Community as Catalyst in Tourism Destination Development: Integrating Mobile Technology and Community Education for Enhanced Participation

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ABSTRACT:
This study addresses the persistent gap between the theoretical importance of community participation and its limited practical realisation in tourism destination development. Despite increasing emphasis on participatory approaches, communities often remain marginalised due to institutional dominance, capability constraints and uneven access to digital tools. Accordingly, the study aims to examine the level of community participation in Chenang Beach, Langkawi and to explore how mobile technology can enhance participatory processes. A mixed-method approach was employed, integrating quantitative survey data from 368 respondents, qualitative interviews with key stakeholders and desk research of Scopus-indexed literature. The findings indicate that community participation is moderately high but largely confined to consultation and awareness activities, with limited influence on decision-making. Structural barriers, including restricted autonomy and tokenistic engagement, persist alongside capability deficits such as limited tourism knowledge and digital literacy. While mobile technologies demonstrate strong potential to enhance communication, collaboration and co-creation, their effectiveness is constrained by connectivity limitations and unequal competencies. The study argues that participation limitations are not solely institutional but are also rooted in educational deficiencies that restrict meaningful engagement. Therefore, the study recommends the integration of institutional reform with digital enablers, alongside the systematic institutionalisation of community education programmes focusing on tourism literacy, participatory governance and digital competencies. Such an approach is essential to transform participation from procedural involvement into catalytic and sustainable community engagement.

Keywords: Community-Based Tourism, Community Participation, Education, Tourism Destination Development, Mobile Technology

Introduction

Tourism destination development increasingly recognises community participation as a critical mechanism for achieving sustainability, equity, and long-term resilience (Bello et al., 2021; Giampiccoli et al., 2022). However, despite its strong theoretical grounding, meaningful participation often remains limited in practice due to persistent institutional dominance, power asymmetries, and capacity constraints that marginalise local actors from decision making and benefit distribution (Nunkoo & Smith, 2022; Rasoolimanesh et al., 2021). Empirical studies consistently highlight that fragmented governance structures, limited local capabilities, and the absence of sustained engagement mechanisms impede the effective operationalisation of participatory models in tourism planning (Giampiccoli et al., 2022; UNWTO, 2022). Concurrently, digital and mobile technologies are reshaping tourism systems through real-time communication, user-generated content, and collaborative services, offering potential pathways to enhance community engagement and governance transparency (Lalicic & Dickinger, 2022; Sigala, 2023). Nevertheless, the extent to which these technologies effectively strengthen community participation remains underexplored, particularly in destination development contexts, as adoption continues to be constrained by digital divides, limited connectivity, and uneven digital literacy (Sigala, 2023; UNWTO, 2022).

Despite widespread recognition of community participation as a core pillar of sustainable tourism destination development, its practical implementation remains uneven and frequently tokenistic (Nunkoo & Smith, 2022; Giampiccoli et al., 2022). Empirical studies demonstrate that institutional dominance, capacity limitations, fragmented governance arrangements, and unequal access to resources restrict communities from assuming a catalytic role in destination development and benefit distribution (Rasoolimanesh et al., 2021; Nunkoo & Smith, 2022). In response to these challenges, recent scholarship highlights the growing potential of mobile and digital technologies to enhance transparency, collaboration, and inclusivity in participatory processes, although their application within destination development remains insufficiently examined (Lalicic & Dickinger, 2022; Sigala, 2023). Conceptually, participation is increasingly framed as a mechanism for improving community well-being through involvement in decision making and access to development benefits (Bello et al., 2021). Consistent with classical participation theory, effective tourism development requires community engagement across decision making, implementation, stakeholder involvement, and evaluation stages to ensure responsiveness to local needs (Uphoff & Cohen, 1980; Giampiccoli et al., 2022).

The article adds to the current body of research on tourism destination development in a number of ways: (1) it analyses the degree of community involvement; (2) it brings together an emerging body of evidence on the implementation of mobile technologies as the means of participation improvement; (3) it postulates a comprehensive catalytic participation framework that connects governance reforms with digital facilitators; and (4) it highlights the importance of community education. With the operationalisation of the Local Plan of Langkawi 2030, the local communities will be able to act more as facilitators, and not hindrances to the development of tourism destinations, with enhanced capacity building and education programs.

