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Environmental education in Amazon: A case study of Amazon Soka Institute

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Abstract

Academia Ambiental (Environmental Academy, in English) is a project undertaken by the Amazon Soka Institute, in Brazil. It spurs environmental education for public schools' students of Manaus by joining classes on the topic at Amazon Soka Institute. The project aims to nourish the connectedness between human beings and the environment based on the institute founder's philosophy and Soka education.

This paper evaluates the performance of the Environmental Academy and recommends solutions to improve the current model. The assessment methodology chosen was class observation, a survey with 162 students, and formative semi-structured interviews with Amazon Soka Institute staff members, teachers, and project partners.

Overall, the Environmental Academy has partially achieved its goals since it superficially connects the lectures on environmental education to the daily life of the project's participants, and it has a lack of empowerment and global citizenship. To overcome these issues, Amazon Soka Institute has been re-designing the project over the name *Environmental Academy 2.0*, in which themes and lectures will be expanded to emphasize the role of local communities on the learners' lives, and Ikeda's three steps of awareness-raising (Ikeda, 2002, 2012).

1. Introduction

Amazon Soka Institute was founded by Daisaku Ikeda in Manaus, Brazil, in 2014. It is the only endeavor undertaken by the founder in the environmental area. The institute manages the *Reserva Particular do Patrimônio Natural Dr. Daisaku Ikeda* (Private Reserve of Natural Heritage Dr. Daisaku Ikeda, in English)¹, where 52 hectares of tracks and archeological sites are present (Tokusato & Hartog, 2019). In addition, the Amazon Soka Institute faces the well-known “Meeting of the Waters” in the world’s largest rainforest of the world, the Amazon.

The main purpose of the Amazon Soka Institute is to create human values with an environmental conscience. In this sense, the term "human values" is based on the humanistic-based approach developed by Tsunesaburo Makiguchi (1871-1944), a Japanese educator founder of Soka Education and Soka Gakkai (further details in section 2.3 – Soka education and environmental education); Josei Toda (1900-1958), educator and second president of Soka Gakkai; and Daisaku Ikeda, philosopher, educator and third president of Soka Gakkai (Sherman, 2016). The term *Soka* (value creation, in English) means to create value by the ability to find meaning in one's life and by contributing to others' well-being (Ikeda, 1996).

Amazon Soka Institute’s projects are divided into three major programs: (1) creation of a seed bank of native species of the Amazon rainforest; (2) environmental education; and (3) support to scientific research (Sato, A. and Dinelly, J. “Personal communication”, October 28, 2019). Regarding the environmental education program, the institute’s main project is called Environmental Academy, which aims to improve the connectedness between human beings

¹ An RPPN aims to protect, manage, and conserve natural ecosystems. Regarding Dr. Daisaku Ikeda’s RPPN, the archeological site area was degraded by pottery between the late nineteenth and early twentieth century. Its recovery began around 1990; however, it was regularized as a reserve through Ordinance 049/95 of 12 July 1995 (Barreto, Marques & Azevedo, 2019).

and the environment. Since its implementation in 2017, 3,000 students of 26 public schools of Manaus have attended the project.

In 2019, it was conducted a first evaluation of the project, and its results are displayed here as a case study paper. Such results also reflected on the redesign of the project as *Environmental Academy 2.0*, which is also introduced in this paper. One of the main findings is that the project does not have a proper methodology underpinned by Soka education and the founder's philosophy, and a further revision would be ideal to improve the current performance of the project.

On the other hand, the project partners and sponsors are completely satisfied with the current project's methodology, even though further revision is needed. The reason is that there is no educational institution apart from Amazon Soka Institute that currently uses environmental education field class in the city. Moreover, according to Tokusato and Hartog (2019), it is important to consider the educational background of Manaus. The city has a low schooling rate, in which it is at the 5,196th position among a total of 5,570 cities in Brazil. In addition, they state that the state of Amazon has the highest rate of school dropout in the Primary level and this percentage reaches 10% at High School level (*Instituto Brasileiro de Geografia e Estatísticas [IBGE], 2020*). Therefore, since the Amazon Soka Institute is the only institute which provides environmental education through field classes in Manaus, an improvement on its project would help to complement the educational curriculum of schools in the region and improve environmental awareness of learners.

