Social Learning for Sustainability

Advancing Community-Based Inquiry and Collaborative Learning for Sustainable Lifestyles

Robert J. Didham and Paul Ofei-Manu

Abstract The pursuit of sustainable lifestyles is one that occurs simultaneously at individual, collective and societal levels. Education for sustainable development (ESD), and the offshoot education for sustainable lifestyles (ESL), has generally targeted individual learning and behaviour change. Although, there are several good examples of cooperative and collaborative learning for sustainability in both formal and non-formal educational initiatives. This paper examines the processes of social learning that occur in such collaborative learning cases. Social learning theory has evolved through three distinct phases. The first phase was grounded in the field cognitive psychology, and it provides an explanation of how individuals learn from society or social observation. The second phase developed from the field of organisational studies as an explanation of organisational learning and how collective learning is achieved through an amalgamation of the individual learning of group members. The third phase of social learning is currently evolving as a combination of ecological and educational perspectives, and it aims to explain how sustainability learning can occur collectively and as a society, i.e. for social transformation. In this chapter, a comparative evaluation of five case studies from the Regional Centres of Expertise on ESD in East Asia is conducted to identify what are the social learning processes present across the cases. The main features of community of practice theory are examined as the potential conditions for establishing an effective learning community. The comparative case evaluation demonstrates a high level of benefit in achieving effective social learning in such sustainability initiatives which contributes to smooth implementation of new initiatives as well as strengthening their overall efficacy and longevity.

R.J. Didham (✉) · P. Ofei-Manu
Institute for Global Environmental Strategies, Hayama, Japan
e-mail: didham@iges.or.jp

P. Ofei-Manu
e-mail: ofei-manu@iges.or.jp

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1 Introduction

The concept of sustainability was first brought to international attention in the Bruntland Report, i.e. *Our Common Future,* in 1987. It was also this report that provided the commonly cited definition of sustainable development. "Sustainable development is… development that meets the needs of the present generation without compromising the ability of future generations to meet their needs" (WCED 1987). The United Nations Conference on Environment and Development (UNCED), or the Rio Earth Summit, held in Rio De Janeiro in 1992 led to the first international agreement that aimed to put humanity on a path of sustainable development which was elaborated in the principles of the *Rio Declaration on Environment and Development* (1992) and *Agenda 21* (1992). Now nearing three decades since the original work of the World Commission on Environment and Development, we find that many milestones have occurred at the level of international treaties and agreements on sustainable development.

Many countries adopted the treaties and followed them up with national policies or plans, however vertical integration of these plans and linkages to implementation at local levels has been inconsistent at best. Reviews made on progress towards these international agreements refer to the existence of *persistent gaps in implementation* of sustainable development (see: ECLAC 2012; UNCSD Preparatory Committee 2010; Didham 2011). Some of the noted implementation gaps include (1) lack of comprehensive and integrated policy making and planning across the three dimensions of sustainable development, (2) continuation of unsustainable patterns of production and consumption, (3) absence of institutional, legal and economic mechanisms for costing/valuing environmental degradation, (4) lack of appropriate information, environmental statistics, and monitoring and evaluation to support decision making, (5) limited civic action and civil society participation in decision making, (6) failure to meet international cooperation agreements, and (7) continued challenges in achieving poverty eradication, social inclusion and equality (ECLAC 2012).

The past 30 years have also seen a counter trend in sustainability to that led by international conferences and agreements. Over this same period, a large number of local and community-based initiatives developed. Some of these initiatives were led or supported by local governments, while other initiatives developed in entirely grass-roots manners. Some of these examples, such as the Transition Towns network and the Permaculture movement, are now replicated around the world and through this have developed complex knowledge and approaches for sustainable development. There are several unique features common across many of these community-based approaches that warrant closer investigation in considering how the persistent gaps in implementation of sustainable development may be overcome. These features include (1) high-levels of community participation and engagement, (2) critical reflection and practice in identifying new pathways/solutions, (3) pragmatic validation of approaches and concepts, (4) rich local

contextualisation, and (5) change in prevailing worldviews and paradigms of development. Additionally, a common outcome of such approaches is the generation of practical actions that can be taken within the context of people's daily lives, i.e. transition towards sustainable lifestyles.

In this chapter, these dynamic aspects of community-based approaches are viewed as important collective processes in social learning for sustainability. A phronetic approach is applied to examining five cases from the Regional Centres of Expertise on Education for Sustainable Development. This comparative case assessment aims at identifying the practical actions and factors that support social learning for sustainability and the collective realisation of sustainable lifestyles.

