

Beyond technological promises: Unveiling Kampung Roban's socio-cultural landscape

(Di sebalik jaminan teknologi: Menyingkap tabir landskap sosiobudaya Kampung Roban)

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Abstract

This qualitative case study was conducted in Kampung Melayu, a rural area within the Roban District of Kabong, Sarawak, Malaysia. The study delves into the socio-cultural landscape to investigate factors influencing aging paddy farmers' adoption of technology in rice cultivation. Employing the extended Technology Acceptance Model (TAM) as its framework, this study found that beyond perceived usefulness and ease of use, which significantly shape their readiness for technology, it also highlights the profound impact of socio-cultural elements. These elements include the cultural significance tied to sharing the harvest, which influences their technological adoption.

Introduction

In the small district named Roban in Sarawak, a determined woman named Siti (not her real name) rises early in the morning to begin her challenging daily journey. With no private transportation at her disposal, she has no choice but to rely on public buses as early as 7 am to reach her rice field. Armed with a meager breakfast and some necessities, she and her two children spend the entire day in the rice field, returning home on the same bus around 5 pm. She follows this routine almost every day during the planting and harvesting seasons.

Not far from there, a homemaker named Nuria (not her real name) faces a similar challenge. At the age of 40, she pedals her old bicycle early in the morning to ensure she reaches her rice field. The fatigue of an hour long ride never breaks

her spirit as she engages in activities from weeding to planting and harvesting throughout the rice season.

In contrast, Aminah, 50 years old (not her real name), follows a unique routine during each rice planting season. She walks for an hour to reach her rented rice field that she has been tending for several years. As a single mother, the hour long journey on foot is accompanied only by the sound of vehicle engines, with occasional bird calls seeming to acknowledge her presence. Sometimes, caring neighbors lend her their motorcycles to ease Aminah's journey. Like Siti and Nuria, Aminah is steadfast in her efforts, from weeding to planting and harvesting, to ensure a year round supply of rice.

Stories of these women's willingness to struggle reflects a spirit of resilience, determination and commitment. They endure daily hardships to cultivate and protect

traditional rice seeds, bearing witness to the deep-rooted traditions and values of their community. They do not seek monetary profit; instead, their endeavors are solely to ensure the food security of their own families while preserving the social fabric that has supported them for several generations. These stories also serve as the central theme of this study, aiming to understand the meaning behind their acceptance towards technological promises.

Literature review

Technology, local culture and aging society

The relationship between technology and work has long been of interest to sociologists. How is our experience of work affected by the type of technology involved? How technology affect the way work is experienced by those who carry it out? For sociologists, one of the main questions is how the move to more complex systems influences the nature of work and the institutions in which it is performed.

Technological advances have altered the impact of biological aging on older adults' lives. It enables older adults to maintain their independence, keep up daily routines (Ramachandran 2011; Cotten 2021). Social aging, like biological and psychological aging, has been transformed by technology. How has technology affected the processes of biological, psychological and social aging?

Technology is a central aspect of a society's material culture. Material culture consists of the physical objects that a society creates that influence the ways in which people live. The very technology that helps foster globalisation also supports local cultures. Sociologists often conclude that despite the powerful forces of globalisation, local cultures remain strong (Magu 2015). Similar technologies applied to similar environments tend to produce similar arrangements for the production and distribution of goods, which in turn tend to support similar sorts of social groupings,

who organise and explain their activities in terms of similar systems of beliefs and values (Harris 2001).

However, there will be a time when the society will struggle with the implications of a new technology. Cultural lag, a notion introduced by (Ogburn 1964) suggest the idea that cultural change take time to catch up with changes in technology, resulting in challenges for societies undergoing rapid transformation. Cultural lag is a commonly observed phenomenon, where the development of culture falls out of step with developments in technology, politics, or economics.

Technology acceptance model (TAM)

The Technology Acceptance Model (TAM) has been a valuable framework for understanding the factors that influence the acceptance of modern rice technologies among farmers (Ambong & Paulino 2020a ; Ambong 2021). Central to this model is the notion that perceived usefulness and the relative advantage of such technologies directly impact farmers' behavior toward adoption. However, the acceptance of technology is a complex process influenced not only by factors within the model but also by external determinant namely cultural values (Pokhrel et al. 2021; Tanko & Ismaila 2021).

The research conducted by Tanko & Ismaila (2021) in Northern Ghana serves as an illustrative example of how cultural and religious practices significantly determine the efficiency of agricultural technology adoption. These findings highlight the intricate interplay between technology and culture in shaping farmers' decisions. Similarly, Masimba et al. (2019) have delved into the relationship between culture and technology acceptance, offering a comprehensive exploration of how cultural values influence technology adoption. Their work contributes to the existing literature by addressing a crucial gap, focusing on

the cultural aspects often overlooked in technology transfer within developing economies.

Chandio & Yuansheng (2018) conducted an empirical study among smallholder rice farmers in Northern Sindh, Pakistan, revealing the multifaceted nature of technology adoption. They found that several factors, including education, experience and access to resources, significantly influenced technology acceptance. However, the study also highlights the complex role of age, indicating a need for nuanced understanding when considering cultural and demographic factors.

Furthermore, Baker et al. (2010) emphasised the importance of cultural contexts in influencing technology acceptance behaviors. Their work underscores the need for deeper research into the various cultural factors that contribute to technology acceptance. Building upon this, Sadeghi (2014) suggested that cultural values have a positive impact on crucial variables within the TAM, such as perceived usefulness and perceived ease of use.

In light of these findings, it is evident that cultural values and norms play a pivotal role in shaping technology adoption in rice cultivation. The integration of social factors, particularly cultural values, into technology development and dissemination models is imperative. To successfully introduce new technologies in rice farming, it is essential to consider the local cultural norms, values, and narratives that influence adoption decisions. Understanding and addressing these cultural aspects are crucial steps toward achieving effective technology acceptance and utilisation in rice cultivation contexts.

Within the realm of technology acceptance among rice farmers, an intriguing gap emerges in the existing body of literature, an absence of studies employing qualitative methods to investigate the influence of cultural values as an external

variable within the Technology Acceptance Model (TAM). While numerous research endeavors have examined the determinants of technology adoption in agriculture, the incorporation of cultural values as a key determinant, particularly through qualitative methodologies, remains conspicuously underrepresented.

The Technology Acceptance Model (TAM) has been instrumental in understanding the factors that shape the adoption of technology, particularly in agricultural contexts (Davis 1989). However, the majority of studies utilising TAM predominantly rely on quantitative methods, which may not capture the intricate nuances of cultural values and their impact on technology acceptance among rice farmers. The qualitative approach offers a unique avenue for delving into the complexities of cultural values and their interplay with the TAM constructs, providing a more holistic understanding of the acceptance process.

Cultural values hold a pivotal role in shaping individuals' attitudes, beliefs, behaviors and their influence on technology adoption is undeniable (Srite & Karahanna 2006). Therefore, the lack of qualitative studies expanding the Technology Acceptance Model (TAM) with cultural values as an external factor represents a significant research gap. Qualitative research techniques, such as in-depth interviews and participant observation, provide the depth and context needed to uncover the intricate connections between cultural values and technology acceptance in rice farming. Addressing this methodological gap is vital for improving the comprehensiveness of agricultural technology adoption research. Qualitative investigations can illuminate the intricate interplay of cultural values with TAM constructs, offering a more nuanced and contextually relevant perspective. Integrating qualitative methods into the study of technology acceptance among rice farmers enables researchers to provide

valuable insights that bridge this gap, contributing to a more comprehensive understanding of this complex phenomenon.