The paper is divided into the following sections: (1) literature review about key concepts related to our research, such as environmental education, Education for Sustainable Development (ESD) and Global Citizenship Education (GCED), Soka Education, and an introduction about "Environmental Academy 1.0"; (2) research question and methodology; (3)

results and discussion; (4) introduction of the updated version of the project named “Environmental Academy 2.0”; and (5), we derive final considerations.

2. Literature Review

2.1 Environmental education

Defined by the International Union for Conservation of Nature (IUCN) in 1970, environmental education is the process of recognition of values and concepts to develop skills and behaviors to understand and appreciate the interrelatedness among an individual, its culture and its biophysical surroundings (Palmer & Neal, 1994, p.12).

The efforts to bring environmental education (and its issues) on the world’s political agenda have been reflected on the creation of the International Environment Education Program (IEEP) in 1975 by the United Nations Educational, Scientific and Cultural Organization (UNESCO) and the United Nations Environment Programme (UNEP) (Palmer & Neal, 1994). After two years, in 1977, UNESCO organized the Conference on Environmental Education, in Tbilisi, setting out three “goals of environment education” in its Final Report: i) To foster clear awareness of, and concern about, economic, social, political and ecological interdependence in urban and rural areas; ii) To provide every person with opportunities to acquire the knowledge, values, attitudes, commitment, and skills needed to protect and improve the environment; and iii) To create new patterns of behavior of individuals, groups, and society as a whole toward the environment (Palmer & Neal, 1994, p.18).

Despite those initiatives, environmental education has clarified its standpoint only in the 90s (Tilbury, 1995). In 1992, the Earth Summit, held in Rio de Janeiro, discussed how to achieve sustainable development in the 21st century. These actions were set in a centerpiece

program named Agenda 21, in which exposes environmental education in two chapters: chapter 25 (Children and Youth in Sustainable Development) and chapter 36 (Promoting Education, Public Awareness and Training) (Palmer & Neal, 1994).

Later, in 2002, the World Summit on Sustainable Development (WSSD) was held in Johannesburg. It was pivotal for the United Nations to launch the United Nations Decade of Education for Sustainable Development (2005-2014) to “integrate the principles, values, and practices of sustainable development into all aspects of education and learning” (UNESCO, 2005). In 2012, the second Rio Conference “the UN Conference on Sustainable Development” occurred, which set directions for the Sustainable Development Goals (SDGs) and the role of environmental education in the sustainable development context.

2.2 Education for Sustainable Development (ESD) and Global Citizenship Education (GCED)

The 2030 Agenda for Sustainable Development was adopted in 2015 by the United Nations Member States. It holds 17 goals, including a new global education goal (SDG 4): to “ensure inclusive and equitable quality education and promote lifelong learning opportunities for all” (UNESCO, 2019). SDG 4 has seven targets and three means of implementation (see Table 1).

Among those targets and means of implementation, the Target 4.7 – Sustainable development and global citizenship - is related to environmental education. It states that “by 2030, ensure that all learners acquire the knowledge and skills needed to promote sustainable development, including, among others, through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship and appreciation of cultural diversity and of culture’s contribution

to sustainable development” (UNESCO, 2019). In Target 4.7, the higher competences are Education for Sustainable Development (ESD) and Global Citizenship Education (GCED).

Table 1

SDG 4 - targets

Target 4.1	Primary and secondary education
Target 4.2	Early childhood
Target 4.3	Technical, vocational, tertiary and adult education
Target 4.4	Skills for work
Target 4.5	Equity
Target 4.6	Literacy and numeracy
Target 4.7	Sustainable development and global citizenship
Target 4.a	Education facilities and learning environments
Target 4.b	Scholarships
Target 4.c	Teachers

Source: UNESCO (2019)

ESD is an education that focuses on the empowerment of learners to take decisions and actions with knowledge and responsibility for a sustainable society (UNESCO, 2019). In other words, it encourages behavior change to create a more sustainable future in terms of sustainable ways of life, climate change, biodiversity, and the greening of the economy (UNESCO, 2005; UNESCO, 2019). Its key learning components are knowledge, skills, values, engagement, attitudes, and experiences (UNESCO, 2019).