Literature Review

Community Participation in Tourism Destination Development

The multidimensional and controversial nature of the plurality of theoretical frameworks that conceptualise the idea of community participation in tourism destination development, reflecting the nature of the

contemporary tourism scholarship (Giampiccoli et al., 2022; Nunkoo et al., 2023). The ladder of citizen participation formulated by Arnstein (1969) is a widely used tool to understand participation in terms of a spectrum between manipulation and tokenism on the one end to partnership and citizen control on the other end and is still widely used to evaluate the extent to which communities engage with tourism governance in a genuine and profound way (Arnstein, 1969; Tosun &Timothy, 2022). Empirically, it is observed that numerous tourism destinations are at the consultation or placation stage and local communities are not granted much power-sharing or delegation of authority (Nunkoo et al., 2023; Scheyvens et al., 2022). Community-based tourism models, in contrast, prioritize local control, the development of social capital and the equitable distribution of benefits as the main tenets of sustainable tourism development and place communities at the center of decision-making and benefiting others instead of being the passive beneficiaries of externally imposed development (Giampiccoli & Mtapuri, 2021; Dangi & Jamal, 2021; Scheyvens, 2022). Such views are also supported by stakeholder theory and collaborative governance systems, which conceptualise tourism destinations as multi-actor systems in need of deliberative decision-making, shared decision-making and institutional co-operation to align various interests and reach collective results, which makes them (Baggio et al., 2021; Nunkoo et al., 2023). CBT is a prevalent model that emphasizes local community involvement in tourism activities, aiming to empower communities economically and culturally. It has been shown to improve livelihoods, preserve cultural identity, and conserve ecosystems (Muda, 2025; Tuyen et al., 2025).

The involvement of communities in tourism industry has a great potential of contributing to the creation of employment, income diversification, and the economic growth in general in the region hence, creating a stronger economic climate. Furthermore, this network builds a sense of ownership in the community members and provides them with a variety of channels to actively participate in the tourism services sector, like being a tour guide and handicraft producer, as identified in the exhaustive studies by Cahyaningrum et al. (2024) and Sharma and Pahuja (2025).

The active participation of the community in tourism related activities is critical in conserving cultural heritage and protecting natural resource and they help improve the long-term sustainability and sustainability of the tourism destinations making them more attractive and viable to the future generations. This type of involvement is not only necessary to preserve the distinct cultural identities of these communities but also to make sure that the environmental integrity of the local ecosystems is preserved, which is reflected not only by the research findings by Sharma and Pahuja (2025) and Palan and Priyanto (2025) but also by the research findings of other scholars.

The inclusivity and equity in processes related to tourism development are paramount in that the community is inclusive of all groups including women, the youth and the indigenous population who are the marginalized groups, and as such, they should be actively involved and represented in these developmental matters as they are the key to the achievement of social equity in the wider societal structure. The focus on partnership in the development of tourism indicates the importance of the need to consider various perspectives and experiences, as the authors Muda (2025) and Rustini et al. (2022) have discussed. The success of a tourism destination emphasize the importance of establishing high-quality community engagement at an early stage and substantive degree of community involvement in the planning process, the offering of clear governance schemes, continuous capacity building and the formation of networks of support and marketing.

Usage of Mobile Technology in Tourism Destination

In tourism destination, mobile connectivity and smartphones fundamentally reconfigure social interactions and enabling continuous communication, co-creation and informal networks between residents, tourists, and destination managers. These technologies support "bottom-up" initiatives and collaborative innovation by lowering barriers to information exchange and collective action (Tymoshchuk et al., 2021).

Persistent connectivity enables real-time co-creation and information exchange between tourists and local agents, supporting flexible community formation and resource sharing (Dickinson et al., 2017). Social network effects from mobile use create ephemeral and place-based socialities that glue disparate visitors and residents into communities sharing experiences, knowledge, and resources. In rural contexts, smartphones help remote communities become discoverable and digitize cultural and hosting offers, though this also exposes needs for skills development and value capture mechanisms (Voda et al., 2022).

