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A Deep Transformative Dimension of ESD in Japanese University: From Experiential to Emancipatory Learning in Online and Offline Environments

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Abstract: (1) Japanese universities have an important role in the sustainability of the students who are "oppressed" by social norms, while some of the Education for Sustainable Development (ESD) practices take a conventional approach. The purpose of this study is to take an educational programme as a case study on sustainability of oneself, others, and nature at a university in Tokyo, to compare the programme before and during the COVID-19 pandemic, and to illustrate what elaboration is required for the future programme. (2) This study used literature on the ESD framework for deeper learning and the Japanese youth as well as descriptive data such as observation and reflection of the participants in the ESD practice. (3) The relationships are confirmed among experiential, social, and transformative learnings in the formal and informal settings. The dynamics in the education about, in, and for sustainability is shown with education theory. The study shows a deeper dimension of self-transformation of the students in the online and offline learning environments. (4) The study suggests that the ESD programme with participatory and transformative approaches as socialisation and subjectification can lead the emancipation from "business as usual" for the Japanese university students when they accept new perspectives through the process of self-discovery and dialogues with others.

Keywords: transformative learning; qualification; socialisation; subjectification; ESD; youth emancipation; generation Z

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1. Introduction

Universities must function as places of research and learning for sustainable development [1] (p. 22), but how universities responded to the COVID-19 pandemic depended on their contexts. A number of visiting educational programmes at Japanese universities, such as service learning in the global South, which had been increasing, were temporarily cancelled due to the pandemic. Japan did not allow overseas visitors generally for two years until May 2022, and most of study abroad programmes were halted and the acceptance of overseas students was suspended. As a result, sustainability-related learning was also forced to take place only in the domestic space, without being able to guarantee experiential learning in overseas fields. However, was this able to guarantee transformative learning?

The purpose of this study is to take an experiential educational programme as a case study on sustainability of oneself, others, and nature at a university in Tokyo, to compare the programme before and during the pandemic, and to illustrate what elaboration is required for the future development of the programme. Specifically, the following two issues are set: (1) the Japanese youth are under social pressure—a need to emancipate themselves from social norms by transforming themselves but not adjusting to the unsustainable society; and (2) a case study of online and offline transformative ESD programme is analysed by a sustainable education framework. In these points, ICT-mediated approaches are foundationally important.

In the next section, this paper describes ESD in which deep learning occurs. It reviews the literature on experiential and transformative learning, leading to emancipation, at university practices with an ESD framework. In the deep level of ESD practice, an action-oriented approach is necessary over the knowledge transfer to the learners. The learners themselves find their transformation by social learning and their modification of subjective recognition.

The third section analyses the Japanese case, describing the students under social pressure and the educational programme on sustainability in a university. This section starts to review the literature on the Japanese youth and shows how they are freed by international educational programmes about sustainability, which means they find their own uniqueness parting from the other's public and traditional views in Japan.

The final discussion section shows a comparison of onsite and online programmes and the future possibilities. Both online and on-site, the sustainability education programme in this study shows a potential of emancipation of the youth from the traditional cultural norms in Japan because of their direct experiences and dialogues with the youth in different countries. The online practice, however, can provide less experiential learning opportunities so that more attention should be paid to time sharing and opportunities for empathy among the students.

2. Theoretical Framework and Methods

2.1. Experiential to Transformative Learning and Subjectification

Learning is seen as a response to a direct encounter with the real world. In learning, the whole person, encompassing body and mind, is cognitively, emotionally, and practically transformed. Learning is an ontological process. Learning occurs when people accept the disjuncture between what they perceive as the reality and what they have experienced in the reality as a result of their previous learning [2]. As John Dewey believed, all genuine education comes through experience but that does not mean all experiences are genuinely or equally educative [3] (p. 25): "Learning by Doing" requires experiential and social learning, differing from traditional transmissive education. The key role of teachers is to provide learning conditions for the students. The same for applies for adults: experience is core for learning [4] and learning is a reflective experience [5]. People learn from whatever situations they are embedded in [6], and our original experiences are often most influential because objective numbers do not always move people, but our sensory perceptions become the basis for our decisions [7].

Experiences and learning interact with each other for individual development. Kolb developed a four-staged continuous learning cycle that everyone may begin at any stage among reflection, conceptualization, a trial, and further experiences [8]. The cycle model is easy to understand so that business world like using it, but it may be overly simplified. Jarvis posited from the lifelong learning theory that an individual's learning occurs through the interaction of thoughts, feelings, and behaviours with the experience [2]. As a result of that learning, the individuals change and physically remember, and move on to the next learning cycle. "The combination of the process throughout a lifetime whereby the whole person—body and mind—experiences social situations, the content of which is then transformed cognitively, emotively or practically and integrated into the individual person's biography resulting into a continually changing person" [2] (pp. 80–81).