GCED means to empower learners to play an active role in the world to face and tackle global issues for a more peaceful, tolerant, inclusive, and secure world. It nurtures a sense of belonging to common humanity and respect for all (UNESCO, 2019). It has three dimensions of learning – cognitive, socio-emotional and behavioral. The cognitive dimension represents the acquirement of knowledge, understanding and critical thinking about global issues (and its interconnectedness/inter-dependency of nations and different cultures); the socio-emotional

dimension is the development of a sense of belonging to a common humanity, sharing values and responsibilities, empathy, solidarity and respect for differences and diversity; and the behavioral dimension refers to active action of learners in local, national and global scale with responsibility seeking for peaceful and sustainable world (UNESCO, 2019).

It is important to consider some reluctant aspects of ESD and GCED from environmental education scholars. Jickling and Wals (2008) stress the use of environmental education to promote a neo-liberalist agenda. They argue that globalization is a process that allows powerful institutions to influence educational policy agendas and that environmental education is not limited to sustainable development. Moreover, they fear that the world would have less space for reflexive self-determination, autonomous thinking, and freedom if sustainable development becomes the new aim for environmental education or the ESD becomes an instrument to change people's behavior.

2.3 Soka education and environmental education

Soka Education is an educational system based on the humanistic-based approach developed by Tsunesaburo Makiguchi (1871-1944), who also founded Soka Gakkai, a “community-based Buddhist organization that promotes peace, culture, and education centered on respect for the dignity of life” (Soka Gakkai International [SGI], 2020). Through the ability to find meaning in one's life and by contributing to others' well-being, Soka Education is a people-centered education for happiness and for the development of humanity in each person (Ikeda, 1996). For Makiguchi, happiness is related to agency and empowerment (Gebert, 2009).

In the book “Geography of Human Life” written by Makiguchi in 1930, he explores the idea of community as a “micro world”. He encourages children to observe the complex relations in their surroundings, and if so, they will be able to understand the entire world (Ikeda,

1996). For Makiguchi, the local community was a “place to observe, confirm, learn, and put into practice” (Gebert, 2009, p.149) universal principles as well as understand the historical and complex relations between human beings and nature. Ikeda (2012) elaborates three qualities of community-based education – affection, appreciation, and protection:

It should not stop at simply providing knowledge of the natural environment, customs and history of the local community, but should encourage feelings of affection for that community and the determination to treasure it. It should inspire a deep sense of appreciation for the ways in which the surrounding environment, including the productive and economic activities of others living in the community, enhances our lives: it should encourage daily actions based on that sense of appreciation. It should enable people to consider the issues of the local community in terms of what we must protect for the sake of future generations and the kind of society we must construct on their behalf, placing this at the heart of our way of life. (p. 11)

Gebert (2009) emphasizes that despite the criticism that the local community is “too common, limited and shallow” (p.150), in Makiguchi’s perspective, even in this “micro world” is possible to comprehend the essential knowledge needed to embed in society. However, Makiguchi repeats his assertion that in this small world are fully comprehended the essential outlines of the knowledge and moral qualities that a person will later need upon emerging into the wide society (Gebert, 2009). Therefore, through interactions in a local community, an individual can learn about the world; in other words, to become a global citizen (Ikeda, 1996).

Ikeda (1996) says that global citizenship is not determined by the number of languages one speaks, nor the number of countries to which one has traveled. Global citizenship has the following three elements: wisdom, courage, and compassion, as he states:

The wisdom to perceive the interconnectedness of all life and living; the courage not to fear or deny differences, but to respect and strive to understand people of different cultures, and to grow from encounters with them; and the compassion to maintain an imaginative empathy that reaches beyond one's immediate surroundings and extends to those suffering in distant places. (p.3)

Compassion means to realize the qualities in those who we dislike and appreciate the chance to grow our humanity. Wisdom and compassion are interconnected, thus the desire to contribute to the well-being of others (compassion) provides you infinite wisdom (Ikeda, 1996).