Study area

The setting unfolds in the Kampung Melayu, a scenic village in Roban sub-district, Kabong, Sarawak (1°53’30” N, 111°17’30” E), is nestled amidst palm plantations (Figure 1) Life revolves around agriculture, with rice cultivation a cornerstone. The village, one of two in Roban (394.17 sq km, 88 houthouses), is 45 km from Sarikei and

95 km from Sibü. As per 2020 data, Roban’s population of 6,722 is 95% Bumiputera (mainly Malay) and 5% Chinese, with a near-equal gender split. Despite these broad categorisations, Sarawak’s ethnicities coexist peacefully, maintaining distinct identities.

Residents engage in various agricultural activities, with paddy cultivation deeply tied to ancestral roots and food security (Ibil et al. 2023). During the season, golden rice fields showcase their dedication. However, palm oil and other agriculture diversify their income sources.

Box 1 Definition of smallholders and subsistence farmers (based on Dixon et al., 2007; FaurE ´s & Santini, 2008). Smallholder farmers:- Varying farm size between <1 ha and >10 ha, depending on country and agroecological zone- Diverse sources of livelihood including significant off-farm income, but still vulnerable to climate and economic shocks- Mixture of cash crop and subsistence farming Subsistence farmers:- Self-sufficiency farming: almost all agricultural production consumed by farmer’s household.

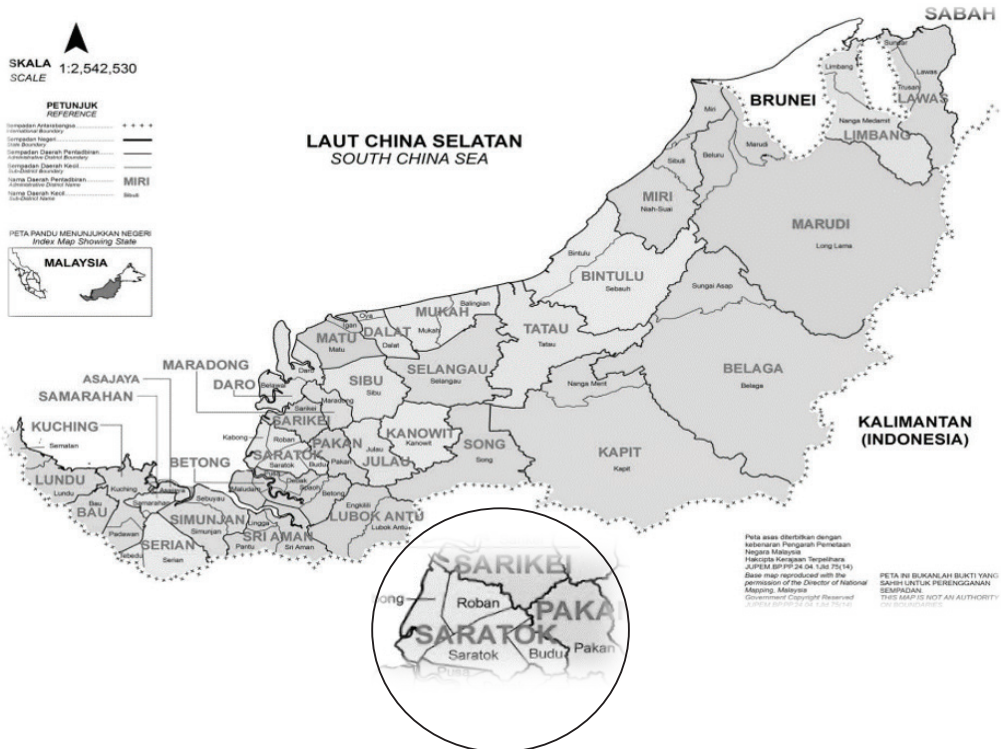


Figure 1. Map of small-district of Roban in Kabong district of Sarawak

But it is not only paddy that sustains this community. The respondents of our study, as explained by Ibil et al. (2023), are engaged in a diverse array of agro-economic activities. From tending to palm oil plantations to other agricultural activities, they have diversified their sources of income, ensuring that they are not solely reliant on a single facet of the land for their livelihoods.

In the midst of the palm oil plantations, the rice fields, and the resilient spirit of the people, the story of Kampung Melayu and the Roban district unfolds. It is a story of tradition, adaptability, and the profound connection between a community and its traditional rice—a narrative that continues to shape the unique agricultural landscape and economic activities of this remarkable locale.

Methodology

This qualitative assessment of farmer's willingness associated with modern rice technology was based on extended Technology Acceptance Model (TAM), developed by (Davis 1989) in The Technology Acceptance Model (TAM) (Figure 2) is a quantitative research method used to analyse the acceptance and adoption of technology applications in context of agriculture technology as in Ambong & Paulino (2020b); Rezaei et al. (2020); Valizadeh et al. (2020). It is used to assess

user perceptions, attitudes, and intentions to use a particular technology application. The TAM model incorporates variables such as perceived usefulness, perceived ease of use, attitude toward using, intention to use, and actual system use. The model may predict actual usage, but it is usually validated by using a measure of behavioural intention to use (BI) rather than actual usage, and the variables perceived ease of use (PEU) and perceived usefulness (PU) are less likely to be correlated with actual usage, therefore care should be taken using the TAM outside the context in which it has been validated (Turner et al. 2010).

Lacking criterion validity indicating a need to capture additional moderators and predictors such as cultural identity and subjective norms as suggested in Tarhini et al. (2015). For instances, McCoy et al. (2007) and Srite & Karahanna (2006) identifies cultural identity in technology acceptance and suggests that the widely used models do not universally hold across cultures, suggesting the need for caution in applying TAM in different cultural settings.

Therefore, the model needs to be integrated into a broader context that includes variables related to human and social change processes and the adoption of the innovation model, as significant factors are not included in the current models (Legris et al. 2003).

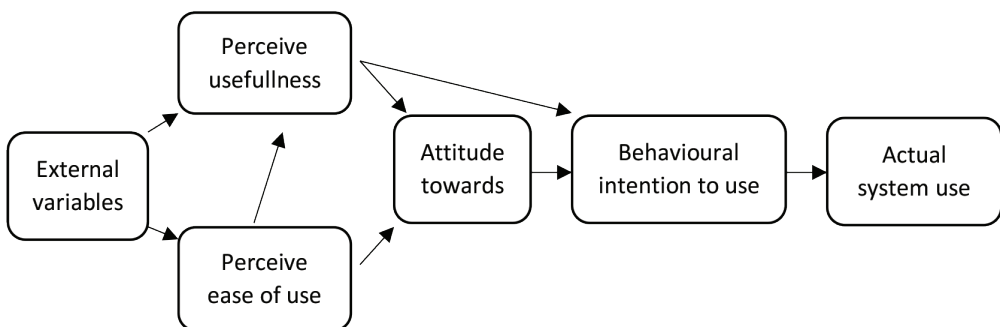


Figure 2. Original Model of Technology Acceptance (TAM)

Cultural identity as external variable

In the context of rice cultivation, it is essential to understand the sociological dynamics surrounding technology acceptance within specific cultural identities. Each member of a society is inherently tied to their cultural identity, which encompasses a set of shared characteristics, including language, practices, customs, values, and perspectives (Lam et al. 2010). This cultural identity is a multifaceted construct that encompasses various aspects, including ethnic identity, cultural self-perception, and cultural values (Ferguson et al. 2017). It plays a significant role in shaping individual behaviour, both within one's own cultural group and in interactions with individuals from different cultural backgrounds. Consequently, the acceptance and integration of technological advancements in rice cultivation can be significantly impacted by individuals' cultural identities.

