were analyzed with SPSS and SmartPLS to test reliability and structural relations. Results revealed moderate yet positive changes: 71% reported stronger cohesion, 68% improved livelihoods, 80% were satisfied with infrastructure upgrades, and 65% experienced higher psychological resilience. Gotong-royong emerged as the key empowerment mechanism, strengthening solidarity and operationalizing MADANI principles. The study concludes that while social and infrastructural progress is evident, sustaining economic momentum requires enhanced vocational training, digital literacy, and rural market linkages.

Keywords: MADANI, Community Empowerment, Gotong-Royong, Rural Development, Penan Community, Sarawak

INTRODUCTION

The Kampung Angkat MADANI project, spearheaded by MOYS, embodies Malaysia's inclusive rural-development vision by integrating social, economic, and cultural well-being. Long Latei, a Penan settlement, was selected due to its geographic isolation and socioeconomic vulnerabilities. The initiative aligns with the Malaysia MADANI framework emphasizing compassion, sustainability, and shared responsibility. Rooted in gotong-royong, the program promotes participatory development and reinforces communal trust long regarded as a core driver of rural resilience (Hashim, 2017; Putnam, 1993; Rahim & Aziz, 2023).

METHODOLOGY

A quantitative design using structured questionnaires captured five constructs: social well-being, economic impact, infrastructure satisfaction, psychological well-being, and perceptions of volunteerism. Responses were rated on a five-point Likert scale (1 = strongly disagree to 5 = strongly agree). The sample comprised 232 respondents aged 15 and above ($\approx 80\%$ of village residents). Enumerators included local volunteers fluent in the Penan language to ensure cultural clarity. Data were analyzed with SPSS v27 and SmartPLS 4.0 for descriptive statistics and SEM modeling; reliability coefficients ($\alpha > 0.70$) indicated strong internal consistency (Hair et al., 2019).

RESULTS AND DISCUSSION

Social Cohesion: 71% of respondents noted enhanced unity and inter-generational collaboration through gotong-royong activities, echoing the Penan ethos of collectivism (Langub, 2019). **Economic Opportunities:** 67.7% experienced modest income gains via handicrafts, tourism, and skills training; yet limited market access and infrastructure constrained growth (Ngidang, 2012). **Infrastructure:** 79.7% expressed satisfaction with solar lighting, water supply and community hall improvements, though health and education services remain limited (King, 2017). **Psychological Resilience:** 65.1% reported improved confidence and optimism through active participation (Ungar, 2011). **Gotong-Royong as Empowerment:** The practice bridged generational gaps and translated Malaysia MADANI values into daily life (Hidayah & Iskandar, 2021). Overall, the project produced tangible improvements in social and infrastructural domains while laying a foundation for economic and psychosocial growth.

CONCLUSION AND RECOMMENDATIONS

The Long Latei pilot demonstrates that community-based, values-driven initiatives can generate multidimensional benefits even in remote settings. Gotong-royong proved instrumental in operationalizing Malaysia MADANI principles and building collective resilience. However, long-term sustainability requires systemic support especially in market access, vocational capacity, and essential services. Scaling the model nationwide will require embedding community participation in local governance and enhanced multi-agency collaboration. The study underscores that culturally anchored frameworks yield stronger ownership and more equitable development outcomes.

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MEASURING THE EFFECTIVENESS OF POSITIVE YOUTH DEVELOPMENT AND SOCIAL COHESION IN YOUTH PROGRAMS: A PILOT STUDY IN SARAWAK, MALAYSIA

Yasmin Yacob^{1*}, Yuzlin Yacob², Lee Kwan Meng³, Wasitah Mohd Yusof⁴

¹Faculty of Humanities, Management & Science, Universiti Putra Malaysia Sarawak, Malaysia

²Kolej Komuniti Gerik, Perak, Malaysia

³DDW Consultancy Sdn. Bhd., Selangor, Malaysia

*Email: yasmin_y@upm.edu.my

ABSTRACT

Youth development programs play a pivotal role in nurturing personal growth and fostering social cohesion, particularly in multicultural contexts such as Sarawak. This pilot study explores the relationship between Positive Youth Development (PYD) and social cohesion among participants in state-level youth programs. Using a quantitative design, data were collected from 50 respondents aged 18–30 across multiple divisions in Sarawak. Adapted instruments based on the PYD Student Questionnaire and Youth Sport Environment Questionnaire were employed to measure five PYD dimensions (competence, confidence, connection, character, caring) and four social cohesion constructs (belonging, participation, inclusion, recognition). Descriptive and correlation analyses indicated significant positive associations particularly between confidence and recognition ($r \approx .77$, $p < .001$) while reliability analysis showed acceptable consistency ($\alpha = 0.71-0.86$). Findings affirm that youth programs contribute to both individual and collective development, reinforcing the Malaysia MADANI vision and Sustainable Development Goals (SDGs).

Keywords: positive youth development, social cohesion, youth programs, Malaysia MADANI, Sarawak

INTRODUCTION

In Malaysia's multicultural landscape, youth development programs serve as a crucial mechanism to build unity, empathy, and leadership among young people. Sarawak's diversity offers a unique context to examine how Positive Youth Development (PYD) interacts with social cohesion. The PYD framework emphasizes the Five Cs—competence, confidence, connection, character, and caring—focusing on youth as assets to be developed rather than problems to be solved (Lerner et al., 2005). Social cohesion, on the other hand, involves belonging, inclusion, participation, and recognition that bind communities together (Chan et al., 2006; Fonseca et al., 2019). Recent studies reaffirm this linkage: fostering PYD enhances collective trust and intercultural understanding (Ren, 2024), while cohesive youth environments improve resilience and belonging (Birrell et al., 2025). Within Malaysia, evidence indicates that educational and community initiatives can strengthen civic engagement and reduce ethnic boundaries among youth (Mohd Tajuddin et al., 2024; Sahharon, 2024). However, empirical integration of PYD and social cohesion indicators remains scarce in Sarawak. This study addresses this gap by piloting an instrument to assess both constructs concurrently.

METHODOLOGY

This pilot study adopted a quantitative design involving 50 youth participants aged 18–30 from multiple divisions (Kuching, Miri, Bintulu, and others). A purposive sampling method ensured multicultural representation. Two standardized instruments were adapted: PYD Student Questionnaire (Lerner et al., 2005) assessing the 5 Cs, and Youth Sport Environment Questionnaire (Eys et al., 2009) assessing belonging, participation, inclusion, and recognition. The survey was distributed both online and in person. Data were analyzed using SPSS 26 for descriptive statistics, Cronbach's Alpha reliability, and Pearson's correlations. Cultural adaptation and translation ensured contextual relevance to Sarawak's multiethnic setting.

RESULTS

Overall, youth participants reported high levels of PYD and social cohesion. Caring ($M = 4.42$) and Confidence ($M = 4.21$) were the strongest PYD attributes, while Character ($M = 3.79$) showed more variation. For cohesion, Recognition ($M = 4.27$) and Belonging ($M = 4.20$) scored highest. Reliability analyses indicated good internal consistency ($\alpha = .71-.86$) except for Character ($\alpha \approx .50$).

Correlation analysis confirmed that higher PYD was significantly associated with greater social cohesion, especially Confidence–Recognition ($r \approx .77$, $p < .001$) and Caring Participation ($r \approx .70$). These findings validate the instrument’s reliability and underscore the interdependence of personal growth and social unity.

CONCLUSION

The pilot study provides initial empirical support that Sarawak’s youth programs enhance both individual developmental assets and communal cohesion. Positive attributes such as confidence and caring are closely linked to belonging and recognition, reinforcing the dual outcomes of empowerment and unity. The validated instruments are suitable for larger-scale applications across Malaysia. These insights inform evidence-based youth policy under Malaysia MADANI and contribute to achieving SDG 4 (Quality Education), SDG 10 (Reduced Inequalities), and SDG 16 (Peace, Justice, and Strong Institutions).

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INTEGRATING COMMUNITY-BASED INTERVENTIONS (CBI) FOR SUSTAINABLE ADDICTION RECOVERY: A CASE STUDY IN SUNGAI ASAP, BELAGA, SARAWAK

Yasmin Yacob^{1*}, Zufar Yadi Brendan Abdullah², Riziandy Nawawi³, Rohaizahtulamni Radzlan⁴,
Shairilizwan Taasim⁵, Ribka Alan⁶, Philip Lepun⁷, Tunung Robin⁸, Mohd Syahrulnizam
Jamalludin⁹, Nur Aida Roslan¹⁰

^{1,4,5,6,7,8}Universiti Putra Malaysia Sarawak, Bintulu, Malaysia

^{2,3,9,10} Social Development Council, Ministry of Women, Early Childhood and Community Well-Being, Sarawak, Malaysia

Email: yasmin_y@upm.edu.my

ABSTRACT

Addiction remains a persistent public-health and social-development challenge, particularly in rural and indigenous settings where socioeconomic vulnerabilities heighten risk. This study evaluates the effectiveness of community-based interventions (CBIs) for addiction recovery in Sungai Asap, Belaga, focusing on the One-Stop Committee for Managing Issues of Drugs and Substances (OSC-MIDS). A mixed-methods approach involving 200 respondents and 10 key informants assessed addiction drivers, community responses, and program outcomes. Findings show that unemployment, peer influence, and family dysfunction are major drivers, while stigma and limited rehabilitation access remain barriers. Nevertheless, OSC-MIDS improved community awareness, inter-agency coordination, and peer-support participation. The study recommends institutionalizing OSC-MIDS as a scalable, multi-agency model integrating enforcement, psychosocial support, vocational training, and culturally embedded community engagement to achieve sustainable recovery and reintegration.

