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Science Education for Sustainable Development in Asia



Education Innovation Series

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Hiroki Fujii • Sun-Kyung Lee Editors

Science Education for Sustainable Development in Asia



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Chapter 15 Learning for Change as an Experiential and Transformative Learning Method for Sustainable Development Planning in Siam Reap, Cambodia



Irina Safitri Zen, Marilyn Mehlmann, and Prima Wahyu Titisari

15.1 Introduction

The human ability to take action and find solutions for problems has been emphasized in Chapter 36 of Agenda 21, which is the action blueprint from the Earth Summit conducted in Rio de Janeiro, Brazil, in 1972 (UNCED, 1992). Universities function as a place of research and learning to initiate (behavioral) change, improve leadership skills, and promote sustainable development (UNESCO, 2004). Further, higher education institutions (HEIs) are responsible for and should promote sustainable development. Prior research shows that universities can integrate teaching, learning, research, campus operation, and governance to accelerate changes (Velaquez et al., 2005; Zen et al., 2016; Balsiger et al., 2017; Mulà et al., 2017; Barth et al., 2020). However, efforts related to capacity building for lecturers and academicians to facilitate sustainable development changes remain scarce.

Research also shows that quality education and learning at all levels are urgently needed to stimulate changes and actions to achieve sustainable development. The Education for Sustainable Development (ESD) concept reflects the efforts of invested stakeholders in engaging and encouraging people to be constructive and creative when facing global challenges, as well as in creating resilient and sustainable communities (UNESCO, 2004; Kioupi & Voulvoulis, 2019). ESD also

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proposes to empower people of all ages to take responsibility for creating a sustainable future. The emphasis is not only on acquiring knowledge about sustainable development or simple knowledge transfer but also on the translation of this knowledge into new skills, which in turn may bring forth attitude changes that promote new norms and values concordant with positive societal transformations. On this topic, Bushell and Goto (2011) described that transforming people's perspectives about their relationships with and roles in making sustainability a reality is necessary for achieving a sustainable society.

Considering that the basic requirements for maintaining the existence of human life are protecting and preserving our natural, social, and cultural environments, there is importance in adopting the general framework of ESD to empower humans to manage natural resources. Accordingly, the ESD framework has been developed and applied in several countries to support the dealings with local problems that have global impacts. Complex problems related to the whole of Earth need to be resolved through multidisciplinary and multidimensional approaches. To this end, the ESD framework proposes the incorporation of key and complex problems pertaining to sustainable development into teaching and learning systems and curricula, for example, topics on climate change, disaster risk reduction, biodiversity, poverty reduction, and sustainable consumption (Pauw et al., 2015; Titisari et al., 2020; Zen et al., 2020). ESD can be carried out within the formal education system or through informal activities based on the participation of the community, government, and companies focused on environmental issues. As a future-oriented framework, ESD focuses on protecting and restoring the environment by promoting engagement in actions that preserve our current ecological and social systems, actions that are meant to support sustainability by considering environmental, social, cultural, and economic systems as being interrelated. This confirms the orientation of ESD goals toward the development of skills and values that enable humans to contribute to environmental conservation and sustainable society (Bushell & Goto, 2011).

Nonetheless, when these topics reach HEIs, the integration of ESD into the curriculum becomes an intellectual discourse, making efforts to train the existing academia to stimulate change and act on urgent matter. There have been some formal initiatives aimed at preparing the next generation to become change agents, such as the Cambridge Institute for Sustainability Leadership (https://www.cisl.cam.ac.uk/) and the Postdoc Academy, which strive for transformation through entrepreneurship promotion, hoping that future entrepreneurs can instill HEIs with innovation, lead to inspire positive changes, and strive for an academic leadership position (Barth et al., 2020). However, the need for capacity-building interventions aimed at the existing academia to accelerate changes toward sustainability is an issue that remains to be tackled, especially on the south side of the globe.

Our program, the ASEAN Sustainability Leadership Program, is a capacitybuilding leadership program for sustainability developed under the guidance of the Higher Education Leadership Academy (AKEPT), Ministry of Higher Education Malaysia (akept.mohe.gov.my/). The program was developed in 2015 as an attempt to use the ASEAN community's spirit, together with the strong aspirations of HEIs to support the achievement of the Sustainable Development Goals, Agenda 2030, which came right after the United Nations Educational, Scientific and Cultural Organization's (UNESCO's) ESD 2005–2014. In general, the program intends to empower leaders of HEIs in ASEAN member countries through participatory and action-based research, as well as experiential and transformative learning experiences comprising lecture inputs, workshops, and technical visits. The program considers the fact that rapid change requires rapid learning through experience; specifically, it proposes that what leaders need to know to act on transformative changes toward sustainable development cannot be derived only from books or even conventional research. Instead, such knowledge must be driven by experimentation and action research. Hence, the program adopts the experiential learning cycle proposed by Kolb (1984), which operationalized a methodology that focuses on learning for change (L4C), and the L4C method developed by Mehlmann and Pometun (2013).

15.2 Sustainability Leadership

Since the sustainable development paradigm was proposed based on the agreement of world leaders at the Earth Summit in Rio de Janeiro, Brazil, in 1972, the indexes of development started to stretch beyond economic growth, expanding to include many other dimensions of human and environmental well-being. Further, the importance of the role of the leader in managing sustainable development started to be emphasized around this time. Considering these delineations, one may argue that leadership capacity building is highly relevant for sustainable development, especially within the context of HEIs and their direct contact with the world's youth. While short-term frameworks used by decision-makers tend to focus on economic factors, the development of leadership needs to be holistic and presupposes prioritizing strongly the relationship between humans and nature in the long term.