Focusing more on individual perspective transformation, learning may be understood as the process of using a prior interpretation to construe a new or a revised interpretation of the meaning of one's experience in order to guide future action [9] (Loc: 217). The learners then change, using those experiences as their sustenance. This is called transformative learning. When things are different and even dilemmatic, learners examine and generate meaning on their own. They not only acquire the necessary knowledge and skills after trial and error in their new roles but also reintegrate their lives on the conditions based on their updated perceptions. This transformative learning is a result of transforming the adult perceptions in socialization. This learning leads to their own emancipatory learning. If the

adult perceives the transformation as meaningful for him or her, and it leads to subsequent actions, it can be regarded as a high learning outcome.

For sustainability education discourses, the deeper dimension of transformative learning should be considered. Education for Sustainable Development (ESD) originally had core features including holism, resilience, global citizenship awareness, and deep democracy, and has been operated as human rights education, development education, and environmental education. However, it has sometimes lost the depth of philosophy for active institutional dynamism in Japan [10,11]. Sterling also explains that, as the first order (of ESD), both individual and organisational learning by staff and students can be confirmative, the second is more reformative, and the deepest order is transformative learning as a shift towards higher-order learning [12] (pp. 33–35, (the author added)). Transformative learning in ESD should be understood as existential learning for the deep dimension of individual and societal change. This can be also referred to as emancipatory learning, as Freire shows that conscientization (conscientização) can lead to self-emancipation from the structures in which they are situated [13]. While memorization is highly evaluated in school as qualification of learning, today's learning needs more attention to socialization and subjectification [14]. Japanese schools have continued to develop advanced teaching methods to qualify the student's learning. However, now that learners' needs have become more diverse and society has become more sub-divided, thus, collaboration with others and learner's subjectification as a result of existential learning are necessary today.

2.2. Among Education "in", "about", and "for" Sustainability

Existential learning occurs quite dynamically. It is never limited within formal settings such as standardized classroom but beyond classroom and communities. Incidental learning sometimes deepens the meaning which a leaner makes for him/herself after the learning cycle. To capture this situation, it is more realistic to view forms of learning as a continuum rather than robust classification into a formal or informal one [15]. In addition, it should deal with the dynamic, including who authorizes the learning and meanings [16]. ESD is a typical educational activity that dynamically changes.

ESD can be understood as Education "in" Sustainable Development, E "about" SD, and E "for" SD. From critical pedagogy Springett [17] builds on Lucas's [18] theory of environmental education and introduces three types of education: experiential education (E "in" SD), knowledge transmission (E "about" SD), and E "for" the environment/SD, which becomes critical and political education that examines the origins of environmental challenges and develops learners who take an active role as change agents. The students, therefore, can learn about sustainability in the classroom, experience it in nature, and take specific action for sustainable futures, as Sterling [12] adds "for" needed action change. The point to keep in mind here is that the three are not in isolation but are interrelated. For example, what a student learns "about" SD is brought by field experience "in", and in the meantime the experience "in" evokes the need for knowledge "about". Both of them also become the source action "for". This interrelationship is an important aspect of learning as the whole existential learning for emancipation.

Jickling and Wals, on the other hand, view ESD approach more dynamically using two axes: transmissive to transformative and authoritative to participatory (Figure 1) [19]. They argue that the Quadrant IV practice enables thought and action beyond sustainable development, although practices can be located across the four sometimes. The horizontal axis is the same as formal—nonformal education [15,16], meaning that practice is not anchored to a fixed position but can move interactively as the contexts of learners and conditions change in the horizontal scale.

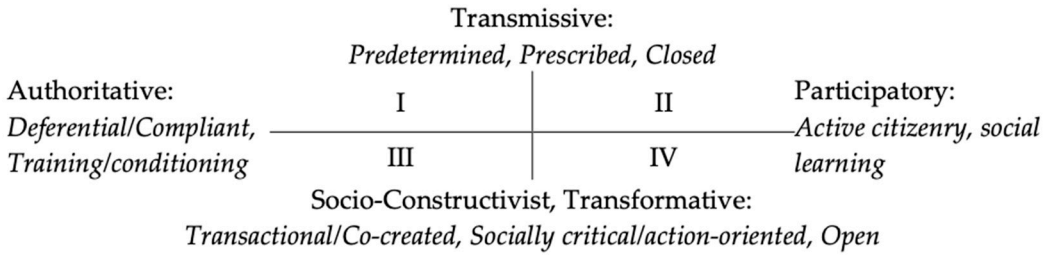

Figure 1. Quadrants in ESD approaches. Source: [19].