Mobile technologies are increasingly reshaping community participation by shifting engagement from episodic consultation events towards more continuous and interactive forms of involvement (Lalicic & Dickinger, 2022; Sigala, 2023). Through mobile platforms, communities are able to contribute local knowledge, report issues, propose initiatives, and provide feedback without the need for physical attendance at formal planning meetings, thereby enhancing the accessibility and responsiveness of participatory processes (Kummitha, 2021; Sigala, 2023). Such digital engagement mechanisms have been shown to reduce time, mobility, and socio-economic barriers, supporting more inclusive participation among women, youth, and economically marginalised groups who are often excluded from conventional planning forums (Scheyvens et al., 2022; UNWTO, 2022). Within community-based tourism contexts, mobile solutions encompass a range of application types that serve distinct functions across the participation ecosystem, reflecting the growing integration of digital tools into destination governance and community engagement practices (Lalicic & Dickinger, 2022; Sigala, 2023).

Figure 1 presents a conceptual framework illustrating how mobile technology integrates into community participation processes in tourism destination development. The framework shows four interconnected layers: mobile technology enablers at the top provide the foundational capabilities (persistent connectivity, real-time communication, user-generated content, location-based services, social network effects, and low-cost deployment) that flow into community participation dimensions (planning and decision-making, implementation and service delivery, monitoring and evaluation). These participation dimensions produce tangible outcomes (enhanced local control, strengthened social capital, cultural preservation, economic resilience, equitable benefit distribution, improved service quality, sustainable practices, and destination competitiveness). The entire system rests on enabling conditions (digital infrastructure, digital literacy programs, governance frameworks, capacity building, institutional support, and resource allocation) that must be in place for effective technology-enabled participation. Education is conceptualised as a foundational enabling condition that mediates the relationship between mobile technology and effective community participation.

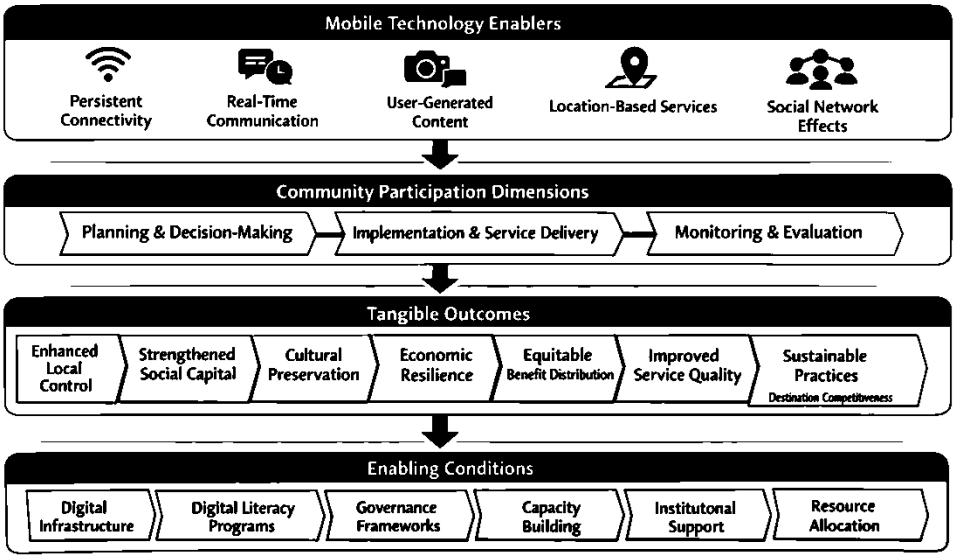

Figure 1: Conceptual Framework of Mobile Technology in Community Participation

Empirical literature consistently documents the potential of mobile technology to enhance community participation in tourism development across social, economic, managerial, and sustainability dimensions. Studies show that mobile connectivity strengthens social capital and supports sustainable practices by enabling flexible social ties and bottom-up participation systems. Qualitative research involving application designers and community stakeholders indicates that mobile platforms facilitate trust building, knowledge exchange, and collective action, thereby reinforcing community cohesion and participatory capacity (Dickinson et al., 2017).