The basic definition of sustainability leadership relates to the basic principles of environmental science, namely, interaction, interdependence, harmony, and diversity, as well as the recognition of sustainability, with the latter being defined as the enablement of society to meet the needs of the present generation without jeopardizing the needs of future generations. This definition emphasizes interaction between a person and a group of people sharing common interests while recognizing the needs of future generations (Ferdig, 2007; McCann & Holt, 2010).

This rationale is manifested in the conceptual definition of sustainability leadership in the context of HEIs. Hargreaves and Fink (2004) posited seven principles of sustainable leadership in HEIs, with the first being that sustainable leadership should create and preserve learning processes that nourish and engage students intellectually, socially, and emotionally; the focus here is on the learning process, not academic achievements. Hence, the primary focus of sustainable educational leaders should be to sustain learning (Stoll et al., 2002). Second, sustainable leadership should secure longitudinal success, meaning that it should tackle challenges related to letting go of the role of leader, moving on, and planning for one own's obsolescence. Third, sustainable leadership should upkeep others' leadership through developing shared leadership at various levels of HEIs' professional community. Fourth, sustainable leadership should address social justice issues, developing interconnections to ensure benefits for all students, schools, and the community. Fifth, sustainable leadership should develop human and material resources; through the provision of either intrinsic or extrinsic incentives, it should provide time and opportunity for other leaders to network, learn from and support each other, and coach and mentor their successors. Sixth, sustainable leadership should develop environmental diversity and the capacity to cultivate and recreate the environment, which in turn has the potential to stimulate continuous improvement through colearning efforts. Seventh, sustainable leadership should engage through activism in environmental issues and the community, promoting colearning processes toward innovation.

Moreover, Tideman et al. (2013) postulated that sustainable leadership comprises the following principles. *Context based* recognizes interdependence, complexity, ambiguity, interconnectedness, resource constraint, regulators, and mega-trends. *Consciousness mindsets* respect different worldviews, beliefs, mental models, and attitudes. *Continuity* promotes a focus on long-term goals, courage, strength, common purpose, centeredness, and change processes. *Connectedness* serves the needs of all stakeholders, has both long- and short-term influence, and promotes collaboration, trust, fairness, altruism, relatedness, and needs instead of wants. *Creativity* advances innovation for sustainable, shared value creation; sustainable business models; and new value measurement models. *Collectiveness* scales up for collective impact, embeds sustainability in business structures, and promotes sustainable consumption. These principles provide the foundation for the ESD method applied in the program explored in the current study: the ASEAN Sustainability Leadership Program.

15.2.1 Experiential and Transformative Learning Through Sustainability Leadership

Capacity building for transformational leadership in HEIs provides a platform for transdisciplinary, participatory, and action-based research characterized by experiential and transformative learning. The concept of L4C was adopted to integrate a transdisciplinary approach to the service-learning program for the promotion of sustainable consumption in HEIs (Barth et al., 2014). The concept of L4C is part of transformative learning for ESD (Balsiger et al., 2017) and social learning (Tilbury, 2007).

Balsiger et al. (2017) outlined some key conditions for accelerating the implementation of transformative learning: *normativity*, which empowers learners to perform autonomous critical acts; a *social context* characterized by transformative learning and a training environment that are concordant with the descriptions in the UNESCO Global Action Programme (2014); *liminality*, which notes the importance of a disorienting dilemma for transformative learning and implies that coping with liminality is a responsibility of such learning endeavors; *transformative teaching* with an emphasis on personal experience, interdisciplinarity, and transdisciplinarity, which serve to enable teachers to play the role of coaches who encourage colearning conditions; and *leadership for change* through training. A prior study noted the lack of training programs for developing institutional leadership and transformative education (Mulà et al., 2017). Hence, our program contributes to filling in this gap regarding the lack of sustainable leadership training programs.

According to O'Sullivan (1999, 2003), transformative learning involves experiencing a deep, structural shift in the basic premises of thoughts, feelings, and actions. This conscious shift either dramatically and/or irreversibly alters our understanding of ourselves and our self-locations; our relationships with other humans and with the natural world; our understanding of the relations of power in the interlocking structures of class, race, and gender; our body awareness; our visions of alternative approaches to living; and our awareness of possibilities for social justice, peace, and personal joy. This definition highlights the importance of providing learning platforms that promote transformative learning. For these opportunities to arise, Mezirow (1997) posits that the educator's role should be more of a coach who assists the learners, enables their practice to recognize frames of reference, and encourages the redefinition of problems from different perspectives. Following these conceptualizations, the ASEAN Sustainability Leadership program was designed to provide capacity building for the extant academicians in HEIs, enabling these adult learners to foster change toward sustainable development. The shift in HEIs toward transformative learning can be initiated by changing the perspectives of these leaders about the relationships with and the roles in making sustainability a reality.

According to Mezirow (2000), the mechanisms for facilitating transformative learning can be expressed through the following key phrases connected to the learning process: (1) a disorienting dilemma, (2) critical questioning and self-reflection, (3) sharing of one's transformation process with others, (4) exploring new roles and actions, (5) planning a course of action, (6) provisionally trying new roles, (7) building competence and self-confidence in the new roles and relationships, and (8) reintegrating them into own life based on a new perspective. Furthermore, the actualization of sustainability should be supported by interdisciplinary and transdisciplinary frameworks that allow various disciplines, actors, and local communities to strive toward solving the same issue (Barth et al., 2020). Accordingly, these two frameworks were used concomitantly in the design of the ASEAN Sustainability Leadership Program. The program also recognizes and is based on the major concepts of learning for the twenty-first century, as proposed by Monk (2011): learning to know, referring to the capability of making connections, adapting to changes, and knowing how to learn; learning to do, describing the need for student-centered learning and leadership performance tasks that demonstrate the ability to apply knowledge in a creative way; learning to live together, which refers to using the concept of collaboration on local and global scales; *learning to be*, describing that the lifelong journey of self-discovery is a part of the learning process.