If we again organise "in," "about," and "for" of ESD as well as Biesta's terminologies "qualification", "socialisation", and "subjectification" in the Quadrants, as Figure 2 shows the relationships among them. For example, lectures for student's qualification are located in the left above, an ESD practice with active participation for self-change and societal change can be in right below. The "socialization" as social learning "in" sustainability covers the largest portion of the Quadrants, but the practice can be at left above when the students only sit and listen to others in a Japanese classroom.

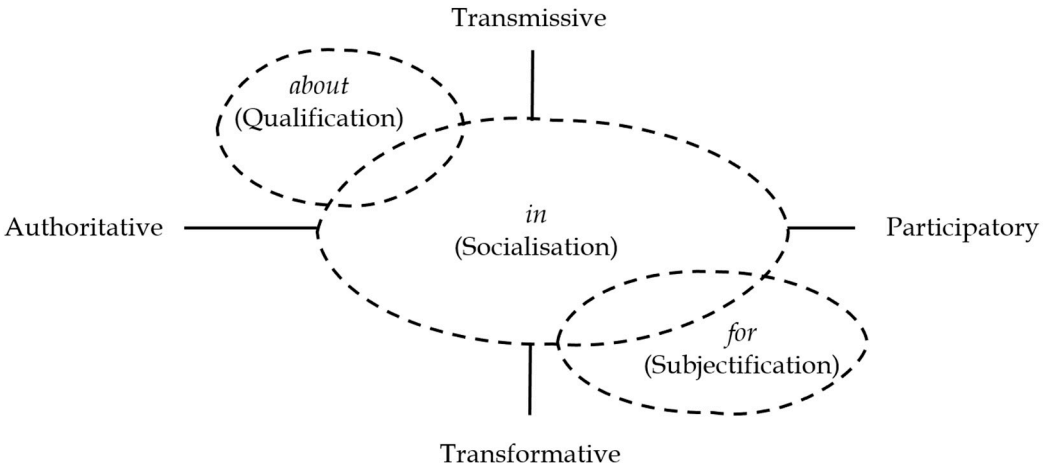

Figure 2. Quadrants and Interrelationships. Source: [14,17,19].

2.3. Methodology

The methods taken in this study were a literature review on the Japanese youth, action research of a series of ESD programme as a case study, and a comparative analysis of the onsite and online programmes based on the author's observation, the students' reflection, and the university's survey. The literature review focused on the Japanese contexts such as demographic trends and cultural or social background putting the young people in a difficult position in the society. Here, it described how schooling exerts forceful pressure on young people and the importance of university education because experiential and existential learning liberates the students.

The case study dealt with the experience of Japanese students who participated in an environmental education programme conducted together by Estonia and other Baltic Sea countries. The learning cycles, based on the studies by Jarvis [2] and Kolb [8], captured how reflection occurred from their experiential learning. It also depicted how the participating students achieved transformative learning by overcoming a disorienting dilemma through a series of reflections among themselves as well as between the Japanese and the European students in the field or online dialogues. This refers to the fact that the learners have undergone a "perspective transformation" because of their learning through repeated self-reflection [9]. The students were able to reframe their own conventional perceptions of the Japanese interactively with the meaning of others in addition to their own observation of the others, and thus the participation in this cross-cultural learning was social learning.

The limitation of this study is its small scope, which cannot deal with social transformation such as triple-loop learning after collaborative learning [20].

In this case study, the author was an instructor and facilitator of the ESD programme at the Japanese university site, and the participating students received official credits as one of their classes. This ESD field/online programme was jointly developed between the Japanese university and the Baltic Sea Project (BSP) as well as Tartu Environmental Education Centre (TEEC) in Estonia. BSP and TEEC have operated the holistic environment education, including science—especially biology—and history education for 40 years (http://www.b-s-p.org/home/ (accessed on 5 May 2022)) and recently extended their scope to global citizenship accordingly with the UNESCO initiatives. BSP accumulated many ESD practices within the Baltic region for a long time but turned to open its door to the rest of the world. The Japanese group has become an early newcomer to the BSP practice since then. All the participating students and teachers as equal global citizens learned together at the same table and field trips during the programme. The Republic of Estonia, which celebrated its centennial of independence in 2018, has been building an ICT-based nation since its founding after the collapse of the Soviet Union. ICT education has been one of the hottest issues for Estonia, and the ESD programme highly depended on those information technology and tools for the international collaboration.

The author took this action research every year from 2016 to 2021 and also observed and interviewed the 35 students who participated in this ESD programme. The programme focused on sustainability, and the students from Japan developed their own individual research topic based on their own interests and travelled to interact directly with other young people of their generation in the Baltic Sea countries after taking classes about sustainability in Japan. Each cohort of participating students experienced fieldwork with Estonian students and discussed the sustainability of themselves and external world such as nature and society in-person from 2016 to 2019. Different cohort student groups met up online and made their sustainability survey projects for themselves in 2021. In doing so, they reflected deeply on who they are and how they relate to sustainability of themselves and the external world. This was illustrated in the present study through the author's participatory observations and daily narratives as informal interviews that happened every day during their stay in case of onsite trips up to 2019 and every unit in the online case in 2021.