Keywords: addiction recovery, community-based intervention, OSC-MIDS, rural rehabilitation, Sarawak

INTRODUCTION

Substance-use disorders (SUDs) continue to affect millions worldwide, with rural and indigenous populations among the most vulnerable (WHO, 2022). In Malaysia, especially in Sarawak, the challenges of remoteness, unemployment, and social stigma complicate recovery efforts (AADK, 2021). Traditional punitive or clinic-centred models have proven inadequate for such contexts. Consequently, community-based interventions (CBIs) have gained traction as holistic, inclusive, and cost-effective frameworks (Hughes & Stevens, 2010; Skretting & Rosenqvist, 2013). Sarawak's OSC-MIDS model exemplifies this paradigm shift. Established under the Social Development Council, it integrates law enforcement, healthcare, education, welfare, and community leadership to coordinate case management, outreach, and vocational initiatives. By situating recovery within community governance, OSC-MIDS embodies Malaysia MADANI's commitment to inclusivity, partnership, and social justice.

METHODOLOGY

A mixed-methods case study was conducted in January 2024 at Sungai Asap, Belaga is a resettlement area representing Sarawak's diverse longhouse communities (Kenyah, Kayan, Penan). Quantitative data were collected from 200 respondents aged 18 and above through structured surveys examining addiction drivers, socioeconomic impacts, and program perceptions. Qualitative insights were obtained via 10 focus-group and key-informant interviews with recovering individuals, OSC-MIDS officers, and community leaders. Document reviews (e.g., Panduan Pengurusan OSC MIDS, 2024) supplemented primary data. Quantitative analysis employed SPSS 26 for descriptive statistics, while qualitative data were thematically coded using NVivo to triangulate findings (Creswell & Plano Clark, 2018).

RESULTS

The results highlight the structural and social roots of addiction in Sungai Asap. Peer influence (78%), family dysfunction (64%), and unemployment (59%) were primary triggers. Substance availability, including home-brewed alcohol and methamphetamine, further exacerbated use. Socioeconomic impacts included income loss (62%), domestic violence, and community stigma. Despite these challenges, OSC-MIDS demonstrated measurable progress: awareness improved (72%), peer-mentor involvement enhanced trust and reduced stigma, and vocational training and

agency coordination fostered empowerment and employment readiness. However, persistent gaps remain notably the shortage of trained counsellors, limited rural facilities, and inconsistent funding echoing challenges in global CBI practice (WHO, 2022; Kelly et al., 2020).

CONCLUSION

The case of Sungai Asap underscores that addiction recovery is most sustainable when embedded in local culture, partnerships, and shared responsibility. OSC-MIDS has proven effective in bridging institutional silos, empowering peer networks, and contextualizing recovery within indigenous community governance. Yet, sustainability depends on institutionalizing OSC-MIDS within Malaysia's national drug-strategy framework, strengthening the rural workforce, and ensuring long-term financing. By aligning SDG 3.5, SDG 10, and SDG 16, Sarawak's experience offers a replicable model for inclusive and community-driven addiction recovery across Southeast Asia.

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HOW DOES TRADITION REACH YOUNG PEOPLE? GENERATION Z'S COGNITIVE AND PATH TO RECONSTRUCTING THE MEANING OF NORTHERN SHAANXI FOLK SONGS

Liu GuangChao¹, Lee Yok Fee²

¹School of Education, Ankang College, Ankang, China

Email: gs58484@student.upm.edu.my

²Department of Government and Civilization Studies, Faculty of Human Ecology, Universiti Putra
Malaysia

Email: leeyokfee@upm.edu.my

ABSTRACT

This study examines how Generation Z, who grew up in a dual environment of globalization and digitization, perceives and reinterprets the significance of Northern Shaanxi folk songs, which are an important form of China's intangible cultural heritage. Using qualitative research design and grounded theory, data were collected through 18 in-depth interviews, field observations at the Northern Shaanbei Folk Song Museum, and coding of approximately 500 online comments on Bilibili videos. NVivo 15 is used for open, axial, and selective encoding. The research results provide a detailed description of a linear intellectual pathway: evoking emotions through family memories and intergenerational bonds, aesthetic appreciation of dialects and melodies, an open attitude towards reinterpreting numbers, historical appreciation based on exhibits and performances, and value identification emphasizing resilience and optimism. This dynamic framework illustrates how authenticity and innovation are balanced in the image of youth, making theoretical contributions and practical significance for the protection and reshaping of regional folk cultural vitality in the digital age.

Keywords: generation z, northern shaanxi folk songs, intangible cultural heritage, cultural cognition, authenticity and innovation

INTRODUCTION

Across the vast expanse of China's Loess Plateau, the folk songs of Northern Shaanxi, rooted in labor, festivals, and daily life, have been sung for centuries. Their resonant melodies and simple dialect singing not only record the local people's lifestyle and production, but also carry a resilient spirit and deep collective memory nurtured in a harsh natural environment. However, in the contemporary context of digitalization and globalization, a new generation, Generation Z (born between the mid-1990s and early 2000s) is growing up in a dual environment: exposed to traditional folk songs through family and regional heritage, while simultaneously influenced by social media, online platforms, and global pop culture. This unique cultural experience inevitably shapes their perceptions in ways distinct from earlier generations. Exploring how Generation Z perceives, understands, and reinterprets Northern Shaanxi folk songs is therefore significant for the living transmission and adaptive development of this important intangible cultural heritage (ICH), and for understanding how young people construct cultural identity in complex contexts.

In its 2003 Convention for the Safeguarding of the ICH, UNESCO emphasizes that the vitality of ICH lies in its "living nature," dependent on communities' continuous practice and re-creation. In China, ICH is considered both a cultural resource and a cornerstone for national identity and cultural confidence (Li, 2017; Xiao & Sun, 2023). As a representative regional tradition, the value of Northern Shaanxi folk songs lies not only in musical artistry, but also in emotional memories, aesthetic experiences, and revolutionary historical narratives (Huang, 2023). While their cultural value is widely recognized, scholarship has focused more on macro-level or historical perspectives, with insufficient attention to how contemporary generations, especially Generation Z, actively experience and reinterpret these traditions.

Previous studies have outlined the multidimensional values of ICH emotional, aesthetic, historical, and social (Gao & Zhao, 2014; Liu et al., 2020; Tian & Chen, 2019; Longo & Faraci, 2023) which provide the theoretical foundation for this study. Nonetheless, three gaps remain. First, youth are often treated as a homogeneous group, without acknowledging the distinctive experiences shaped by Generation Z's digital-native identity (Parker, Spennemann, & Bond, 2024). Second, research has concentrated on well-known ICH items, overlooking regional traditions such as Northern Shaanxi folk songs that face greater challenges from modernization. Third, many studies focus on

static value descriptions but fail to uncover the dynamic process through which individual cognition evolves from emotional resonance to aesthetic appreciation, historical connection, and finally value identification.

To address these gaps, this study focuses on the early Generation Z cohort (college students and young professionals) and explores their cognitive processes regarding Northern Shaanxi folk songs. Using qualitative methods including in-depth interviews, field observations, and online video comment analysis, this study examines four interrelated dimensions: emotional resonance, aesthetic interpretation, historical connection, and value attribution. The research questions are: (1) How do Generation Z emotionally resonate with Northern Shaanxi folk songs? (2) How do they interpret their artistic features? (3) How do they connect folk songs with historical memory? (4) What contemporary values and meanings do they ascribe to them? By answering these questions, the study aims to deepen understanding of the interaction between Generation Z and regional ICH, while providing insights into the contemporary inheritance and innovation of Northern Shaanxi folk songs.

METHODOLOGY

This study adopted a qualitative research design with grounded theory as the analytical framework. Data were collected through in-depth interviews, field observations, and online video reviews to ensure methodological triangulation. In-depth interviews were conducted from February to May 2025 with 18 purposively selected young people from Shaanxi (P01–P18), born between 1995 and 2010, including university students and young professionals. Semi-structured interviews focused on four dimensions: emotional experience, aesthetic judgment, historical association, and value identification. Field observations were carried out at the Northern Shaanxi Folk Song Museum (OB-01 to OB-05) to capture audience reactions and cultural atmosphere. To reflect digital engagement, 10 related videos from Bilibili were analyzed, and about 500 user comments (C01, C02, etc.) were extracted.

Data analysis followed the three stages of grounded theory, open, axial, and selective coding (Strauss & Corbin, 2014) with the aid of NVivo 15 software. Open coding generated initial concepts, axial coding clustered them into categories, and selective coding integrated four core categories: emotional experience, aesthetic art, historical understanding, and value identification.

To ensure trustworthiness, the study employed methodological triangulation, member checks, and peer review. Ethical approval was obtained, informed consent was secured from all participants, and anonymity was strictly maintained.

RESULTS

Research findings indicate that early Generation Z's cultural understanding of Northern Shaanxi folk songs follows a progressive trajectory: beginning with emotional resonance, moving into aesthetic appreciation, extending to historical understanding, and culminating in value identification. These four dimensions are interrelated and reinforce one another, forming key pathways through which young people engage with regional traditions in a contemporary context.