Regarding to the role of education for sustainable development, Ikeda discuss that education is essential for the people to take environmental issues as their personal concern and to harmonize their efforts for a common future (Ikeda, 2002), in which the dignity of life is pivotal (Ikeda, 2012). Environmental issues are interlinked with global issues, such as population, poverty, human rights, etc., which means that sustainability is connected to those issues as well. Thus, to overcome them, it is necessary to transform our way of life (Ikeda, 2002) and to have “a sense of responsibility to those with whom we share the planet, and a sense of responsibility toward the future” (Ikeda, 2012, p.3).

To achieve education for sustainable development, Ikeda (2002) stress the importance of raising awareness by using three steps: first, to learn and deepen awareness of environmental issues and realities; second, to reflect on our modes of living, renewing these toward sustainability; and third, to empower people to take concrete action to resolve the challenge we face.

Learning is fundamental to deepen understanding and awareness (Ikeda, 2002). It is important not only to understand the causes and social structure driving environmental destruction, as well to learn to understand the realities of those who suffer, have the compassion

to them and to be mindful of our interconnectedness (Ikeda, 2002). Ikeda stress that those efforts will give birth to renewed awareness and determination to act (Ikeda, 2002).

Reflection works to clarify one’s ethical values. Education should encourage the understanding of how environmental issues are related to us and should inspire us to take responsibility of our actions in a global level. (Ikeda, 2002).

Finally, empowering means to agency with courage and hope. It is a deep personal vow and pledge with the environment (Ikeda, 2002). Empowerment is not a passive and dependent way of life in which someone’s life is at the mercy of changing circumstances. Empowerment is a contributive way of life based on the awareness of the interdependent nature of our lives with our environment, in which we actively strive to realize happiness both for ourselves and for others (Ikeda, 2002). Empowerment exercises leadership, and generates real transformation within a society (Ikeda, 2012). A summary of the three steps of awareness-raising is shown in the table below:

Table 2

Three steps of awareness-raising

Learning	Reflection	Empowerment
<ul style="list-style-type: none"> • Deep understanding • Compassion • Awareness • Determination to act 	<ul style="list-style-type: none"> • Clarifying ethical values • Relate environmental issues with oneself • Self-responsibility 	<ul style="list-style-type: none"> • Acting with courage and hope • Not be passive nor dependent • Happiness for one'self and others • Exercise leadership • Real transformation

Source: Ikeda (2002, 2012)

2.4 Environmental Academy

Amazon Soka Institute’s Environmental Academy aims to improve the connectedness between human beings and the environment. In this project, junior-high and high school

students of Manaus' public schools attend a field class concentrated on small lectures in which they learn topics related to environmental education at the outdoors of the Private Reserve of Natural Heritage Dr. Daisaku Ikeda (Tokusato & Hartog, 2019).

The institute's staff members selected what environmental education topics could be explained in the RPPN Dr. Daisaku Ikeda and they designed the current framework without a proper methodology. The project has only one framework model for junior-high and high-school students, although the lecturer in charge of classes has the freedom to adapt it according to the group features and the weather condition.

The structure of classes is as follows. First, there is a 30 minutes briefing meeting where the purpose, values, rules of the institute, and the origin of the RPPN Dr. Daisaku Ikeda are introduced to participants. The briefing meeting then is followed by a field class, in which students stop by each site of the institute and receive a small lecture about archeology, water, flora, and seeds. The whole lecture ends with a conclusion in which participants share their impressions and reflections regarding to the lecture (see Table 3 for detailed timetable).

Table 3
Environmental Academy 1.0 - Timetable

Item	Description
Reception	Reception of students and teachers at the Amazon Soka Institute
Briefing orientation	Introduction of the purpose, values, rules, and the origin of the RPPN Dr. Daisaku Ikeda
Lecture 1: Meeting of the waters	Lecture about the features of the Amazon River and the reasons why the water of Negro River and Solimoes River do not mix
Lecture 2: Baby Samauma	Around a Baby Samauma, a tropical tree known as one of the largest trees in the world, the lecture covers the tree defense mechanisms. and connects those strategies with the students
Lecture 3: Indigenous ceramics	Lecture about the indigenous culture and its importance for the local community. This lecture is relevant because many students have no experience about the local community culture.