The lockdown of universities due to the COVID-19 pandemic in 2020 and subsequent online situation drastically changed the learning environment for students and university faculties. Therefore, the present study also tried to show the impact to university education and the ESD programme. The overall university impact was indicated by data surveyed by the university, and the data for the ESD programme were portrayed with a focus on experiential learning in 2020. The comparison between onsite and online environments depicted differences among the three ESD perspectives, shown by the literature.

3. Case: ESD Programme in a Japanese University

3.1. Social Backgrounds for the Japanese Youth

Young people in Japan are a minority in society due to the declining birth-rate and aging population. The population from 0 to 14 years old has continued to decline since 1950. The latest data show that it was 11.9% of the total population in 2020 and is estimated to stay at 10% after 2035 (Figure 3). The Japanese social norms have traditionally given priority and respect to the elderly, and young people have always been expected to follow the norm of following their elders. As a result, political measures tend to target the elderly rather than the young, creating a vicious cycle in which the elderly are also more likely to vote, and the political participation of the young is low. Adults who experienced Japan's post-war reconstruction in the 1940s, its rapid economic growth in the 1960s, and the bubble economy boom of the 1980s have a strong tendency to disregard the youth as members of society because the youth are seen as incapable of supporting Japan's economic development as the senior generations did.

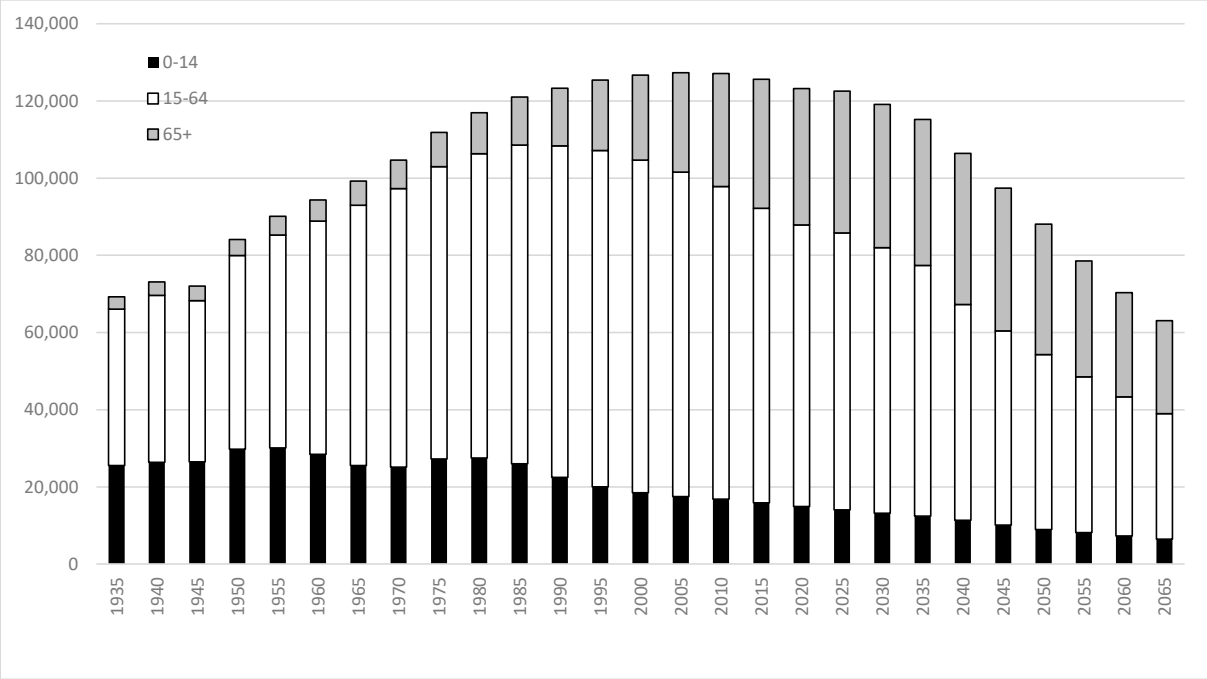

Figure 3. Population and age cohorts in Japan (in thousands). Source: [21]. Note: Data after 2025 are estimates.

