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## Social learning through rural communities of practice: Empirical evidence from farming households in the Vietnamese Mekong Delta

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### ABSTRACT

The social-ecological systems of the Vietnamese Mekong Delta (VMD) are under stress driven by accelerating impacts of climate change, upstream hydropower development, and local flood management policies. These combined complexities have prompted the rural societies to make significant efforts to adapt to changing conditions. While local adaptation represents diverse patterns of communication and interactions across the social sectors, far less attention has been given to how these learning processes occur in the rural communities of practice. This paper attempts to delineate the learning dynamics in which farming households are key practitioners. The mixed methods approach that guides data collection includes focus group discussions, in-depth interviews with key informants and household surveys. The analysis suggests that social learning plays a significant role in facilitating the adoption and dissemination of experiential and experimental knowledge across geographical boundaries. This study highlights important aspects of households' social learning system characterized by informal networks with various forms of bonding and bridging relationships. These learning patterns suggest that informal communication is a dominant learning approach in the rural delta. This study contributes to advancing the theoretical and empirical knowledge of social learning and its policy implications for rural development in the VMD.

### 1. Introduction

Rural societies in the VMD are confronting the multitude of social-ecological constraints. Apart from the incremental impacts caused by climate change and ongoing hydropower development in the upper Mekong Basin (Keskinen et al., 2010; Kuenzer et al., 2013; Lauri et al., 2012; Mainuddin, Kirby, & Chu, 2011), effects of state policies that favor the application of control measures to support intensive agricultural production have added substantial challenges to agriculture-dependent livelihoods and rural efforts to adapt to change. While significant attention has been drawn to the transboundary governance issues (e.g. transboundary water governance in the Lower Mekong Basin) (Grumbine, Dore, & Xu, 2012; Hirsch, 2006; Lebel, Naruchaikusol, & Juntopas, 2014), learning practices undertaken by rural communities of riparian countries to adapt to social-ecological changes have been insufficiently understood. It is apparent that the adaptation processes in the VMD have presented the dynamics of collaborative learning and production of agricultural knowledge in rural communities of practice. The proliferation of innovative farming practices implies that farmers have played a significant role in rural development. Surprisingly, while learning has long been established as one of the

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core values in the Vietnamese family and culture, its reflections in rural communities of practice in adapting to change have been largely overlooked in most of the studies of adaptation and rural development in the VMD.

The VMD is characterized by dense and complex river and canal systems (Cosslett & Cosslett, 2014), which make it vitally important for agricultural and aquacultural production. The region covers a land area of nearly 4 million hectares, and is home to 18 million people (GSO, 2014). The hydrological regimes of the delta are strongly influenced by the upstream flows, internal precipitation and tidal regimes of the East Sea and the West Sea (Vo, 2012). During the flood season, about half of the delta area (1.9 million hectares) is inundated (Le, Chu, Miller, & Bach, 2007). While the adverse effects of floods on assets, crops, and humans are apparent (Le, Haruyama, Nguyen, Tran, & Bui, 2007; Tran, 2009; Wassmann et al., 2004), there are economic benefits (ecosystem services) brought by floods, such as soil and nutrient replenishment, and from fisheries (Dugan et al., 2010). Consequently, local people have developed a wide range of practices for ‘living with floods’ (Dang & Pham, 2003). It is important that these livelihood typologies have been recognized and formally translated into local adaptation policies (Bach, Lebel, & Nguyen, 2009).

The development trajectory of the VMD has encountered dilemmas of whether adaptation or control should be adopted (Käkönen, 2008; Reis, 2007). It has become a critical case in point when control measures have still been employed as the dominant approach in local flood management policies (Waibel et al., 2012). Over the past decades, the delta has witnessed the extensive development of hydraulic engineering systems (dykes, canals) to promote intensification and diversification of agricultural production (Benedikter, 2014; Biggs, Miller, Chu, & Molle, 2009; Chu, Suhardiman, & Le, 2014; Garschagen, Diez, Nhan, & Kraas, 2012). This closing-off process has dramatically driven the socio-physical transformation of the delta landscapes (Benedikter, 2014; Miller, 2007). Simultaneously, the autonomy gained from the decentralization policy allows local governments to make their own decisions on development, service provision, and maintenance of hydraulic systems to accommodate their prioritized development strategies (Fritzen, 2006). Evidence reveals that this ‘self-governance’ approach also contributes to the fragmentation in the construction, operation, and management of flood control schemes in the delta (Tran & James, 2017).

Social learning is closely linked to the efforts rural farmers make to learn and develop agricultural innovations (Dessie, Schubert, Wurzinger, & Hauser, 2013; Oreszczyn, Lane, & Carr, 2010; Spielman, Davis, Negash, & Ayele, 2011). Innovations can be understood as the results of the learning process (Noguera-Méndez, Molera, & Semitiel-García, 2016). Many empirical studies present a range of learning patterns that drive innovations in developing countries. For instance, a case study in Ghana presents the social learning process where rural farmers learn through direct observations and communications with others (Conley & Udry, 2001). To search for ways to enhance local economic conditions, dairy farmers in the North-West of Tunisia are involved in communities of practice where they can share ideas and seek solutions together (Dolinska & d’Aquino, 2016). Examples of this social learning process suggest that farmers have been able to travel to other regions or overseas to observe farming practices, or attend relevant events at regional or national levels. In the case of Ethiopia, social learning creates opportunities for rural farmers to engage in communications with multiple actors, whereby they can enhance understanding of soil conservation (Dessie et al., 2013).