Enhanced local engagement is also evident in destination-based applications. For example, the deployment of a participatory application at Okayama Korakuen was associated with increased repeat visitation among local residents, suggesting that digital participation tools can strengthen place attachment and encourage community ambassadorship towards cultural heritage sites (Seok & Kasw, 2017). At the enterprise level, community-based homestay operators adopting digital technologies report improvements in operational efficiency, booking management, and revenue performance. However, these benefits remain contingent upon adequate connectivity and sustained training support (Abdul Samad et al., 2024).

Mobile technologies further expand destination management and co-creation capabilities. Aggregated mobile data and user-generated content enable real-time information exchange, personalised services, and collaborative service design, supporting smart tourism development and value co-creation among tourists, businesses, and destination managers (Vaz Serra et al., 2023). A decade-long review highlights that mobile applications can contribute to environmental conservation, cultural heritage preservation, and responsible tourism when sustainability principles are embedded within application design and governance frameworks (Chadha et al., 2024).

Despite these advantages, persistent barriers continue to limit participation outcomes. Connectivity constraints and digital access gaps remain significant, as evidenced in the Peruvian Amazon where digital exclusion hindered community participation in tourism development (Mendoza-Reategui et al., 2022). Digital literacy shortages and limited human resources further restrict effective use, while uneven adoption patterns among community operators reflect disparities in skills and infrastructure (Himarosa et al., 2023; Abdul

Samad et al., 2024). Moreover, limited institutional support, governance capacity, and financial resources constrain long-term platform maintenance and content management, particularly in rural contexts (Voda et al., 2022).

Although community education is vital towards development, there are still difficulties in bridging the gap between educational awareness and actual community development. The Ogoni community is one of the few communities that despite educational efforts, show a lack of relationship between education and development outcomes, which should be addressed by education that does more than just inform community action but also empowers it (Baala & Barima-Kpurunee, 2023). Such constraints are also compounded by a lack of community capacities, especially in regards to tourism knowledge, awareness of participatory governance and digital literacy. These educational disparities limit the possibility of local actors to contribute in a meaningful way to the decision- making processes and thus strengthen tokenistic nature of participation despite the presence of participatory platforms and digital tools. It involves a sustainable process that adapts to the evolving needs and challenges of society, thereby enhancing community well-being.

Methodology

This study integrates quantitative survey data, qualitative interviews and desk research. Quantitative data were collected through structured surveys administered to 368 community members. The survey instrument measured four dimensions of community participation: decision-making, implementation, stakeholder benefits, and evaluation. Each dimension was assessed through multiple items using 6-point Likert scales. Qualitative data were collected through semi-structured interviews with community representatives and government officials. Interviews explored participation experiences, barriers to engagement, institutional perspectives on community participation and opportunities for enhanced participation. Interview data provide contextual depth and stakeholder perspectives that complement quantitative findings. In addition, desk research is undertaken through the compilation and review of secondary data sourced from the Scopus database. Interview protocols also explored issues related to community capabilities, including knowledge, skills, and familiarity with digital tools, to understand underlying factors influencing participation. This involves analysing peer-reviewed journal articles on community participation, tourism destination development and digital and mobile technologies to inform the conceptual framework, refine analytical dimensions and situate the empirical findings within established theoretical and empirical scholarship.

Result And Findings

Overall, community participation in Chenang Beach, Langkawi Island demonstrates moderately high levels overall (mean=4.58, SD=0.51) as illustrates in **Figure 2**. This finding indicates that community members perceive themselves as having meaningful but not optimal participation in tourism development processes. The moderately high participation level suggests that while some participatory mechanisms exist, significant room remains for enhancing community engagement across all dimensions.

a. Decision-Making Participation

Decision-making participation records the lowest mean among the four dimensions (mean 4.47), indicating limited community influence. While communities are involved in problem identification (mean 4.59) and plan formulation (mean 4.67), joint decision making with government remains low (mean 4.11), reflecting concentrated institutional authority. Qualitative

findings show strong community demand for greater participation in Local Plan of Langkawi Island and Special Area Plan of Chenang Beach, contrasted by government perceptions that participation complicates and delays development, creating persistent institutional tension.

b. Implementation Participation

Implementation participation shows moderately high levels (mean=4.60). Communities report participation mainly through voluntary labour and support for government-led projects, indicating a largely reactive form of participation. Rather than initiating or co-managing implementation, communities tend to respond to predefined government activities. Qualitative findings show that participation is often confined to awareness programmes and ceremonial events, reflecting tokenistic participation in which communities are visible but hold limited authority, responsibility or influence over substantive implementation processes.