The Japanese generation Z became defensive of themselves and is also immersed in social media. They are characterized by the sharing of "useful" information, relaxing, and showing meism [me first], and perform different identities with multiple accounts in the virtual world. Children who are forced to connect do not use the Internet for pleasure but become addicted to it out of a sense of insecurity [22]. Because the "loner" status without connections is subject to ridicule and the risk of being bullied at school, presenting how well connected they are to their friends is a criterion for demonstrating competence and superiority among classmates. Even after graduating schools, it has become widely known that the youth generation aged 15 to 39, who are destined to live in poverty for the rest of their lives, are at a structural disadvantage in terms of employment, education, housing, etc. [23]. In a society where not only college tuition but also various living expenses are on the rise, salaries have not increased for the past 20 years, and the public impression has become that even if they find a job, they quit the job within a few years [24]. There are reports that young men who did not go to university are positioned at the bottom of the social ladder [25]; therefore, emphasis is placed on graduating from university more than on what they learn there. University students are limited by the drive to "chase their dreams" in the category of what is considered socially important for the seniors, not what they really want to do [26]. The Japanese youth are placed in a difficult position in the society.

It has been a socially legitimated image of a success story among the Japanese for the last half century that school children need to receive good score from teachers for entrance examinations of a high reputation university. The university name enables them to get a job at a large company that pays good salaries. They marry to a well-educated partner to retain their social status and reproduce the same cycle for their own child, not two or more children, because they must concentrate on their resource efficiently in such a competitive environment. The teacher's recognition of the child as being obedient is an important first step in this flow. This social mobility is supported by school education, especially its filtering function. The function presses the students to compete against each other toward the proof of their qualification as the results of the examinations. In other words, the students are always under the pressure to win the race. Scott and Gratton [27]'s

study, originally intended to be about learning for a meaningful life, has been used in Japan as a competing pressure pushing them constantly to update their knowledge and skills in a learning society. The total 16 years or nine-year compulsory, three-year high school, plus four-year university schooling, are enough to mould the Japanese students into a certain shape.

The Japanese university students need to free themselves from a value of "entering and graduating from a famous university" in today's changing and uncertain time. They represent a large volume of the youth in Japan: there is 100% of compulsory school education completion, and 94% of them go to high school and 83.8% graduates enter higher education institutes (enrolment to universities is 58.9%) [28,29]. In other words, while many Japanese young people go on to higher levels of education, they are not continuing their learning in their own way but are simply preparing to enter the labour market with training proved by schools.

3.2. Field Study on Sustainability

Universities are actually spaces ensuring safety, although they are regarded as the final formal schooling stage for many Japanese students because a comparatively small portion of the Japanese tend to keep learning [30]. If students are exposed to a variety of experiences and learn how to continue learning on their own, they will be enriched for the rest of their lives after graduation. This paper sees the Field Study programme as an opportunity for the students to visit a site outside of Japan and learn through hands-on experience. S University, to which the author belongs, has a number of Field Study programmes available, and any student can participate in up to one each semester. This study analyses the Field Study programme to the Republic of Estonia and "Baltic Sea" Project as the case.

The Baltic Sea Project (BSP) is an environmental education programme in which science teachers developed and networked joint educational programmes in the nine countries facing the Baltic Sea, with the common goal of tackling with environmental pollution in the Baltic Sea beyond political ideology during the Cold War [31]. Today, the pollution around the Sea has improved, and sustainability education continues along with the EU citizenship education. The Project has been providing sustainability education/environmental education in the Baltic Sea region for over 30 years.

The students visited to join the project site four times through 2016 and 2019 (cancelled in 2020 due to travel ban for the pandemic), and conducted the Field Study programme online in 2021 (Table 1). The programme ensures the time for participating students for academic credits (Table 2). One of the reasons why Estonia is a major destination for the programme is that their communication style is similar to that of the Japanese. For example, it is rare to interrupt another student to start one's own conversation, and it is also rare for a student to actively talk to another student. Additionally, when a teacher asks a question, the students do not immediately respond. For Japanese students who are not yet good at negotiating in English, a quiet dialogue with Estonians, who are good listeners, creates an opportunity for deep self-reflection, rather than being overwhelmed by the conversations with native English speakers in the U.K., U.S., and Australia, even though those countries are popular for learning English.

Table 1. The Number of Participants, Topics, and Time. Source: Author.

Year	*Students*	*Student's Major*	*Main Topics*	*Time (days)*
2016	5	Global Studies (GS), Culture	Knowing Estonia	2017/3/7–3/15 (9)
2017	6	GS, Languages	Wetland and sustainability	2018/2/20–3/1 (10)
2018	12	GS, Economics English	Global citizenship	2018/9/11–22 (12)
2019	6	GS, Law, Languages	Environmental awareness	2019/8/22–9/2 (12)
2020	NA	NA	NA	NA
2021	6	GS, Education, English, Engineering	Sustainable Universities (Online)	2021/10/5–2022/1/19 (14)

Table 2. Accreditation for the Field Study Programme. Source: [32].