Communities of practice play an essential role in reflecting social learning systems (Wenger, 2000). Through communities of practice, learning is commonly viewed as a process of social construction and knowledge sharing, rather than knowledge transfer (Morgan, 2011). Owing to these interaction processes, members can establish a common identity and understand their common interests and interactions (Oreszczyn et al., 2010), which subsequently stimulates knowledge production, learning and innovation (Angelle, 2008; Swan, Scarbrough, & Robertson, 2002). Recent literature on communities of practice has reflected the typologies of social learning. For instance, Morgan (2011) adopted three dimensions of communities of practice (mutual engagement, joint enterprise, and shared repertoire) from Wenger (1998) to reflect social learning processes associated with Welsh farmers’ conversion of conventional farming practices to organic farming. She found that those who have similar styles and attitudes are more likely to be mutually engaged. The communities of practice are significant in showing how farmer decision making can be made (O’Kane, Paine, & King, 2008). In a case study from the UK, Oreszczyn et al. (2010) indicated that farmers often interact with those whom they trust. Their decisions are strongly influenced by the informal learning in which they got involved.

As advocated by Oreszczyn et al. (2010), while much work on communities of practice has been undertaken in organizations, empirical studies conceptualizing this concept in the rural context are needed. This study addresses this knowledge gap, particularly focusing on the social learning patterns taking place in the rural communities of practice in the VMD. While most empirical studies in the VMD focus on the implications of social capital and household ability to access resources for household resilience in dealing with flood risks and other factors of climate change (Bosma, Nhan, Udo, & Kaymak, 2012; Nguyen & James, 2013), little effort has been devoted to farming households’ social learning dynamics in association with their everyday adaptation practices. Given the social-ecological challenges facing the rural societies in the VMD, it is essential to understand how farming households are engaged in the social learning process when dealing with change, and how these learning effects contribute to rural adaptation. The data used in this study draw on focus group discussions, in-depth interviews, and household surveys that are undertaken in three flood-prone areas in the VMD. From the lens of the rural communities of practice, we argue that social learning plays a pivotal role in supporting local farmers’ livelihoods in adapting to change.

This study seeks to provide an empirical understanding of how social learning is defined in the cultural, social, and political context of the VMD. While some researchers are skeptical about the applicability of social learning research in the centrally-controlled governance system of Vietnam (Clemens, Rijke, Pathirana, Evers, & Nguyen, 2015), this study contributes to the current debate on the conceptualization of social learning (Muro & Jeffrey, 2008; Nykvist, 2014; Reed et al., 2010), and provides important evidence of social learning taking place in the rural communities of practice in the VMD.

The paper proceeds as follows. Section 2 presents the conceptual framework which explores the social learning concept and the communities of practice associated with social learning. Section 3 discusses the methodological approach that guides data collection and analysis for the study. In Section 4, the case studies will analyze and discuss how social learning takes place in the rural

communities of practice, and how it enables agricultural innovations. The paper concludes with [Section 5](#) highlighting the significance of the social learning system for rural development policies.

## 2. Conceptual framework

### 2.1. Conceptualization of social learning

Recent decades have seen increasing attention to social learning as a key approach to address contemporary social-ecological complexities. However, the concept has not achieved consensus due to its vagueness in meaning ([Muro & Jeffrey, 2008](#)). Rooted in behavioral psychology, [Bandura \(1977: 39\)](#) conceptualized social learning as “casual or directed observation of behavior performed by others in everyday situations.” It assumes an iterative feedback between the learners and their environment, the learner changing the environment, and these changes affecting the learner ([Pahl-Wostl et al., 2008](#)). However, social learning is not solely demonstrated by an act of imitation ([Borowski, Kranz, Kampa, & Vorwerk, 2004](#)), but rather the process of ‘learning together to manage together’ ([Wolters, Ridder, Mostert, Otter, & Patel, 2006](#)). Extending from the psychological perspective, [Lave and Wenger \(1991\)](#) with their theory of situated learning emphasize that learning takes place through interactions with others. In the same vein, [Reed et al. \(2010\)](#) argue that a social learning process must demonstrate a change in understanding, which is situated in wider social units through social interactions. Changes emerge when social actors actually change their minds through critical thinking, interactions and dialogue with others ([Schneider, Fry, Ledermann, & Rist, 2009](#)). Integrating these strands of thinking, [Glasser \(2009: 49\)](#) claimed that any learning that “involves some forms of input drawn from others, regardless of individuals or collectives, is characterized as social learning.”

Social learning is also linked to the multiple-loop learning processes: single loop, double loop, and triple loop learning ([Argyris, 2003; Keen, Brown, & Dyball, 2005; Pahl-Wostl, Nilsson, Gupta, & Tockner, 2011](#)). In this sense, learning can be seen as the process of detecting and correcting errors ([Argyris & Schön, 1978](#)). At the lowest level, single-loop learning refers to a refinement of actions to leverage performance. This level of learning indicates the incremental improvement of established routines and experiment-based practices ([Pahl-Wostl, 2009; Tàbara & Pahl-Wostl, 2007](#)). Double-loop learning refers to the learning of underlying assumptions that drive actions taken. Social learning associated with double-loop learning involves the transformation, innovation, and creation of various new forms of institutional norms of interactions ([Sol, Beers, & Wals, 2013](#)). At the highest level, triple-loop learning involves enquiry into values, beliefs, or norms that underpin operating assumptions and actions ([Keen et al., 2005](#)). The operation of multiple loop learning is essential to stimulate innovations, improve adaptive capacity, and change governance regimes ([Tàbara & Pahl-Wostl, 2007](#)).