Snack time	A break time to enjoy a snack while appreciating the natural view of the institute
Lecture 4: Chestnut tree	Participants go for a track course in the forest. The first stop is the chestnut tree lecture about ecology and the importance of the tree in our daily life
Lecture 5: Pottery ruins	Introduction of the old pottery where were produced the bricks to construct Manaus
Lecture 6: Seedling nursery	Lecture about the seedling production system and the wealth of nature to produce seeds naturally
Lecture 7: Samauma	Participants see an adult samauma and compare it with the baby samauma, discussing their growth
Conclusion	Participants share their impressions and reflections

Source: made by the author

3. Research question and methodology

The paper main purpose is to evaluate the performance of the Environmental Academy. The first goal is to analyze and assess the project's methodology. The second goal is to address potential issues and recommend improvements for the project in question.

Amazon Soka Institute has introduced the Environmental Academy in conferences and local media (Tokusato & Hartog, 2019). However, since the project has started, its assessment has not been done.

To answer the research question, first we did a literature review to understand in what values the institutes ought to underpin. Second, we applied a descriptive survey research, in which a questionnaire with open/closed questions were replied by 162 students after attending the field class (for the questionnaire and raw data, check Appendices). Third, we observed eight classes, in which the researcher was a complete observer; and a total of seven formative semi-structured interviews with Amazon Soka Institute staff members, junior high school teachers, and project partners were conducted. The data collection was taken in 2019 during the period of October 14th to November 14th.

4. Results

The questionnaire used in this research is displayed in Appendix B, and the raw data is in Appendix A. The sample's profile is 66% female, 34% male; ranging from 4th grade students to 9th grade students; and age varies from 10 to 17 years old. Questionnaires were handled at the end of each field class during the period that the data collection was done.

More than half of the students have studied environmental education (56% - see Question 2). However, 42 respondents (approximately 26% of the total number of respondents) who gave such answer mistakenly answered the following question 2.a, which ask students about what environmental education topics they have already studied. Therefore, at some point, these students learned environmental education; however, they do not know the concept nor to correlate them.

The top studied topics before attend the Environmental Academy (Question 2.a) are recycling (56%), seeds and seedling (54%), and Meeting of the Waters (50%); and the bottom topics are Importance of Urban Afforestation (20%), Forest Waste Composting (17%), and the SDGs (12%). Overall, the knowledge of these themes is very low, when considering that only 56% of the students know how to recycle.

The top topics learned at the Environmental Academy (Question 3) are Meeting of the Waters (85%), Indigenous Culture (77%), Seeds and Seedlings (76%), and Archaeological Site (72%) – all those themes were explained in the lectures. The bottom topics are Global Warming (19%), Type of Waste (19%), Waste Collection (17%), Geological Mosaic (15%), and the Greenhouse Effect (13%) - topics which were not covered in the field class.

Regarding the participants' favorite lecture (see Question 4), the "Meeting of the Waters" was considered the most favorite (51%). We also asked participants about the reasons for such choice. Among the answers, reasons such as "because I learned", "I clarified a doubt",

“it is cool and interesting”, or “I enjoyed the experience” were observed. (Question 4.a). In addition, we observed some answers with explanations of topics covered in the lecture, evidencing that participants in fact had a takeaway from the project.

When students were asked if they want to attend the project again, 98% said “yes” (Question 5). Subsequently, we asked respondents about their motivation to answer “yes” or “no” (Question 5.a). Overall, since vast majority of participants gave a positive answer, the main reason to return to the Amazon Soka Institute would be to gain more knowledge. There is evidence that students would like to learn environmental topics in order to help the environment, and to help developing their own community. We could also observe during lectures that students were curious and eager to acquire more knowledge.

We also asked participants about what topic they would like to learn (Question 6). The top three topics are fauna (24%), flora (15%), and environmental crisis (11%). In addition, 20% of them consider the project good enough or have no opinion. Many students shared they wish to see more animals, as most of them have never been in the zoo. In the Amazon Soka Institute, they can observe some animals, however as those animals live freely, there is no guarantee of observation.

Finally, they gave compliments (51%) or recommendations (12%), and 29% of them had no final comments (Question 7).

5. Discussion

In general, Environmental Academy has had a positive outcome. Partners, teachers, and participants are satisfied with the project. Nonetheless, after a literature review, we understand that the current methodology needs improvements, and we see Soka education’s local

community-based approach, and Ikeda's "three steps of awareness-raising" (learning, reflection, and empowerment) as the main factors to promote such improvement.