The influence of cultural identity on the acceptance of technology in rice cultivation is a multifaceted phenomenon. Firstly, individuals deeply rooted in their cultural identity tend to leverage and optimise their traditional values and practices when engaging with society. In the realm of rice cultivation, this might manifest as a preference for age-old farming techniques and a reluctance to adopt new technological methods (Ashoori et al. 2019). Such individuals may perceive modern agricultural technologies as a threat to their cultural heritage, leading to resistance and scepticism.

Conversely, strong attachment to cultural identity can foster positive acceptance of technology within rice cultivation (Bongoni & Basu 2016; Donkor et al. 2018). It can drive innovation and adaptation of modern tools and practices in a way that aligns with and enhances existing cultural values and practices. For instance, communities with a rich tradition of rice farming may embrace technology

that respects their cultural norms while simultaneously improving crop yields and sustainability (Alfred et al. 2021).

However, it is crucial to acknowledge that a strong cultural identity can also erect barriers to social interactions when it comes to adopting new technology in rice cultivation. These barriers often stem from issues of intolerance and the perceived threat to cultural authenticity (Chuchird et al. 2017). Members of a particular cultural group may resist the introduction of technological innovations if they perceive these changes as undermining their cultural identity or eroding traditional practices (Chen et al. 2022). This resistance can result in a reluctance to collaborate with individuals from different cultural backgrounds or even resistance to government or external initiatives aimed at introducing technology into rice cultivation.

The sociological lens reveals that cultural identity plays a pivotal role in shaping the acceptance of technology in the context of rice cultivation. The impact of cultural identity on technology adoption is complex, leading to both positive and negative outcomes. Hence this study will be using extended Technology Acceptance Model (ETAM) (*Figure 3*) as a final model to recognise these dynamics.

Data collection

The semi-structured interviews, expert and group interviews of 15 rice farmers, were conducted by at least four interviewers, on 8 and 9 September 2023 (*Table 1*). A semi-structured interview, relies on a set of new questions spontaneously generated, suitable for the ongoing discussion context at that time (Elo & Kyngas 2008).

We conducted a focus group interviews with a gender sensitive approach as in (Tekken et al. 2017), ensuring that we had separate sessions for male and female farmers. This approach allowed us to hear the perspectives, opinions, and knowledge of both genders. Study suggests that women and men do not work on similar

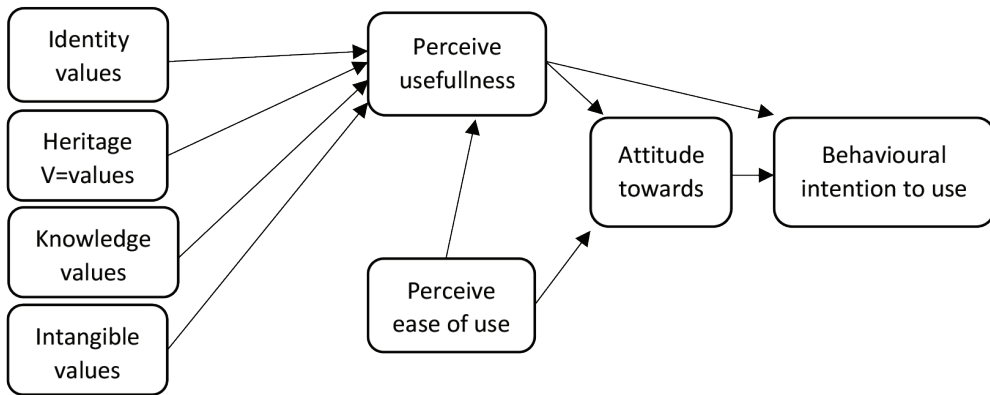


Figure 3: Extended Technology Acceptance Model (ETAM)

conditions regarding access to resources, training and extension services, access and property of land and inputs, although there is not a gap between women and men on a socioeconomic level (Sheahan & Barrett 2014). Therefore, since men and women in the study area have distinct roles in both fieldwork and household chores, the insights from female participants provided supplementary information that complemented the findings from the male interviews.

The interviews were divided into two parts. The first part included a round of introductions of farmers regarding socio-economic background such as age, gender, ethnic, household income, income sources, household size and education attainments. The remainder of the interviews combined a set of questions on paddy field information (field size, ownership status, agricultural practices), production cost information (hour, labour size, wage and input costs), capital asset information (total capital per season, sources, types and number of machinery) and yield information (rice yield, harvest period and prices).

In the latter segment of the interviews, the researchers directed their attention towards an examination of the contemporary challenges confronting rice cultivation, the issues and prospects encountered by farmers and their generational successors, as

well as the examination of belief systems, cultural values, traditions, and socio-cultural organisational structures. Furthermore, the interviews sought to elicit the participants' perspectives regarding both traditional and modern technological approaches in agricultural practices.

To facilitate comprehensive responses and in-depth insights, all group interviews were structured with open-ended questions, allowing room for internal deliberations among the farmers. At the conclusion of each interview session, the farmers were afforded the opportunity to pose their inquiries to the researchers. To overcome language barriers and ensure effective communication, regional researchers were engaged to assist in clarifying questions and facilitating translation during the interviews. It is noteworthy that the duration of the interviews varied, ranging from 90 to 120 minutes, permitting thorough discussions of the topics at hand.

Analysis technique

Critical discourse analysis

Critical discourse analysis (CDA) is a theoretical framework that emphasises the need for interdisciplinary work to gain a sense of how knowledge is created and disseminated in social organisations (Fairclough 1999). CDA aims to systematically link properties of discourses

interactions and texts with features of their social and cultural circumstances (Fairclough 1999). It is driven by a critical impetus, seeking to not only understand and explain social phenomena but also to actively critique and challenge them (Breeze 2022).

In the context of knowledge production, CDA examines the textual practices that challenge established knowledges, identities and relationships, particularly in change initiatives like calls for proposals (Farrell 2001; Metcalfe & Fenwick 2009). By analysing these discursive interventions, CDA sheds light on the power dynamics and ideologies that shape knowledge production. It recognises that knowledge is not neutral or objective, but rather influenced by social, political and cultural factors (Lombardo & Meier 2022).

Within the realm of qualitative research, our study employed manual analysis as the primary method for closely scrutinising and deriving meaning from our dataset without reliance on computer-assisted tools. This chapter outlines step-by-step analytical technique, beginning with the initial phase of data familiarisation through early coding. During this phase, our objective was to identify inherent patterns, thematic elements and categorical structures embedded within the dataset.

Subsequently, we progressed to a comprehensive review of the data, a pivotal step aimed at both validating established associations and uncovering novel codes. This process involved a rigorous comparison of newly identified codes with pre-existing theoretical frameworks, a practice that facilitated a deeper comprehension of our research subject. It is noteworthy that our study was informed by the qualitative paradigms of grounded theory, ethnography, and hermeneutics, all of which emphasise the intrinsic interplay between theory and data throughout the analytical journey.

Furthermore, recognising the significance of the initial dataset segments as crucial indicators, we diligently analysed these early cues to ensure the inclusion of any pertinent issues that might otherwise elude our attention. This proactive approach guided our subsequent interviews and observations, ensuring comprehensive exploration.

In our commitment to the integrity of our analysis, we fostered collaborative engagement with colleagues throughout the research process. This practice allowed us to rigorously test our theories and interpretations while addressing any methodological challenges that emerged during the analysis phase. Such collective discussions significantly enriched our analytical endeavors, contributing to the robustness of our research findings.