Emotional resonance emerged as the entry point of cognition. Many respondents linked folk songs to family memories, local experiences, and intergenerational transmission, emphasizing their “intense and rich” qualities (P11). Some recalled elders humming songs in daily life, which fostered early attachment (P12). Importantly, emotional response was not limited by language comprehension: online comments noted that “even without understanding the lyrics, the emotions are deeply felt” (C08), highlighting the role of melody, vocal timbre, and performance setting. Building on this, the aesthetic dimension was expressed through appreciation of dialect, melody, and imagery. Respondents considered dialect as the core of authenticity (P05), while also welcoming creative re-interpretations in digital media, which they believed infused vitality and extended dissemination (P10). Thus, aesthetic judgments reflected a dual orientation between authenticity and innovation, offering a basis for negotiating tradition and modernity.

Historical cognition is supplemented by museum exhibitions and performing arts. Folk songs are known as records of daily activities and rituals such as weddings and celebrations (P04). The classic revivalism, especially the folk origin of 'The East is Red', shocked most young generations and reshaped their national historical imagination (P14). Immersive displays, such as the "Song of the Yellow River Boatman," further strengthen the intimate relationship of history (OB-05). Finally, cognition converges in value realization. The interviewees emphasized the values of optimism, hope, and unity, and regarded folk songs as cultural heritage of today's society (P16). At the same time,

they expressed a dual need for "protection and innovation": embracing digital and cross media formats to make them more accessible while maintaining traditional features (C02).

In short, the cognitive path of Generation Z is as follows: emotional appeal to aesthetics, maturity into understanding history, and ultimately being resolved through value recognition. This model demonstrates how authenticity and innovation balance each other, so that the folk traditions of these regions remain meaningful and culturally vibrant in the digital age.

CONCLUSION

This study indicates that the cultural cognition of Northern Shaanbei folk songs in Generation Z developed through four dimensions: emotional resonance, aesthetic appreciation, historical understanding, and value recognition. Youth is first connected to songs through intergenerational family memories and emotions and then interprets dialects and melodies into primitive art forms and recreated media expressions. Then, historical connections are consolidated through exhibitions and performances, while values such as resilience and optimism are more widely rooted in cultural identity.

In theory, this study proposes a multidimensional framework for young people's perception of ICH, emphasizing processes and intergenerational dynamics. In fact, the study suggests that inheritance work requires a balance between protection and innovation, utilizing digital media and interdisciplinary practices to attract young people. However, this study was limited by the focus of Shaanxi participants. The application of comparative regional studies and interdisciplinary tools in subsequent research will further explore how Generation Z interacts with tradition in various environments.

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FROM DIGITAL EXCLUSION TO E-PARTICIPATION: THE MEDIATING ROLE OF COMMUNITY SUPPORT AMONG OLDER ADULTS IN RURAL MALAYSIA

Zhu Nina¹, Ku Hasnita Ku Samsu², Mohd Mahadee Bin Ismail³ & Mohd Sabri Md. Nor⁴

^{1,2,3,4}Faculty of Human Ecology, Politics & Government, Universiti Putra Malaysia, Malaysia.

Email: gs66872@student.upm.edu.my ; hasnita@upm.edu.my; mahadee@upm.edu.my;
msabri@upm.edu.my

ABSTRACT

In Malaysia, fewer than one-fifth of citizens aged 65 and over use the internet daily. This extended summary uses data from the Malaysian subsample of the World Values Survey (Wave 7, 2018), comprising 238 respondents aged 65 and over, to explore how local community support transforms limited digital access into authentic online civic engagement. This study hypothesizes a sequential model in which internet access fosters online news gathering, which in turn stimulates political expression and ultimately leads to online mobilization. Crucially, we include community support (measured by local group membership and trust in neighbors) as a mediating factor in this process. A weighted structural equation model shows that the direct effect of internet use on mobilization decreases sharply (β drops from 0.29 to 0.11) when community support is included, leaving approximately 38% of the total effect mediated indirectly through community ties. Strikingly, subgroup analyses reveal that this mediation channel is particularly robust in rural areas: the indirect effect has a β of 0.25 in rural areas, compared to β of 0.08 in urban areas (with 80% of the mediation factor accounting for in rural areas). Qualitative interviews further confirmed these findings: many villagers described peer-led ICT training circles and informal networks that integrated political discussions into daily life, thereby alleviating older adults' technological anxiety and strengthening their collective efficacy. Taken together, these results suggest that grassroots community networks can compensate for weak infrastructure in rural areas and promote digital engagement among older adults.

Keywords: Digital divide, E-participation, Community support, Social capital, Older adults, Rural Malaysia.

INTRODUCTION

Global demographics are rapidly changing. By 2030, one-sixth of the world's population will be over 60 years old. At the same time, civic life and public services are shifting online. This presents a dilemma: older adults often have far lower internet connections than younger adults, creating a generational digital divide. For example, despite Malaysia's internet penetration rate exceeding 80%, less than 20% of Malaysians aged 65 and over use the internet daily. As a result, many older adults rarely read online news, participate in social media discussions, or use digital tools for civic engagement. Governments are expanding e-government and online engagement platforms, which could leave these offline citizens behind. If older adults are not online, their needs and voices may not be adequately represented in the digital public sphere.

Previous political communication research suggests that internet use can foster participation through a series of steps: finding political information online prompts them to express their opinions (e.g., discuss or post), which in turn inspires collective action. However, simply maintaining internet connectivity is often not enough for older users. Barriers such as low digital literacy, anxiety about technology, and concerns about the effectiveness of online participation can hinder older adults from translating internet access into actual participation. A growing number of scholars argue that social support and community environments are crucial for vulnerable groups such as the elderly. Indeed, community initiatives (elderly centers, peer learning groups, village associations, etc.) can impart technical skills and build the confidence and trust needed to apply these skills to civic endeavors.

A supportive social environment can alleviate the fear of new technologies among older adults by providing encouragement and a sense of collective efficacy. We focus on how community support can guide older adults from basic internet access to genuine e-participation. Importantly, we consider both rural and urban contexts. Malaysia has a significant rural-urban digital divide, with formal internet infrastructure in rural areas generally being much weaker than in urban areas (fewer broadband options and telecenters). In these areas, older adults may rely more on local networks (family, neighbors, and organizations) to learn about the internet and participate in politics than their urban counterparts. Based on these ideas, we hypothesize that: (1) internet use itself has a limited impact on online mobilization among older adults; most of the impact occurs indirectly through community support. (2) the mediating effect of community support will be greater for rural older

adults than for urban older adults. We test these expectations using a multi-stage model (access→ information→expression → mobilization) combined with quantitative survey data and qualitative interviews.

METHODOLOGY

This study used data from the World Values Survey (WVS) Malaysia Phase 2018 survey, data released in 2020. Stratified random sampling was used for the national sample (N=1,216). The focus was on respondents aged 65 and above (n=238), the traditional demarcation of the elderly population in Malaysia. To ensure representativeness, survey weights (adjusted for gender, age, and urban/rural residence) were used. The urban/rural categorization was based on the sampling frame and reflects known disparities in the adoption of digital technology and socioeconomic factors.

In addition to the main survey, qualitative data were collected through open-ended interviews with 20 older respondents. These participants (selected to represent a variety of backgrounds, including urban and rural) described their experiences learning about technology, any community technology training they had participated in, and how they engaged in civic affairs. Interviews were coded thematically, focusing on peer support, anxiety/confidence, and the role of local groups. These narratives helped interpret the quantitative findings. This study also controlled demographic and socioeconomic factors known to influence internet use (gender, education, income).

Analysis: This study constructed a structural equation model (SEM) tracing the path from digital access → information → expression → mobilization, using community support as a mediating variable. Bootstrapping estimation was used to test the indirect effect. To test the rural hypothesis, a multi-group structural equation model (SEM) was conducted, dividing the sample into rural and urban subgroups and estimating the mediation path separately. This study focused on comparing the size and significance of the indirect (mediating) effect within each subgroup.

RESULTS

Descriptive Findings. Internet usage among Malaysian seniors is very low: only 19% report daily internet use, while 55% have never accessed the internet. In contrast, offline civic engagement is relatively high: 45% are members of at least one voluntary organization. Notably, internet access is significantly less in rural areas (only 10% of rural seniors use the internet daily, compared to 25% in urban areas), yet rural seniors, on average, exhibit higher levels of community engagement (membership in local groups). These patterns suggest that rural seniors rely more heavily on social networks than on personal internet access.

SEM (Sensitive Empirical Method) analysis. The SEM fits the data well. As expected, the initial model shows a positive effect of digital access on online mobilization ($\beta = 0.29$) when community support is excluded. Once community support is included as a mediating variable, the direct path from access to mobilization is significantly attenuated (β drops to 0.11). The indirect effect through community support ($\beta \approx 0.18$) is significant (bootstrapped 95% confidence interval $\approx [0.10-0.22]$), accounting for approximately 38% of the total effect of internet access on mobilization. In other words, approximately two-fifths of the effect of internet connectivity on participation is mediated through social capital. Community support itself is a strong predictor of mobilization ($\beta \approx 0.45$ in the structural equation model). This confirms that older adults with active local connections are more likely to translate internet use into concrete civic action.