2 Social Learning for Sustainability—A Critical Perspective

The current political discourse on sustainable development is not easily related to the daily lives of ordinary people, although it is well understood that achieving sustainability transformations will require dramatic changes in the way individuals live and form their lives and societies. In response to this challenge, the concept of "sustainable lifestyles" is viewed to be complimentary to sustainable development with the first bringing relevance to sustainability at the micro-level and the latter at the macro-level. "Creating sustainable lifestyles means rethinking our ways of living, how we buy and what we consume, but it is not only that. It also means rethinking how we organize our daily life, altering the way we socialize, exchange, share, educate and build identities. It is about transforming our societies towards more equity and living in balance with our natural environment" (UNEP 2011). The application of a social learning approach can improve the transformative nature of these processes by increasing opportunities for active engagement in critical examination of current consumption and lifestyle practices; reimaging those practices and identifying solutions towards more sustainable patterns; planning and implementing programmes for mainstreaming these solutions; and assessment of implementation activities and outcomes.

The application of a social learning approach for sustainable lifestyles necessitates first a critical review of social learning theory and its historical development through three distinct phases (or schools of thought). The first development of social learning theory was by Bandura in the early 1960s within the field of cognitive psychology. Bandura's research on social learning challenged earlier behaviourism traditions that held that behavioural learning occurred through conditioning and direct reinforcement. Bandura (1977) demonstrated that individual behavioural learning could also occur through observation, thus arguing that learning is a cognitive process that occurs in social context and is influenced by social norms. The cognitive theory of social learning thus provides an explanation of how individuals learn from society.

The second school of thought developed in the field of organisational learning. The concept was first raised in Argyris and Schon's (1978) work on double-loop learning and in Revans' (1982) work on action learning processes. However, it was

not until the 1990s that this school of thought began to flourish (Wang and Ahmed 2002). Rather than focussing on individual learning, this approach is focussed on how group learning occurs and how it can be dynamically structured and facilitated. Furthermore, it considers how an organisation learns and adapts based on the sum of experiences from its individual members. Some academics such as Senge (1990) used this approach to make specific recommendations for structuring and developing companies into learning organisations (Flood 1999). This second school of thought provides an understanding of how collective/group learning takes place, and how it is influenced through the real world experiences of group members.

The third school of thought emerged around a decade ago with a noted application of social learning towards ecological issues, natural resource management and sustainable development. This new approach grew out of earlier work on community participation in natural resource management, participatory rapid appraisal, and group problem solving approaches. It also draws on educational theories such as community of practice and cooperative inquiry to strengthen its overall efficacy. This third school of thought considers how people collectively reflect, deliberate on and envision new pathways for sound environmental management—pathways that may deviate from previous traditions and conventions. Under this school of thought, social learning is defined as, "learning taking place in groups, communities, networks and social systems that operate in new, unexpected, uncertain and unpredictable circumstances; it is directed at the solution of unexpected context problems and it is characterised by an optimal use of the problem solving capacity which is available within this group or community" (Wildemeersch 1995: 33 cited Wildemeersch 2009: 100).

This third school of thought on social learning thus proves most useful in addressing how society can collectively pursue sustainable development in a manner that allows us to overcome the problems and challenges faced today (Table 1). This will require looking beyond current conventions and limits of thinking to consider wider approaches and perspectives on how as a society we not only learn new behaviours and practices, but also how we transform dominant world views through the incorporation of a strong sustainability perspective. Glasser (2009: 38) argues for positioning social learning, "as the foundation and conduit for harnessing the human propensity to contemplate our fate and futures" and in so doing supplanting "economic growth as the metanarrative and vehicle for bringing about a more sustainable and desirable world for all".

This approach to social learning and its application in natural resource management embeds the process of social learning within the context of governance structures and the natural environment. Natural resource management faces complex

Table 1 Three schools of thought on social learning theory

Phase	School of thought	Perspective
1	Cognitive psychology	*Individual* learning *from* society
2	Organisational learning	*Collective* learning *of/about* society
3	Ecology and education	*Sustainability* learning *as* society and *for* social transformation

problems, high uncertainty and limited predictability, thus the human dimension is key for securing appropriate and effective practice. “This implies that management is not a search for the optimal solution to one problem but an ongoing learning and negotiation process where a high priority is given to questions of communication, perspective sharing and development of adaptive group strategies for problem solving” (Pahl-Wostl and Hare 2004: 193–4).