Experiential learning is important to motivate people by providing a hands-on approach to learning, one that shifts away from classroom settings, the use of the teacher role, and welcomes various ways of learning through the environment (e.g., field trips, action learning, service learning, technical site visits, and face-to-face interviews; Itin, 1999). Well-planned, supervised, and assessed experiential learning programs can stimulate academic inquiry by promoting interdisciplinary learning, civic engagement, career development, cultural awareness, leadership, and other professional and intellectual skills. Experiential learning involves reflection, critical analysis, and synthesis. Considering these delineations on experiential learning, the four stages of learning proposed by Kolb (1984) were adopted in the ASEAN Sustainability Leadership program. These steps involve knowledge input covering concepts, facts, and information acquired through formal learning and past experiences; activities for the application of knowledge in a "real world" setting; reflection, which is the analysis and synthesis of knowledge; and actions to create new knowledge. Furthermore, the program is also based on the concept of interpretation through reflection outlined by Mezirow (Cranton & King, 2003): first, content reflection through pondering about the question of What did I do that led to the outcome? Second is process reflection, which includes problem-solving checks in the classroom by the teacher, including by asking the question Do I understand the needs of my students? Third is premise reflection through questioning oneself, *Why do I feel responsible for this situation?*

15.3 Research Methodology

15.3.1 The Program's Approach

In general, the ASEAN Sustainability Leadership Program comprises a series of input lectures (30%) and training and interactive workshops based on L4C methods and technical visits (which function as participatory and action research; 70%). The five-day and four-night program took place in a selected hotel in Siam Reap, Cambodia, with the participation of 40 leaders of HEIs in ASEAN countries. The program comprised a one full day of lectures with the tagline *Sustainability Leadership Program in ASEAN Community Higher Education: Experiential & Transformational Learning*, eight hours of transformational learning training based on L4C, and two days of on-site experiential learning at Angkor Wat and Tonlé Sap lake. These two sessions of experiential learning comprised multistakeholder discussions that were co-organized with local stakeholders: the *Sustainability Tourism of Angkor Wat* and community-based tourism; the *Sustainable Livelihood of Fishers at Tonlé Sap Lake* was arranged by the Fisheries Community Association and the Royal University of Phnom Penh, Cambodia. The stakeholders involved in these

two sessions of experiential learning were representatives of the government, nongovernment organizations (NGOs), and academia; these two sessions emphasize the issues of community-based tourism and sustainable livelihoods and include the representatives' sharing of some of their life experiences within the context of implementing sustainable development in Cambodia. Researchers from the Royal University of Phnom Penh, Cambodia, linked us with the local community. Furthermore, the program promotes capacity building by providing in-depth, widespectrum discussions on sustainable development in HEIs and leadership. The current study focuses on data collected from the participants' experiences with the *Sustainable Livelihood of Fishers at Tonlé Sap Lake*.

The two keynote speeches of the program were titled Higher Education for Future, delivered by Prof. Dr. Mohamad Kamal Harun, Higher Educational Leadership Academy (AKEPT), and Sustainability Leadership – UTM Experience, delivered by Prof. Dr. Hamdan Ahmad, Institut Sultan Iskandar (ISI), Universiti Teknologi Malaysia. There were also eight input lectures from diverse representatives of the academia, government agencies, NGOs, and research institutes, as follows: (i) Sustainable Indigenous Ecotourism in Cambodia by Dr. Soriya Yin, Royal University of Phnom Penh; (ii) Sustainable Livelihood Approaches by Assoc. Prof. Dr. Salfarina Abdul Gapor, University College of Technology Sarawak; (iii) Sustainable Development Goals (SDG) ASEAN Community – the UNESCO Experience by Mr. Tchadie Alain Michel, UNESCO Office Jakarta, Indonesia; (iv) Reframing the Leadership Roles by Enhancing the Interconnections in Sustainable Development Using Ouintuple Helix Framework by Dr. Irina Safitri Zen, Universiti Teknologi Malaysia (UTM); (v) Navigation in the Sea of Sustainability: Education for Sustainable Development, Leadership and Sustainable Development Goals by Ms. Marilyn Mehlmann, Global Action Plan (GAP) International; (vi) Governing the Sustainability: Case Study of River Basin Organisation in Australia by Dr. Tariq Rana, Murray Darling Basin Authority – Australia; (vii) Multi levels Bottom up Advocacy: Linking the Community to the Government by Ms. Mardha Tillah, Rimbawan Muda Indonesia (RMI); and (viii) Community Based Tourism: Multipronged approach in Support the Sustainable Development Goals (SDG) and the relation with Goals 8, 9, 11 and 13 by Dr. Norhazliza Abd Halim, Centre for Innovative Planning and Development (CiPD), Faculty Built Environment (FBE), Universiti Teknologi Malaysia.

The program had the following objectives: introduce the interdisciplinary and interconnection approach for sustainability leadership; provide direct information on experiential and transformative learning through the L4C method and on-site visits; enhance the communication skills of leaders and their appreciation of consensual decision-making through promoting interpersonal active listening and group decision-making simulations; enhance the quality of leadership by promoting humanist sensitivity toward serving societal needs; allow leaders to learn about various education and social structures from other participants; and strengthen the leadership capabilities and international social skills of the involved leaders by promoting interactions with other participants from various countries.

15.3.2 Tonlé Sap lake

Tonlé Sap lake is a seasonally inundated freshwater lake in the Mekong River Basin. The lake functions as a natural reservoir for the Siem Reap people in Cambodia, with the flow of the Mekong River feeding the lake and bringing in fertile soil, making Tonlé Sap the world's most productive inland fishery. Among the largest freshwater lakes in Southeast Asia, it is also known as the biggest fisher community living in stilt houses, also known as floating villages. The villages are characterized by low availability of clean water and sanitation systems, and although they do contain schools, religious houses, clinics, and other institutions, these generally have poor infrastructure.