Rural-Rural Differences. Crucially, the mediating effect of community support is stronger for older adults in rural areas. In the rural subgroup, the indirect effect of community support on mobilization is $\beta=0.25$; in the urban subgroup, the effect is only $\beta=0.08$. This means that in rural areas, approximately 80% of the overall effect can be explained by social support, while in urban areas, this proportion is only 30%. In other words, community networks largely compensate for weak formal infrastructure in rural areas, enabling limited internet access to foster political mobilization. In urban areas, older adults are more likely to rely on their own resources, so the mediating role of the community is less pronounced.

Qualitative Insights. Interview narratives reveal these dynamics. Many rural respondents described their experiences participating in village telecenters or community training groups led by peers or

volunteers. These programs typically combine basic computer lessons with discussions about local news and politics. As one respondent noted, learning with neighbors “made discussing community issues online feel natural.” These peer-led ICT circles and WhatsApp groups helped older adults overcome their anxieties about technology and encouraged them to share their opinions in a trusting environment. During the coding process, several recurring themes emerged: community-based learning alleviated emotional barriers, normalized political discussions in everyday life, and transformed offline trust into online action. Conversely, older adults who lacked social support often reported persistent exclusion and fear of using the internet. Overall, these qualitative studies confirmed the quantitative findings that local social capital can transform moderate digital access into active participation, especially in rural areas where formal digital resources are scarce.

CONCLUSION

This study shows that community support is a key bridge connecting older Malaysians to the internet and engaging in online politics; older adults who are integrated into local groups and have trusted neighbors are more likely to access information, express their views, and actively mobilize than those who are isolated. Importantly, the results of this study highlight a distinct rural characteristic: in rural areas with limited infrastructure, the mediating role of community support is significantly enhanced. In addition, local networks effectively act as citizen intermediaries, compensating for the lack of infrastructure. The implication for policymakers and practitioners is that e-government and digital skills programs for older adults should explicitly incorporate community building content. By strengthening social capital and technology diffusion, Malaysia and similar countries can promote a "silver e-government" approach to ensure that rural older adults are not left behind in the digital public sphere.

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**CONCEPTUALISING THE NEXUS BETWEEN ORGANISATIONAL JUSTICE,
EMOTIONAL RESILIENCE, AND INTENTION TO STAY: IMPLICATIONS FOR THE
PUBLIC HEALTHCARE WORKFORCE SUSTAINABILITY**

Ahmad Nooramin Ismail

Academic Affairs Department, Kolej Teknologi Yayasan Sabah, Malaysia.

Email: ahmad.nooramin@ktys.edu.my

ABSTRACT

The healthcare system is vital for achieving United Nations Sustainable Development Goal 3 (SDG 3), but global shortages of healthcare professionals threaten its realisation. Organisational justice and emotional resilience are key factors influencing employees' intention to stay. Fairness in distributive, procedural, interpersonal, and informational aspects shapes work behaviour, while resilience helps employees cope with demanding work environments. This conceptual paper combines Equity Theory, Social Exchange Theory, and Resilience Theory to propose a framework linking organisational justice and emotional resilience to employees' intention to stay. The study contributes to the integration of justice and resilience within a theoretical model, providing policymakers with insights to improve fairness, boost resilience, and sustain Malaysia's public healthcare workforce.

Keywords: organisational justice, emotional resilience, intention to stay, social exchange theory, Malaysia

INTRODUCTION

Human capital is a vital element of organisational competitiveness (Jing & Yan, 2022), yet retaining employees remains a persistent challenge (O’Callaghan, 2024). In healthcare, workforce shortages hinder the achievement of Sustainable Development Goal 3 (SDG 3) (Alsabhan et al., 2025; Mujajati et al., 2024). In Malaysia, employee turnover is critical, with 60% of employers citing difficulties linked to perceived unfair treatment (Harun et al., 2023) and turnover rates reaching 6% involuntary and 9.5% voluntary (Sulaiman et al., 2024; Mahfouz et al., 2022). High attrition among doctors and nurses exacerbates capacity gaps (Mohd Fadzil et al., 2022; Naidu et al., 2023), undermining institutional effectiveness (Patricia & Arninda, 2024). Organisational justice significantly shapes work behaviour (Mohamad et al., 2022), while emotional resilience reduces burnout and strengthens retention (Poku et al., 2025; Mujajati et al., 2024).

However, limited studies address these factors in Malaysia (Kung et al., 2024; Dulajis et al., 2022). Organisational justice has progressed from its philosophical roots to a multidimensional construct comprising distributive, procedural, and interactional fairness (Colquitt et al., 2001; Harun et al., 2023). Equity Theory explains how employees assess fairness by comparing input–output ratios, shaping satisfaction and retention (Almusam, 2016; Sembiring, 2019), while Social Exchange Theory highlights reciprocity, where supportive treatment fosters commitment and reduces turnover (Abu Bakar et al., 2016; Akkermans et al., 2023). Resilience Theory, originating from Garmezy and Masten, defines resilience as the capacity to adapt under adversity, enabling employees to cope with stressors and sustain performance (Masten, 2020; Sanson & Masten, 2024).

LITERATURE REVIEW

Evidence from South Korea shows distributive justice negatively predicts intention to leave, where inequitable rewards drive employees to seek alternatives (Pitaloka & Rahman, 2025; Moon et al., 2024). Similarly, Gogo et al. (2024) found distributive justice significantly related to retention in Nigerian SMEs. These results align with Equity Theory and Social Exchange Theory, which posit that perceptions of fairness in reciprocal exchanges shape commitment, and imbalances prompt exit intentions (Satti et al., 2025; Annamalai, 2022). Beyond distributive justice, procedural fairness also fosters retention, with O’Callaghan (2024) demonstrating that employee involvement in decision-making enhances their likelihood to remain. Moreover, interactional justice encompasses

interpersonal and informational justice. Alyahya et al. (2024) confirm its negative association with turnover intentions.

Emotional resilience functions as a mediator in this relationship. It enables employees to adapt to organisational change, heavy workloads, conflict, and perceived injustice (Lee, 2023). Empirical studies show resilience enhances healthcare workers' intention to stay (Liu et al., 2021) and reduces turnover among nurses (Zhang et al., 2020), while also mitigating burnout and sustaining engagement (Lin et al., 2018). Theoretically, this aligns with Affective Events Theory, where fairness perceptions elicit positive emotional responses that reinforce retention (Skosana et al., 2024; Ghasemy et al., 2021). Albala-Genol et al. (2023) further confirm that equitable treatment strengthens resilience, which in turn enhances retention. Thus, resilience emerges as a psychological mechanism linking justice with workforce stability, underscoring its role in organisational sustainability.

CONCEPTUAL FRAMEWORK

The literature review establishes the theoretical foundation of this study, highlighting organisational justice as a key construct in examining employees' intention to stay, with emotional resilience as a mediator. Guided by Organisational Justice Theory, the framework posits that distributive, procedural, interpersonal, and informational justice shape perceptions of fairness, which influence employees' retention decisions. Given the demanding nature of healthcare work, emotional resilience is integrated as a mediating construct, enabling employees to cope with stressors and maintain commitment. This framework underscores how fairness perceptions interact with psychological resources to strengthen employees' intention to stay.

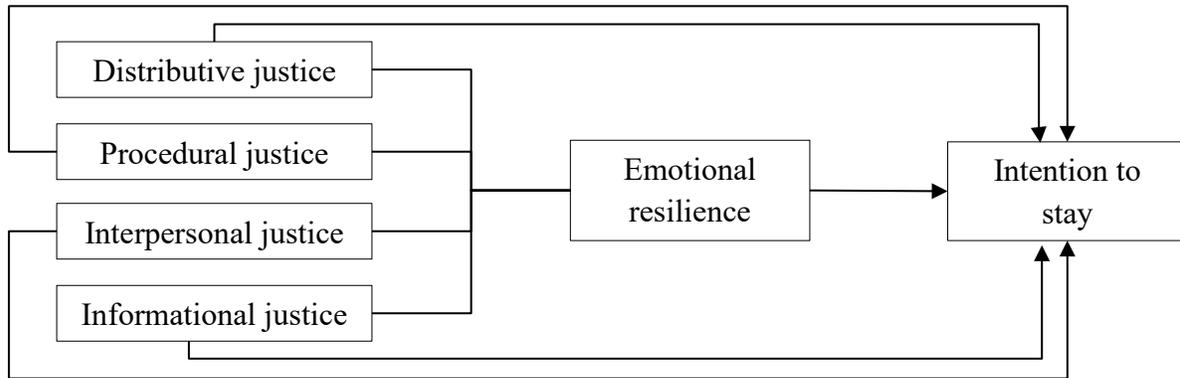


Figure 1: Conceptual Framework

CONCLUSION

This study develops a theoretical framework to examine the relationship between organisational justice and employees' intention to stay, with emotional resilience as a mediator. While organisational justice has been widely studied, limited attention has been given to its relevance in Malaysia's public healthcare sector. By integrating emotional resilience, the framework highlights how fairness perceptions and psychological resources jointly shape retention. The study contributes to employee retention research, provides a basis for future empirical validation, and recommends quantitative approaches and practitioner and academic perspectives to strengthen the understanding of the dynamics influencing employees' intention to remain.

