

Sustainability education framework for building ESD competencies and inspiring environmental stewardship and conscious consumption among students

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1. Introduction

The Sustainable Development Goals provide excellent opportunities for participatory citizenship as it involves solving problems at the individual, social and global level. Teaching SDGs to young people and help them ideate on solutions and take small steps to solve problems in their local spheres of influence can bring a major transformation in the society. This also creates possibilities for future research and entrepreneurship to create sustainable solutions for the future (Kopnina 2016, Goodall and Moore, 2019).

The paper presents the ASAY (Anaadi Sustainability Awareness for the Young) framework of sustainability education and analyses how the program impacts sustainability literacy and builds key Education for Sustainable Development (ESD) competencies in school students. The ASAY framework is designed to orient young people towards the 2030 Agenda and the UN Sustainable Development Goals (SDGs) and strengthen their values and attitudes towards sustainability. ASAY builds core ESD competencies in students through a unique pedagogical approach curated with learning processes and tools that combine traditional transmissive pedagogies such as lecture sessions and video screening on the current development scenario and ecological crisis, as well as transformative pedagogies such as discussions and dialogues that help students analyse global change and development from a sustainability perspective and question existing norms. Systems thinking and integrated problem solving competencies are imparted through real-world case studies, where students take on the role of leaders, explore the complex problem space, co-evolve and design relevant solutions. Solutions are guided to be economically viable, socially inclusive, and equitable. Working in groups fosters collaboration through co-envisioning sustainable futures, tracing multiple possible paths that lead to alternate futures and joint decision making. The ability to critically reflect on their individual consumption patterns as a measure of footprints along various dimensions such as food miles and energy usage, facilitates a shift in perspective from experiencers of current reality to active co-creators, leading to a sense of shared responsibility. A pilot program¹ has been offered based on this framework and thousands of students have been part of this. The evaluation of the implementation is an on-going work.

2. Background: In India, Environment Education (EE) is a part of school education with the focus being on raising awareness on ecological problems. There is a need to introduce Education for Sustainable Development (ESD), to help students understand their role in solving ecological problems, opening up the solution space to their participation, inspire a pro-sustainability attitude shift and enable them to envision alternate futures (Almeida and Cutter-MacKenzie 2011). The need for sustainability awareness among school children and young people remains significant for the fact that the present global systems, world economy, consumption & production patterns and individual lifestyle is predominantly unsustainable. So the need for nurturing and equipping young people with ESD competencies (UNESCO 2017) and skills becomes important. ESD plays a major role in driving the change towards a collective sustainable society. The main objective of imparting the Sustainable development awareness & education to young people in school is not just to motivate & persuade young minds, but more importantly prepare them as change agents & ambassadors for a sustainable future. ESD provides the necessary contemporary competencies, skills which empowers young people as active stakeholders in creating a future they want to envision and not mere spectators. ESD also gives a holistic & nexus view for the young people to understand the issues & problems from a much better & wider perspective. The student if in his/ her young age starts realising his tangible & intangible part & contribution towards the problem, then he/ she would start to view it critically and

¹ <https://sustainabledevelopment.un.org/partnership/?p=13921>

find a solution for the same. differentiate between sustainable and unsustainable actions and to be aware & act in a manner that aligns with the creation of a sustainable and desirable future.

The environmental concepts were included into mainstream education after the efforts of the National Council on Education Research & Training (NCERT) in late 1980s (Hoffman, 2014). However the pedagogy and EE curriculum which was included adopted an infused approach whereby environmental concepts were taught as a small part of science & social sciences subjects, it was not included into school curriculum as an independent & core knowledge subject. So, EE in mainstream education has thus been remaining as an add-on which has produced only marginal support for knowledge skills and attitude required for altering micro, meso and macro culture & lifestyle towards a sustainable future.

In order to achieve SDG 4.7 *“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.”* which is intricately linked with multiple other SDGs, the mainstreaming of ESD by which core ESD competencies can be built in young people right at a young age is crucial. There is an immediate need to change from traditional EE model/ approach to more holistic and focused ESD approach. The ASAY framework exactly bridges the gap from EE to ESD with holistic content, pedagogy and delivery.

3. Motivation: Consumption patterns of people have a huge impact on the environment. Be it individual energy consumption or diet choices; our actions have a direct consequence on the ecosystem. Reflecting on the values that it leads to over-consumption and inequitable distribution of resources and tracing it to the global challenges becomes an important aspect of sustainability education (Ostrom, 1990). To create environmental stewardship and bring in awareness about key patterns of consumption, a holistic framework is needed that not just focuses on specific problems but can motivate young people to understand the larger context and narrow down to specific issues.

The key objectives of this framework are

- To create an awareness about UN Sustainable Development Goals (SDGs) and Sustainability among young people especially young people
- Help young people gain a perspective of global environmental issues and their role in solving them
- Give them exposure to real-world sustainability problems and encourage them to design solutions
- To jointly explore the individual consumption along various dimensions: Food, Energy, Water etc
- Work on real-world consumption problems through simulated learning and explore and evolve relevant solutions to identified problems
- Help young people understand sustainability both in a global and local context and take on the role of active global citizens.