The third phase of social learning brings together collective learning perspectives and extends beyond both individual learning and mere knowledge acquisition. Social learning can be defined in this manner as, “Deliberative approaches that enhance collective learning processes among a diverse group of social actors, with different types of knowledge and perspectives, … thus central in the creation of new responses to threats for socio-ecological systems” (Garmendia and Stagl 2010: 1712). One of the challenges faced in achieving social learning that realises the creation of new responses and new social understandings is that the type of social interaction that takes place in various social learning situations is inherently influenced by social contexts and established norms and values. In this way, it is important that the roles of power and scale in influencing learning outcomes are clearly addressed. In establishing a potential social learning group, this can be partially addressed by ensuring that the collective group members represent a wide range of differing world views, epistemological beliefs and knowledge systems, and in this way a “tension” is created from the outset that the group must initially work to overcome through a process of deliberation and negotiation (Reed et al. 2010).

Overcoming this tension does not mean that the group adopts one common world view, but rather they identify a common goal for collective action that allows all group members to support the process through their own expertise. Pahl-Wostl et al. (2007: 11) explain, “During the initial stages of dealing with a problem, the framing and reframing of the problem domain determine the direction of the overall process… differences in how an issue is framed are among the key reasons for problems in communication and entrenched conflicts among actors”. The concepts, norms and world views that frame such problem definition may be derived from the actors’ diversity of knowledge and experience, especially in regards to their epistemological beliefs and how they make meaning of their physical and social environments. The process of social learning does not aim for consensus among group members, but ideally it creates a common purpose and ability to deal constructively and openly with peoples’ differences (Pahl-Wostl et al. 2007). In addressing the power dynamics inherent in social learning processes, Glasser (2009) defines three categories of active social learning as hierarchical, non-hierarchical, and co-learning (Table 2).

Following a review of social learning in adaptive water management cases, Pahl-Wostl et al. (2007: 10) argue that social learning can occur across two different levels and respective time scales. First, over short to medium time scales, social learning occurs between the engaged actors within and through the processes they are engaged in. Second, over medium to long time scales, structural and contextual shifts to the wider governing structure occur as part of the collective learning process. Elaborating on how to achieve this second scale of learning

Table 2 Glasser's three categories of active social learning

Hierarchical	Based on predetermined, inflexible relationships between established teachers and learners
Non-hierarchical	Based on two-way learning, where each participant, as an 'expert' in their own right, shares their knowledge and experience
Co-learning	Based on non-hierarchical relationships, collaboration, trust, full participation, and shared exploration

Replicated in full from Glasser (2009: 51)

and truly upscaling it to a social level, many authors have tried to identify the key components that enable the occurrence of social learning. Tilbury (2009) proposes five key components of learning based change for sustainability: (1) systemic thinking, (2) envisioning, (3) critical thinking and reflection, (4) partnerships for change, and (5) participation. Keen et al. (2005) conclude that there are five keys strands of activity that are integral to the ecological approach to social learning which closely parallel the previous five components proposed by Tilbury. The five key activity strands are: (1) reflection and reflexivity, (2) systems orientation and systems thinking, (3) integration and synthesis, (4) negotiation and collaboration, and (5) participation and engagement.

Rodela et al. (2012) conducted a review of 54 peer-reviewed papers from the third phase of social learning. This study however concludes that in the majority of these papers there is a mismatch between the topic (i.e. social learning) and the contents of analysis. There are very few studies that have attempted to provide data/evidence on the actual effectiveness of social learning (Rodela et al. 2012). Reed et al. (2010) raise a similar point that in the literature, the concept and analysis of social learning is often methodologically confused and entangled with an investigation of the conditions necessary for social learning, for example levels of participation are often analysed to infer occurrence of social learning. Just because participation has occurred this does not imply that social learning takes place, and vis versa the occurrence of social learning can occur even in the absence of a planned process for participation. In order to elucidate a learning-oriented analysis on social learning for sustainability, the case studies presented in this chapter are analysed in relation to key educational approaches to facilitate a more detailed investigation of the main elements of the social learning process and to extend beyond considering only the facilitative conditions for creating an environment where social learning may occur.

3 Case Studies on Community-Based Learning for Sustainability

The Regional Centres of Expertise (RCEs) on Education for Sustainable Development (ESD) are a global network of multi-stakeholder partnerships that are engaged in local initiatives and community-based learning for sustainable

development. The RCE concept was launched by the United Nations University in 2003–2004 as a mechanism for supporting the UN Decade of Education for Sustainable Development (2005–2014). As of June 2014, there are 129 RCEs active in over 50 countries globally. The RCEs address four key elements: governance, collaboration, research and development, and transformative education. They implement projects and initiatives that promote relationships, collaborative learning, networking, and systems thinking to foster sustainable communities.