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EMPOWERING KOSPEN AS PATIENT NAVIGATORS FOR ENHANCED COLORECTAL CANCER SCREENING IN PPR KUALA LUMPUR

Mohd Arman Kamaruddin^{1,2}, Mohammad Mujaheed Hassan¹, & Amna Md Noor¹

¹ Department of Community Science and Development, Faculty of Human Ecology, Universiti Putra Malaysia (UPM), Serdang, Selangor, Malaysia

² UKM Medical Molecular Biology Institute, Universiti Kebangsaan Malaysia (UKM), Cheras, Kuala Lumpur, Malaysia

Email: arman@hctm.ukm.edu.my, mujaheed@upm.edu.my, amna@upm.edu.my

ABSTRACT

Colorectal cancer (CRC) is Malaysia's second leading cause of cancer death, yet screening uptake remains very low in urban low-income communities. In Kuala Lumpur's People's Housing Program (PPR) flats, the Ministry of Health's Komuniti Sihat Perkasa Negara (KOSPEN) initiative deploys community volunteers to distribute screening kits and promote CRC screening. However, current community screening efforts are largely opportunistic and uncoordinated, relying heavily on individual volunteer initiative, which leads to low participation and follow-up completion. This study aimed to recommend strategies to improve CRC screening implementation in PPR communities by strengthening KOSPEN's role as a patient navigation hub. A qualitative case study was conducted involving semi-structured interviews with 16 stakeholders (PPR residents, community leaders, KOSPEN volunteers, and health implementers). Thematic analysis identified four key improvement areas: (1) forging stronger multi-agency partnerships through KOSPEN, (2) enhancing volunteers' technical knowledge and communication skills, (3) establishing regular community screening programs, and (4) mobilizing family and community support to overcome barriers. Empowering KOSPEN as a central coordinator and navigator is expected to significantly increase CRC screening uptake and follow-up in low-income urban areas. This community-driven model can help achieve national CRC screening targets and reduce health inequities.

Keywords: KOSPEN, colorectal cancer screening, patient navigation, community health, PPR Kuala Lumpur

INTRODUCTION

Colorectal cancer (CRC) is the second leading cause of cancer deaths in Malaysia, accounting for 13.8% of total cases. Although screening through the fecal occult blood test is effective and accessible, participation remains below 3% annually, with only about 60% of positive cases completing follow-up colonoscopies. The problem is more pronounced in low-income urban communities such as Kuala Lumpur's People's Housing Program (PPR), where socioeconomic hardship, low health literacy, and stigma hinder participation (Abu Bakar et al., 2023; Muda et al., 2020).

To address this, the National Strategic Plan for Colorectal Cancer (NSPCRC) 2021–2025 expanded screening through the Komuniti Sihat Perkasa Negara (KOSPEN) initiative, a Ministry of Health (MOH) and JPNIN collaboration that mobilizes trained community volunteers. These volunteers distribute immunochemical fecal occult blood test (iFOBT) kits, educate residents, and assist with referrals. Despite 64 PPRs and 29 KOSPEN localities being located within 2 km of health facilities, participation remains low, showing that access alone is insufficient (Ngan et al., 2023; Ramanathan et al., 2022).

Global evidence shows that community-based patient navigation improves screening and follow-up, yet in Malaysia this approach has only been systematically used for breast cancer. This study therefore explores how KOSPEN can be strengthened as a patient navigation mechanism to enhance CRC screening in PPR communities. It identifies implementation challenges and formulates community-informed recommendations aligned with national policy to increase participation and reduce inequities.

METHODOLOGY

This study employed a qualitative case study design to explore challenges and improvement strategies for colorectal cancer (CRC) screening in Kuala Lumpur's PPR communities, focusing on KOSPEN volunteers as patient navigators. Four PPR sites were purposively selected based on active KOSPEN programs, prior CRC screening involvement, and representation of different administrative zones. A total of 16 key informants were interviewed: eight residents (aged 40–65), four community leaders, and four CRC program implementers, including KOSPEN volunteers and

health officers. This diverse group provided multi-level insights from the community and implementation perspectives.

Data was collected between May and December 2024 through semi-structured, in-depth interviews held in community centers. Each session lasted 35–60 minutes, was recorded with consent, and transcribed verbatim. The interviews explored screening experiences, barriers, the KOSPEN role, and recommendations for strengthening implementation. Interviews continued until thematic saturation was achieved. To enhance validity, findings were triangulated with policy documents and program reports (e.g., NSPCRC, KOSPEN manuals, and MOH guidelines).

Data analysis used thematic analysis via ATLAS.ti software. Open, axial, and selective coding identified major meaning units and themes, which were cross-checked by multiple researchers for reliability. Four major themes emerged, reflecting actionable strategies to strengthen CRC screening through KOSPEN. The approach enabled in-depth understanding of how community-based navigation can enhance screening implementation in low-income urban settings.

RESULTS

The study identified four major themes to strengthen colorectal cancer (CRC) screening in PPR communities through KOSPEN: improving inter-agency collaboration, enhancing volunteer competencies, institutionalizing regular programs, and mobilizing social support. These interconnected strategies aim to expand participation, coordination, and community ownership.

1. Inter-agency Collaboration:

KOSPEN's position within PPR networks such as residents' associations and Rukun Tetangga enables it to link communities with health agencies. However, collaboration with health authorities remains informal. Establishing formal partnerships among KOSPEN, local clinics, and government agencies would strengthen coordination for outreach, referrals, and data sharing. A structured referral mechanism led by KOSPEN could improve screening coverage and follow-up completion, supporting national continuity-of-care goals.

2. Volunteer Training and Competencies:

Many volunteers lack CRC-specific knowledge and health communication skills, limiting their effectiveness as navigators. A structured capacity-building program emphasizing technical, communication, and leadership skills is essential. Regular refresher courses and mentoring can improve confidence, clarity, and accuracy in community engagement. Trained KOSPEN volunteers would be better equipped to motivate residents, address misconceptions, and sustain participation.

3. Regular Community Screening Programs:

Screening in PPR areas has often been limited to one-off campaigns, leaving many residents unreached. Participants recommended institutionalizing regular or recurring CRC screening sessions ideally integrated with monthly community health activities. Repeated invitations increase familiarity and trust, as shown by prior initiatives achieving over 90% test kit returns through consistent follow-up. Making CRC screening routine will normalize participation within communities.

4. Community and Family Support:

Family members and neighbors play a vital role in overcoming logistical and psychosocial barriers such as stigma and transportation issues. Adult children often influence their parents' willingness to screen. KOSPEN should incorporate family engagement into its outreach and build peer-support mechanisms to sustain motivation. Strengthening community and familial involvement can create an enabling environment for sustained participation and complete follow-up.

Table 1: Mapping of Recommended Improvements to NSPCRC 2021–2025 Key Indicators

Theme	Focus of Recommendation	Alignment with NSPCRC 2021–2025 Indicators
1. Inter-agency Collaboration	Establish formal referral and coordination channels between KOSPEN, health facilities, and other agencies	Increases follow-up colonoscopy completion rate (target: $\geq 80\%$ of positive screens)
2. Volunteer Competencies	Continuous technical training and health communication skill development for KOSPEN volunteers	Improves consistency and quality of community outreach, supporting

Theme	Focus of Recommendation	Alignment with NSPCRC 2021–2025 Indicators
3. Program Frequency	Institutionalize CRC screening as a regular (e.g. monthly/quarterly) community program led by KOSPEN	annual screening coverage goal (40% by 2030) Expands overall screening coverage (aiming for at least 10% of eligible population per year as a minimum)
4. Community Inclusiveness	Integrate family involvement and social support to address logistical and psychosocial barriers	Reduces loss-to-follow-up rate to below 10%, by supporting participants through completion of screening process

CONCLUSION

The success of CRC screening in low-income urban areas depends on empowering local mechanisms like KOSPEN to act as effective patient navigators. Strengthening KOSPEN through four key dimensions: inter-agency collaboration, volunteer competency, program regularity, and inclusive engagement, which creates a comprehensive bridge between health services and hard-to-reach communities. Enhancing both internal capacity (training and mentorship) and external partnerships ensures long-term sustainability. When volunteers are well-trained and formally integrated into the health system, CRC screening becomes more accessible, organized, and community driven.

These strategies align with Malaysia’s National Strategic Plan for Colorectal Cancer (NSPCRC) 2021–2025, which targets a rise in colonoscopy follow-up completion from 60% to 80% and a 40% population coverage by 2030. Achieving these benchmarks could detect around 2,000 more early CRC cases annually, reducing treatment costs and mortality. Institutionalizing KOSPEN as the official Patient Navigation Program (PNP) through certified training, digital data integration, and volunteer incentives would embed these gains within the national framework.

In essence, empowering KOSPEN as a navigation hub offers a scalable, community-led model to enhance early cancer detection and health equity. By bridging the clinic–community divide, it supports national and global goals, particularly SDG 3: Good Health and Well-Being, while serving as a replicable framework for other community-based health interventions in Malaysia and beyond.