The lake is home to the biggest freshwater bird sanctuary in Southeast Asia, which contains some of the rarest birds native to the Asian continent. About 149 species of fish and 200 species of higher plants are recorded in the Tonlé Sap lake, and it provides habitat for 16 globally threatened vertebrate species (Campbell et al., 2006). The best way to explore Tonlé Sap is by using a boat or kayak because they allow for exploring the floating forests and dense mangroves, and one can find drinks and snacks at the local waterside markets. Some of the local fishers provide homestay services for tourists to experience an overnight stay with a local fisher family, allowing tourists to get a true taste of the village life.

Tonlé Sap is also a part of the UNESCO World Network of Biosphere Reserves, being established as such in 2001 under a Royal Decree of the Cambodian government. The Tonlé Sap Biosphere Reserve (TSBR) covers 42,300 ha and has three basic functions: conservation, development, and logistics. The concept is supportive of community-based development ecotourism, assisting in sustainable local development (Baromey, 2008).

15.3.3 Learning for Change

L4C is a generic process tailored for collaborative learning, knowledge creation, and project assessment, and it should be developed according to the needs of participants (Benaim & Mehlmann, 2012; Mehlmann & Pometun, 2013). L4C is a colearning method that facilitates collaboration, analysis, and synthesis of learning from past experiences and connects this learning to expectations for further improvement; in the case of our program, the expectation is for HEIs to accelerate sustainable development. The L4C framework for the ASEAN Sustainability Leadership Program was customized into five steps, which are preceded by a structured preparation step; specifically, before the workshop, participants were given a template wherein they were required to describe the personal experiences from which they wished to learn.

In the five-day program, participants from various HEIs in ASEAN countries were trained in the L4C method and deployed it during the on-site visit to the Tonlé Sap lake. The diversity of the experiences in the program serves to ensure that all can learn, enabling participants to gain new insights regarding the transformative learning process. This process, in turn, occurs at the individual level and enables sustainability leaders to better handle the future demands of our currently interconnected world and its fast-changing environment and to anticipate global climate change challenges. The participants were engaged in collaborative learning, analysis, and synthesis activities.

The developers of the L4C method of the ASEAN Sustainability Leadership Program have systematically developed and tested methods and tools that facilitate the transformative change process, in particular among leaders, making use of individual and organizational learning activities. It engages participants/learners in an intensive process of interaction and reflection, resulting in a form of social learning that empowers leaders to lead the change toward greater sustainability.

In the program, the L4C workshops included a ball session; case study presentation; nominal group technique (NGT); Aha! Why, why, why?; deep listening and reflection; and Fleck's synergy method, which is a way of conducting meetings that are both highly effective and inclusive/creative. These are in line with our program objectives, namely, to expose participants to the dynamic interactions and interconnections necessary for translating the SDGs into a sustainability science approach. Most activities were carried out in groups, so-called "home groups," and each had a facilitator.

The Ball Session

The ball session is an ice-breaking session wherein all participants introduce themselves and share their intentions behind attending the program (Fig. 15.1). The instruction for each participant was as follows: please explain *who you are, why you are here*, and *what brings you here* in a maximum of 90 seconds. After giving the answer, the participant throws an imaginary ball to the next person they would like to hear from; the session continues until all have spoken (Buber, 1937).



Fig. 15.1 The ball session

Case Study Presentation

The case presentations were made in two steps: first, the appreciative presentation technique was used, which is similar in approach to the appreciative inquiry technique, and, second, the NGT.

1. Appreciative Presentation

In the home groups, participants took turns to present their prepared presentations: the experience from which they wished to learn. This process comprises parts (a) and (b), with part (a) being a factual summary of the work in question (e.g., statistics on the number of people involved) and part (b) being a personal assessment of what was the best aspect of the experience, namely, a "boasting" session about success and satisfaction. For many participants, part (b) was the most difficult as few cultures encourage people to be clear about their successes; still, this is an important skill overall, especially for leaders.

The presentations of all six participants in the home group are summarized on a single flip chart. Normally, each presentation is documented by the previous presenter, and the flip charts are posted afterward to allow other groups to see the summary of the presentations.

2. Nominal Group Technique

After the appreciative presentation technique, participants are directed to make considerations about the possibilities for improvement regarding their cases. Although the cases and the presenter's satisfaction with the case are unique, there is often a convergence of possible improvements for the activities; the NGT allows for synthesizing the diverse ideas that come up regarding these potential improvements.

The NGT is a structured group method involving problem identification, solution generation, and decision-making (Fig. 15.2), and it encourages contributions from every participant. This technique aims to train the leaders in a simple, rapid process to gather and synthesize inputs, facts, opinions, and evaluations from a group of students, a community, or colleagues. This method is particularly useful for leaders to engage everyone when the group is part of an established hierarchy; the three steps of the NGT technique are listing the problem, sharing, and synthesizing.

The first stage is to list potential improvements. Each participant thinks silently and writes down brief answers to the following question: *What would you prefer to have done differently or better*? It provides participants with the possibility of thinking that the solution to a problem, a research issue, or an insight that is already good could be even better. Each response is written on a separate small piece of paper, and each participant keeps their own notes.

In *the second stage*, participants share their answers: they should stand around a table that has been cleaned of everything or use post-its and stand in front of a clean whiteboard. Each member, in turn, reads one of their answers aloud. During this process, no discussion is allowed, but others can make some clarification by asking the following question: *What do you mean by that?* And the person reading own answer should clarify the statement as needed until everyone understands it; after reaching a general understanding for all participants, the participant places the



Fig. 15.2 Nominal group technique

answer on the table or whiteboard. Once each participant has read one answer, all participants are free to contribute with new ones, one at a time. Answers that seem to be related are placed close to each other on the table or whiteboard.