Minuets	*Unit*	*Location*	*Instructor(s)*	*Contents*
540	0.8	S Univ.	Author	Preparation works (e.g., Estonia, wetland, sustainability)
2880	1.2	Estonia	Local resource persons	Wetland examinations, 100th Independence Day, environmental education activities, fieldwork

Another reason is that, despite its small size, Estonia is a country where both the government and its citizens are striving to sustain its rich natural environment and to keep its language and culture alive historically and politically. In recent years, Estonia has advocated itself as an educational and ICT powerhouse, and indeed, the government's policy of securing and improving the quality of human resources using ICT has made it the top-ranked country in the OECD international assessment [33], making it attractive to the Japanese with an interest in ICT and education.

Although there are inconveniences in an eco-house dormitory when the participating students visited Estonia, such communal living itself is a learning space [34], and a situation with no escape can also promote reflective learning. During the programme, the students share their insights with each other at dinner time after the programme events in daytime. They also experience diversity in an eco-house at night where non-Japanese are staying in the same dormitory. Diversity is generally beneficial to their learning, where sociability or extroverted character is an important factor [35] because facing dilemma with reality by shaking up their own reference and social norms in Japan and by challenging "business as usual" for many Japanese, they find an opportunity for transformation perspective. Estonia, however, gives a space to even those with introverted personalities for being deeply reflective as Cain [36] explains that being talkative is not necessary for reflection. Obara [37] reports that the participant's experiences were so impactful that they changed their life design, including her own experience as a student.

The contents of daily activities in the programmes were developed by the students. They found informants and researchers in Estonia with the assistance of the author and interviewed them to discuss the issues they planned when visited Estonia. They could not be the guests for the programme but obtained valuable learning opportunities customized for themselves. The series of these experiences went over experiential learning and led to existential learning (subjectification) with transformation. Their own direct experience stimulated their learning motivation, and they started to seek more information about sustainability in Estonia. This type of social learning created even intergenerational learning and emancipatory learning both for the Japanese and non-Japanese participants. When international participants spent precious time in educational programmes, many of them accepted not only new knowledge as cognitive growth but also emotional and social development inside themselves and with others, including nature and cultures [38]. Although the short-term from 10 to 14 days is unlikely to be as effective as a longer anthropological fieldwork, the incidental learning and self-reflection are key to their learning to make meaning for the transformation of their perspectives. Fieldwork is the most important part

of an experiential learning, as it enables participants to acquire academic skills through interviews and other means, and to transform themselves as anthropologists do [39].

3.3. Online Learning Tools in the Pandemic Situation

The above programmes were Field Study visits up to 2019. After its cancellation in 2020, which forced campus to lock down and hold remote classes due to the pandemic, the 2021 programme was held online while many Japanese universities still did not allow students to travel out of Japan. Fortunately, Tallinn University, the counterpart in Estonia, has an online educational project platform, called LIFE (https://www.tlu.ee/en/life (accessed on 5 May 2022)), on which students from Tallinn and Tokyo collaborated with each other on the programme on sustainability. After receiving input on sustainability from faculties on both sides, the students conducted a survey of the sustainable university campus through a series of online discussions at least once a week. The results of their conducted surveys were compared between the two universities, and the final report was presented by both the Estonian and the Japanese students virtually in Tallinn University. All programmes used many online tools: *Zoom* for visual conference, *Slack* as a workspace, *Google* file services for questionnaire surveys and presentations, and *Notion* for organising from idea building. Of these, only *Zoom* was a paid application under a university contract; the rest were free tools.

As a field study for which credit was given, it had to ensure university class time, and, in that sense, it was formal education. However, all student meetings outside of class time (informal setting) and the preparation and implementation of the survey were led by the students with the advice of the faculty (nonformal settings). ICT skills differed among the students and there was some confusion at first but using it as a tool became a social learning in which they taught each other. In addition, as a unique ICT social skill, the patience was fostered to continue communication even when *Zoom* was interrupted sometimes due to poor Wi-Fi connection. In addition, the restrictions and limitations on activities because of the pandemic situation became a common experience for all the students in both countries, forcing them to question "business as usual" in a sustainable way.

The efficiency of online tools is somewhat overrated. The online environment lacked physical space and lost an important dimension of the physical space for experiential learning. Therefore, it was important to put more time, a possible sharing dimension, into the process of learning more, and to use text and illustrations more for reflection at the later stage. The author as a guide and instructor of this programme carefully paid attention to the fact that the more we use ICT, the more we contribute to, or are embedded in, structures that are antithetical to sustainability [40,41] because ICT can reinforce dependency and isolation.