Findings

Socio-economic and socio-cultural profiles

Understanding the profile of traditional rice farmers extends beyond academic inquiry; it underscores their pivotal role in safeguarding heritage and sustenance within the contemporary agricultural landscape. Situated in rural low-lying areas, traditional rice cultivation epitomises subsistence farming. Informants within the study area predominantly managed small-scale family-run farms, yielding from modest to surplus harvests, thereby showcasing the resilience of heritage and cultural continuity.

Within this context, one significant characteristic of traditional rice farming is the limited use of pesticides, driven not by choice but by economic constraints. The prohibitively high costs associated with pesticides and labour render them impractical, resulting in the adoption of conventional, albeit labour-intensive, methods. Dependence on rainwater and nearby river sources for irrigation is customary, with mechanisation (besides bush cutter) noticeably absent from the landscape. Drabble (2000) described the Malaysian premodern subsistence economy as being

composed of irrigated wet rice cultivation (*sawah*) and rainfed shifting rice cultivation (*ladang*)¹.

Economic pressures and the introduction of efficient production methods have transformed the socio-cultural fabric of Kampung Melayu, Roban. Despite variations in yield (ranging from 0.5 to 2 t/ha annually), most farmers manage to attain self-sufficiency. Yet, this self-sufficiency remains elusive as yields often fall short of their demands, shaping the delicate equilibrium between production and consumption.

In times of financial constraints and delayed subsidies, farmers resort to selling their produce, bridging the gap between self-sufficiency and economic vulnerability. Moreover, traditional rice farmers embody dual roles as cultivators and custodians of heritage. They dedicate a portion of their labour to planting traditional rice varieties, not solely for sustenance but also for commercial purposes, thereby alleviating the burden of delayed subsidies and supplementing their income, albeit modestly.

Socio-economic transformations in Kampung Melayu have had repercussions on social structures, though stability remains a cornerstone despite the challenges of low income and tireless labor. While many farmers continue to cultivate traditional rice varieties, financial support often comes from younger male family members engaged in off-farm jobs, while female family heads diligently maintain the fields.

The hustle in the rice fields is totally regarded as labour-intensive and physically demanding. Although elder farmers aspire for their children to honor their ancestors' legacy through rice cultivation, they also acknowledge the hardships and meager income associated with it. The changing

socio-economic landscape has eroded some facets of traditional farming systems, primarily due to the attraction of less physically demanding work and improved life prospects.

The income diversification strategy, balancing self-supply farming with temporary off-farm employment, reflects the adaptive response of these traditional rice farmers within the evolving socio-economic setting.

In the context of traditional rice cultivation, an analysis of the respondents' profiles (*Table 2*) provides valuable insights into the sociological dynamics at play within this agricultural community. Traditional rice cultivation represents a vital aspect of the cultural and economic fabric in many regions, and understanding the demographic and technological characteristics of those engaged in this practice can shed light on various sociological phenomena.

Demographic patterns and social stratification:

Examining the respondents' age and gender reveals intriguing facets of social stratification within the traditional rice cultivation community. Firstly, it is apparent that age plays a significant role, with a broad range of ages represented among the respondents. This diversity highlights the intergenerational transfer of agricultural knowledge and underscores the importance of preserving traditional practices.

Gender, too, plays a pivotal role. While there is a relatively balanced representation of both males and females, the social roles they occupy within the rice cultivation milieu vary. Historically, this practice has often been gendered, with men tending to focus on certain tasks, such as land preparation and heavy labour, while

¹ Rice cultivated along the spectrum of 600 – 900mm of water over the growing season, ambiguity remains with the definition (Kingwell-Banham 2019). The term may refer to farming systems without irrigated schemes, although some form of supplemental water control is known to be used alongside a rainfed system (Harrington and Tow 2011).

Substantial cultivation of traditional rice varieties	No
Average family members living of rice production	5 - 9
Main use of produced rice	sc, lms, ks
Crops per year	1
Land use type	Traditional
Aspiration: children to carry on with rice production?	No
Irrigation system	Rainfed

Explanatory notes on abbreviations: sc = mainly self-consumption; lms = surplus selling at local market and to tourism businesses; ks = keeping seeds for new crop. Source: Tekken et al. (2017); Yang (2022)

women may engage in activities related to planting and harvesting. The presence of female respondents challenges these traditional gender norms, suggesting shifts in labour dynamics and potential gender empowerment within the community.

Ethnic diversity and cultural significance

The respondents' ethnic backgrounds reveal a rich tapestry of cultural diversity within the context of traditional rice cultivation. The presence of individuals from the Iban, Chinese, and Malay ethnic groups underscores the multicultural nature of this community. The cultivation of rice is often deeply intertwined with cultural practices and traditions, and the diversity of ethnic backgrounds among the respondents suggests the coexistence and potential cross-pollination of different cultural elements.

Technological adoption and modernisation:

A key sociological dimension to consider is from the Luhmann's system theory, the increased process of system differentiation as a way of dealing with the complexity of its environment (Rasch 2000; Vanderstraeten 2005). Since Luhmann conceives of society as an all-encompassing system, it can be observed only from within the system. The data showcases a range of technology utilisation, from knapsack sprayers to grass cutters and water pumps. This indicates a nuanced relationship between tradition and modernity within the cultivation practices. While some respondents embrace contemporary farming technologies, others

maintain a more traditional approach.

The differentiation within the cultivation system is a way of dealing with changes in the social aging and migration among the youths. The society evolve by creating differentiation within the system. That is, an environmental change will be "translated" into the structure of the society (Ritzer & Stepnisky 2011). This dynamic reflects a broader sociological tension between the preservation of heritage and the pressures of agricultural modernisation.

Social networks and knowledge transfer:

Another sociological aspect to consider is the role of social networks and knowledge transfer within this community. Respondents with varying years of experience in rice cultivation may represent nodes within complex networks of information sharing. Traditional agricultural practices often rely heavily on experiential knowledge passed down through generations, and understanding the structure and function of these networks can provide insight into the sustainability of these practices in the face of external pressures.

Table 1: Farmer's Profile

No.	Age	Gender	Ethnic	Land size (acre)	Avg. yield (kg/season)	Type of variety	Exp.	Current tech. used
1	68	Male	Iban	1.50	0.90	Bubuk	17	Grass cutter Water pump
2	68	Male	Iban	1.50	1.50	Bali	30	Grass cutter Knapsack sprayer
3	53	Male	Iban	1.02	1.40	Bali	30	Knapsack sprayer Grass cutter
4	70	Male	Chinese	1.00	2.00	Bubuk	10	Knapsack sprayer Grass cutter
5	60	Female	Iban	1.47	1.40	Bali/Rotan	40	Knapsack sprayer Grass cutter
6	56	Female	Iban	1.00	0.50	Bali/Rotan	4	Knapsack sprayer Grass cutter Water pump
7	44	Female	Chinese	1.47	1.00	Bali/Rotan	12	Knapsack sprayer
8	63	Female	Chinese	1.00	0.75	Bali/Rotan	40	Knapsack sprayer
9	63	Female	Chinese	2.00	0.50	Bario	10	Knapsack sprayer
10	37	Female	Chinese	2.00	1.00	Bario	13	Knapsack sprayer Grass cutter
11	56	Female	Malay	2.00	1.00	Rotan/Bali /Bario	40	Knapsack sprayer
12	51	Male	Malay	0.25	0.85	Bali/Rotan	20	Knapsack sprayer Grass cutter
13	64	Male	Malay	0.25	0.85	Rotan/Apong	40	Knapsack sprayer Grass cutter
14	56	Male	Malay	2.50	1.00	Rotan	23	Knapsack sprayer Grass cutter
15	57	Male	Malay	0.20	0.60	Bali/Rotan	4	Knapsack sprayer Grass cutter

Sociological examination of cultural values in rice cultivation

This sociological analysis undertakes the interpretation of action in terms of its subjective meaning (Weber 1921) obtained through interviews, employing a symbolic interactionism theory to unravel their significance. The statements have been categorised into distinct sub-categories of culture, encompassing identity values, heritage values, knowledge values, and intangible rice values (*Table 2*). These categories serve as a lens through which to discern the intricate sociocultural dimensions that underlie rice cultivation practices within this community. The analysis ventures into the realms of identity values, heritage

values, knowledge values, and intangible rice values, aiming to explain the profound impact of these values on the attitudes and behaviors of the aging farmers.

