The impact of systematic board game dialogue
on raising awareness and motivating action on the SDGs

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Abstract

The purpose of this study was to investigate whether a simple and interactive board game workshop could improve participants' understanding of the SDGs and their relationship to individuals, and whether the eight core competencies of Education for Sustainable Development (ESD) could be changed through the workshop experience. A total of 13 workshops were conducted from November 28, 2022 to April 28, 2023, and 336 questionnaires were collected. The results of the study showed that participants' understanding of the SDGs was significantly higher after game than before the game. For participants who were already responsible for promoting the SDGs at work, the survey results also showed that their understanding of the SDGs was significantly higher after the workshop, and their personal relevance to the SDGs was also higher than before the game. In addition, the items that were relevant to the SDG goals changed after the workshop. As the promotion of the SDGs is holistic and systematic, the study also found that there was a significant change in the participants' self-assessment of their core competencies in sustainability education.

Keywords: SDGs, ESD, competence, board game, communication, dialogue

Background

We don't have much time left to achieve the United Nations Sustainable Development Goals (SDGs) by 2030. Although governments have called for this as a global goal that we need to work on together, for most people it seems too ambitious and irrelevant, and that it's up to others to make the changes first. This perspective prevents people from taking the SDGs seriously and taking action. Many courses and workshops have been developed to help everyone understand the SDGs and implement them in their organizations and personal lives. This study focuses on the 2030 SDGs Game, a board game with facilitated discussions and dialogues that allows participants to see their own connections to the SDGs through reflection and discussion in a three-hour workshop that simulates real-world operations.

About the Sustainable Development Goals

On September 25, 2015, the United Nations General Assembly adopted the 2030 Agenda for Sustainable Development, a global framework and goals developed over a three-year process following the United Nations Conference on Sustainable Development (Rio+20) in Rio de Janeiro, Brazil, in June 2012. These 17 SDGs include: ending poverty, ending hunger, health and well-being, quality education, gender equality, clean water and sanitation, affordable energy, jobs and economic growth, industry and innovation and infrastructure, reducing inequality, sustainable cities and towns, responsible consumption and production, climate action, marine ecology, terrestrial ecology, peace, justice and institutions, and global partnerships to achieve these goals. This universal, transformative and inclusive vision of sustainable development describes the global challenges facing humanity and is about ensuring that all people can live sustainably, peacefully, prosperously and equitably on Earth, now and in the future. These goals go beyond a focus on the resources of the natural environment, recognizing that poverty eradication must go hand in hand with strategies to promote economic development and social needs, including education, health, social protection and employment opportunities, while addressing climate change and environmental protection. The goal of sustainable development also encompasses major systemic barriers such as inequality, unsustainable consumption patterns, weak institutional capacity and environmental degradation. Achieving the goals will require everyone to do their part: governments, the private sector, civil society, and everyone else around the world.

In July 2019, Taiwan will also launch the Taiwan Sustainable Development Goals (TSDGs), based on the key transformations to achieve the Sustainable Development Goals (SDGs), which include 18 core goals and 143 specific targets and corresponding indicators. (2019)

Education for sustainable development and core competencies

UNESCO's Global Plan of Action on Education for Sustainable Development, published in 2014, identifies five priority areas for action to advance the education for sustainable development agenda, the third of which is building the capacity of educators and trainers: empowering educators and trainers to implement education for sustainable development more effectively. Educators and trainers are powerful agents of change and can make education for sustainable development a reality. But they must first acquire the necessary knowledge, skills, attitudes and values to promote the practice of a sustainable world. Teachers must also develop the necessary motivation and commitment to address sustainability issues. The priority area for action is to develop the capacity of these change agents to promote education for sustainability. (Giangrande, White et al. 2019)