Social learning involves generation and dissemination of knowledge that stimulates innovations ([Kilpatrick & Johns, 2003; Newig, Günther, & Pahl-Wostl, 2010](#)). Social learning in support of innovations is indicative of double-loop learning ([Sol et al., 2013](#)). Evidence supporting this claim is dominant in the agricultural sector ([Dessie et al., 2013; Spielman et al., 2011; World Bank, 2007](#)). Innovation is not only generated by farmers themselves, but also involves diverse forms of interactions. In this regard, [Pahl-Wostl et al. \(2011\)](#) see social learning as an exploratory process through which social actors experiment with innovations and try to overcome constraints.

Culture is part of social context of social learning ([Pahl-Wostl et al., 2008](#)). According to [Fforde \(1990: 112\)](#), the Vietnamese culture is characterized as being “simultaneously highly collective and highly individualistic.” Historically, the integration of the collectivistic culture of the north into the individualistic values of the rural societies in the VMD is the legacy of the early settlements throughout the ‘March to the South’ since the middle of the 18th century ([Evers & Benedikter, 2009](#)). These mixed values profoundly shape how local inhabitants interact with each other, and how they respond to local social-ecological complexities ([Taylor, 2001](#)). In light of this, we aim to incorporate both [Reed et al.’s \(2010\)](#) and [Glasser’s \(2009\)](#) conceptualizations of social learning in this study to investigate how this concept operates in the rural communities of practice of the delta.

### 2.2. Communities of practice as enabling platforms for social learning

Learning dynamics represent the sense of belonging among participants who shared cultural and social practices, which builds a community of practice ([Wenger, 1998](#)). Given their three dimensions– mutual engagement, sense of joint enterprise, and a shared repertoire of communal resources, [Wenger \(2000\)](#) suggests that communities of practice provides sources for learning and knowledge generation to occur. Nested in such interactive dynamics, individuals can do things together, develop common purpose and identity, and resolve differences ([Amin & Roberts, 2008](#)). Reflecting [Wenger’s \(1998\)](#) definition, [Snyder, Wenger, and de Sousa Briggs \(2003\)](#) view communities of practice as groups of people who share a concern, a set of problems, and those who deepen their knowledge and expertise in this area by interacting on an ongoing basis. Communities of practice offer spaces through which ‘communicative action’ can occur ([Koliba & Gajda, 2009](#)), and opportunity from which experiences may be shared and new ideas developed ([Edelenbos & Buuren, 2006](#)). However, how communities of practices enable learning to occur depends on local conditions ([Ramsten & Säljö, 2012](#)).

The concept of communities of practice has been largely applied in social sciences and professional disciplines ([Koliba & Gajda, 2009](#)). In the domain of environmental management, communities of practice facilitate social learning that promotes adaptation and innovation through social interactions ([Keen et al., 2005; Edelenbos & Buuren, 2006; Noguera-Méndez et al., 2016](#)). While the communities of practice are commonly used in the organizational context ([Angelle, 2008; Brown & Duguid, 1991; du Plessis, 2008](#)), there is insufficient knowledge of how the concept is understood in the rural context of the VMD. This study attempts to gain

empirical insights into how the rural communities of practice in the delta are built and facilitate farmers' learning practices in adapting to local environmental challenges.

### 3. Case study areas and research methods

We employed the case study approach for this study (Crowe et al., 2011; Yin, 2009). The methodology involved the application of the mixed methods approach which included both qualitative and quantitative methods. This section presents the procedures for selecting the case study areas and technical methods for data collection and analysis.

#### 3.1. Selection of the case study areas

This study attempted to investigate how the social learning practices occur in the rural communities of practice in the VMD. Given their significant contribution in terms of rice production and aquaculture in the VMD (GSO, 2014), three flood-prone areas which comprise An Giang, Dong Thap, and Can Tho were selected for this study (Fig. 1).

Geographically, these study areas represent three distinct landform units in the delta, including the Plain of Reeds, the upper floodplain, and the tide-affected floodplain (Tanaka, 1995). The transformation of its landscapes driven by the building of flood control schemes enables farming households to learn so that they can better adapt to local complexities.

The selection of the case study areas was informed by Yin's (2009) approach which guides the exploratory understanding of farming households' livelihoods in the rural context. This approach is pertinent as social learning reflects the real-life experiences of farming households over their course of adaptation. It can best illustrate their capacity and level of learning engagement in rural communities of practice, which results in formulating and disseminating innovative knowledge for desirable livelihoods across geographical boundaries. As this study employs the exploratory sequential approach (Creswell & Clark, 2011), the qualitative inquiry strategy was undertaken in the first phase of data collection.

#### 3.2. Description of the case study areas

This section presents the agro-ecological characteristics of the case study areas. Three communes which belong to Dong Thap, An Giang, and Can Tho were respectively selected for investigation. Accordingly, they consist of Phu Thanh B, Phu Xuan, and Thoi Hung.

Phu Thanh B is under the administration of Tam Nong district, Dong Thap province. Located in the Plain of Reeds of the upper delta, this area is frequently exposed to high flooding caused by flow discharge from the Mekong River, heavy rainfalls, and overflows from Cambodia in the flood season. Given the topography and bio-physical characteristics of the commune, the local government built low dyke systems<sup>1</sup> which aim to (1) protect the summer-autumn crops from early flood entry in the commune; (2) allows floodwaters to enter into the rice fields to enrich soil fertility when the rice crops are completely harvested, and growth of aquatic resources (e.g. wild fish, water lily, ...) in the flooding fields during the flood season; and (3) sustain local households' flood-based livelihood activities for daily subsistence.