Identity values

The initial sub-category, identity values, is characterised by the social identity emanating from occupation and ethnicity (Eifert et al. 2010). As one informant articulates, "As an Ibanese, I commenced paddy cultivation at the tender age of 8, accompanying my father to the fields." This statement accentuates the pivotal role of occupation and ethnic affiliation in shaping an individual's social identity within the community. The occupation of

rice farming stands as an indelible facet of the cultural identity for the Ibanese populace (Freeman 1970). The aging farmers' social identity is intrinsically intertwined with their occupational and ethnic backgrounds, with the Ibanese identity holding particular prominence. This highlights the significance of occupational identity formation, aligning with the sociological concept of occupational socialisation, wherein individuals internalise the values, norms and practices intrinsic to their chosen occupation (Hicks 2008).

Another facet of identity value pertains to social identity ascribed by membership in a socio-cultural milieu, notably the designation of being a "rice farmer". One informant lament, "It's not that I reject technology, but we, as impoverished rice farmers, cannot afford it". This sound sheds light on the economic constraints encumbering rice farmers and how these constraints mold their social identity. Furthermore, the statement, "There are a total of 22 doors in the longhouse, and at least 5 of them actively engage in paddy cultivation," accentuates the communal nature of rice farming and its contribution to the shared identity of the community. Consequently, their identity becomes deeply interwoven with participation in the socio-cultural milieu of "rice farmer." This shared identity fosters a profound sense of belonging and solidarity among community members. The acknowledgement of poverty among rice farmers underscores the economic dimensions of this identity, demonstrating how economic factors can exert substantial influence over one's social identity (Davis 2006).

Moreover, the notion of autonomy or self-governance within the village/ community emerges as another facet of identity values (Jensen et al. 2011). The statement, "We depend solely on our own resources, relying on rainwater," spotlights the self-sufficiency and independence characterising the community in satisfying their agricultural needs. Similarly, the assertion, "We must employ traditional methods, using machetes manually without assistance," underscores the community's reliance on conventional techniques and their capacity to subsist without external intervention. Autonomy and self-governance hold integral positions within the farmers' identity values (Hammersley et al. 2021). By drawing upon their own energy and resources, they accentuate self-reliance in the realm of rice cultivation, echoing the sociological principle of self-help and collective efficacy, wherein communities cultivate self-sufficiency in response to external challenges.

Shared community values

The significance of shared community values becomes apparent through the farmers' apprehensions regarding the preservation of traditional rice varieties and the synchronisation of agricultural endeavors within the community. The apprehension surrounding the loss of traditional varieties mirrors the community's shared cultural heritage and their aspiration to transmit these practices to future generations. This alignment concurs with the sociological concept of cultural transmission, wherein values and traditions cross generations within a community (Eyssartier et al. 2008; Ginigaddara & Disanayake, 2018; Wang et al. 2016a; Xu et al. 2014).

Table 2: Indicators for cultural Identity related to traditional rice

Cultural sub-category	Indicators	Quotes
Identity values	Social identity defined by occupation and ethnic	<ul style="list-style-type: none"> As an Ibanese, I started do the paddy since I was 8-year-old as I frequently followed my father to the field.
	Social identity defined by membership in socio-cultural milieu 'rice farmer'	<ul style="list-style-type: none"> It's not that I don't want to use technology, but we are poor rice farmers..... There are total 22 doors in the longhouse and at least 5 of them will actively doing paddy
	Autonomy or self-governance of village/community (we help ourselves)	<ul style="list-style-type: none"> "We rely only on our own initiatives. Depending on the rain water". "We had to use the old-fashioned way, just use the machete. Use manual with no help".
	Shared community values (act and think similar)	<ul style="list-style-type: none"> we are afraid the traditional varieties (Bali, Rotan) will lost over generation. We doubt our next generation still poses the skill of cultivation' We will do weeding only when all of us are ready to weed. We start to cultivate when we are all ready to do so. That was how it works normally We are always concern about the old practices that do not fit with current cost and situation
Heritage values: Cultural history and traditions	Shared local cultural heritage determined by social, economic, political, and cultural development.	<ul style="list-style-type: none"> We have been long using this kind of varieties. Hence there is no way for us to change the seed. My great grandmother and my father have been planting this varieties for over 100 years long. I feel so attached with this varieties since Regardless any changes, I will ensure the next generation knows and enjoy the delights of Bali's rice
	Social structures and hierarchies related to rice cultivation (labour division of men, women, children in the field work)	<ul style="list-style-type: none"> As a single mother, I do weed all by myself for four days straight Both men and women will do the paddy. The women will only do planting and harvesting while the men will usually do the weeding
	Ancient customs: community festivals/celebrations related to rice cultivation	<ul style="list-style-type: none"> We will surround the paddy field about 4 times before harvesting as a symbol of guarding the rice.
	Culinary heritage: characteristic diversity of traditional rice varieties (associated with taste and preference)	<ul style="list-style-type: none"> When my friends heard about the high cost of traditional rice cultivation, they asked me to rather buy other kind of rice to consume but it wasn't that easy. The taste is way different I can taste the sweetness in local varieties compare to other modern varieties. There is really a different I just like it so that's the only reason I cultivate It's tasty, full of aromatic, easy to cultivate

Cultural sub-category	Indicators	Quotes
Knowledge values	Social norms (taboos, beliefs, behaviour, moral concepts)	<ul style="list-style-type: none"> This traditional varieties must be produced and consumed as long as we live. This varieties make us
	Cultural and social attitudes (e.g. respect of elderly and local authorities, ancestor worshipping)	<ul style="list-style-type: none"> “I’ve spent my entire life tending to these traditional rice varieties, just like my ancestors did before me. This rice is not just food; they are a link to our heritage and a testament to the wisdom of our elders. I remember my grandfather, God rest his soul, teaching me the secrets of cultivating these grains, and I wish I could pass down that knowledge to my own children and grandchildren.
Intangible rice values	Shared cultural traditions (customs, norms, ideologies, ways of living): ‘sharing first harvest rice with neighbour’	<ul style="list-style-type: none"> I love sharing Bali’s variety with friends People here will be always waiting for the first yield. How the first harvest taste like. That’s the real enjoyment. In fact, the excitement even starts the moment they hear the sound of rice grinder machine Sometimes I giving alms to my brothers and sisters so everyone can taste the new harvested rice

Adapted from Tekken et al. (2017)

The synchronisation of activities, such as weeding and cultivation, attests to the interdependence among community members. The collective nature of these undertakings exemplifies the concept of collective efficacy, wherein communities collaboratively work towards shared objectives (Butel & Braun 2019). Shared community values equally constitute an integral facet of identity values (Scribner et al. 2002). One informant, expressing concern about the potential extinction of traditional rice varieties, declares, “*We dread that the traditional varieties will erode with each successive generation. We harbour doubts regarding the competence of our descendants in cultivation*”.