c. Stakeholder Benefits

The stakeholder benefits dimension records the highest participation mean (mean 4.68), indicating that communities recognise tangible gains from tourism, including employment, entrepreneurship opportunities, infrastructure improvements, and enhanced facilities. This suggests that benefit distribution functions more effectively than participatory planning mechanisms. However, qualitative findings highlight concerns over uneven distribution, with benefits perceived to favour external investors and large enterprises, thereby reducing community motivation for sustained participation and generating local stakeholder tensions.

d. Evaluation Participation

Evaluation participation shows moderately high levels (mean=4.57). Community members report participation in assessing project outcomes and providing feedback on development impacts. However, similar to other dimensions, evaluation participation is often informal and lacks systematic mechanisms for incorporating community feedback into adaptive management or future planning cycles.

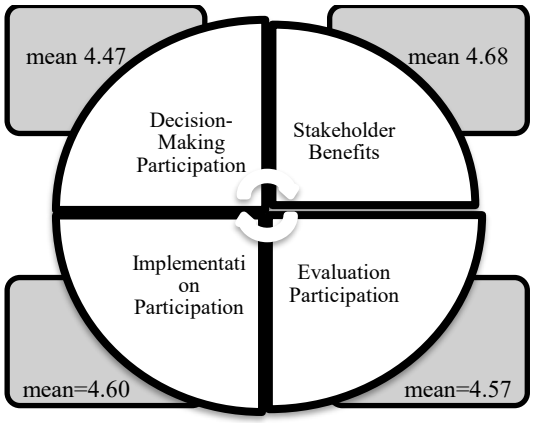

Figure 2: Results of Community Participation

Thematic analysis identifies three key barriers to meaningful community participation as shown in **Figure 3.** First, communities have limited freedom in decision making, with participation confined to consultation after decisions are predetermined. Second, government agencies perceive participation as complicating and slowing development, leading to deliberate minimisation of community roles. Third, participation is largely restricted to public

awareness and ceremonial activities, resulting in tokenistic participation without substantive authority, influence or responsibility in planning and implementation processes.

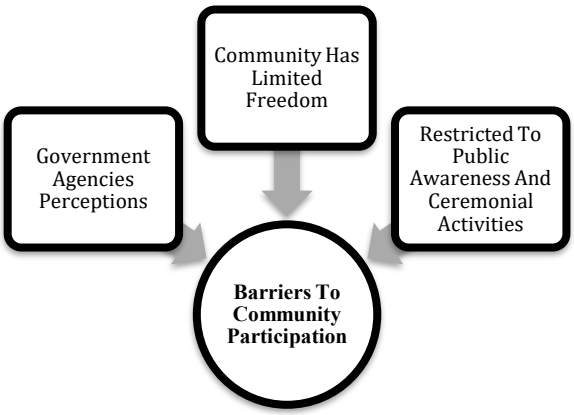

Figure 3: Key Barriers to Meaningful Community Participation

Mobile Applications Within the Context of Community-Based Tourism

Based on the desk research, community-based tourism has mobile solutions that cover a variety of applications with different purposes in the participation system (Lalicic & Dickinger, 2022; Sigala, 2023). **Figure 4** demonstrates six broad classes of mobile applications within the context of community-based tourism, detailing their main tasks and providing examples synthesised on the basis of the previous empirical research (Baggio et al., 2021; Sigala, 2023). These types of applications indicate how mobile technologies can facilitate various types of community engagement and value creation in tourism destinations (Scheyvens et al., 2022). Location and route guide apps enable navigation, cultural trails and place-based interpretation and help to provide better visitor experiences and foster local heritage and spatial awareness (Neuhofer et al., 2021; Sigala, 2023). Collaborative platforms make it possible to contribute contents, share knowledge, and co-create, which means that communities can actively influence tourism stories and participative planning models (Baggio et al., 2021; Nunkoo et al., 2023). Digital ticketing systems and Progressive Web Apps will assist in visitor management, real-time communication, a lightweight deployment and help to increase operational efficiency (Gretzel et al., 2021; Lalicet & Dickinger, 2022; Rohminatin et al., 2024). QR-based content libraries can offer it at low costs and with a simple update process (Scheyvens et al., 2022; Sigala, 2023), whereas gamified and place-based applications can facilitate experiential learning and involvement of youth in the community through interactivity at the place (Xu et al., 2022). The collaboration of the stakeholders, real-time feedback, and product validation are also enabled by the product incubation and monitoring platforms throughout tourism value chains (Baggio et al., 2021; UNWTO, 2022). Together, these types of mobile apps transform communities into knowledge creators, content managers, operation enablers and co-creators of products in tourism, instead of passive consumers of development efforts (Scheyvens, 2022; Rasoolimanesh et al., 2021).