During the period observed, it was noticed that participants were motivated to learn and found classes interesting. They learned the contents and were eager to learn more and to have an active role, which is a good condition to stimulate one's self-reflection and empowerment. Some public-school teachers shared that participants who attended the project became more curious and active in the school after taking part in Amazon Soka Institute's field class. In addition, it was observed that students who attended the project for the second time retained the knowledge acquired on topics learned in the first class.

In addition, it was noted that the institute applies the humanism-based approach of Soka education. There is no strict hierarchy between the lecturer and participants, and from the moment that participants arrive at Amazon Soka Institute, they are well welcomed and well-treated. In the survey, many compliments were related to good treatment, kindness, and attention from staff members. Participants also had the chance to make questions and all of them were properly replied by the institute's instructors. Therefore, staffs' behavior positively affected students' moods.

During the field class, however, it was noted that of a total of seven lectures, only two tried to elicit reasoning and self-reflection from students. The other five lectures were focused just on teaching the contents to students without using an active-learning approach.

For instance, we observed the Baby Samauma lecture, which explores the features of this tropical tree present in Amazon and its defense system. Samauma has thorns to protect itself when it is young, and after it gets older, it becomes strong enough to the point that horns are not needed anymore. This lecture does an analogy between the Samauma and a child defense system, which could be interpreted as the child's family, school, and friendship.

However, we have observed some flaws, since there was little space for students to express their thoughts and to receive proper feedback from instructors in order to solidify knowledge.

However, the lecture about "the significance of the forest for the ecosystem" had successfully provoked self-reflection on students. In this lecture, participants observe a centenary chestnut tree while learning about the water cycle. An interesting fact is that the evaporated water in Amazon becomes the rain of the Central and Southern areas of Brazil, regions where the food consumed in Amazon is produced. Therefore, participants learned about the importance of local trees in the national food production chain, and in this particular lecture, students were stimulated to express their ideas and to interact with the instructor.

Despite the survey's positive feedback, Environmental Academy has the challenge to empower participants; in other words, to promote awareness of their responsibilities as global citizens. Such promotion is still subtle in the current project; therefore, a next version of the project is shown in the next section.

6. Environmental Academy 2.0

The Environmental Academy 2.0 is based on the previous analysis and its main goal is to provide environmental education for students of junior-high and high public school of Manaus through directly observation of the nature. Specifically, the project will give lectures on environmental topics (learn); to encourage the participant to think critically about his or her connection with the environment based on local community-based approach (reflect); and to foster global citizens with consciousness of their responsibilities (empowerment).

With Environmental Academy 2.0, it is expected that the project will create an environmental education model where an increase of environmental awareness and social

impact will be observed in the local community and schools. The project will aim to reach 26 schools and 2000 students per year.

Environmental Academy 2.0 will be developed in two waves: first, a field class to the Amazon Soka Institute to study environmental education; second, the creation of small and low-cost project by the public schools that aims to solve a social problem happening around the school or the local community. In 2020, it is expected 26 schools to attend the first wave, and six schools to attend the second wave.

6.1 Wave 1 – Connecting with nature

In Wave 1, participants will have a field class at the RPPN Dr. Daisaku Ikeda in a similar timetable of Environmental Academy 1.0. However, the lectures cover different topics, as following: water cycle, the impact of waste (and how to transform it), the importance of forests, seedling production and reforestation; and heritage education with archeology and indigenous culture (see Table 4 for detailed timetable). For Wave 1, teaching technical knowledge to learners will not be the only concern but also to promote self-reflection on learners regarding the importance of the environment in their lives, and on the relationship between the self and the environment. The field class will end with a conclusion in which participants answer a survey to share impressions and reflections regarding to the lecture.

About the Lecture 1 “Learning the SDGs”, a brief explanation of the SDGs will be introduced to participants through a short story about a social problem. After, participants will be asked to come up with possible solutions to the issue posed, which will prompt students to critically think on the resolution of everyday problems by using the SDGs as a base platform. 17 boxes will be arranged (one for each SDGs), and each participant will be asked to indicate in which SDGs the social problem best fits in order to value student participation. Throughout

the year, the Amazon Soka Institute will collect students' solutions, and in turn, these solutions will be used for the Wave 2.