This articulation underscores the community’s shared values, centered on preserving their cultural heritage and ensuring the eternity of time-honored practices. Furthermore, the statement, “*We initiate weeding only when we are all prepared to partake, commencing*

cultivation once we are collectively ready,” underscores the collective decision-making and shared values that steer the community’s agricultural practices.

Heritage values

The second sub-category, heritage values, encompasses the cultural history and traditions entwined with rice cultivation. The quoted excerpts in this category illuminate the shared local cultural heritage and the significance of social, economic, political, and cultural developments in its formation (Arcodia & Whitford 2006; Pedroso 2021; van Deursen & Raaphorst 2014). One informant assert, “*We have adhered to these varieties for generations; there is no room for change*”. This proclamation underscores the attachment to traditional rice varieties and the resistance to change. The informant’s connection to the practices of their forebears is further accentuated in the statement, “*My great-grandmother and father have cultivated this variety for over*

a century. I hold a deep attachment to it". This demonstrates the intergenerational transmission of cultural practices and the importance of ancestral knowledge in shaping the community's identity (Nasir & Saxe 2003).

The community's cultural traditions and customs also find expression in the quoted passages. For instance, the statement, "*We will always visit and guarding our fields, particularly when we miss the paddy*", reflects the emotional connection between the community and their agricultural practices. This tradition of visiting the paddy field underscores the community's profound bond with their land and the importance of maintaining an intimate relationship with it. In the context of the Ibanese culture, "*missing the paddy*" likely refers to the period when the rice plants are nearing maturity or ripening. This stage is crucial in rice cultivation as it marks the time when the paddy grains are ready for harvest. The term "*missing the paddy*" may carry cultural connotations related to the importance of rice in the Ibanese way of life (Freeman, 1970). Rice holds a central place in many Asian cultures, symbolising sustenance, prosperity, and cultural identity (Delhey et al. 2018). The phrase suggests that ensuring the well-being of the paddy during this critical phase is of paramount importance to the Ibanese.

Additionally, the quoted statements unveil social structures and hierarchies related to rice cultivation. One informant discloses, "*As a single mother, I independently undertake weeding for four consecutive days*". This declaration illustrates the gendered division of labor, where women bear responsibility for specific tasks in rice cultivation. Another informant asserts, "*Both men and women partake in paddy cultivation. Women primarily engage in planting and harvesting, while men are typically tasked with weeding*".

This statement further emphasizes the gendered division of labor and the distinct roles assigned to men and women in the community's agricultural practices.

Cultural traditions associated with rice cultivation, such as field visits or symbolic rituals, reinforce the community's connection to their agricultural practices. These traditions serve as a conduit for collective memory, bolstering social bonds and identity. Ancient customs and community festivals tied to rice cultivation also feature prominently in the statements. For instance, one informant remarks, "*Before the harvest, we encircle the paddy field four times as a symbolic act of guarding the rice*". This declaration elucidates the symbolic rituals entailed in rice cultivation and the community's conviction in the safeguarding and preservation of their agricultural resources (Hussin 2019).

Culinary heritage constitutes another facet of heritage value discerned in the quoted passages. The flavor and preference for traditional rice varieties emerge in various statements. One informant remark, "*When my acquaintances learned of the high cost associated with traditional rice cultivation, they suggested I purchase alternative varieties. However, it wasn't that simple. The taste is markedly distinct.*" Another informant asserts, "*I can discern the sweetness in local varieties compared to other modern strains. There is indeed a distinction.*"

The reference to the distinct taste associated with traditional rice varieties underscores the significance of taste as a cultural marker. Taste is not merely a sensory experience but a socially constructed phenomenon deeply intertwined with cultural identity (Mohd. Yakin et al. 2022). Different communities and cultures have distinct preferences for tastes, flavors, and culinary traditions. In this context, the farmer's attachment to the traditional rice variety reflects a connection to their cultural heritage and a preference for the tastes that are familiar and culturally meaningful to

them. The suggestion to switch to alternative varieties highlights the tension between economic considerations and cultural attachment, a common sociological theme in the study of food and consumption (Domaneschi 2012).

Knowledge values

The third sub-category, knowledge values, encompasses social norms, cultural and social attitudes, and inherited social roles and functions within the community. The statement from the ageing farmer highlights the intricate relationship between traditional agricultural practices, cultural attitudes, and social values within their community. At its core, the farmer's commitment to preserving and passing down knowledge about traditional rice varieties reflects a profound cultural attachment to heritage and continuity (Ramdayal et al. 2021). This attachment is deeply rooted in the community's respect for the elderly and local authorities, who are seen as repositories of wisdom and custodians of tradition. The act of cultivating these traditional rice varieties transcends mere agriculture; it becomes a form of cultural preservation and a means of connecting with ancestral roots (Wang et al., 2016b). The quotation addresses cultural and social attitudes or inherited social roles and functions, the quoted statements do provide insights into social norms and beliefs concerning rice cultivation. One informant declares, "This traditional variety must be perpetuated and consumed throughout our lifetimes. It defines us." This statement reflects the social norm of preserving and perpetuating traditional rice varieties as an integral facet of the community's identity and way of life.

Intangible rice values

The final sub-category, intangible rice values, encompasses the recreational value of traditional rice, aesthetic-emotional contemplation of rice, and the overall enjoyment derived from rice cultivation. The

quoted statements in this category spotlight the emotional and social significance of rice cultivation within the community. One informant passionately expresses their fondness for sharing Bali's variety with friends, stating, "I take immense pleasure in sharing Bali's variety with friends." This statement underscores the social aspect of rice cultivation and the joy derived from sharing the rice of their labor with others. Another informant conveys the anticipation and excitement surrounding the initial harvest, proclaiming, "Locals eagerly await the first yield, savoring the unique taste. That's the true enjoyment."

The act of sharing traditional rice varieties can be seen as an expression of cultural identity and heritage. Food, including traditional rice, often serves as a symbol of cultural continuity and preservation (Billore 2021). By sharing their traditional rice with friends, individuals are not only sharing a culinary experience but also transmitting cultural values and traditions (Martin 2011). This reflects how food-sharing practices contribute to the perpetuation of cultural identity within communities.

The recreational and emotional value attached to traditional rice is manifest in the joy and excitement expressed by farmers when they share their harvest with others. The act of sharing rice varieties symbolizes communal well-being and mental satisfaction, reinforcing the role of rice as a source not only of sustenance but also as a symbol of communal happiness (Martin 2011). Sociologically, this resonates with the concept of symbolic interactionism, wherein individuals derive meaning and satisfaction from their interactions and shared experiences.

Perceived usefulness

In the context of agricultural sociological analysis, the phenomenon of technology acceptance among rice farmers is evident through various dimensions of their perceptions and expectations as displayed in

Table 3. Specifically, the farmers' attitudes toward the acceleration of task completion, improvement in job performance, increased productivity, effectiveness enhancement, task simplification, and overall utility of modern mechanisation in rice cultivation can be expounded upon through sociological lenses. The sociological perspective provides valuable insights into the multifaceted dimensions of technology acceptance among rice farmers, elucidating the interplay between technology and the socioeconomic dynamics of rural agricultural communities.

Accelerate task completion

Farmers emphasise the labour-intensive aspects inherent in traditional rice cultivation practices, with a particular focus on the demanding weeding and harvesting processes. These tasks necessitate the engagement of labour for extended periods, imposing dual constraints in terms of time and finances. Within this context, farmers acknowledge the prospect of adopting simple mechanisation as a means to expedite these arduous activities with the aim to accelerate the tasks. This aligns with sociological perspectives that highlight how technological advancements shifts lead to increased efficiency while hold the potential to alleviate the economic constraints faced by aging communities (Warner & England 2010).