The third stage is synthesis, wherein the preliminary groupings of notes from stage 2 are consolidated into clusters, each with a descriptive title. During this process, further clarification may be needed to find the most appropriate cluster for each note. The quality of the synthesis is dependent on the quality of the naming of the clusters; for instance, a passive title like "Administration" is not actionable, but "Ensuring salaries are paid on time" is actionable. This stage should be allowed a relevant amount of time for its completion. At the end, each group shares the names of their clusters with others, with the possibility of discussion based on the following question: *how can this contribute to action formulation and decision-making*?

Deep Listening

Deep listening is a method developed by Ziegler (1995) to help people access their inner wisdom or intuition. It presupposes that each of us has knowledge in our subconscious to which we have no access to or in which we do not trust. At a certain level, we acknowledge that we know things that we may express as our "gut feeling," as a form of intuition. The deep listening technique aims at making this intuition accessible. It is also highly empowering to deeply listen to other people, and this is a key competence in the role of the leader as a coach.

In the program, deep listening was introduced to improve the quality of leaders' listening as it encourages the speaker to talk freely and describe how one wants to be supported or coached. The process begins by paying close attention and listening

in silence; it is nonjudgmental, empathic, and nurturing. Deep listening is an important skill for leading sustainable development processes because those involved tend to be highly diverse and contribute with different insights, problems, and solutions related to human interaction with the environment. Furthermore, knowledge itself cannot change the leaders' behaviors unless they understand the issue, empathize with those involved, and understand the local context. Thus, a leader must have good listening skills, which allow one to understand others' messages deeply. Deep listening also allows for issues to be detected, analyzed, and solved with wisdom.

Instruction for Deep Listening Combined with "Why, Why, Why" for Deep Coaching

- Participants form pairs and sit next to one another. One is designated the problem owner, and the other is the coach (after a while, they change roles).
- Think about the problem or concern that you want to talk about. Take a few minutes in silence to decide and formulate on it.
- As the coach, your job is to make the problem easier to solve for your partner.
- After about three repetitions of the question "why" to reach deeper levels on the topic, the question turns to "how." The coach asks what the problem owner might do in regard to the deepest level of "why." Then the coach asks, "And how might you succeed in doing that?" Usually, the process is complete after three iterations of the questioning of "how." Upon completion, the problem owner can proceed to formulate an intention to take action.
- For this exercise, each person has 9 min to express a problem and to work on it with the help of the coach.

The first rule of this coaching technique is to know that the coach will not solve the partner's problem; instead, the job of the coach is to make it easier for the partner to solve own problem. The problem owner needs to tell the coach a problem and should acknowledge that the coach does not have to give a direct answer to the problem; instead, the coach should ask the problem owner questions like the following: *Why/in what way is that a problem for you personally? How might you change that? Is there anything you can do?*

Synergy Meetings

Fleck's synergy meeting is potentially the most useful of the methods comprising the L4C methodology because it can be used in any context with strict time limits, is focused on both outcomes and relationships, and aims at establishing a climate for inclusion, collaborative learning, and creativity. It can also be applied to a regular project meeting, such as an envisioning session or a board meeting. A synergy meeting takes place in three steps:

- 1. Dynamic agenda setting: each person may contribute to topics, including an estimate of the time needed for each topic. The proposer becomes the "owner" of the topic.
- 2. Negotiation: if the total time needed for all topics exceeds the time available, negotiation ensues. Only the owner of a topic can change time allocation.

3. The topics: they are dealt with logically, not chronologically. Anyone may suggest a topic as the next item to be tackled; since maximum times are set for each topic, all topics are dealt with within the meeting period, without overruns.

Participants were taught the principles both of this meeting method and of facilitation, and they applied the method to discuss their findings related to an activity (e.g., after the on-site visit).

15.4 Results and Discussion

The skills learned from the L4C workshop were deployed during the stakeholder discussions amid the on-site visits to the Tonlé Sap lake. The application of the L4C method in the interactive workshops and the on-site visits allowed for experiential learning to be achieved. The results showed that the L4C methods were successfully used in the program as the list of identified problems clearly demonstrated improvement in the leaders' skills of colearning, empathy, and understanding of the local people's problems. The NGT was applied for the examination of solutions to the livelihood problems in the villages at Tonlé Sap lake.

15.4.1 The Ball Session

Various response dimensions were provided by participants from various disciplines and different levels of academic qualification, from lecturers to associate professors and professors. Since all learners were adults, participants were generally able to listen and appreciate what others said, taking the information relayed by others as a basic input in the learning process. The following responses summarize most results from the Ball session:

- (i) I want to learn about all aspects of sustainability, and this is the right place for me to get knowledge on and share what I have done in my research on sustainability.
- (ii) I am involved with SDG-related workshops, and those workshops push the early-career researcher to be involved in sustainability issues.
- (iii) I want to learn, relearn, and realign my role in sustainability.
- (iv) I want to share something and get something from all of you here. My own definition on sustainability: no beginning, no ending.
- (v) I am very happy to be here. I have been learning topics about sustainability since 2008; it is very interesting to learn something new from each of you.
- (vi) I came here because my boss wants me to replace him. So, here I am. In the Plenary session workshop, I hope to gain insights and be able to learn more from the program.