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CONCEPTUALIZING MOBILE-ENHANCED LEARNING FOR TECHNICAL COMMUNICATION GRAPHICS (GKT): A FRAMEWORK FOR VISUALIZATION AND COGNITIVE LOAD MANAGEMENT

Sudarmiaty Kamaruddin¹, Nurul Nadwa Zulkifli¹, Ahmad Fauzi Mohd Ayub²

¹Faculty of Humanities, Management and Sciences, Universiti Putra Malaysia Sarawak, Malaysia
Emails: gs71195@student.upm.edu.my, nurulnadwa@upm.edu.my

²Faculty of Educational Studies, Universiti Putra Malaysia
Email: afmy@upn.edu.my

ABSTRACT

This paper presents a conceptual framework that combines the Sketch-IQ learning module with the Spatial Vis mobile application to enhance visual-spatial reasoning and regulate cognitive load in Technical Communication Graphics (GKT). GKT necessitates that students evaluate and produce intricate visual data; nevertheless, conventional pedagogical approaches often arise cognitive strain and offer insufficient visual support. To overcome these constraints, three interconnected theories namely Cognitive Load Theory (CLT-L), Constructivist Learning Theory (CLT-C), Experiential Learning Theory (ELT), were integrated to support the development of a learner-centred and technology-mediated environment. CLT-L makes teaching more effective by cutting down on unnecessary processing; CLT-C frames active knowledge production through digital sketching assignments; and ELT embeds reflective practice through experience-base cycles of drawing, feedback, and revision. The integration of Sketch-IQ and Spatial Vis creates a new dual-platform system that connects manual sketching with interactive 3D visualization. This makes it easier to move ideas from the real world to the digital world. this framework offers contributions to both theoretical and pedagogical domains. This illustrates the collective operation of cognitive, constructivist, and experiential mechanism in mobile learning, facilitating a deeper understanding of visual concepts among students in technical education.

Keywords: mobile learning, visualization, cognitive load, GKT, educational technology

INTRODUCTION

Technical Communication Graphics (GKT) requires both spatial accuracy and mental discipline. Many students encounter difficulties in understanding complicated drawings, especially when it comes to orthographic and isometric sketching. In these areas, students require interpreting various perspectives of an object and mentally transform two-dimensional images into three-dimensional forms, a process that significantly hard on working memory. Consequently, students often encounter confusion, misinterpret visual relationships, and find it challenging to visualize the complete structure of an object. Traditionally teaching methods that mostly use static diagrams and textbook exercises don't allow for much interaction and often cause cognitive load.

While prior research has acknowledged these concerns, the majority have concentrated on delineating the obstacles encountered by students rather than investigating efficacious strategies for their resolution. Mobile learning presents a promising opportunity for enhancement through the provision of interactive personalized instruction that facilitate visual comprehension. Nonetheless, its incorporation into secondary-level GKT education in Malaysia is still constrained, and several available resources lack of robust theoretical framework that connects mobile technology to spatial methodologies.

This study presents a conceptual framework that integrate the Sketch-IQ module and Spatial Vis application, based on the synergistic concepts of Cognitive Load Theory, Constructivist Learning Theory, and Experiential Learning Theory. The framework seeks to integrate cognitive management, active engagement, and experience reinforcement within a cohesive and theory-based learning system.

METHODOLOGY

A conceptual process centered on design was used to turn theoretical ideas into practice. This method focuses on systematically adapting educational theories into a mobile-supported framework that fit for the GKT setting. Three theories were chosen because to their significant importance to the cognitive and experiential aspects of learning technical drawing. Cognitive Load Theory (CLT-L) advocates for the optimization of mental effort through the organization learning materials that reduce irrelevant processing and augment relevant cognitive engagement. The Spatial Vis app and

its connection to Sketch-IQ use strategies including sequencing, dual-coding, and unique visual cues to control the demands on working memory. Constructivist Learning Theory (CLT-C) functions as the educational basis for active learning. Students directly participate in sketching and manipulating 3D models in Spatial Vis to evaluate and enhance their comprehension. This technique allows students to create mental models through hands-on inquiry, accompanied by rapid feedback from the system. Experiential Learning Theory (ELT) guarantees learning via repetitive cycles of action, observation, and contemplation. Every sketching exercise in Sketch-IQ follows this cycle, taking students from a real-life experience to abstracts ideas and the hands-on exploration. The integration of these theories yields a holistic instructional approach that cognitive regulation (CLT-L), constructive exploration (CLT_C), and experiential reflection (ELT). The design approach highlights both the acquisitions of technical drawing abilities by learners and the role of instructional aids in supporting cognitive processes to promote spatial reasoning, boost performance, and maintain motivation in GKT learning environments

RESULTS

The resultant framework emphasizes three primary components: theoretical integration, mobile-enhanced instructional design, and cognitive-visual outcomes. Sketch-IQ offers organize lesson plans that are in line with GKT topics, especially orthographic and isometric drawings. Spatial Vis application allows students to visualize, manipulate, and evaluate geometric shapes in real time at every stage. This interaction enables students to transition from manual sketching to digital simulation, enhancing conceptual comprehension and alleviating cognitive load.

The dual-platform configuration signifies the principal novelty of this framework. By merging the flexibility of mobile visualization with the framework of curriculum-based tasks, students can seamlessly navigate between physical and digital learning environments. This framework preserves the significance of manual drawing while enhancing the learning experience through technology-based exploration.

The theoretical foundation of the framework incorporates three educational theories that guide its instructional design: Cognitive Load Theory (CLT-L), Constructivist Learning Theory (CLT-C), and Experiential Learning Theory (ELT). These ideas were intentionally integrated to create a

cohesive paradigm that enhances the learning process in GKT. CLT-L emphasizes the regulation of cognitive load during visual tasks, CLT-C advocates for proactive investigation conceptual development, while ELT fosters reflection through experiential learning cycles. The interplay of this principles fosters the enhancement of visualization abilities, cognitive efficiency, and overall performance in Technical Communication Graphics.

Figure 1 summarizes the interplay among the theories and their relevance to the Sketch-IQ module and Spatial Vis program. The graphic illustrates how CLT-L, CLT-C and ELT synergistically improve learning by connecting theoretical frameworks with instructional design elements. Collectively, these components establish a cohesive framework that enhances visual reasoning, alleviates cognitive load, and elevates student performance in GKT.

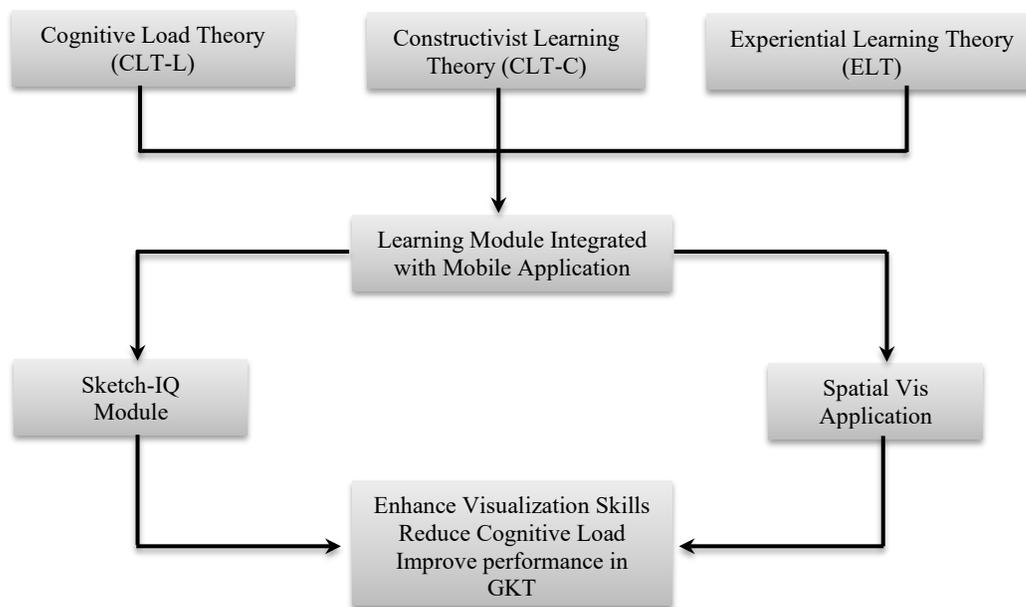


Figure 1: Conceptual framework showing relationship among Cognitive Load Theory, Constructivist Learning Theory, and Experiential Learning Theory within *Sketch-IQ* and *Spatial Vis* integrating model.

CONCLUSION

The integration of Sketch-IQ and Spatial Vis within this framework establishes a cohesive instructional model that is theoretically grounded and supported by pedagogical principles. The model integrates Cognitive Load Theory, Constructivist Learning Theory, and Experiential Learning Theory to facilitate balanced learning, promoting visualization, reflection, and efficient cognitive processing. From theoretical perspective, this study enhances the understanding of harmonizing multiple learning theories for the design technology-mediated instruction in visual-technical education. This indicates that these theories are not isolated paradigm but rather complimentary mechanisms that collectively improve students' perception and processing of visual information.

From a practical standpoint, this framework offers replicable and adaptable design that educators can utilize to create interactive, engaging, and cognitively manageable lessons. It provides a research-based approach for incorporating mobile applications into GKT curriculum, ensuring the integrity of conventional drawing instruction is preserved. Ultimately, this framework establishes mobile technology as a fundamental element of teaching and learning rather than a mere supplementary tools. This highlights the necessity of aligning instructional design with cognitive principles to enhance mental imagery, promote learner autonomy, and improve students' overall performance in Technical Communication Graphics and related STEN or TVET subjects.

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CHEMICAL OPTIMIZATION OF BIOGAS PRODUCTION: UTILIZING BIOCHAR IN SCRUBBER SYSTEMS FOR ENHANCED METHANE YIELD FROM COW DUNG ANAEROBIC DIGESTION

Azira Sanusi¹ Farah Husna Shamsudin¹ and Nozieana Khairuddin²

¹Faculty of Humanities, Management & Science, Universiti Putra Malaysia Sarawak, Malaysia.