Improve job performance

In the context of an aging community, the term "performance" takes on particular significance. Performance can refer to the ability of individuals, especially those who are older, to carry out daily tasks and activities. As people age, there may be physical and cognitive changes that affect their performance in various aspects of life. The statement suggests that the adoption of modern mechanisation is being evaluated not just in terms of efficiency but also in how it aids the performance of tasks, especially for older individuals. Their adoption of technologies that hold the

potential to amplify agricultural productivity is a manifestation of this sociological phenomenon, as they seek to enhance their relative standing within the agricultural milieu.

Increase productivity

Rural informants accentuate the pivotal role of technology in augmenting agricultural productivity, particularly in the context of aging farmers with limited access to financial capital. This perspective resonates with the sociological concept of social stratification, where technology serves as a leveling mechanism, empowering marginalised individuals or groups to compete effectively within the agricultural domain. In essence, technology functions as an equaliser, bridging the gap between resource-constrained farmers and their more affluent counterparts.

Effectiveness

The mention of the high costs associated with pesticides and labour as constraints on the effectiveness of traditional weeding activities underscores the sociological principle of resource constraints exerting a pivotal influence on the efficacy of agricultural practices. The farmers' willingness to explore alternative methods reflects their adaptability in response to evolving economic circumstances, a hallmark of the dynamic interplay between technology and agricultural sociology.

Simplify the task

Farmers underscore the imperative for technology to simplify tasks, especially for elderly individuals grappling with physical challenges. This sociological lens encapsulates the disparities related to age within the agricultural labour force, where mechanisation offers respite to elderly farmers, permitting their continued engagement in agriculture despite physical limitations. In essence, technology serves as a means of reducing age-related inequities in the agricultural workforce.

Table 3: Indicators for technology acceptance related to traditional rice cultivation

TAM components	Variables/Indicators	Quotes
Perceived usefulness	Accelerate task completion	<ul style="list-style-type: none"> • I need to hire 3-4 labour to complete weeding in one day. Sometimes you need to extend up to 2 days. Simple mechanization will help me to accelerate the task with minimum cost • I have to hire my brother in law to do harvesting. It takes days using traditional ketap by stages. A simple harvesting machine will help me a lot. I need to accelerate the activity • We need to accelerate harvesting process or the paddy will fall especially during hot climate • It takes up to 10 days to complete harvesting. Using traditional ketap is too slow
	improve job performance	<ul style="list-style-type: none"> • I want to make sure that the modern mechanisation will make difference in term of time and performance. Otherwise it will be useless
	Increase productivity	<ul style="list-style-type: none"> • With ageing and limited capital, appropriate technology will enhance productivity • To increase productivity, we need some kind of technology regarding planting and harvesting
	Effectiveness	<ul style="list-style-type: none"> • High cost of pesticide and labour will limit the effectiveness of weeding activity. We need other alternatives
	Simplify the task	<ul style="list-style-type: none"> • <i>Simple machine will definitely help the older people like us to do the harvesting. I have been suffering back pain using the traditional ketap at my age now</i>
	Useful	<ul style="list-style-type: none"> • With new technology, I might see myself doing the traditional rice cultivation in next 10 years. It will be really useful for me as an old man • I am 68 years old, suffer lot of diseases, lack of capital, limited energy. Despite all that, I still need the rice to eat. Simple technology/mechanization will be useful • Ageing, high labour cost and limited time and energy require us to consider useful simple technology
Perceived ease of use	Easy to learn	<ul style="list-style-type: none"> • Technology means nothing if no hands-on training provided to us. Besides, we are not young anymore • I am 71 years old now. We need more youths to learn how to operate the machine or else the machine will 'operate' me
	Easy to handle	<ul style="list-style-type: none"> • Traditional varieties are all disease resistance as compare to any modern varieties particularly during dry season • I don't think modern varieties are pest resistance. You will need more and more treatment to handle
	Readily understandable	<ul style="list-style-type: none"> • Technology must come with a training and some tutorial. We just can't fully understand how to operate. That is our major concern. The simple one is possible for us to understand
	Flexibility	<ul style="list-style-type: none"> • Not all machines and technologies are fit to use in our paddy field. It must apply in appropriate place • It is nearly impossible for huge machine to enter the field with limited road access along the village
	Fostering skill mastery	<ul style="list-style-type: none"> • There is no any issue to master simple machines except new and complex technology
	Easy to use	<ul style="list-style-type: none"> • We have to accept such environment we live in. We see some modern tools that easily useable but some of them are not.

Adapted from Fahlevi & Dewi (2020)

Usefulness

At its core, the prevailing sentiment among farmers is that modern technology has the potential to render traditional rice cultivation more sustainable, particularly in light of demographic challenges, high labour costs, and energy constraints. This sentiment is consonant with the sociological understanding of technology as an adaptive mechanism that facilitates the preservation of traditional rice within evolving contexts, ensuring their resilience in the face of external challenges and constraints (Li 2023).

Perceived ease of use

In this sociological analysis, we delve into the statements provided by informants regarding their perceptions of ease of use, drawing insights from sociological perspectives and terminology to shed light on the sociocultural factors influencing technology adoption among older individuals in agricultural settings. In examining the informants' statements through a sociological lens, we uncover the multifaceted nature of perceived ease of use in the Technology Acceptance Model. Age, cultural practices, infrastructure, skill acquisition, and utility all play integral roles in shaping individuals' perceptions of technology. Recognising these sociological dimensions is essential for developing strategies to promote technology adoption, especially among older individuals in agricultural contexts.

Age and hands-on training

The statement, "Technology means nothing if no hands on training provided to us. Besides, we are not young anymore," highlights the intersection of age and technological adaptation. Older individuals, like the 71 year old informant, may perceive technology as less accessible due to a lack of familiarity or exposure. Beyond age, the statement indirectly suggests the existence of structural barriers to technology adoption. Sociological research often explores how

factors like socioeconomic status, education, and geographical location can impact an individual's ability to access and use technology (Alston et al. 2003; Binh 2022; Williams et al. 2014). In this context, the lack of hands on training may be indicative of broader structural inequalities that hinder technology adoption, especially in rural or underserved agricultural communities. Older generations may find it challenging to adapt to new technologies, as their socialization and skill development occurred in a different technological era.

Traditional vs. modern varieties

The contrasting views on disease resistance between traditional and modern crop varieties reveal sociocultural influences on technology acceptance. Informant 2 expresses a preference for traditional varieties, citing their disease resistance. This preference is rooted in the cultural practices and knowledge passed down through generations. The sociological lens of cultural capital and habitus suggests that individuals' agricultural choices are deeply influenced by their upbringing and the knowledge acquired within their social context (Brierley-Jones et al. 2014; Dumais 2002).

Accessibility and infrastructure

The informants' concerns about the compatibility of technology with their local context highlight the significance of infrastructure in technology acceptance. The statement, "Not all machines and technologies are fit to use in our paddy field," reflects the impact of physical infrastructure on technology adoption. The term "fit to use" implies that certain structural factors may limit the suitability of specific machines or technologies in the paddy field. Sociologically, this raises questions about the infrastructure, resources, and environmental conditions that may affect the choice of technology.

For example, the availability of adequate irrigation systems, the size and layout of the paddy fields, and the geographical location can all influence technology adoption.