Table 4

Environmental Academy 2.0 - Timetable

Item	Description
Reception	Reception of students and teachers at the Amazon Soka Institute
Briefing orientation	Introduction of the purpose, values, rules, and the origin of the RPPN Dr. Daisaku Ikeda
Lecture 1	Learning the SDGs
Lecture 2	Heritage and Cultural Education
Lecture 3	Amazonian dark earth
Lecture 4	Phenomenon Meeting of the Water
Lecture 5	Significance of the Forest for the Ecosystem
Lecture 6	Visit to the ruins of the old pottery
Lecture 7	Amazon Forest Seedling Nursery
Lecture 8	Composting of Forest Waste
Lecture 9	Visit to Samauma Tree
Lecture 10	Importance of rivers and streams

Source: made by the author

In this framework, staff members will be questioning students' thoughts and opinions about each lecture and eliciting participants to reflect about how the lessons are associated with themselves. By exposing students to nature and letting them to observe the environment, this experience enables them to understand their community and their role in the complex world (Gebert, 2009).

6.2 Wave 2 – Students empowerment

Wave 2 consists of encouragement and supporting the implementation of short and low-cost projects based on the solutions written by participants who participated in the first

semester. From the reflections instigated in the lecture “Learning the SDGs”, students will be organized by the school’s manager to implement one of the ideas in their schools or communities. A brief description of the project’s framework is shown in Table 5.

Table 5
Description of Wave 2

Period	Item	Description
February	Meeting with managers	At the beginning of each semester, a managers meeting will be held to brief them on the project “Environmental Academy 2.0”.
March	Schools` application period	In the application form, schools need to reply three questions: i) which SDG will you address to; ii) what problem will you seek to solve, and iii) who is the project coordinator (teacher).
April	Screening and announcement	Amazon Soka Institute will select 6 schools.
May-June	Project coordinator training	Institute will provide three consultancies; one per month, with partners who developed projects or worked with the selected SDG to training the coordinators.
July-September	Implementation	Project coordinator selects a group of up to twenty students to develop the project. Students will visit institutions that promote actions on the chosen SDG.
October	Final presentation	Projects presentation at the Water Seminar, held in Amazon Soka Institute. The seminar’s speakers will evaluate each project and he winner will be nominated for the following year as a guest participant.

Source: made by the author

The engagement in the local community allows students to observe, learn, and reflect about their surroundings. This is the main purpose of Wave 2: to provide students with the freedom to put their solutions into practice, and to empower students as global citizens.

7. Final Considerations

The purpose of this paper is to evaluate the Environmental Academy. It concludes that the project has partially achieved its goals.

Participants who attend the project have fixed the content and became eager to learn more. However, the project needs improvements to instigate student's reflection about their daily life with the local community, as well as to empower students as global leaders.

To improve the connectedness between the individual and the environment based on Soka education and the founder's philosophy, the Environmental Academy's methodology will be adapted to a new framework in which will focus on student's empowerment with environmental awareness.

From these outcomes, the themes and lectures will be expanded in an adapted project named Environmental Academy 2.0. The new framework emphasizes the relevance of learning through the observation of nature, it encourages participants to reflect about their local community, and foster global citizens with environmental awareness. Thus, it is hoped that the new project will be able to improve the learners' mindset towards the environment based on the three steps of awareness-raising, and therefore creating an effective model of environmental education with greater social impact in the school and the local community.