3.1 RCE Greater Phnom Penh (Cambodia)—Project on Facilitating Sustainable Agriculture for Local Farmers and Enhancing Education on Food, Agriculture and Environment for Elementary Schools

This is a 5 year project started in April 2011 as a partnership between Japan International Cooperation Agency (JICA), Environmental Conservation and Rehabilitation, Japan (ERECON), ERECON Cambodia Branch (ERECON CaM), Tokyo University of Agriculture (TUA), and the RCE with financial support from JICA. The target learners of the initiative include local people from 11 villages (comprising 1,714 households) in Samroung Community, ten schools of Sro Nge school cluster (comprising 86 teachers and 2,714 students), and Samroung Prenprey AC, Cambodia. The sectors that the initiative addresses are primary education, teacher education, and non-formal education sectors. The main themes are overcoming poverty, environment, and sustainable production and consumption. The project goal is to promote sustainable agriculture based on building public awareness and perception of the importance of enabling harmony between agricultural development and conservation of the natural environment. This project was established against the backdrop that local agriculture has not been sustainable due to overuse of inorganic fertilisers and pesticides.

3.2 RCE Greater Sendai (Japan)—Ramsar Wetlands-Winter-Flooded Rice Paddies and ESD in Osaki-Tajiri Project

This RCE was established as one of the first in 2005 and has coordinated its ESD initiatives through multi-stakeholder collaboration at four locations including the location of this project which serves as an environmental learning site. It began with a citizens' movement to conserve wetlands and led to a participatory process involving the engagement of community members and external stakeholders to preserve the biodiversity of the natural wetlands and rice paddies. This project aims for mutual learning to enhance sustainable agriculture. It also involves

the joint promotion of ESD and Ramsar Communication, Education and Public Awareness (CEPA) in the region. The main partners of the initiative are the local authority of Osaki City Office as main coordinator and funder, NGOs including Rice Paddies (Tambo), Japanese Association of Wild Geese Protection, (JAWGP) and Kabukuri Wetlands Club (Numakko Kurabu), Community organisations and Miyagi University of Education's Environmental Education Centre who provide their teaching and research expertise as well as serving as the RCE secretariat. The target groups comprised farmers, teachers and students from the elementary, junior high and high schools in the area, local government officials and local citizens. All three educational settings namely formal, non-formal and informal education were utilised.

3.3 RCE Kitakyushu's (Japan)—ESD Outreach Project: Strengthen Capacity and Network of Communities

This project began in 2006 as one of the first initiatives of this RCE. The project goal is to strengthen the capacity and network of citizens and communities to promote ESD. Several activities fall under this initiative. They include the following: (1) Use of 132 community centres (citizens' centres) as the nuclei of activities and training of ESD facilitators to spearhead ESD promotion activities at the community centres; (2) Promoting ESD (e.g. cloth theatre) through developing educational aids in cooperation with formal education institutes, for example the Kitakyushu ESD Council provided lectures at a university consortium; (3) Building a sustainable community that is in harmony with nature, socially just and economically prosperous through the promotion of field activities such as tree planting, waste management and community beautification; (4) Capacity development of RCE Kitakyushu members through programme exchanges within and beyond the RCE community and exchanges with local community through an ESD café to meet and discuss on sustainability issues and ways to address them; (5) Use of various educational and capacity building approaches, based on collaboration, networking and other multi-stakeholder cooperative relationships to enhance the organisational and operational capabilities of RCE Kitakyushu.

3.4 RCE Penang (Malaysia)—Enhancing Sustainable Lifestyle Within Universiti Sains Malaysia and Its Surrounding Neighbourhood

The initiative lasted 1 year beginning April 2011. The main partners were the Centre for Global Sustainability Studies at USM (as leader), USM's School of Industrial Technology, RCE Penang, Penang Municipal Council, the Solid Waste and Public Cleaning Management Corporation, one secondary school and three

primary schools, three residents' associations, a Giant Hypermarket, Cincaria Sdn Bhd, Green Crusaders (community-based recycling activists), and the Consumer Association of Penang. The budget for the initiative was 350,000 MYR (US$112,000), provided as a research grant from USM. The target learners include the USM community of students and faculty, school students, neighbouring residents and public, as well as workers at SMEs. The initiative covered non-formal education, civil society and community engagement, and business and private sectors. The main themes include environment, climate change education, corporate social responsibility, economy, sustainable production and consumption, sustainable urbanisation, and responsibility in local and global contexts.