Emails: azirasanusi@upm.edu.my, farahhusna09@gmail.com

²Institute of Ecosystem Science Borneo, Universiti Putra Malaysia Sarawak, Malaysia.

Email: nozieana@upm.edu.my

ABSTRACT

Enhancing methane yield from cow dung through anaerobic digestion represents a crucial step toward sustainable renewable energy production. This study investigates the application of biochar derived from rice straw and empty fruit bunches (EFB) within scrubber systems to chemically optimize methane production. Biochar's high porosity and surface reactivity improve gas purification and microbial activity, leading to higher methane concentration and cleaner biogas output. Experimental setups compared control (no biochar) and biochar-modified systems under identical anaerobic conditions. Gas chromatography (GC) analysis showed that methane yield increased significantly with biochar addition, particularly with rice straw biochar due to its superior structural morphology. The findings highlight the potential of biochar-integrated scrubbers as a cost-effective and sustainable solution to improve biogas quality and energy recovery.

Keywords: biogas production, biochar, methane yield, anaerobic digestion, scrubber systems

INTRODUCTION

Biogas derived from anaerobic digestion (AD) of cow dung is an environmentally friendly energy alternative that reduces reliance on fossil fuels. However, optimizing methane yield remains a challenge due to imbalances in the carbon-to-nitrogen (C/N) ratio and the presence of inhibitory compounds. Biochar, a carbonaceous material produced by pyrolysis of agricultural residues, offers high surface area and adsorptive capacity that enhances microbial efficiency and improves gas composition. This study focuses on incorporating biochar into scrubber systems to increase methane yield and gas purity.

METHODOLOGY

Cow dung was collected from Universiti Putra Malaysia Bintulu Campus livestock facility and mixed with water at a 1:1 ratio. Biochar was prepared via pyrolysis of rice straw and EFB at controlled temperatures (400–700°C). Anaerobic digesters were operated under mesophilic conditions for 30 days, with biogas collected and analyzed using Gas Chromatography (GC). Methane concentration was measured before and after gas purification using biochar-based scrubber systems.

RESULTS

Figure 1 illustrates the comparative methane yield for control, EFB biochar, and rice straw biochar conditions. Both biochar types significantly improved methane production compared to the control, with rice straw biochar achieving the highest increase. This enhancement is attributed to its higher porosity and functional surface groups that improve microbial colonization and CO₂ adsorption. GC results indicated methane concentration increased by approximately 20–30% compared to untreated systems.

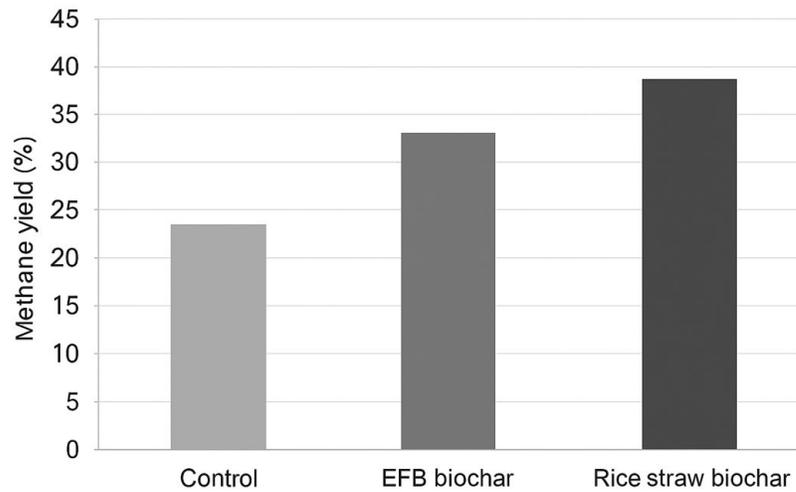


Figure 1: Effect of Biochar Composition on Methane Yield

Figures 2 and 3 show the Scanning Electron Microscopy (SEM) images of rice straw and empty fruit bunch (EFB) biochar at 5000× magnification. The images reveal detailed surface shapes and microstructures. Clear cellulose microfibrils, microcracks, and hollow areas within the cell walls can be seen, especially in pretreated or aged samples. These features suggest partial decomposition of lignin and hemicellulose, which improves the material’s enzymatic breakdown. The SEM images also highlight surface irregularities such as fractures, pores, and voids. The presence of these pores is important because it increases the biochar’s adsorption capacity and suitability for applications such as gas purification and soil enhancement. The microfractures likely form due to volatile release and thermal stress during pyrolysis, creating mesopores and macropores that increase surface area and reactivity.

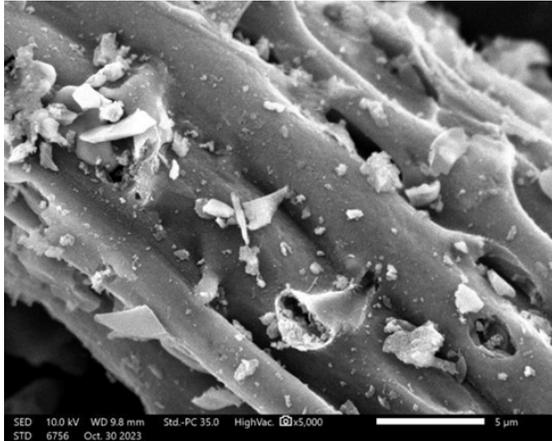


Figure 2: Rice Straw (SEM)

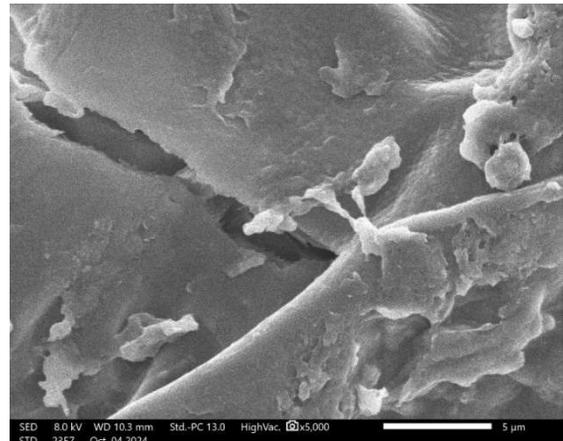


Figure 3: EFB (SEM)

CONCLUSION

The incorporation of biochar into scrubber systems during anaerobic digestion of cow dung significantly enhances methane yield and gas purity. Rice straw biochar demonstrated superior performance due to its microstructural characteristics, offering a sustainable approach to optimize biogas systems. This study confirms biochar's potential to support cleaner, cost-effective renewable energy production and contribute to waste valorization in agricultural contexts.

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REUSABLE CROP WASTE: PRODUCTION OF BIODIESEL FROM RICE HUSKCHAR AS HETEROGENEOUS CATALYST

Nur Afiqah Ali², Muhammad Adib Annuar², Nur Waheda Khalis², Nozieana Khairuddin^{1,2} and
Azira Sanusi¹

¹ Institut Ekosains Borneo, Universiti Putra Malaysia Sarawak, 97008 Bintulu, Sarawak, Malaysia.

Email: nozieana@upm.edu.my

² Department of Science Technology, Faculty of Humanities, Management and Science, Universiti
Putra Malaysia Sarawak, 97008 Bintulu, Sarawak, Malaysia.

Email: nozieana@upm.edu.my

ABSTRACT

The rising demand for sustainable and eco-friendly energy alternatives has intensified the exploration of biofuels. Biodiesel, derived from various organic sources, offers a cleaner alternative to fossil fuels and aligns with global energy sustainability goals. In Malaysia, agricultural waste, particularly rice straw and rice husk, presents a unique opportunity. This research investigates the potential of rice straw and rice husk char, impregnated with titanium oxide, as heterogeneous catalysts in biodiesel production from cooking oil waste. By transforming these abundant agricultural wastes into effective catalysts, the study aims to provide an eco-friendly, cost-effective method for biodiesel production and optimizing the use of agricultural waste. The findings could contribute to both waste reduction and the advancement of renewable energy solutions, supporting Malaysia's agricultural and environmental sustainability goals.

Keywords: biodiesel, biofuel, heterogeneous catalyst, rice husk char, titanium dioxide

INTRODUCTION

Biodiesel is a renewable and biodegradable substitute for fossil diesel, commonly produced through the transesterification of oils or fats with short-chain alcohols. Despite its environmental benefits, large-scale biodiesel production remains costly due to expensive feedstocks and catalyst limitations. Heterogeneous catalysts derived from agricultural waste offer an efficient and sustainable alternative because of their low cost, reusability, and minimal environmental impact (Maroa & Inambao, 2021; Chandra Kishore et al., 2022).

Rice husk, one of Malaysia's major agricultural by-products, generates significant waste after rice processing. Through carbonization, it can be converted into rice husk char, a carbon-rich material with potential catalytic properties. The utilization of rice husk char as a catalyst also supports effective waste management while reducing production costs in biodiesel synthesis (Khan et al., 2024).

This study focuses on producing and characterizing titanium oxide-impregnated rice husk char and evaluating its catalytic performance in the transesterification of waste cooking oil to biodiesel. The approach aims to develop a reusable, low-cost, and environmentally friendly catalyst that promotes waste valorization and supports sustainable biodiesel production (Sulaiman et al., 2024; Nahuelcura et al., 2024).