Phu Xuan commune belongs to Phu Tan district, An Giang province. This area is situated between the two main branches of the Mekong River: the Tien and Hau rivers. The commune is also strongly influenced by seasonal flooding, which enables the local government to build the North Vam Nao flood control scheme to support multi-crop systems. According to AusAID's (2007) report, this scheme includes a high embankment of 100 km and internal dyke systems of 300 km that safeguard the total of 24 compartments. Cultivation of sticky rice underpins the main economy of the commune, and plays a dominant role in the local household's livelihoods. There are four compartments in Phu Xuan which are protected by high compartment dyke systems (5 + m). These structural systems aim to provide safety for local land transport and the practices of rural livelihoods in the flood season.

Different from the other areas, Thoi Hung commune is located in the low depression of the Trans-Bassac Depression Zone of the floodplain. It is under administration of Co Do district, Can Tho City. This area is protected by a highly-controlled dyke system. There is a lower embankment system that encircles each household's land area, which aims to secure the production of cash crops during the flood season. Integrated farming systems are the key farming practices in this commune. The well-coordinated irrigation and protective flood control systems of the commune allow farmers to diversify their crops to increase their household income, especially in the flood season.

#### 3.3. Methods for data collection and analysis

We drew on focus group discussions (FGDs), in-depth interviews, and household surveys to gather data for this study. Guided by the exploratory sequential approach, we undertook the qualitative data collection before administering the household surveys in three selected study areas. The data collection process lasted for about 7 months, from October 2013 to April 2014. The summary of study methods is presented in Table 1.

The data collection began with nine FGDs with three household groups (poor, medium, and better-off). The recruitment of

<sup>1</sup> The low dykes are also known as the August dykes (*đê bao tháng Tám*), which were initiated in An Giang province in 1978 (Howie, 2011). This structural system aims to delay the seasonal floodwater inflows into fields until the summer-autumn (*hè-thu*) crop is harvested. The protection of this enclosed embankment enables rice farmers to actively pump the remaining floodwaters out of the fields to start the winter-spring (*đông-xuân*) crop early.



(caption on next page)

Fig. 1. Hydropower dam development in the Mekong River Basin (large figure) and representation of the flood depths in the VMD in the flood event of 2000 with three selected study areas: (1) Phu Thanh B, (2) Phu Xuan, and (3) Thoi Hung. Sources: Adapted from WLE (Water, Land and Ecosystems) Greater Mekong (2016) and Ghassemi and Brennan (2000).

**Table 1**  
Summary of research methods.

Methods	Participants	Approaches for data collection and analysis	Data collected
Focus group discussion	9 FGDs with 3 household groups (poor, medium, better-off) in three communes	Selection of participants based on the participatory approach (King and Horrocks, 2010; Neuman, 2011) Thematic analysis (Neuman, 2011) assisted by NVivo	Impacts of dykes on rural livelihoods, households' learning activities and mechanisms for knowledge sharing
In-depth interviews	33 interviews with government officials, senior scientists, and farmers	Purposive sampling and snowball sampling (Liamputtong, 2013) Thematic analysis (Neuman, 2011) assisted by NVivo	Flood management policies, impacts of dykes on household livelihoods, and households' learning practices in adaptation process
Household surveys	300 participants selected in three communes	Stratified sampling (de Vaus, 2002) Bivariate analysis (de Vaus, 2002) assisted by Stata	Households' livelihood practices, households' engagement in shared learning and knowledge exchange

participants for FGDs was based on the participatory approach. Knowledge of the demographic and residential information on households held by the government officials provided substantial support to the selection of participants. The primary discussion topics included farming households' perspectives of changed flood regimes and livelihood conditions in the post-dyke situations. Farmers were encouraged to discuss the key issues about dyke impacts on rural livelihoods, households' engagement in learning activities, and mechanisms for knowledge sharing. Simultaneously, three PRA (participatory rural appraisal) tools including timeline analysis, trend analysis, and seasonal calendar which were adopted from Narayanasamy (2009) were employed to facilitate group discussions.

Thirty-three in-depth interviews were conducted with key informants in this study. Purposive sampling and snowball sampling approaches were applied to recruit the key informants (Liamputtong, 2013). Respondents were identified based on their engagement in formulating and implementing flood management practices and their empirical understanding of local livelihoods. Agricultural officials working at the provincial and district levels, senior scientists working at local research and academic institutions, and senior farmers were recruited for the interviews. Respondents were asked semi-structured questions to probe their views about flood management policies, impacts of dykes on household livelihoods, and households' learning in the adaptation process.

The implementation of qualitative data analysis was assisted by the NVivo software (Bazeley, 2007), which aimed to identify themes emerged from the data. This software has been employed in studies associated with social interactions in the context of environmental management (Measham, 2009; Nicholas & Durham, 2012; Yuen, Jovicich, & Preston, 2013). In this study, we adopted Neuman's (2011) approach to perform open coding, axial coding and selective coding, which assists in organizing raw data into conceptual categories.

The quantitative household survey was designed based on the exploratory findings from qualitative data analysis. It was then administered to target households in the study areas. The stratified sampling approach was used to recruit respondents for the survey (Neuman, 2011). The recruitment of respondents involved the classification of household groups, which is known as wealth ranking (Narayanasamy, 2009). Following this approach, rural households were classified based on their socio-economic characteristics (poor, medium, and better-off), from which the sampling frame was built (Neuman, 2011). Those who engaged in on-farm and off-farm livelihoods were categorized into these sub-populations (strata). Based on these strata, a random sample was drawn. This process consequently resulted in the recruitment of 100 households in each commune, which yielded the total number of 300 participants for the household survey.