According to the UNESCO Learning Guide on Education for Sustainable Development, education for sustainable development plays a critical role in achieving the Sustainable Development Goals. Since everyone needs to be a change agent for sustainable development, everyone needs to have the knowledge, skills, values and attitudes to contribute to sustainable development, making education even more important in achieving sustainable development. Education for Sustainable Development (ESD) aims to develop the capacity of individuals to reflect on their behaviour from a local to a global perspective, and to consider current and future social, cultural, economic and environmental impacts, thus enabling learners to make informed decisions and act responsibly for a future of ecological integrity, economic viability and a just society. Education for sustainability is holistic and transformative, encompassing learning content and outcomes, pedagogy and learning environments. Thus, ESD not only integrates climate change, poverty and sustainable consumption into the curriculum, but also creates interactive, learner-centered teaching and learning environments. (Kioupi and Voulvoulis 2019)

Education for sustainability requires a shift from teaching to learning. It requires an action-oriented, transformative pedagogy that supports self-directed learning, participation and collaboration, problem-oriented, cross-curricular and interdisciplinary, and formal and informal learning connections(Wiek, Withycombe et al. 2011). Only such a pedagogy can enable the development of the key competences needed to potentially promote sustainable development. Key competences for sustainable development include:
1. Systems thinking skills: the ability to identify and understand relationships; to analyze complex systems; to think about how systems are embedded in different domains and at different scales; and to cope with uncertainty.
2. Foresight: the ability to understand and assess multiple futures - possible, probable and desirable; to create one's own vision of the future; to apply the precautionary principle; to assess the consequences of actions; and to respond to risk and change.
3. Regulatory literacy: The ability to understand and reflect on the norms and values that underlie behavior; and to negotiate sustainability values, principles, goals, and indicators in the context of conflicting interests and trade-offs, uncertain knowledge, and contradictions.
4. Strategic competence: The ability to collaboratively develop and implement innovative actions to promote sustainability locally and beyond.
5. Collaborative capacity: The ability to learn from others; understand and respect the needs, perspectives, and behaviors of others (empathy); understand, relate to, and be sensitive to others (empathic leadership); manage conflict in teams; and foster collaboration and participatory problem solving.
6. Critical thinking skills: The ability to question norms, practices, and opinions; reflect on one's own values, perceptions, and actions; and take a place in the sustainability discourse.

7. Self-awareness: The ability to reflect on one's role in the local community and (global) society, to continuously evaluate and further motivate one's own actions, and to address one's own feelings and desires.

8.Integrated problem-solving skills: the overall ability to apply different problem-solving frameworks.

The ability to address complex sustainability issues and develop viable, inclusive and equitable solutions to promote sustainable development, integrating the above competencies. With climate warming on the rise, it will take a long time to change perceptions of sustainability, build core competencies, and take action. But time is what we lack most right now. How can we learn and become more aware and act for change in the limited time available, through a process of action and dialogue, and deep reflection, can create opportunities for change. (Habermas 1984, Walseth and Schei 2011)

2030 SDGs Game Workshop

This study uses the 2030 SDGs Game board game as the main facilitation activity, a single session mainly conducted in 2.5-3 hours, the whole process including basic introduction to the SDGs, introduction to the game rules, game play and post-game reflection.

The process is as follows:

1. Warm up: check-in, background introduction 10'.
2. What are SDGs 20'.
3. Introduction to game rules 20'.
4. Duration of the game 30'
5. Reflection and discussion 90'.
6. Wrap-up 10'

Through a short introduction to the SDGs and the rules of the game, the board game activity and the reflection after the game, it is an introductory activity to increase awareness and understanding of the SDGs.

There are not many so-called "rules" in the game, the facilitator explains the whole structure of the game world and the basic rules before the game, including the meaning of the different cards: money, time, projects represent different activities and businesses; and principles represent intangible experience, wisdom, sense of achievement in real life, while the participants are free to choose or be creative in the way they achieve their goals, which were drawn by themselves at the beginning of the game. There are five different goals in the game that represent different life values in the real world. Including: Acquiring Wealth, Enjoying Leisure, A World Without Poverty, Protecting the Environment, Social Justice.