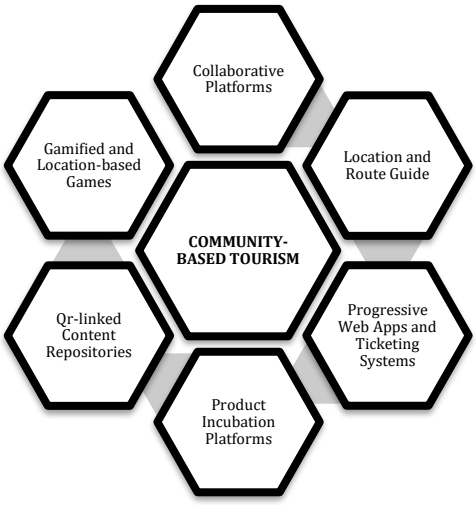

Figure 4: Types of Mobile Applications in Community-Based Tourism

These findings indicate that the limitations in participation are not solely institutional but are also rooted in underlying capability deficits. The predominance of reactive and awareness-based participation suggests that communities may lack the necessary competencies to engage in more complex governance processes. In this regard, education emerges as a critical enabling mechanism that transforms participation from passive involvement to active engagement. Tourism literacy enhances understanding of development processes, while participatory governance education strengthens the ability to contribute to decision-making. Furthermore, digital literacy is essential to ensure that mobile technologies function as inclusive participation tools rather than reinforcing existing inequalities. This reinforces the argument that technological interventions must be complemented by structured educational initiatives to achieve meaningful participation outcomes.

Moreover, the results also emphasise the need to institutionalise community education as the part of the tourism development strategies. The structured programmes, aimed at improving tourism literacy, participatory governance, and digital skills, are needed to improve the community capacity and make sure that the mechanisms of participation can be converted into meaningful impacts. In the absence of education interventions of this kind, the process of encouraging participation in the community would be procedural instead of transformative.

Besides the institutional and structural barriers, the results also reveal the presence of underlying capability constraints which restrain effective community participation. Qualitative data show that community members generally do not have the knowledge and skills to participate meaningfully in the planning processes, especially to learn about the tourism development models and use of digital platforms. Engagement is mostly restricted to awareness campaigns indicating that there is little exposure to participatory governance behaviors, and decision-making processes. These trends indicate inadequate tourism literacy and digital skills, which limit the possibilities of communities to shift towards active participation. This underscores the importance of educational and capacity development aspects as an inbuilt limitation in the ecosystem of participation.

Discussion

Participation Levels in Context

The moderately high overall participation level (mean=4.58) in Chenang Beach reflects a common pattern in mature tourism destinations where participatory rhetoric exceeds participatory practice. While communities perceive meaningful participation, the concentration of decision-making authority in government agencies and restriction of participation to consultation and awareness events indicates that participation operates at lower rungs of Arnstein's ladder, closer to placation and consultation than partnership or delegated power.This pattern aligns with broader findings in community-based tourism literature documenting gaps between participatory ideals and implementation realities. Power imbalances, institutional barriers, and capacity constraints consistently emerge as impediments to meaningful participation across diverse destination contexts.

The Decision-Making Deficit

The lowest participation scores in decision-making (mean=4.47, with joint decision-making at 4.11) reveal a critical deficit. Decision-making represents the most consequential dimension of participation because it determines development priorities, resource allocation, and benefit distribution mechanisms. When communities lack genuine decision-making authority, participation in other dimensions becomes constrained by decisions made without community input. The government perspective that participation complicates development reflects institutional path dependencies and bureaucratic preferences for control and efficiency. However, this perspective overlooks evidence that early community participation reduces conflicts, enhances project acceptance, improves implementation effectiveness, and strengthens long-term sustainability outcomes. The transaction costs of participatory planning are offset by reduced conflict costs and enhanced project performance.