The household classification involved the employment of a participatory approach to select suitable criteria (Adams, Evans, Mohammed, & Farnsworth, 1997; Chambers, 1994). This process involved a government official representative and key informants who are knowledgeable about the livelihood conditions of local households. The classification consequently resulted in opting land ownership, level of income, source of income, and housing conditions as the key indicators. Rural development studies indicated that these criteria have also been applied to assess households' well-being in developing countries (Ellis & Freeman, 2004; Gautam & Andersen, 2016; Tefera, Perret, & Kirsten, 2005). Although the selection of criteria is closely linked to the poverty line set by government policies on hunger eradication and poverty reduction program<sup>2</sup> in Vietnam, there are some variations across the rural communities in the VMD (Ha, Dijk, Bosma, & Sinh, 2013; Nguyen, 2011; Nhan et al., 2007). In the flooding context of the delta, according to Nguyen (2011), a poor household was defined as being landless or owning little land (< 0.5 ha), relying on wage employment as the main source of income, and having a simple house. Medium households often own a larger size of agricultural land (about 1–2 ha), with income derived from on-farm and off-farm work, and ownership of semi-permanent houses. Better-off

<sup>2</sup> As stipulated by the Prime Minister's Decision (09/2011/QĐ-TTg) dated January 30, 2011, the poverty line proposed for the period 2011–2015 was VND 400,000 per person/month in rural areas and VND 500,000 for those living in urban areas.

households are defined as having the agricultural land-holding (> 2 ha), engaging primarily in farming activities, and ownership of a good-quality house.

Regarding the quantitative household survey, a pre-test survey was conducted prior to the administration of the actual one. Based on the diagnostic results obtained from the pre-test survey, the questionnaires were revised to ensure the clarity and comprehensibility of the questions to respondents. Close-ended questionnaires with a response checklist were constructed to collect data. The survey contained information regarding households' livelihood practices, households' engagement in shared learning and knowledge exchange, which were obtained and entered into Stata software (version 13) for analysis. Besides the descriptive statistical analysis, we aimed to examine whether there were associations between nominal variables. The association analysis identified study areas and household groups as independent variables, while treating households' learning patterns and households' engagement in learning with local social networks as dependent ones, which are together cross-tabulated to perform the analysis. Cross-tabulation, according to Gray and Kinnear (2012), offers an excellent means to ascertain the presence of an association between the variables concerned. The post-hoc procedure was subsequently performed using Fisher's exact test to examine the difference among groups of the associated variables.

## 4. Results and discussion

### 4.1. Social learning patterns in the rural communities of practice

Adaptation practices of the farming households in the VMD are characterized by the evolving process of learning which represents their common endeavors and enterprise for exploring new knowledge. The findings reveal that these learning practices takes two primary forms: (1) collective learning through social interactions and communication, and (2) individual learning through self-reflection. These typologies of social learning are found to be complementary to each other, specifically demonstrating the efforts rural households have made in adapting to local social-ecological complexities. This study confirms that it is such dual personhood that makes local inhabitants highly-adaptive and innovative learners in the face of change. Formation of spontaneous groups to deal with complexities is very prominent in this regard (Taylor, 2001).

As noted by Taylor (2001), the communities of practice in the rural adaptation context of the VMD present spontaneous groupings of household individuals who come to share farming practices. They constitute informal networks which include individuals who know each other and are bound together by kinship or propinquity (Rose, 2000). Wah, Menkhoff, Loh, and Evers's (2007) commented that these forms of social capital are essential to the sharing of knowledge. Memberships of these networks can ensure better access to information and economic resources (Hoang, Castella, & Novosad, 2006).

Evidence suggests that household groups engage in various forms of learning. Learning through casual gatherings is the most common pattern. FGDs across the communes shared the common findings that rural people in the VMD often get together at home or a nearby café for morning tea or coffee. The meetings at these casual events stimulate discussion where farmers can update information or exchange practical knowledge relevant to their farming activities. As a prawn farmer expressed, "We share our knowledge of prawn farming in events of drinking or home celebrations. I think everyone has his own experience and strengths to be shared." (Interview 22, Phu Thanh B). Farming households can also learn from each other while working. Those working in adjacent fields sit together at noon for a tea break where they can consult and share experiences with each other. They can visit each other's fields or farming models where they can observe and jointly reflect on their own knowledge. These field activities provides greater opportunities for the collaborative production of knowledge among them. Most farmers agreed that this learning pattern is very handy because the knowledge can be quickly absorbed and put into practice. These findings are consistent with Kilpatrick and Johns' (2003) study that the workplace, the home, and community involvement are all significant contributors to learning.

Formal learning practices were also observed in the communes. This typology has proven beneficial to strengthening households' scientific knowledge and practical skills. In addition to training workshops, seminars provide important learning platforms where technical experts and local farmers communicate, find common interests, and exchange their technical and experiential knowledge. It is worth noting that the seminars also engage successful farmers, i.e. model farmers who are invited as guest speakers to discuss and share their experience with their fellows.

### 4.2. Households' learning practices across study areas and household groups

#### 4.2.1. Households' learning engagement with social actors by study areas

Most knowledge sharing begins with personal contact and interaction (Howard, 2005). The data in Table 2 suggest that the rural societies of the VMD still maintain strong bonding relationships. This connectivity recognizes not only shared social responsibility, but also reciprocal learning support as important components in rural practice. Considering social capital, Woolcock & Narayan (2000: 226) claimed that "when people fall on hard times, they know it is their friends and family who constitute the final safety net." This also holds true in the way farming households interact with their fellows in exchange of knowledge and collectively address the concerns of everyday livelihoods.