4. Findings and Discussions

4.1. Free from Social Pressure via Onsite and Online Learning

In this section based on the following two findings in this study, the emancipatory learning and future directions for implication are discussed as the important part of perspective transformation [9] by learning cycles [2] toward subjectification [14]. The study first found that Japanese university students are under strong social pressure. Young people, whose demographics indicate they will remain a minority in future Japanese society, are expected to conform to the traditional social norms, and schools have trained obedient young people through life-defining entrance exams, as "qualification" is the goal of school education [14]. Japan has continued to make life difficult or unsustainable for the young people. However, the students were able to recapture the Japanese "business as usual" through direct dialogue and shared experiences with their peers in the Baltic Sea countries. This is a typical social learning as "socialisation" [14] or "secondary socialisation" as lifelong learning [2]. This led them to experience a world outside the framework of the Japanese school and liberated them from the norms.

The second finding was that the emancipatory learning or "subjectification" [14] could be guaranteed, even when online education was the only option in a pandemic situation.

However, a comparison between the onsite and online-only situations suggested that the visiting programme was more advantageous for experiential learning of the students for "socialization" to "subjectification" in the process of transforming their perspectives. Meanwhile, the online learning gave them an opportunity to share a stronger awareness of the problem and a push toward action in the face of the universal challenge of the COVID-19 situation. Both online students in Japan and Estonia developed the sense of their belonging to the same learning group and tried to find a solution for the global issue. The following discussions focus more on this point between onsite and online learning environments.

4.2. Towards Emancipatory Learning

Social learning can lead the students to emancipatory learning, especially between the same generation in the safe environment. Obviously, experiential learning as E "in" SD is a strong point of this programme if they visit the Baltic Sea countries. The readiness of the learning motive is strong because the students with interest in sustainability tend to participate in this programme. The Estonian local safe atmosphere and resource persons who guarantee psychological safety provide a great deal of stimulation to the students, enabling them to concentrate on their reflection on their learning.

Here again the rightward orientation in the Quadrants (Figures 1 and 2) is important for active participation and social learning with fellow students from Estonia and different countries. Those local peers are more influential to the Japanese than the voice from the teaching staff in Japan because the students are tired of top-down of adults' voices in the vertical axis in the Quadrants. This means the coordinators and teaching staff in charge of this programme are expected to be a servant leader [42] who encourages dialogue among the students.

The online programme in 2021 suggests the following three points: (i) the missing year 2020 was a meaningful preparation period for the implementation of the programme in 2021. This was because the faculties and students acquired more ICT skills, and the infrastructure for online setting was justified; (ii) even though the university was locked down, the programme could be developed with ICT assistance; and (iii) the students became more creative under the limitations thanks to collaboration of the Estonian peers who also experienced the similar restrictions.

One similarity between both onsite and online environments was the importance of regular meetings because the students shared their time together to develop their sense of belonging to the programme. Both cohorts were required for the final report, publicly opened on a website, and both concentrated on their reflection and summarised their findings for the report. This can be regarded as the interactive back and forth between social and transformative learnings. Because they found the strength and weakness of themselves and looked for assistance by others, they opened their own backgrounds to build a trustful relationship with the peers. This was the literacy for the learners to emancipate themselves by learning activities [43].

On the other hand, the largest difference was experiential learning between onsite and online situations. According to the university's official statistics [44], there was no significant difference in terms of knowledge accumulation or E "about" SD when comparing the situations in 2019, 2020, and 2021. Experiential learning was, however, a prominent "*never*" response from 2020 when the university was on lockdown. Similarly, the percentage of students who learned or talked about class contents with other students outside of class as social learning was low (Table 3). The field study brought an opportunity to deepen their experiential learning before the pandemic, and it stayed at a low level in 2021, but the online programme evoked their interests against the common global issues such as the pandemic and globalization. They found the strong need for action "for" sustainable future. Those similarities and differences can be shown in Table 4.

Table 3. The Pandemic Stopped Student's Experiential and Social Learning. Source: [44].

Questions	2019 (n)	2020 (n)	2021 (n)
Never had experiential learning such as experiments, training, or fieldwork	23.9% (507)	73.1% (566)	32.3% (190)
Never studied together or never talked about the lesson contents	3.0% (63)	38.0% (274)	3.8% (15)

Table 4. Trends in Onsite and Online Programme. Source: Author.