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Appendix A - Raw sample data

Gender (%)	
Female	66
Male	34
Grade (%)	%
4	1
5	19
6	14
7	22
8	21
9	22
EJA ²	1
Blank	2
Age (%)	
10	3
11	20
12	15
13	22
14	28
15	6
16	2
17	1
Blank	2
Q2. Studied Environmental Education (%)	
Yes	56
No	44
Q2a. Theme known before attending Environmental Academy (%)	
Recycling	56
Seeds and seedlings	54
Meeting of the Waters	50
Global warming	48
Role of the forest in the ecosystem	47
Forest Recovery	44
Flora	43
Type of waste	41
Water cycle	40
Fauna	38
Vegetable gardens fertilization	36
Reforestation	35
Greenhouse effect	33
Environmental crisis	31
Impact caused by large buildings	30
Waste collection	26
Importance of Urban Afforestation	20

² *Educação de Jovens e Adultos* – EJA (Youth and Adult Education, in English) is an educational program created by the Federal Government that runs through all levels of basic education in Brazil. It targets young people, adults and the elderly who did not have access to education in the conventional school at the appropriate age. Retrieved from: <https://www.educamaisbrasil.com.br/educacao/noticias/tudo-sobre-eja-o-que-e-e-como-funciona>

Forest waste composting	17
Sustainable Development Goals (SDGs)	12
Q3. Theme learned at Environmental Academy (%)	
Meeting of the Waters	85
Indigenous culture	77
Seeds and seedlings	76
Archaeological site	72
Forest Recovery	65
Role of the forest in the ecosystem	46
Flora	41
Reforestation	39
Fauna	37
Water cycle	36
Recycling	35
Environmental crisis	33
Vegetable gardens fertilization	33
Impact caused by large buildings	30
Importance of Urban Afforestation	28
Sustainable Development Goals (SDGs)	26
Forest waste composting	22
Global warming	19
Type of waste	19
Waste collection	17
Geological mosaic	15
Greenhouse effect	13
Others ³	4
No answer	1
Q4. Favorite lecture (%)	
Meeting of the waters	51
Samauma	25
Chestnut tree	23
About the Institute	19
Indigenous ceramics	17
Pottery Ruins	15
Snack time	14
Seedling nursery	14
Q5. Want to return to Amazon Soka Institute (%)	
Yes	98
No	2
Q5a. Reasons to return (%)	
To Learn/ to know	41
Cool	17
I liked it	12
Experience	9
Very interesting	9
Important	7

³ Others (4%): Heritage, Manaus history, Amazonian dark earth, Photosynthesis, and Paleontology

No answer	4
Q6. New topics (%)	
Fauna	24
Flora	15
Environmental crisis	11
Selective collect	10
Indigenous Culture	5
Water cycle	5
The Institute	4
Nature	2
History	1
Archeology	1
It is good enough/ no opinion	20
Q7. Comments (%)	
Compliments	51
Recommendation	12
Acknowledgment	5
Reflection	2
No comments	29

Source: made by the author

Appendix B - Questionnaire

	Questionnaire	October 2019
Environmental education in Amazon: A case study of Soka Institute		

1. What is your name?

2. **Have you ever studied** Environmental Education?

- 1. Yes
- 2. No

2a. If yes in question 2, please, select in the list below which topics you had studied. (choose one or more options)

- Greenhouse effect
- Environmental crisis
- Global warming
- Recycling
- Type of waste
- Selective collection
- Sustainable Development Goals (SDGs)
- Flora
- Fauna
- Meeting of the Waters
- Water cycle
- Forest role in the ecosystem
- Reforestation
- Significance of urban afforestation
- Impact caused by large buildings
- Forest resilience
- Seeds and seedlings
- Composting of forest waste
- Vegetable gardens fertilization
- Others: _____

3. What have you learnt **today**?

- Greenhouse effect
- Environmental crisis
- Global warming
- Recycling
- Type of waste
- Selective collection
- Sustainable Development Goals (SDGs)
- Flora
- Fauna
- Archaeological site
- Geological mosaic
- Meeting of the Waters
- Water cycle
- Forest role in the ecosystem
- Reforestation
- Significance of urban afforestation
- Impact caused by large buildings
- Forest resilience
- Seeds and seedlings
- Composting of forest waste
- Vegetable gardens fertilization
- Indigenous culture
- Others: _____

4. What was **the best** moment today? (select **only one** option)

- About the Institute
- Meeting of the waters
- Indigenous ceramics

- Snack
- Sanaama
- Chestnut tree
- Pottery Ruins
- Seedling nursery

4a. Why?

5. Would you like to attend the Environmental Academy **again**?

- a) Yes
- b) No

5a. Why?

6. Which topics, that were not introduced, would you like to learn?

7. Any comments or suggestions to Soka Institute?

Thank you!