The cross-tabulation results indicate that Thoi Hung commune has the highest proportion of households who connect with these social actors to enable learning. Rural people are more likely to communicate with those with whom they feel intimate or comfortable to seek advice or share knowledge. The majority prefers to interact with their nearby friends, neighbors, and relatives whom they trust the most. These findings resonate with Dang, Li, Nuberg, and Bruwer's (2014) study that rice farmers in the VMD tend to pass on farming techniques and skills to their family members. Bauer (2011) also observed that individuals nested in family relationships

**Table 2**  
Households' involvement with local social actors by study areas.

Households' involvement with local social actors (%)	Study areas		
	Phu Thanh B (n = 100)	Phu Xuan (n = 100)	Thoi Hung (n = 100)
Learning interaction with grandparents <sup>ns</sup>	3	0	4
Learning interaction with parents <sup>ns</sup>	11	4	9
Learning interaction with siblings <sup>ns</sup>	21	26	27
Learning interaction with nearby relatives <sup>*</sup>	29	28	44
Learning interaction with distant relatives <sup>*</sup>	3	7	14
Learning interaction with neighbors <sup>**</sup>	51	52	73
Learning interaction with nearby friends <sup>***</sup>	21	33	48
Learning interaction with distant friends <sup>**</sup>	3	8	16
Learning interaction with technical experts <sup>*</sup>	15	16	30

Note: Test for significant difference is based on Fisher's exact test, ns. as not significant.

\*  $p < 0.05$ .

\*\*  $p < 0.01$ .

\*\*\*  $p < 0.001$ .

have a higher level of knowledge sharing. Taking a slightly different view, Owada-Shibuya (2002) commented that rural people in the VMD do not trust each other, including their close neighbors. She found that neighbors rarely visit each other's houses or work together in farming, but tend to cooperate and trust their family members. However, taking together the empirical evidence from this study and others, Owada-Shibuya's accounts need to be further investigated to explore the underlying factors that influence the rural people's behaviors.

Fisher's exact test shows that there is a significantly greater proportion of households in Thoi Hung who share learning with their fellows compared with those residing in Phu Thanh B and Phu Xuan. It was also found that farming households in Thoi Hung are more likely to have opportunities to interact with technical experts. This privilege allows them to gain better access to technical knowledge beneficial for their crop cultivation. The reason for this could be attributed to the geographical location of Thoi Hung commune, which is close to research and academic institutions of Can Tho city.

#### 4.2.2. Households' learning engagement with social actors by household groups

The better-off households are found to have a significantly greater proportion of household groups engaged in learning with social actors (Table 3). Learning with neighbor is the most common practices of household groups. This finding is consistent with Forrest and Kearns' (2001) viewpoint that neighbors are of great importance to the poor because they cannot develop more spatially diffuse networks.

The findings suggest that the poor group is left behind in the collective learning process. Their interactions are mostly with those in the bonding relationship. These findings are corroborated by Woolcock & Narayan's (2000: 227) observation that "the poor may have a close-knit and intensive stock of 'bonding' social capital to get by" but "lack the more diffuse and extensive 'bridging' social capital to get ahead."

#### 4.2.3. Households' learning across administrative level by study areas

Learning in the VMD is not confined to one locality but extends across geographical boundaries. Traditionally, the adults, after getting married, prefer to live near their parental homes. Over time, these kinships develop more diverse social ties which cluster

**Table 3**  
Households' involvement with local social actors by household groups.

Households' involvement with local social actors (%)	Household groups		
	Poor (n = 100)	Medium (n = 100)	Better-off (n = 100)
Learning with grandparents <sup>ns</sup>	1	3	3
Learning with parents <sup>ns</sup>	10	7	7
Learning with siblings <sup>ns</sup>	23	23	28
Learning with nearby relatives <sup>***</sup>	30	22	49
Learning with distant relatives <sup>ns</sup>	7	6	11
Learning with neighbors <sup>***</sup>	43	57	76
Learning with nearby friends <sup>***</sup>	24	24	54
Learning with distant friends <sup>*</sup>	5	7	15
Learning with technical experts <sup>***</sup>	9	15	37

Note: Test for significant difference is based on Fisher's exact test, ns. as not significant.

\*  $p < 0.05$ .

\*\*\*  $p < 0.001$ .



**Table 4**  
Households' learning across administrative level by study areas.

Household learning across administrative levels (%)	Study areas		
	Phu Thanh B (n = 100)	Phu Xuan (n = 100)	Thoi Hung (n = 100)
Learning within the hamlet*	48	51	65
Learning across the hamlet*	33	31	47
Learning within the commune**	38	35	55
Learning across the commune <sup>ns</sup>	16	20	29
Learning within the district*	18	20	32
Learning across the district*	5	10	18
Learning within the province**	6	15	23
Learning across the province <sup>ns</sup>	3	10	8

Note: Test for significant difference is based on Fisher's exact test, ns. as not significant.

\* $p < 0.05$ .

\*\* $p < 0.01$ .

their settlements in the same place. This study suggests that the households' learning mostly occur at the hamlet level ( $p < 0.05$ ) (Table 4). In Thoi Hung, a higher proportion of households engaged in learning, which suggests that they have more social connections than those in the other two communes. This outcome is evident in the qualitative analysis, suggesting that this commune received the large majority of migrants who came from surrounding localities during the 1990s. They were the early settlers in the commune. Therefore, local households still maintain regular connections with their kinship groups in original localities. As one sesame farmer expressed, "Those who have interest in growing sesame often come to visit my farm. They include both local farmers and outsiders." (Interview 26, Thoi Hung).