The game rules, including the player can use any strategy to achieve their goal, including exchange, sell or buy or share anything they gain during the game. At the same time, the world condition meter contains economic, environmental and social indicators that also change according to the project or business that has been carried out.

Based on the basic rule of the game, the players showed their behavior and intention to fulfill their own goals for 9 minutes for the first stage. It's middle team report is scheduled for the year 2026. The facilitator will report the result of the World Condition Meter and check how many people or teams meet their own goal, and ask those who have met their own goal to check the description on the goal card. Does the World Condition Meter indicate that the goal has been met? During the mid-team report, the facilitator presented some pictures based on the scores of the world condition meter, also mentioned the spirit of the SDGs is "Leave no one behind", then facilitate the payers to move forward to the second stage, which is from year 2026 to year 2030 in 15 minutes.

Without any instructions during the game, players start to think differently and change their behavior in the second stage according to the consequences of their behavior in the first stage and the insights of the min-term report, and use different strategies to achieve the common goals.

After the game, there is a reflection period facilitated by a certified game facilitator. Through reflection, players can share their observations, feelings, and what's meaning and relations to current life situation from the game experience.

According to the findings of two researchers K. Kitamura and K. Ito from Kanazawa University and Noto SDGs Laboratory, this study investigates and examines the extent to which participants' perceptions of the relevance of SDGs to themselves and their key competencies, as well as their motivation to practice SDGs, were enhanced after this board game activity in Taiwan.(Kitamura and Ito 2022) Since this is a simulation of a real board game, it also allows participants to see real-world communication and conversation patterns. If participants can listen and express their own views, the world will be in an ideal world.(Marquis 2013)

Research Questions
1. What is the impact of a board game workshop on transforming cognition and enhancing motivation for learning in promoting sustainable development?
2. What are the differences of understanding and attitudes of participants between before and after the workshop?

3. What is the extent to which awareness and key competencies of each SDG are enhanced through the 2030 SDGs Game board game workshop?

Methodology

The questionnaire

Since it was only known what kind of organization the group of participants belonged to before the workshop, but the list of participants was not available, this study was based on a paper and pencil test after the workshop. To know the changes of the participants before and after the workshop, the participants were asked to look at the changes before and after the game in a personal and subjective retrospective way.

The questionnaire consists of 4 parts:

1. Narrative approach. Based on the questionnaire designed by Kitamura and Ito (Kitamura and Ito 2022) research, the relationship and understanding of SDGs were asked by the description of the degree, which was translated from English to Chinese.

2. According to the Kitamura and Ito (Kitamura and Ito 2022) in the original questionnaire ask participants which SDGs were relevant to their organization was an open-ended question, while in this study, participants were given 17 goals item to check.

3. For the core competencies of Education for Sustainable Development (ESD), a 5-point Liker scale was used based on the eight core competencies of UNESCO: none, little, moderate, adequate, and very good. The scores are 1, 2, 3, 4 and 5 in this order.

4. To understand what actions participants would take after the game, the questionnaire asked participants with open-ended question and used keyword analysis to categorize different courses of action.

Sample

The questionnaires collected in this study were obtained from the participants of the 13 workshops, and the questionnaires were completed on the site after the workshops. A total of 336 valid questionnaires (N=336) were collected from 28 November 2022 to 28 April 2023. The demographic results include 35.1% male, 58% female, 6.8% unknown; and 44.9% are students, 35.1% are corporate employees, 8.6% from NGO, and 13.4% are general public.

Results and Discussion

The survey investigated the difference in the level of understanding of the SDGs, and the relationship between the SDGs and individuals before and after the workshop.

The alpha coefficient value of .65 indicates that the scale is not well adapted, but this is also due to the small number of items and the atypical Likert-type scale.