15.4.2 Case Studies

Each participant brought and presented their own "case study" in the home groups. In each group, participants performed the following steps: in Step 1, they described the case with a few key facts (identified ahead of the workshop) and provided an answer to the question What worked really well? What are you the most proud of? Other group participants listened without any type of critique (without the need to respond, analyze, or prioritize; they only listened and endeavored to understand the topic at hand); case descriptions were noted and the notes displayed. In Step 2, participants deployed NGT to identify potential improvements. The results from this method are shown in Table 15.1, and the responses to the question What would you prefer to have done differently or better? are listed in Table 15.2. The responses reflect the future expectations that participants had for teaching, learning, research, and community work in HEI. Through this reflection session, participants are guided in the identification of their achievements and the work about which they are the most proud, thus serving as a tool for participants to reflect on their past research experiences and learn from their individual projects (Table 15.3). The summary of the participants' responses to What worked really well? What are you the most proud of? is shown in Fig. 15.3.

15.4.3 Nominal Group Technique

From the individual brainstorming sessions in silence and the collective learning of leaders from HEIs in ASEAN countries, the participants were requested to reflect on the question, *What would you prefer to have done differently or better?* The synthesis from these activities led to six clusters: leadership, funding, research, orientation, networking, and community (Table 15.4).

The participants provided several comments about the NGT session, such as the following:

Participant 1: It was very difficult to draw a specific topic because we come from different backgrounds, countries, and economic contexts.

Table 15.1	Summary of the reflection	ons on the case studi	es based on the que	estion What would you
prefer to hav	e done differently or bet	ter?		

"What would you prefer to have done differently or better?"	Synthesis of the results in the clusters
Kuala Sepetang mangrove forest	Resilience strategies
Port well tin mining area, tourism attraction	Changing landscape
Changing of the area and land usage	Resilience community
Mangrove usage for charcoal	Leadership
Provide society job market	
Ecotourism attraction impact	
Issues: water quality and fish quantity	

(continued)

	Synthesis of the results in
"What would you prefer to have done differently or better?"	the clusters
Disaster (flood)	Natural disaster
Abandon resources	Adaptation and risk
Accessibility for people who cannot reach food sources	reduction
Not fully utilized	
Victim needs/volunteer offers	
Evacuation hit	
Ensure the endorsement of a welfare department	
Early warning emergency system	
How to handle volunteer issues	
Finding feasibility	Basic needs
Model for indigenous ecotourism	
Promoting the political visibility of indigenous communities	
Economic support for the indigenous communities	
Community engagement in the urban area	
Fishing village in island issue?	
Accessibility to basic needs: electricity and water	
High loss (drawback)	
Ecotourism in mountainous areas	Ecofeminism for tourism in
Products for tourism in the traditional village are not suitable for	sustainability development
many people	
The government wants to develop ecotourism in the area, but it is	
not suitable because the model would change the traditional	
culture (especially for women)	
How to change the attitude and behavior among youth	Self-learning
Concerning consumption levels in Indonesia	
Sustainability consumption	
Empowering learners	1
Self-directed learning	
The use of information and communications technology	

Table 15.1 (continued)

Question	Responses
What would you prefer to have done differently or better?	Wanted the government to recognize community engagement and action research Misconceptions of community engagement led the government to marginalize social science research Wanted the government to give more funds to research
	Change behaviors Regarding publication and to show output to the university Talking about ISI/Scopus Agenda Describe that a low number of publications is better Put a belief, not just support the university Ask for respect Adaptive challenge
	Project at the initial phase Get support from family Help children from hospitals in remote areas Expected to extend the project to other areas in Malaysia To challenge: as a new initiative, have to make it sustainable Build an example from developed countries

 Table 15.2 Responses to the question What would you prefer to have done differently or better?

Question	Responses
What worked really well? What are you the most proud of?	Participant 1: "[My] Persistence. I am still working on not giving up. Success [of the project] is commercialized. Farmers plant the herb, process it, and provide to companies after 3 years. Farmers still keep in touch [with the participant]. Farmers still keep in touch."
	Participant 2: "Having met diverse people, faced new challenges, and new environments."
	Participant 3: "Adaptive challenge, mix and match [of different techniques or methods]."
	Participant 4: "It was the first initiative in this area in Malaysia, it gave people something to believe in, and promoted open discussions about sustainable development in formal and informal ways"
	Participant 5: "I provided small contributions that helped the community."
	Participant 6: "I assisted in the development of a democratic decision making process, developed the democratic system in the community, and helped people become aware of conservation topics."
	Participant 7: "I helped people to better understand the concept behind clean and safe water."
	Participant 8: "I helped introduce the concept of sustainable development to non-environment focused teachers."
	Participant 9: "I provided people with hands-on experience on cleaning the river in the neighborhood, and children were empowered to be part of the solution"
	Participant 10: "The project provided a platform for the sharing of concerns of different stakeholders, for the development of volunteerism, and delivered a manual for engineers."
	Participant 11: "The project provided active learning strategies, led to changes, enabled for cooperative learning and participatory learning to be promoted."
	Participant 12: "Through the project, community participation was institutionalized, and it became an open process for all."
	Participant 13: "The promotion of stakeholder coordination, the development of a policy and implementation plan for sustainable community, as well as peace education."
	Participant 14: "The project allowed for research to be performed continuously, and there have been attempts to translate the scientific knowledge into rea-life settings and practices."

Table 15.3 Summary of the responses to the question of What worked really well? What are youthe most proud of?

Participant 2: I feel scared if I don't understand what the other person is trying to tell the group or if I misinterpret the point.

- Participant 3: At the beginning, I doubted [the exercise] and what it was about; but at the end, I felt very happy and I think that I was able to do the exercise, and now I'm curious about what to do next.
- Participant 4: At first, it's difficult to understand everybody's opinion or statements. But at the end, the technique helps to make things easier to understand, more meaningful, and turns out to be simpler.