#### 4.2.4. Households' learning across administrative level by household groups

Table 5 shows that learning takes place mostly at the hamlet and communal levels across the three household groups. In general, the better-off households are the most active participants in learning. Fisher's exact test suggests a significant difference in the proportion of household groups involved in learning across the administrative levels. Besides their engagement in bonding relationships, the better-off group is more likely to travel for learning (field visits), as they seek to extend their learning opportunities and build social relationships. In contrast, the poor group migrates in pursuit of secured livelihoods, rather than seeking opportunities for learning. Our observations suggest pervasive isolation of the poor from social practices. This marginalization can be attributed to the growing economic inequality in rural areas. Their voices are often unrecognized by the groups of higher socio-economic status. These constraints impede their ability to contribute to sharing knowledge and extending relationships with various social groups in the rural community.

#### 4.3. Social learning as momentums for agricultural innovations

Social learning evolves across time and space. Traditional Vietnamese culture appreciates one's commitment to learning and acquisition of knowledge. The Vietnamese proverb "Đi một ngày đàng học một sàng khôn" (Travel broadens the mind) conveys a good sense of learning, advocating that one should not confine himself to one locality, but rather should travel to broaden his worldviews. The more he travels, the more knowledge he can acquire. Long and Villareal (1994) perceive knowledge as being socially constructed, and formulated through the

**Table 5**  
Households' learning across administrative level by household groups.

Household learning across administrative levels (%)	Household groups		
	Poor (n = 100)	Medium (n = 100)	Better-off (n = 100)
Learning within the hamlet***	41	52	71
Learning across the hamlet***	26	33	52
Learning within the commune***	29	40	59
Learning across the commune**	13	20	32
Learning within the district*	15	22	33
Learning across the district <sup>ns</sup>	7	12	14
Learning within the province <sup>ns</sup>	10	15	19
Learning across the province <sup>ns</sup>	5	8	8

Note: Test for significant difference is based on Fisher's exact test, ns. as not significant.

\*  $p < 0.05$ .

\*\*  $p < 0.01$ .

\*\*\*  $p < 0.001$ .

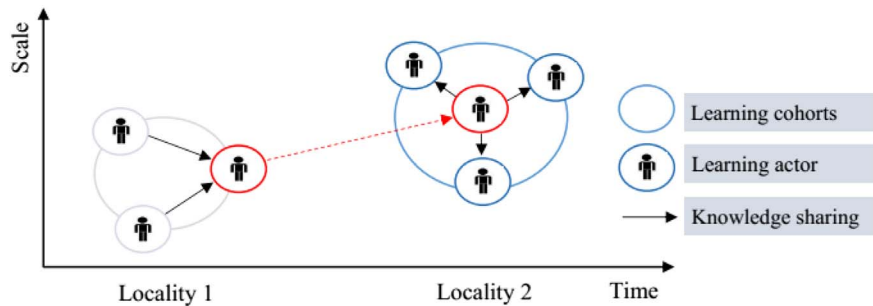


Fig. 2. Schematic representation of a farmer's pathways of learning, adopting, and sharing of knowledge across the geographical boundaries in the VMD.

processes of social interaction. According to [Brown and Schafft \(2011\)](#), social interaction does not necessarily take place within a bounded geographical location, but can be developed outside of this space.

Fig. 2 depicts the schematic representation of how social learning occurs in the rural context of the VMD. It illustrates multilinear pathways where a farmer's (in a red sphere) engages in the processes of learning, adopting, and sharing the innovative knowledge across spatial (from locality 1 to locality 2) and temporal scales. At the early stage, he is involved in a learning cohort, treating himself as an apprentice so that he could gain more knowledge from his fellows (locality 1). After obtaining desirable knowledge, he tries to test if the acquired knowledge can be applied in new environmental conditions. This venture enables him to start off an on-farm experiment which subsequently yields very positive outcomes. The autonomous adaptive responses of the farmer correspond pertinently to a Vietnamese proverb “*Học đi đôi với hành*” (Practice makes perfect), implying how one proceeds with putting his knowledge into practice, from which he learns.

The farmer's successful on-farm experimentation brings participants into a new learning cohort (locality 2). At this point in time, his role is placed at the center of the learning cohort. He serves as a ‘gatekeeper’ who deems responsible for interacting with external networks ([Long & Villareal, 1994](#)). As [Dessie et al. \(2013\)](#) put it, a successful innovation process is associated with innovative actors' efforts in integrating new ideas, and networking and interactive learning among heterogeneous sets of actors. This corresponds to the view of [Pelling \(2011: 59\)](#), who sees social learning as “the capacity and processes through which new ideas, values and practices are disseminated, popularized and become dominant in society.” As confirmed in the analysis, the learning trajectory illuminates how individual knowledge can evolve over the course of learning, and how it merges into the local community knowledge ([Brown, 2010](#)).

Experimentation forms an essential component of societies' adaptation ([Olsson, Folke, & Berkes, 2004](#)). It is by no means a new approach to natural resources management in Vietnam; rather, it is encouraged at the local level ([Kerkvliet, 1995](#)). This study suggests that experimentation plays an essential role in stimulating rural agricultural innovations. Efforts to adapt to novel environmental conditions prompted the farmer in Fig. 3 to transform his previously-acquired knowledge, from which experiential knowledge is drawn. This transformative learning process enables him to devise an innovative farming model. [Stolzenbach \(1994: 156\)](#) also commented that, “the art of farming is to adapt the posing of the problem to the changing situation and act accordingly.” These findings are consistent with [Oreszczyn et al.'s \(2010\)](#) study that farmers apply experimenting and adapting approaches in responding to changing circumstance.