METHODOLOGY

Waste cooking oil (WCO) collected from a restaurant in Bintulu, Sarawak, served as feedstock. Methanol and titanium dioxide (TiO₂) were obtained from HmbG Chemicals, while sulfuric acid and paraffin oil were supplied by Merck KGaA. Rice husk was carbonized in a self-sustained brick reactor at 300–500 °C to produce rice husk char (RHC). The RHC was ground and sulfonated using concentrated H₂SO₄ (95–97%) at 150 °C for 12 h, washed until free of sulfate ions, and dried at 80 °C to yield RHSt. Titanium oxide was impregnated onto RHSt in 20:80 and 40:60 (w/w) ratios under constant stirring for six hours, followed by calcination at 800 °C for four hours to form TiO₂–RHC catalysts. The free fatty acid (FFA) value of the WCO was analyzed by titration to determine the suitable transesterification route. Biodiesel synthesis was carried out using methanol, WCO, and the TiO₂–RHC catalyst under controlled temperature and agitation (600 rpm). After phase separation,

the biodiesel was washed with hot distilled water, dried, and the yield was determined gravimetrically. The catalyst was characterized using scanning electron microscopy (SEM), Fourier transform infrared spectroscopy (FTIR), and X-ray diffraction (XRD) to assess its morphology, functional groups, and crystalline structure.

RESULTS

The FAME yield analysis revealed that reaction time and temperature significantly influenced biodiesel production as shown in Figure 1. The maximum FAME yield was observed at 65 °C and 90 min. Beyond this point, prolonged reaction time caused a slight decline in yield due to equilibrium and minor FAME degradation. At 75 °C, the yield remained stable across all reaction times, indicating rapid equilibrium without significant degradation, while 85 °C showed only a small increase at 120 min, suggesting diminishing returns at higher temperatures. These results confirm that moderate conditions (65 °C, 90 min) are most efficient for achieving high conversion and product stability.

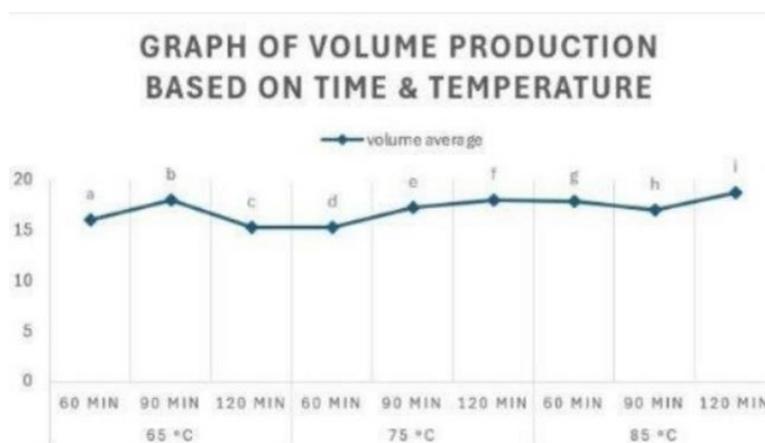


Figure 1: Graph of Volume Production Based on Time and Temperature

SEM micrographs indicated that the untreated rice husk char possessed a rough, porous surface that enhanced adsorption and active site exposure, consistent with other biochar-based catalysts (Hossain et al., 2020) as shown in Figure 2. After sulfonation and TiO₂ impregnation, the structure became more defined with honeycomb-like pores and dispersed TiO₂ particles, which increased surface area, acidity, and catalytic stability.

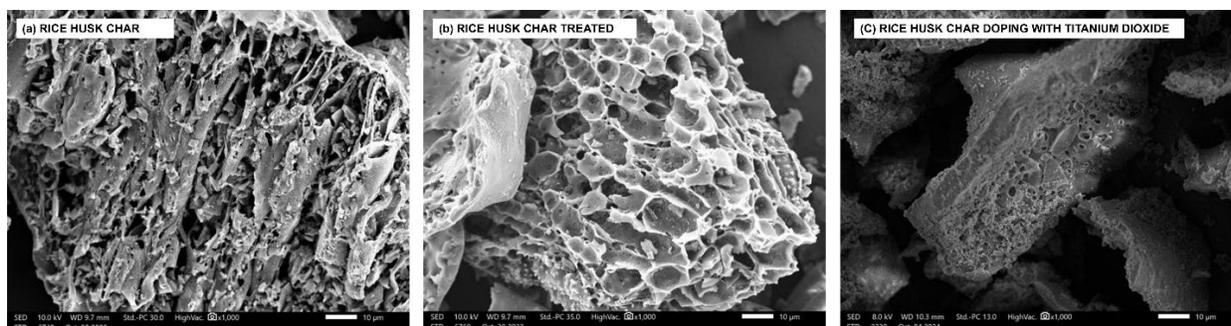


Figure 2: SEM of Rice Husk Char

XRD analysis revealed peaks corresponding to anatase TiO_2 and low-cristobalite (SiO_2), confirming successful incorporation of titanium oxide into the silica-rich rice husk matrix (Hossain et al., 2020) as shown in Figure 3. The anatase phase enhanced catalytic reactivity, while low-cristobalite improved structural durability. FTIR spectra displayed the Ti–O stretching band, verifying the presence of titanium oxide functional groups as shown in Figure 4 (a).

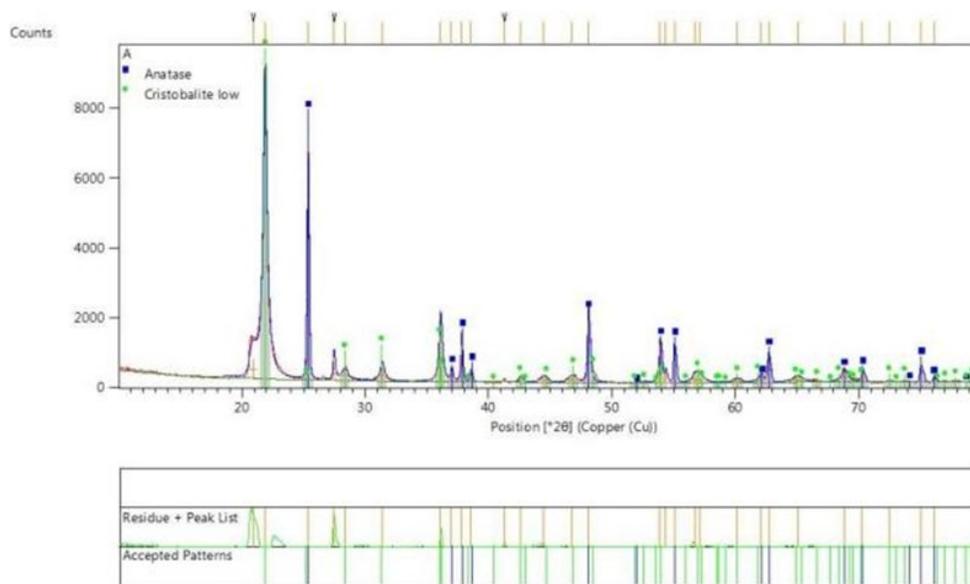


Figure 3: XRD Analysis of Catalyst

FTIR analysis of the biodiesel showed strong absorption at 1740 cm^{-1} ($\text{C}=\text{O}$) and $1430\text{--}1460\text{ cm}^{-1}$ (CH_3), confirming the formation of fatty acid methyl esters and successful transesterification (Hazmi et al., 2021) as shown in Figure 4 (b). The $\text{TiO}_2\text{--RHC}$ catalyst thus demonstrated effective catalytic activity and stability for biodiesel production from waste cooking oil.

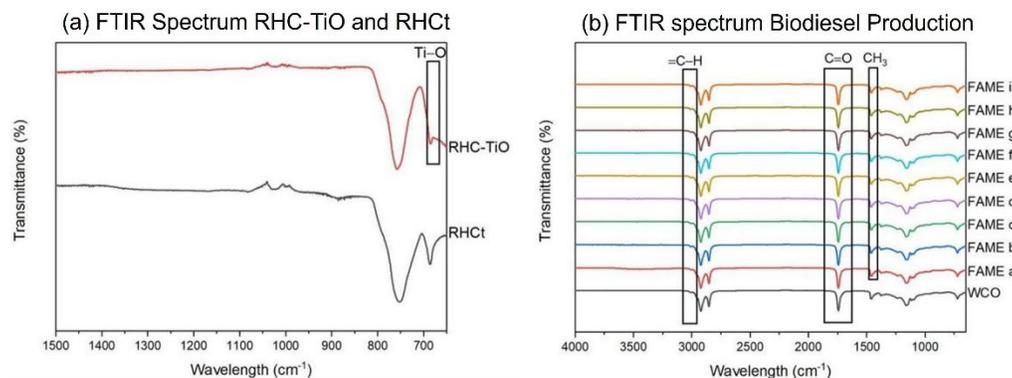


Figure 4: The FTIR Spectrum of Catalysts and Biodiesel Production

CONCLUSION

This study demonstrated that rice husk char, a recyclable agricultural byproduct, can serve as an efficient heterogeneous catalyst for biodiesel production. Its high surface area, porosity, and thermal stability facilitated effective transesterification, leading to a high FAME yield. Structural and functional analyses (SEM, XRD, and FTIR) confirmed the successful incorporation of active sites and functional groups essential for catalytic activity. The use of rice husk char not only enhances biodiesel yield but also promotes waste valorisation and sustainability. Further optimization and reusability studies are recommended to advance its practical and industrial applications.

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