Power Dynamics and Institutional Barriers

The restriction of community participation to public awareness events and ceremonial activities represents tokenistic participation that maintains existing power structures while creating appearance of engagement. This pattern serves multiple functions: it satisfies participatory rhetoric in policy documents, provides visible evidence of community participation and maintains government control over substantive decisions. Transforming tokenistic participation into genuine partnership requires institutional reforms that redistribute decision-making authority, formalize community roles in governance structures, and create accountability mechanisms that ensure community input shapes outcomes. Without such reforms, participatory initiatives risk reinforcing rather than challenging existing power imbalances.

Mobile Technology as Participation Enabler

Mobile and digital technologies provide hopeful ways to overcome the barriers identified and enhance community engagement. The findings of 162 studies that have been indexed by Scopus show that mobile platforms have the potential to reduce the barriers to participation, facilitate sustained engagement, enhance social capital, and enhance operational efficiency of community enterprises. There are three mechanisms that are especially applicable in the case of Chenang Beach. First, collaborative platforms and QR-linked repositories can allow communities to share their localized knowledge, put forward initiatives, and give feedback on a continual basis, as opposed to selectively doing so during events of occasional consultation. This changes the event-based to the process-based participation. Second, the use of Progressive Web Apps and mobile ticketing systems would enhance the management of the community enterprise, as they would enhance booking efficiency, communication with the visitors, and the tracking of revenues. Third, joint product development and destination planning can be achieved through co-creation

platforms that offer organized stakeholder collaboration and feedback.

Towards Catalytic Participation

The idea of communities as drivers of tourism destination development necessitates a shift in thinking on participation as a limitation or a complexity to the development of competitive advantage. Catalytic participation is where communities actively influence development paths, bring local knowledge, cultural resources, enhance destination authenticity and differentiation, and develop social capital to create resilience over the long term. There are four elements to be achieved in order to obtain catalytic participation. To begin with, meaningful and early involvement in planning and decision-making processes will make sure that development directions are influenced by community priorities. Second, through open benefit-sharing systems, there will be an incentive to remain engaged and harmonize the community interests with the success of the destination. Third, capacity building programs create skills and knowledge and organizational capability required to be able to participate. Fourth, formalized collaborative governance arrangements institutionalize the community roles and establish accountability mechanisms.

Education Becomes Central

These results suggest that the constraints in participation are not only institutional but also based on the underlying capability shortfalls. The fact that reactive and awareness-based participation is predominant implies that communities might not have the competency needed to be involved in more intensive processes of governance. With regard to this, education comes out as an enabling factor that is critical in changing participation as passive to active participation. Tourism literacy increases knowledge about development processes, and the educational skills of participatory governance increase the skills of participation in the process of decision-making. Moreover, to make sure that mobile technologies serve as inclusive participation tools and not contribute to the existing inequalities, digital literacy is necessary. This supports the point of view that the technological interventions should be enhanced with the help of organized education programs to record significant participation effects.

Conclusion

The results show that the community involvement in the tourism destination development at the Chenang beach is moderate and is mainly limited to consultation and awareness but not to a major impact to substantive decisions. This limits the actualisation of catalytic participation and under-exploitation of local knowledge, social capital and collective capacity, which impact destination competitiveness and sustainability. Although mobile and digital technologies promise a huge potential to increase participation by providing real-time communication and collaborative tools, they cannot be used effectively due to connectivity issues, digital illiteracy, and shortage of resources. In this regard, the Local Plan of Langkawi 2030 offers a strategic chance to encompass institutional reformation and digital enablers. Nonetheless, to create lasting change, the government must be committed, properly resource it and actually redistribute decision-making authority. More importantly, community education, which includes tourism literacy, participatory governance, and digital competencies, has to be institutionalised to enhance community capacities. In the absence of such educational interventions, the participation will tend to be procedural instead of attaining substantive and transformative results.

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