In this study, farmers' innovations derive from their learning interactions, knowledge exchange with others, and self-reflection processes. The knowledge is yielded throughout a farmer's life-long interactions and experiences in dealing with local flood conditions. Farmers indicated that they learned a lot from communicating with others. These findings resonate with [Gunderson's \(1999\)](#) observation that learning and innovation often emerge and flourish in informal settings. Stimulated by social learning, typical innovative farming models have been developed over the last few decades. For instance, they include the prawn culture in Phu Thanh B (Fig. 3), the eel farming model in Phu Xuan and the crop diversification model in Thoi Hung. The following comments present farmers' perspectives of the emergence of innovative farming models attributed to iterative learning processes:

“I initiated this prawn farming model based on what I have learned from others. I am a bit worried about my first experiment. However, the results are exceptionally good. I think that prawns grow well when being cultured in the flooding environment.”  
(Interview 22, Phu Thanh B).

“I travel a lot to learn how to raise eels. I trap fish for eel feed during the flood season from which I can minimize the cost. I have shared with my neighbors how to raise eels. I was also invited by the commune government to share my experience with the local farmers.”

(Interview 23, Phu Xuan).

“The effects of ‘importing-the-knowledge’ from external farmers are the keys to the proliferation of the field crop production over the last decade. Local farmers can both share the yields and acquire the technical knowledge from outsiders. The learning interactions between the local farmers and the outsiders have contributed substantially to expanding the field crop production in the commune.”

(Interview 4, Thoi Hung).

It was observed that the use of role modelling and slogans, as an echo from the war period, remains a dominant approach to assist



Fig. 3. Prawn culture in the controlled system in Vinh Thanh Trung, Chau Phu district, An Giang (a) compared with the innovative farming model in the flooding condition in Phu Thanh B, Tam Nong district, Dong Thap (b).

collective learning and actions. At the local level, the title “*Nông dân sản xuất giỏi*” (Model farmers) is granted to the farmers who have excellent performance in agricultural production as stipulated by Vietnam Farmer's Association's regulation No. 944-QĐ/HNNTW dated September 04, 2014. These glorified farmers serve as resource persons who can facilitate the propagation of experiential knowledge across the rural communities. These exemplary models play a significant role in promoting ‘passive and active social learning’ (Glasser, 2009), concerning households' creativity in farming production, proactive spirit in learning, and the sharing of empirical knowledge. Evidence shows that the ‘model farmers’ competitions launched by the local organization (Farmers' Association) and farming success stories are a useful approach in promoting public attitudes towards the utility of self-learning, sharing of knowledge, and taking collective actions for rural development (Interview 24, Phu Xuan).

## 5. Conclusions

The rural communities of practice in the VMD provide a useful lens through which social learning is conceptualized. The empirical analysis of households' social interactions present two forms of social learning, including: (1) collective learning through social interactions and communication, and (2) individual learning through self-reflection. These learning practices represent the main characteristics of rural households in engaging in surroundings and social lives. They demonstrate the means of how innovative knowledge is acquired, transformed, and disseminated across geographical levels. Such learning typologies correspond to Reed et al.'s (2010) and Glasser's (2009) concepts of social learning.

This study confirms that social learning inherently exists in the rural communities of practice. Culturally, it characterizes informal, relaxing, and honest aspects in the rural lifestyles of the local inhabitants. Casual gatherings for morning coffee or tea at home, local coffee shops, or for family celebrations make the rural life very entertaining. They provide useful learning platforms where farmers can learn, exchange practical experience and knowledge or address shared problems associated with their farming activities. It is important that these dynamics contribute substantially to fostering reciprocal learning support and bonding relationships in the rural community. Suggesting modes of belonging, these activities well characterize Wenger's (2000) dimensions of a community of practice.

There were variations in learning patterns where farming households involved. The analysis suggests that the largest proportion of better-off households was involved in learning. This is because they have greater opportunities to travel in order to extend their social connections, from which they can communicate and acquire new knowledge. It is evident that the poor group is alienated from farming extension programs (e.g., seminar, training workshops) which often favor landholders. This can be attributed to the fact that

the poor do not have land title and do not have time to participate in these events. Such exclusion tends to undermine their ability to contribute to collective learning and to acquire scientific knowledge, and limit their opportunities to interact with various social groups in the rural community. It comes to establish a so-called 'sub-communities of practice' solely devoted to the poor. This study calls for policy support from local governments to enable poor households to engage in local farming extension programs. This enables them to learn and self-support their livelihoods so as to better adapt to local environmental conditions.

This study emphasizes social learning as a key approach that stimulates farming households' development of innovative farming models. Farmers become increasingly motivated to learn and apply innovative knowledge to improve their livelihoods. This confirms the important values of learning adopted by the Vietnamese people to deal with life hardships. This study challenges skeptical perceptions of the applicability of social learning research in the dominant top-down governance system in Vietnam (Clemens et al., 2015).

Some policy directions to promote the operation of social learning in the rural communities of practice are recommended. Policy considerations should integrate farming households' role into rural development policies, recognizing them as the key actors in producing and disseminating knowledge. This tends to extend learning boundaries across geographical scales. This study highlights some key areas for future research. The linkages between farming households' social learning and their adaptation provide the possibility of examining their relationships. A mixed methods approach should be used to respond to the unanswered question of "To what extent does social learning influence households' capacity to adapt to the environmental conditions in the VMD?" From the analysis of rural communities of practice in this study, researchers should examine socio-cultural and institutional aspects of the delta and their implications for learning attitudes and behaviors of the rural inhabitants towards environmental change.

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