3.5 RCE Tongyeong (Republic of Korea)—Youth Program Bridge to the World, Tongyeong Youth Global Challenge Program

This project aims to present the vision of sustainable development to the youth who will become future leaders of the city and the region. It started from 2008 as an annual program to the present. The major partners are Tongyeong City Government, 17 middle and high schools of Tongyeong, mentoring groups, and the global RCE network. An annual funding of US$90,000 is provided by Tongyeong City Government. The themes addressed by this initiative include intercultural understanding, cultural diversity, citizenship, peace, human rights and security, environment, climate change education, biodiversity, sustainable production and consumption, sustainable tourism, responsibility in local and global context, and career development. The sectors covered are secondary education and non-formal education, and the target learners are the youth aged between 13 and 19 years. Being the first of its kind in Korea and solely developed and implemented by RCE Tongyeong, the program has offered opportunities to youth for self-designed research projects and study trips abroad to an RCE city of their choice to experience and study aspects related to the chosen topic. Over the past 4 years, the 'Bridge to the World' program has sent 13 teams (totaling 100 youth) to 13 RCE cities across the world.

4 Case Analysis—Understanding Conditions and Processes of Social Learning for Sustainability

One of the challenges identified in previous studies of social learning for sustainability is separating the facilitative conditions (or prerequisites) for social learning from the factors of effective social learning in the research-analysis process. In order to better explain how social learning takes place with an aim towards identifying the key factors of an effective social learning process, two different

analyses of case details are conducted in this study. Additionally, to strengthen the consideration of how learning is occurring in each case and in relation to the analysed factors, a link is drawn between the four stages of the experiential learning cycle and the four stages of participatory action research to create a conceptual idea of how collective action and reflection can stimulate a process of social learning. Kolb (1984) identifies four stages that create the experiential learning cycle: concrete experience, reflective observation, abstract conceptualisation, and active experimentation. While Zuber-Skerritt (1991) provides a simplified understanding of the participatory action research process as: observe, reflect, plan, and act.

Framework of Analysis First, initial case selection criteria were adapted from Tilbury's (2009) five key components of learning based change for sustainability and Keen et al. (2005) five key strands of activity integral to ecological/sustainability social learning. The adapted criteria used here are: (1) Community Engagement, Citizen Participation and Partnerships for Change, (2) Collective Learning and Critical Reflection, and (3) Vision Forming and Systemic Thinking. These criteria were initially examined across 12 potential RCE cases with five cases in total demonstrating appropriate levels of application for inclusion in this study. Case details in relation to these three criteria are reviewed in Table 3.

The second analysis draws on Community of Practice (CoP) theory to investigate the conditions of an effective learning community. CoP was developed by Lave and Wenger in 1991 and elaborated by Wenger in 1998, and this theory provides a valuable concept for understanding the important learning opportunities that exist in group settings and at a community-level. CoP has gained support in social, educational and management sciences as a valid approach to *situated learning*. "The overall apparatus of situated learning is a significant rethink of learning theory of value to anyone wanting to take learning beyond the individual… Part of its appeal is that a seemingly natural formation which enhances learning can be consciously developed, which is important for those implementing change" (Barton and Tusting 2005: 3). The learning process in CoP is dynamic in that renegotiation and change are a continuous part of such practice. *Reification* and *participation* are key aspects to this learning process as the main ways in which participants can influence practice. In the process of community practice, *reification* is the act of bringing concrete meaning to abstract concepts through their regular application and codification. *Participation*, on the other hand, is the process through which diverse ideas and concepts can be deliberated over to reach common understanding on which to structure practice (Wenger 1998: 88–93).

Communities of practice are especially valuable because they allow for both the acquisition of existing knowledge and the creation of new knowledge through the dynamic process of mutual engagement in a shared practice. In designing a learning architecture for communities of practice, Wenger (1998: 273–9) introduces three modes of belonging as central pillars of this design: *engagement*, *imagination*, and *alignment*. Hung and Chen (2001: 7) also identify four dimensions of an effective learning community: *situatedness* puts forth that learners obtain both implicit and explicit knowledge when learning is embedded in rich social contexts; *commonality* expresses the importance of a shared sense of purpose and common

Table 3 Case selection criteria—key components and actions of social learning for sustainability