Fig. 15.3 Summary of the responses to the question *What worked really well? What are you the most proud of?*

Table 15.4	Reflection o	n the	results	of the	nominal	groun	techniqu	1e
14010 15.4	Reflection 0	n une	resuits	or the	nommai	group	teeninge	ic

	Synthesis from collective learning
"What would you prefer to have done differently or better?"	outputs
To have a better understanding of the scenarios that happened in our own communities nowadays and how to improve them To have developed a collective leadership To have changed the mindset of students in my own program about the responsibility related to being good human beings; to have made it clearer that we should use our knowledge, reasons, and heart together when making any decision To have explained about and invited everyone to use green and eco- products more, which would then help lower green product prices	1. Leadership
To have tried to provide internship sponsorship for students to go to other universities To have started a research project on a smaller scale To have proposed more feasible projects	2. Funding
To have gotten funds for the research endeavors from the government	
To have made visual arts as a part of the research methodology Research and documentation	3. Research
Process and policy research should be added in research To have enabled for visual arts method-based research to be seen as equal to other research methodologies	

(continued)

	Synthesis from
	collective learning
"What would you prefer to have done differently or better?"	outputs
To have provided orientation (on perspectives, principles, and processes)	4. Orientation
on ecotourism, bloatversity, and community development	
To have implemented the idea of "learning with the heart" ever since	
The base of the second and upward	
To have gotten more inputs on how to create awareness actions in the	
community, especially regarding the appreciation of culture and heritage	
To have helped the local fisher people to be the official group	
To have probably presented better results by providing life experience	
education to students; to have further discussed the conditions, problems,	
and challenges pertaining to gender rights within the context of women,	
gender, the LGBT community, and ecotourism	
To have increased student participation in lecturing and research	5. Networking
To have trained students more on the need to be concerned about the	
environment	
To have increased the collaborative activities with university students	
To have made more collaborative research with different research	
disciplines	
To have seen visual arts be accepted as one of the factors that can boost	6. Community
ecotourism	
To have reduced morality issues and increased community awareness	
To have expanded the environmental conservation group to the	
international level and to have conducted more networking at the	
international level	
To have aimed to produce better and happier communities	
To have facilitated community development and organization through	
student and academic programs, such as field outstation programs	

Table 15.4 (continued)

Thus, the NGT allowed participants to reflect on their past experiences, describe their future expectations, and gain different perspectives (Fig. 15.4). This process is based on the transformative learning theory by Mezirow (1997), which proposes that adult learners can construct, validate, and reformulate the meaning of their experiences. The NGT technique involved deep thinking in silence for some moments, thus allowing for the learners to engage in critical reflections on own experiences, which in turn involves processing specific beliefs, attitudes, and emotional reactions; this process eventually leads to perspective transformation (Mezirow, 1990).

To have further changed people's behaviors, as well as to have begun

with changing myself and then to try to change others

15.4.4 Deep Listening

Overall, participants gave positive feedback about this method. Despite this technique being challenging, it teaches participants to be patient and good listeners. Some of the feedback was as follows: *This session is like a counselling session*;



Fig. 15.4 A group discussion session during the L4C method

From my point of view, this activity is challenging because we have to be patient when being the listener, instead of giving any advice; I personally think that this method is very useful to become more professional; and I feel strange when my coaching partner also has the same problem as me; it is just like I myself have the solution to my own problem.

The deep listening method was used to promote discussion among various stakeholders, and through it, participants reportedly learned to listen to the local people and stakeholder issues in Tonlé Sap lake. Moreover, participants went to the lake, took the local fishing boat, and visited the fisher village and its facilities (e.g., schools, floating fresh market, and a health clinic). Each boat carried a mix of workshop participants, local people, representatives from local NGOs, NGOs, and researchers from the Royal Cambodia University.

Further, as participants got back from the technical visit, they were asked to reflect on their lived experiences through the visit in writing and to come up with potential solutions to the problems they got to know about. The results from this process are described in Table 15.5. This reflection session conducted on return from the on-site visit enabled the participants to learn from this experience. These tools can be used to facilitate the reflection process, the gathering of tacit knowledge acquired from interaction with local people, insights from observations and experiences while making on-site visits, and the collection of local issues. *The aim of this session was to make their learning more explicit and articulated, contributing to their professional performance in their own working contexts*.

The results in Table 15.5 show the participants' knowledge derived from the observations and the deep listening technique, which show the convergence of local/ tacit and scientific knowledge that stemmed from the local people, stakeholders, and participants.

Reflection from the on-site visit to Tonlé San lake	Cluster and synthesis results	Proposed solutions
Difficulty in the provision of basic needs Poor infrastructure Transportation problems Poor public amenities and community areas Poor access to roads in the area Poor jetty infrastructure Non-organized jetty Poor funding	Public facilities and infrastructure	Providing clean water through cooperation between NGOs and universities
Noise pollution caused by motor boats for transporting tourists	Noise pollution	Better technology for boat engines Smaller boats for smaller groups of people, which in turn produce less noise pollution
Hard-to-get clean water Municipal wastewater discharged to the lake Lack of water treatment and toilets Poor water and sanitation	Water and sanitation	Providing clean water through cooperation between NGOs and universities Recycling water facilities Improve water treatment and toilets
No solid waste management available	Waste	Research project to promote the separation of solid waste Show the community how to recycle Provide knowledge for invested stakeholders that some waste can be sold and serve as a source of income for the economically disadvantaged Promote awareness about sustainable consumption, production, health, energy, water, and food, among others
Minimal health service availability and limited access to clinics and other health care facilities and services Fever is a common health problem People experience difficulties in going to a hospital or clinic	Health	Provide air medical services Improve health facilities Provide mobile clinics Educate the community with basic nursing courses and awareness
Low budget from the government to the community Loan interests are high Lack of job opportunities for women Financial support is limited Diminished support from the government for building basic infrastructure Lack of public-private partnerships Lack of coordination	Finance	Need to provide more money with low interest Potential financial support for the economically disadvantaged Create microfinance programs Support to build basic infrastructure from the government More proper coordination