E…SD	*Learning*	*Up to 2019*	*In 2021*
in	Experiential	++	+
about	Knowledge transmission	++	++
for	Action-oriented	+	++

The three ESDs, "in", "about", and "for", are interrelated (Figure 4), so that there is a mutually reinforcing relationship among each other. The Field Study programme showed the learning occurred in the relationship between "in" and "about" (A) as well as between "about" and "for" (B). The next step should focus more on "in" and "for" (C). When C is emphasised, the "business as usual" society and "education as usual" will be more questioned in line with the discussion of sustainability. It is about the generation of meaning for oneself as transformative learning [9] for their own emancipation from the "qualification" pressure [14], given by school education in Japan. The question now is what to abandon, what to continue, and what to creatively reimagine for education in 2050 [45]. The emphasis is on non-cognitive aspects, which are recognised as a success factor in school education in many countries [46], and future ESD will focus on transformation through "socialization" and "subjectification" [14]. This approach deals with the question of "Who am I?" in order to become a global and local sustainable citizen.

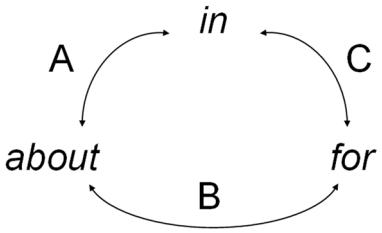

Figure 4. Relationships among "in", "about", and "for". Source: Author.

4.3. Future Directions

Strengthening and supporting the relationship (C) will be important when considering ESD practices using ICT in the future. One positive aspect of ICT use in the pandemic was the use of the Internet to submit class assignments and other remote educational activities [44]. The challenges are the disparities of skills in ICT and socialisation among students. In the online context, where primary experience tends to be lacking, special attention should be paid to the reciprocation between social, experiential, and transformative learnings.

Another emphasis should be on what we learned during the pandemic. Well-being related to non-cognitive aspects which was more important than cognitive skills. It is not something that can be completed by oneself alone but is predicated on relationships with others and literacy for transformation through language [47]. If technology is used incorrectly, the sustainability of many Japanese young people may not be ensured. Building good friendships is linked to one's own sustainability. For example, building relationships on social networking sites, which do not require face-to-face contact, reduces the scope of physical interaction with generations [48], and may end up with relationships with the home country even though direct experience is guaranteed in other countries [49]. In

particular, social websites tend to be comfortable with spaces of similar opinions, with the effect of an echo chamber phenomenon [35].

Which approach should the Japanese university education take in the future? The Japanese students find and free themselves through others, including the natural world, in the three ESDs. As social and emotional learning with systems thinking, noting three focuses on the inner, other, and outer worlds, the future programme can include the scope of the inner and outer worlds of the students [50]. For the programmes on sustainability to be sustainable in Japanese universities, they should cover formal, nonformal, and informal learning settings based on sustainability research [20] and deploy interdisciplinary approaches with systems thinking [51]. Of course, universities need to promote sustainability on the campus itself. The 4Cs (curriculum, campus, community, and culture) model can make a better sustainable learning programme [52].

5. Conclusions

This study showed that transformative learning through ESD continues to be important, as indicated in previous studies [10,12,19,51,52]. Participatory and transformative learning occurred when young people learned directly from each other; especially when this experiential learning led to subjectification (Figure 2) [14] for the students from Japan. Since the experiential learning tends to be weak in the online learning environment during the pandemic, ICT was the crucial way to ensure this socialisation. For the future ESD programme development, the combination must be necessary between the in-person experience and ICT-based online collaboration because both direct and indirect channels bring potential space for self-reflection via dialogues toward transformative learning.

Although the field visit programme was cancelled in 2020 and many Japanese faculties and students thought the year was wasted, the year became meaningful for them to prepare and acquire ICT infrastructure and skills to conduct the programme in 2021. The similar ESD programmes could be developed and conducted using ICT even though the university was locked down. The students were found to be creative under the common limitations. At the same time, one of the major issues was the limited opportunities for the student's direct experience facing the differences and reflecting on themselves for perspective transformation. In online situations, the back-and-forth between social learning, experiential learning, and transformative learning was important. This was independently shown in the previous studies [17,19], but this study connected with education philosophy, moving from qualification to socialisation and subjectification [14] for their self-legitimation [6] and emancipation [13].

If the faculties and students have not realised that ICT use is oriented to reinforce "business as usual" with no comparative view with other learners, the Japanese youth could be hardly sustainable. During the fieldwork as education "in" sustainability, many Japanese students expressed they were healed by nature in Estonia, the second-best air quality in the world. The online education, however, cannot create a direct experience but needs to save a space for their imagination. This power to imagine has important potential [45] because we can envision our common sustainable future. Their direct dialogue was observed both at onsite and online learning.

Online education provides an opportunity to transcend time and space. While the university students have greater social resources in the society, those participants in the visiting programme are the more financially advantaged. Online education, however, offers significant cost savings and guarantees more equitable educational opportunities for all students. This study cannot show enough types of interaction with the latest technology but points out education "for" sustainable development or subjectification as self-emancipation for the Japanese youth is possible and interrelated with social learning as socialisation by either online or offline learning environments.

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