	Community engagement, citizen participation and partnerships for change	Collective learning and critical reflection	Vision forming and systemic thinking
RCE Greater Phnom Penh	The RCE organised trainings for farmers and school teachers in sustainable agriculture	The RCE organised workshops by members of the farmer groups for their peers who were non-members which resulted in non-members acquiring sustainability competence through the transfer of new knowledge and skills	Formation of farmer groups and continuation of the activities means farmers benefit from learning new skills and approaches
			Stronger linkages established between sustainable farming and livelihoods
	The RCE promoted participation (including students) and engagement through establishment and management of school organic gardens		Increased motivation of farmers and teachers to adopt practices and leading to further training, for example "Education for agricultural successors" for future farmers
RCE Greater Sendai	RCE facilitated strong engagement of multi-stakeholders and actors in the community (e.g. Osaki-Tajiri area) for building capacities and competencies of people to adopt ways to co-exist with nature and to meet their human needs	Multi-stakeholder team project involving co-production and use of ecological knowledge through collective experimentation on the effect of fallowed winter-flooded rice fields for enhancement of biodiversity and improvement in agricultural land quality compared to conventional fields	Socio-economic and environmental benefits accrued from learning sustainable management of wetland paddies and wise use of resulting goods and services
			Understanding the diverse roles wetlands play in local livelihoods and provision of information to local decision makers for appropriate policy formulation
			The Osaki-Tajiri "socio-ecological system" serves as an ongoing ESD learning experiment on integrating biophysical and social sciences to address complex intersecting sustainability problems based on constructed knowledge that transcends knowledge of (ecosystem) structures to include knowledge of processes

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Table 3 (continued)

	Community engagement, citizen participation and partnerships for change	Collective learning and critical reflection	Vision forming and systemic thinking
RCE Kita-kyushu	Use of the community learning centres (CLCs) as the nuclei for engagement in ESD activities through citizen participation and also for training	The CLCs facilitated collaborative and cooperative learning among the local community members	RCE Kitakyushu envisions making the city a "world capital of sustainable development". Through its ESD activities, the RCE engages a diversity of stakeholders and actors from the city's population
		Collective learning through (experience) field-based activities and site visits	It seeks to empower them to engage in pro-sustainability lifestyle choices as their region transitions towards sustainability
		Group members engage community with teaching, lectures and facilitation	It engages them to identify new practices and opportunities for this transition
RCE Penang	The university community engaged with the surrounding neighbourhood in a participatory action research, which includes knowledge co-production and exchange on reducing the amount of solid waste going into landfills and learning how to conduct organic waste composting	Participatory action research, collective learning and knowledge co-production were used to increase knowledge and practices on waste reductions	The initiative promoted learning on transformations to sustainable lifestyles and a zero waste society, and engaged the community in identifying pathways
		Various collective learning approaches were used depending on the context and group size of the engagement	The initiative led to the strengthening of the social cohesion between USM and the neighbouring community and thus laid the foundation for future collaboration on collective experiential learning and other activities between university students and the wider community
RCE Tong-yeong	Participants (secondary school students) collaborate with NGOs, schools and institutions of Tongyeong as well as their chosen counterpart RCE city to determine a common project and theme for investigation	Partner groups share expertise and knowledge with the participating youth through study visits, consultations and lecture	The action-based youth program provides direct engagement with real life problems and supports students in identifying solutions to contribute towards the sustainable future of the target communities
		In return the youth share the knowledge/experiences gathered in their trips with the general public	

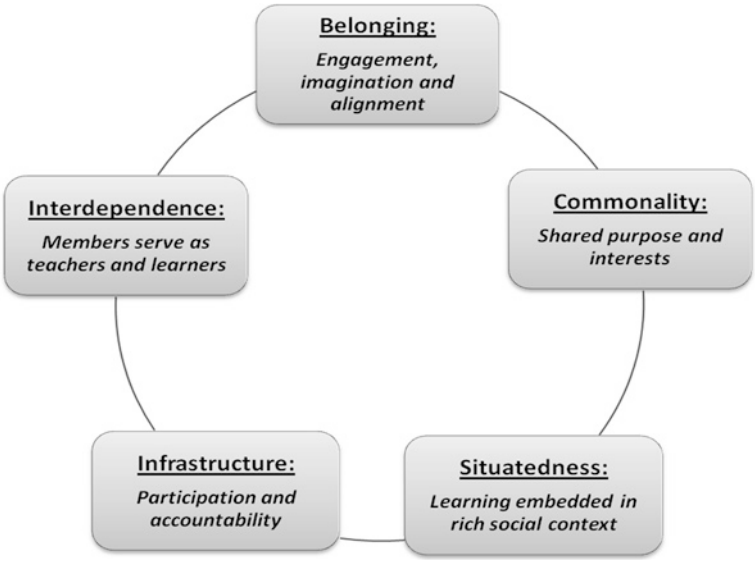

Fig. 1 Five conditions for an effective learning community

interests among a group of participants to engage in reflective practice; *interdependency* is established when the various members of a group of learners bring to the group both unique skills and expertise and differing demands on the group; *infrastructure* that promotes and facilitates participation and ensures accountability is important for the long-term continuation of communities of practice. By adding *belonging*, as elaborated by Wenger and explained above, as a fifth dimension of an effective learning community we further strengthen the understanding of its basic architecture (see Fig. 1). The second analysis utilises these five conditions for an effective learning community and are indicated in Table 4.