 Table 15.5
 Reflection, synthesis, and proposed solutions for the problems in Tonlé Sap lake

(continued)

Reflection from the on-site visit to	Cluster and synthesis	
Tonlé Sap lake	results	Proposed solutions
Reflection from the on-site visit to Tonlé Sap lake Children face difficulties in going to school Those with tertiary education refuse to come back because of a lack of job opportunities Kids spend their time helping their parents and other people to help with the family's income Not enough teachers Education is not a priority in some families, especially for girls Various school children drop out of school There are problems with keeping students interested in education	Cluster and synthesis results Education and its quality	Proposed solutions Encourage children to study subjects or engage in vocational training that will help them generate income and develop the community Educate parents about the importance of education for their kids Provide a more appropriate school system and education Kids should stay longer at school and should be able to enjoy it Improve the quality of primary and secondary education Support government policies to improve the quality of education in remote areas Provide capacity building for teachers Build the infrastructure of schools Provide life-long learning opportunities Students should be able to learn with their hearts Teachers should serve as motivators for students to learn Students should receive interventions to enhance their awareness about sustainable development Set additional value through visual educational methods Ensure the successful reconciliation of social science and visual educational methods Need to promote the perception in the community that education is a joyful endeavor Change the students' behaviors regarding the environment Develop a curriculum regarding the environment
		Set additional value through visual educational methods Ensure the successful reconciliation of social science and visual educational methods Need to promote the perception in the community that education is a joyful endeavor Change the students' behaviors regarding the environment Develop a curriculum regarding the
		environment Prohibiting hazing and "violence" during the introduction week for novel university students may have a significant impact

Table 15.5 (continued)

(continued)

Reflection from the on-site visit to	Cluster and synthesis	
Tonlé Sap lake	results	Proposed solutions
Poverty Lack of tourism-related income activities for the community Lack of attraction services to make tourists spend more and return Different mindset and lifestyle Illegal fishing Very limited resource persons in the community	Socioeconomic issues	Promote networking with NGOs and other countries Promote and introduce the local culture and its foods and products Clearly identify the main tourist attractions Promote the capacity of community members to adapt and change toward sustainable development Promote leadership with a clear structure that is based on the community's grassroots Explore the possibilities of fishery management Increase the number of enjoyable tourist attractions and programs Training community members in making nets and in the fishing farm culture since fishing activities are strong in the community
forestry, especially community members in the upper-level strata The dam in the upper-level strata The dam in the upper area of the Mekong River causes the community to have less water flow, affecting the water ecosystem The weather in the community is extreme due to climate change There are drastic changes in the environment of the community in different places, with some being covered by water, while others are not	environment challenges	be concerned about forestry issues Improve the community's adaptive capacity through capacity building and training programs
Community development takes time Democracy and development How time is defined: cultural time Concern with agenda: democratic time	Challenges to transform the community	Improve fisher people's awareness of conservation Think, plan, and solve problems together with community fisher people Influence and advice company involvement in the public and private sectors Work with business sectors

Table 15.5 (continued)

15.4.5 Reflection and Contextualization

This session, allocated at the end of the program, invited participants to consider the answer to the following question: How can a university most effectively contribute to sustainable community development? The participants provided various responses, including the introduction of a curriculum regarding community development at the local level, raising teacher awareness, improving the curriculum for teacher training, promoting the engagement of alumni and retired professors, promoting collaborative learning and research at the institutional level, teaching students the skills to engage with communities, encouraging students to reach out to their communities, transfer of technology, providing better social protection, recognizing community development practitioners and promoting their work in the community, and integrating community engagement as part of the academia extension services. All responses are recorded in Figs. 15.5 and 15.6. Hence, transformative learning for sustainable development was manifested through the participatory, integrative, and reflective characteristics of the L4C method (Singer-Brodowski, 2017). Hence, transformative learning for sustainable development was manifested through the participatory, integrative, and reflective characteristics of the L4C method (Singer-Brodowski, 2017).



Fig. 15.5 Reflections on how universities can contribute to facilitate sustainable community development (Part 1)



Fig. 15.6 Reflections on how universities can contribute to facilitating sustainable community development (Part 2)

15.5 Conclusion

Overall, the ASEAN Sustainability Leadership Program is an attempt to shift the participants' understanding of themselves and their roles in HEIs in the context of teaching, learning, research, and community development for sustainable development. It aims at enabling these stakeholders to reemphasize their relationships with other humans and the natural world. From an ESD perspective, the results of the program reflect the need to promote collective awareness for engagement in sustainable development, an issue identified as part of the reflection process from the participants' technical visit to the region and which represents the real livelihood problems of the fisher communities in the floating villages at Tonlé Sap lake. The implications of the program based on the participants' experiential and transformative learning and discussions, which were promoted by the L4C colearning method, are as follows:

- Most participants wanted to learn about sustainability, share their research experiences, improve sustainability action research, realign their roles, and gain knowledge from other participants. Further, various alliances were created through the program.
- The participants showed that they had diverse experiences and levels of knowledge and engagement in research and expressed that they had high expectations for future community-based research and high expectations for the support (e.g., for the promotion of social science research and better publicity of sustainable development research) from relevant ministries in the country.

- Participants highlighted six main areas that need to be enhanced to support sustainable development-based research: leadership, funding, research, orientation, networking, and community.
- Reflections from the on-site visits revealed several key factors that should be tackled for the area to achieve sustainable development, such as improvements in education, infrastructure, and health facilities.
- There is a strong potential for the improvement of teaching, learning, research, and community development for sustainable development in Malaysian HEIs and in the studied region.

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