The findings of the results are as follows:

1. Understanding and relationship with SDGs

Regarding the difference in individuals' understanding of SDGs, the results showed "that I have heard of SDGs (but that's it)" has 42.3% before the game, followed by "I am gathering information and understanding" is 19%. However, after the workshop, "I have some ideas for action on SDGs" increased to 53.5%, and "I have already taken action on SDGs" also increased from 10.1% to 20.2%. In terms of personal relevance to the SDGs, before the game, 50.6% said it was probably relevant, and 31.8% said it was very relevant to the SDGs. After the experience of the game workshop, 67.6% said they personal are very relevant to the SDGs.

2. The perception on the relationship with sustainable development goals

The players showed different perception on the relevance to SDGs. Although there are 17 goals, the results showed that after the workshop, the participants perceived the game as relevant to the 17 goals. All the options increased proportionally after the workshop, especially zero hunger, quality education, gender equality, affordable and clean energy, reducing inequalities, responsible consumption and production, life under water, life on land, peace justice and strong institutions and partnership for the goals have increased by more than 10%. Because some participants were responsible for promoting the SDGs in their organizations, those who promoted the SDGs increased their understanding of the SDGs by 1.15 %, while those who did not participate in promoting the SDGs increased their understanding of the SDGs by 1.37 %. In terms of perceived personal relevance, there was a significant 0.64% increase after the game among participants who did not participate in promoting SDGs.

3. Increases in core competencies after the workshop

ESD emphasizes eight competencies, the self-assessed core competencies of the participants after the workshop have increased in almost all competencies. Among them, System Thinking from 3.17 to 3.72, Anticipator from 3.11 to 3.63, Strategic Action from 3.19 to 3.74, Critical Thinking from 3.33 to 3.82 and Integrated Problem Solving from 3.33 to 3.83 had more significant improvement. Although the players didn't know what the competencies for ESD are, the experiences during the game and the reflection help them to have a better understanding and awareness of these competencies.

4. What is the action for the future?

To understand how the participants can take further action after the workshop, the open-ended question in the questionnaire was asked: After today's game experience, what would you like to do differently in your life or work? 64% of participants responded with keywords such as economic, environmental, social, and personal/informational. Mindset, systematic thinking, diet, communication, cooperation, and promoting SDGs were the 8 indicators, of which promoting

SDGs was the most popular, followed by environment, systematic thinking, and the participants were highly motivated to implement and promote SDGs.

5. Gender participation

To further understand the relationship between men and women in promoting SDGs and learning SDGs, the results showed that men are more likely to be involved in the implementation of SDGs than women, while women are more likely to learn SDGs than men.

Conclusions and Implications.

This study focuses on whether a single-game workshop has an impact on improving understanding of the SDGs, and the extent to which individuals relate to the SDGs. The results of this study show that after the game workshop, participants' understanding of SDGs and the extent to which individuals relate to SDGs improved significantly, and they had a broader understanding of the 17 goals of sustainable development, not just the items limited by their past personal experiences.

Through the introduction of the game workshop, the game facilitator creates a simulated real-life situation that not only connects to the learners' personal experiences, but also relates to future issues. Naturally, the relationship between SDGs and individuals will have a different perspective and generate positive ideas for action.

The learners' understanding of the SDGs and their relevance to the SDGs, as well as their motivation and actions to further their understanding of the SDGs, were significantly enhanced in this experiential learning activity. By completing the goals set in the game, players learned more about the SDGs and their relationship to the world, and most importantly, how to "transform" our world. Although we are still seven years away from 2030, there is an urgent need for effective ways to increase learners' understanding of the SDGs and to see themselves as inextricably linked to them.

While other courses or workshops may be able to change participants' perceptions and behaviors, we can see that this game workshop can change participants' perceptions of the SDGs within three hours, generate interaction and dialogue with other participants, and even recognize the relationship between the SDGs and individuals. Participants share the common goals, have interaction and dialogue about their needs and feelings and values, which is the most important elements to create a different result. Thus, through this study, we can further explore when and why the dialogue occur, and how we can involve more policy makers and educators to create more dialogue in the change process. Through collective reflection,

dialogue can create opportunities to transform the future, and the 2020 SDGs game workshop is an efficient tool to promote and educate sustainable development.

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