5 Findings and Conclusion

Each of these cases demonstrates the achievement of a participatory learning cycle. In all cases, commonality was established through a process of reflective observation, i.e. examining the current situation and considering how to improve or address current problems/challenges. The learning process was also situated in real-world experience, practical experimentation and in the context of local lifestyles and livelihoods. Belonging was strengthened in each group as they collectively envisioned and planned for the type of change they desired, and in doing so also recognized the importance of partnerships for achieving this change. The interdependence of group members was enhanced through the process of taking action and implementing plans where the diversity of stakeholders and expertise was essential for holistically enacting the plans.

Table 4 Five conditions for an effective learning community, as achieved in the RCE cases

	Belonging	Commonality	Situatedness	Infrastructure	Interdependence
	Engagement, imagination and alignment	*Shared purpose and interests*	*Learning embedded in rich social context*	*Participation and accountability*	*Members serve as teachers and learners*
RCE Greater Phnom Penh	Engagement of members of farmer groups with non-members to share their knowledge and skills on sustainable agriculture enhanced their mutuality	Stakeholders including RCE GPP, members of farmer groups and non-members, the local schools and local people shared the commonality of practicing sustainable agriculture and environmental conservation for realising economic and social well-being, human and ecosystem health	The challenge of health-related problems due to soil pollution by pesticide and fertiliser overuse in the locality (that had led to disharmony between agricultural development, nature conservation and human well-being) was addressed through integrative education and learning approaches	The involvement of the RCE GPP provides an "infrastructural platform" for the continuation of activities with guaranteed financing for 5 years (minimum) from JICA	Farmers groups formed and received training on sustainable agriculture. In turn, they transferred their knowledge and skills to non-group members. Farmer groups offered practical help to teachers to manage school organic gardens
	The overall competence of the local farmer population was improved and served as a basis for continuity of the learning related program				Teachers also acquired teaching skills on food, agriculture, and environmental education through training. After receiving training, teachers held workshops for students/youth in the local area

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Table 4 (continued)

	Belonging	Commonality	Situatedness	Infrastructure	Interdependence
	Engagement, imagination and alignment	*Shared purpose and interests*	*Learning embedded in rich social context*	*Participation and accountability*	*Members serve as teachers and learners*
RCE Greater Sendai	A sense of belonging in the context of "sense of place" in nature achieved, and enhanced competence in the sustainable use of natural resources acquired	Although the expected benefits of the participating stakeholders (local authorities, students, farmers, NGOs and university researchers) differed, there was a common interest that the socio-ecological system balance be maintained for them to realise their respective expectations	The learning process occurred within the context of the "socio-ecological system" of wetlands and winter-flooded rice paddies where the introduction of new, co-produced knowledge and skills would be most needed	RCE Greater Sendai and the local city's environmental bureau have been actively involved in encouraging the participation and engagement of people. In addition the city provided funds to support these initiatives	University and NGO staff, in addition to learning with others to receive local/traditional knowledge, felt a sense of satisfaction from being "of good use" to society
	The combined expertise of multi-stakeholders on ESD was mobilised towards the shared goal of sustainable livelihoods of farmers within the area and through conservation/wise use of ecological resources, including wetlands				Farmers, students and the local citizens learned about how they can co-exist with an ecological system in a co-beneficial manner and in turn cooperated with university and NGO staff for smooth implementation and management of the initiative

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Table 4 (continued)

	Belonging	Commonality	Situatedness	Infrastructure	Interdependence
	Engagement, imagination and alignment	*Shared purpose and interests*	*Learning embedded in rich social context*	*Participation and accountability*	*Members serve as teachers and learners*
RCE Kita-kyushu	The coming together of the members of RCE Kitakyushu and other stakeholders/partners for ESD promotion in the region such as the university community provides a sense of being part of a wider social movement seeking to maintain the integrity of the planet and improving human well-being	The awareness of the citizens of Kitakyushu increased. They became empowered through acquisition of knowledge and skills in order to make the city a global beacon of sustainable development. This provides a motivational factor for them to participate in the RCE's activities	The promotion of ESD through learning-related activities was conducted in the local area to address local situations A typical example is the revitalisation of the Edamitsu community	Increase in the levels of public awareness on ESD has heightened the prioritisation of ESD as an agenda item for the city government and led to the increase in financing to help promote ESD	The CLC setting provides a space for people to come together to seek solutions to problems without ready answers. Deliberations based on individual contributions through learning from each other results in mutual production of knowledge and skills that can be used to address relevant issues. RCE Kitakyushu members teaching at the university consortium provides the space for teachers to also become learners