Skill mastery and complexity

Informant's remark, "There is no issue to master simple machines except new and complex technology," underscores the importance of skill acquisition in technology adoption. The sociological concept of skill mastery relates to the idea that individuals acquire skills through socialization and learning processes (Amanda et al. 2022). The introduction of complex technologies disrupts existing skill sets and may lead to resistance or hesitation among individuals who perceive a steep learning curve.

Simplicity and practicality

The notion that "simple mechanisation would be easy to handle" reflects the desire for practicality and utility in technology. Sociologically, this aligns with the idea of rationalisation, where individuals seek efficiency and predictability in their actions (Treiber 2013). Technologies that are perceived as straightforward and beneficial are more likely to be embraced, as they align with the sociocultural values of practicality and utility.

Discussion

In the backdrop of rapid technological advancements in agriculture, the acceptance of modern technology in rice cultivation by aging farmers presents an intriguing sociological phenomenon. This analysis examines the interplay between the Technology Acceptance Model's (TAM) components of perceived usefulness and perceived ease of use, within the context of aging and cultural identity. Additionally, it investigates how aging farmers' determination to preserve indigenous rice aligns with their cultural identity and signifies a form of resistance against generational shifts in values.

Perceived usefulness and aging farmers

Perceived usefulness, a fundamental element of TAM, explores the extent to which individuals believe that a technology will enhance their performance or make their tasks easier. In the case of aging farmers, the acceptance of modern technology in rice cultivation can be partly attributed to their aging bodies and the acknowledgment of their diminishing physical capabilities. Aging is a sociological concept marked by changes in an individual's physical, psychological, and social dimensions (Baltes & Baltes 1990). It is often accompanied by a recognition of one's own limitations and a desire to adapt to new tools and strategies to maintain productivity (Janssen & Stube 2014). Thus, aging farmers may perceive modern technology as a means to alleviate the physical burden associated with traditional farming practices.

Furthermore, value conflicts between generations play a pivotal role in shaping aging farmers' perceptions of usefulness. The lack of basic facilities limits the opportunities for the adoption of modern technology, consequently reducing the involvement of the younger generation in the cultivation of traditional rice varieties. Value conflicts between generations arise when young people migrate to urban areas, reducing group activities, hindering the process of adaptation and social learning, and ultimately replacing traditional values, norms, and practices with new ones. The sociological concept of intergenerational conflict emphasises the differing values, norms, and attitudes that emerge between generations due to varying life experiences and historical contexts (Lee et al. 2000).

Perceived ease of use and aging farmers

The perception of ease of use, another facet of TAM, considers the degree to which individuals believe that a technology is user-friendly and accessible. For aging farmers, the appeal of simple modern technology in rice cultivation is closely tied to their desire for ease of use. As they age, their cognitive

abilities may decline, making complex technologies seem daunting. Hence, they gravitate toward technologies that align with their perceived cognitive capacities. This sociological perspective reflects the concept of cognitive aging, which acknowledges that cognitive abilities evolve over the life course and influence individuals' technology preferences (Best & Charness 2015).

Aging farmers' preference for user-friendly technology also aligns with the sociological principle of habitus, wherein individuals develop dispositions and preferences based on their upbringing and social context (Lizardo 2004). Traditional farming methods are deeply ingrained in the cultural fabric of the community, and any new technology must fit seamlessly into their established routines and practices.

Indigenous rice cultivation as cultural resistance

Beyond the TAM components, aging farmers' determination to maintain indigenous rice cultivation reveals a profound sociocultural dimension. Indigenous rice is not just a crop; it embodies a cultural identity and a way of life deeply rooted in the community's history. By preserving indigenous rice, aging farmers not only sustain their cultural heritage but also resist the encroachment of modernisation and the erosion of traditional values.

This resistance aligns with the sociological concept of cultural preservation, which underscores the significance of cultural symbols, rituals, and practices in maintaining group cohesion and identity. The act of cultivating and sharing indigenous rice is a form of cultural capital that strengthens the bonds within the community (Abdul Wahab et al. 2022). In this context, the adoption of simple mechanization carries profound cultural meanings and can be seen as an act of cultural resistance against various socio-economic changes.

First, the preservation of indigenous rice varieties, such as Bubuk, Mamut, Bali and Bario, is a form of cultural resistance against homogenisation and globalisation. In a rapidly changing world where commercial and genetically modified rice varieties dominate the market, the choice to continue cultivating and preserving these traditional varieties represents a commitment to cultural heritage and diversity. It symbolises a resistance to the erosion of local knowledge, traditional agricultural practices, and the cultural identity that is intertwined with these unique rice strains. Sociologically, this underscores the significance of agriculture as a repository of cultural memory and resistance against the homogenising forces of modernisation (Daugstad et al. 2006).

Second, the act of sharing and consuming the first harvest's yield as a festive event reflects the social and communal aspects of rice cultivation. This communal celebration can be seen as a form of cultural resistance against the isolating tendencies of modern life. In a world characterised by increasing individualism and digital communication, the festival-like atmosphere of sharing and consuming the harvest strengthens social bonds and reinforces a sense of belonging within the community. Sociologically, this highlights the role of agriculture not only as an economic activity but also as a cultural practice that fosters social cohesion and resists the atomisation of society (Schiefer & van der Noll 2017). It demonstrates that cultural resistance can take shape in everyday practices, reinforcing the enduring importance of tradition and community in the face of modernisation.

Conclusion

The adoption of simple modern technology by aging farmers in rice cultivation, while rooted in the Technology Acceptance Model (TAM) components of perceived usefulness and perceived ease of use, is also profoundly influenced by the dynamics of aging and value conflicts between generations. These

aging farmers, who have spent their lives cultivating rice and sharing their traditional harvests, find themselves at a critical juncture where tradition and modernity intersect. On one hand, they recognise the practical benefits of mechanisation, as it can ease their physical burden and improve overall efficiency. The perceived usefulness of technology in enhancing productivity aligns with the TAM framework. However, the adoption of these technologies is not solely a pragmatic decision but is deeply intertwined with their cultural identity.

Additionally, their determination to preserve indigenous rice reflects a sociocultural resistance to generational shifts in values and a commitment to maintaining their cultural identity. This resistance arises from a complex interplay of factors, including the fear of losing traditional knowledge and practices, a desire to resist the commodification of agriculture, and the importance of rice cultivation in shaping their sense of self and community. In a rapidly changing world, where younger generations may prioritise urbanisation and non-agricultural pursuits, the aging farmers see themselves as guardians of a cultural heritage deeply rooted in the paddy fields. They perceive the adoption of modern technology as a means to sustain their way of life while simultaneously adapting to the energy and cost constraints imposed by their aging bodies. In this context, technology represents a bridge between tradition and change, a way to safeguard their cultural identity while responding to the practical challenges of agricultural production. The adoption of mechanisation is not due to the technological promises; it is a testament to their resilience in the face of changing times and an affirmation of the enduring importance of cultural identity in their lives.

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Abstrak

Kajian kes kualitatif ini dijalankan di Kampung Melayu dalam Daerah Roban di Kabong, Sarawak, Malaysia. Kajian ini menyelidik sudut pandang sosiobudaya bagi mengkaji faktor yang mempengaruhi sekumpulan pesawah padi tua di kawasan yang dikaji terhadap penerimaan teknologi penanaman padi. Dengan mengguna pakai model penerimaan teknologi yang diperluaskan, *extended Technology Acceptance Model (TAM)* sebagai rangka kerja, kajian mendapati di sebalik kebergunaan yang diamati dan kemudahgunaan, impak mendalam elemen sosiobudaya berkongsi hasil tuaian pertama adalah signifikan dalam penerimaan teknologi.