(continued)

Table 4 (continued)

	Belonging	Commonality	Situatedness	Infrastructure	Interdependence
	Engagement, imagination and alignment	*Shared purpose and interests*	*Learning embedded in rich social context*	*Participation and accountability*	*Members serve as teachers and learners*
RCE Penang	The coming together of the USM community and neighbouring communities to mutually engage and participate in locally relevant problem-solving activities provides them with a sense of purpose and belonging	Participants from both the USM community and the surrounding neighbourhoods focused on reducing solid waste that goes to landfills in order to enhance sustainable lifestyles on campus and in the surrounding neighbourhoods	Stakeholders participated in action research and learning on the local issue of reducing solid waste to the landfills They experimented with composting options to convert a part of the waste into usable resource. These activities increased competency for practicing sustainable lifestyles	The establishment of a collaborative relationship between USM and the wider community serves as a secure platform for continuous/future participation and engagement of residents to address issues facing the communities	University staff, in addition to transferring expertise, incorporated knowledge and best practices co-from this project into their teaching at the university. Enhancement of social connections between the university community and neighbouring communities through participation and engagement to solve common relevant problems engenders an atmosphere of common interdependence
RCE Tong-yeong	The youth research teams of RCE Tongyeong efforts to mutually learn and share for a sustainable future and to support each other towards a happy and lifelong learning society should provide a sense of belonging	The youth in RCE Tongyeong and youth in host RCEs collaborate and learn through research on common themes and sharing diverse perspectives. Back home, students share findings with their local communities	Identifying learning as a place-based, situated process both in the local RCE Tongyeong and in the RCEs visited overseas	Adoption of the program by the city and government guarantees its continuity. This is a type of program the youth are interested in and are willing to participate annually	The youth learned from resource persons provided by the local RCE They in turn gave back to the community on return from their study trip by sharing their experiences, knowledge and skills with the local community

In all cases, the groups were also engaged in a "partnership for change" and were actively working to not only address current problems but to also envision new opportunities and solutions for improving the overall quality, health or well-being of their locality, community and local environment. This in turn, naturally led the groups to reflect across the situation and context in a whole systems manner to understand the inter-linkages between seemingly disparate features. Pragmatic validation played an important part in groups' efforts to develop and substantiate new knowledge through the use of real world application and testing of new ideas, concepts and approaches.

Engagement and participation also played a key role in these learning processes. It is important to note that in all cases group members were self-selecting and thus can be understood to have a "personal interest" in the project from the outset. All cases were led by a central organization and/or a core working group who initiated a wider participatory approach. These central organizations also provided the cases with a level of accountability by having a central group holding overall responsibility for follow through on various projects and activities. One aspect that was variable across the cases was to what level the initial focus and objectives was either set by the central organization or by all participating in the project.

This last point provides an important policy finding that demonstrates that it is possible for an influential actor (e.g. a local government) to initiate a social learning for sustainable lifestyles process. In doing so, not only do the factors of an effective learning community need to be supported, but efforts must also be taken to engage participants in a participatory learning cycle where cooperative inquiry and critical reflexivity are common features. This learning cycle can be initiated through a collective stock taking to identify key areas for improvement, and from this establish a level of commonality. Forming the vision of the change that is desired and/or setting goals and objectives furthers this cycle towards one aimed at transformative learning, and in so doing strengthens the sense of belonging to a shared endeavor. New concepts, ideas and solutions are explored and tested through real-world application and pragmatic validation. While it is consensus validation and deliberative discourse that aid the group in looking beyond current *modus operandi* and defining a plan for how to achieve the envisioned change. Through taking action on this plan, the group can solidify its interdependence while also initiating the next round of the learning cycle which is enriched by their own actions and become the subsequent focus of the observation and reflection stages. In noting the links between the participatory learning cycle and the influence the various stages may have on enhancing the factors of an effective learning community, one may want to mobilize a few quick initial cycles through the relevant observation—vision forming—pragmatic testing—planning—acting stages if one is trying to initiate such a social learning process.

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