4. Framework:The framework, shown in Figure 1, adopted in building ESD competencies include reflections on the current model of development, developing an understanding of the global challenges in the light of UN’s Sustainable Development Goals (SDGs) and exploring solutions to case studies that emulate real-world problems. The framework has been designed to be open-enough to be adaptable for young people of all ages, countries and socio-economic status. The complexity of the tasks and local contexts could vary depending on age and geography of usage. Keeping the framework adaptable helps facilitators to focus on the pedagogical aspects of creativity, inquiry-based learning and innovation rather than focusing directly on the solutions (Thomas 2010). It is also important that young people build core competencies in order to create good future leaders and problem-solvers. This framework focus on key competencies including:

- **Critical thinking:** Analyzing the problems, ideating on logical solutions and rational thinking approaches
- **Self-awareness:** Becoming aware of oneself as the core entity of the society, understanding one’s thought process, self-reflection and extrapolation to the larger context. This helps young people develop accountability and personal responsibility

- **Systems thinking:** A cause-effect mapping can often be limited when a systems thinking is lacking. Connecting the dots through systems-thinking will be key to proposing holistic solutions (Kioupi and Voulvoulis, 2019)
- **Collaboration:** While the focus is on self-awareness, the power of collective intelligence needs to be harnessed to solve hard problems. Young people can learn group skills by working on pressing problems of the world (Zamora-Polo and Sanchez-Martin, 2019; Maharajan et al, 2019)
- **Anticipation:** Every action has a consequence and each consequence leads to multiple futures. Becoming aware of this can help young people conscious of the problems and consequences of the solutions that are ideated upon
- **Integrated problem solving:** While proposing solutions, both the global and local optima need to be focused. An integrated problem-solving approach that is mindful of several stakeholders and impact of as many dimensions as possible is needed.

The framework also aligns with socio-emotional learning that has become the key focus of education in recent times.

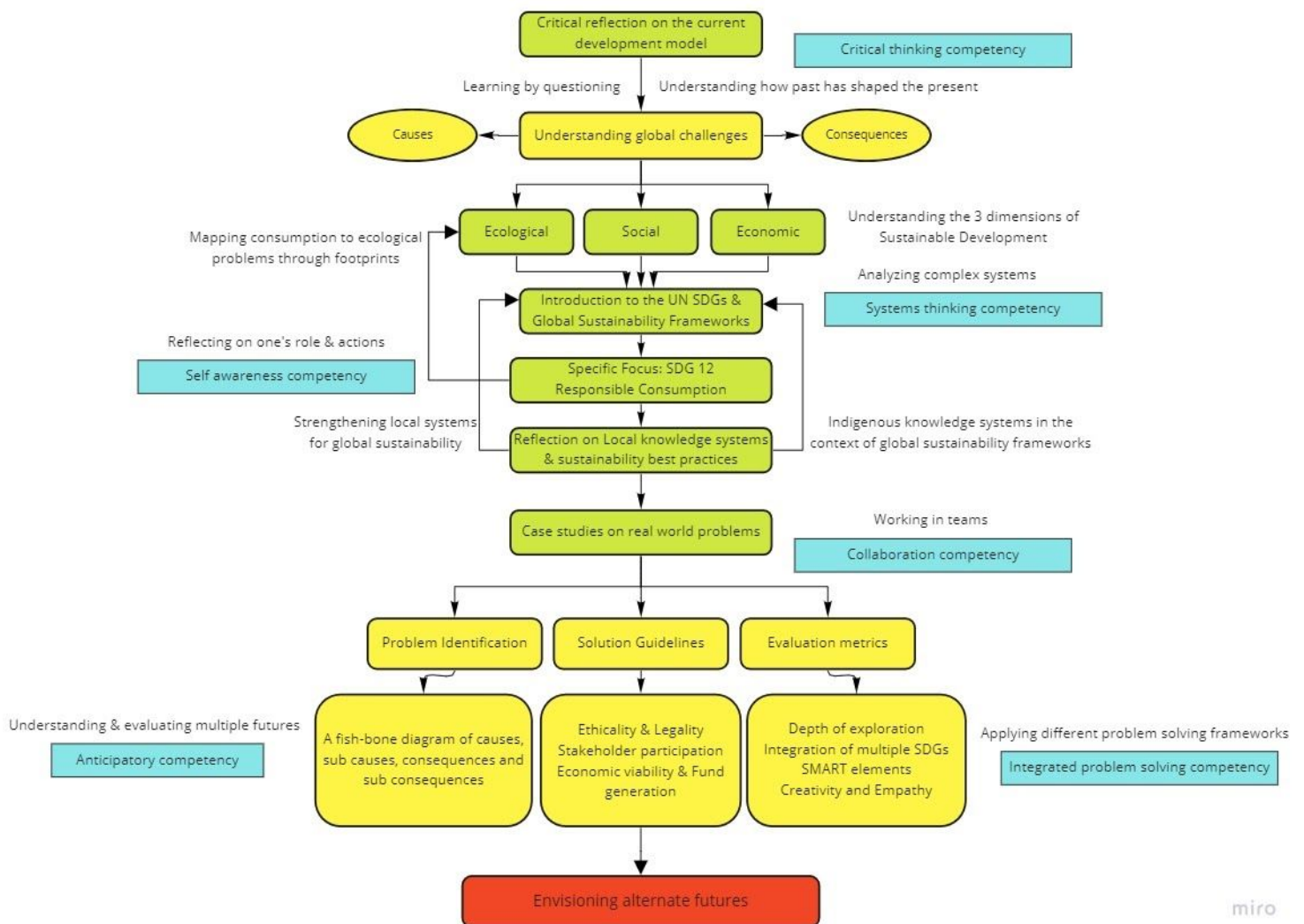


Figure 1: ASAY Framework

4.1 Reflections on the Current Model of Development:

In order for young people to ideate on effective solutions, understanding the larger context and problem space becomes important. The Step 0 in any project planning is usually the problem at hand. A detailed exploration and reflection on the current model of development and inquiring into the sustainability of the current model be it agriculture or energy or economics can help set the right tone. Facilitators could begin with an inquiry-based approach that involves questions and problem statements that highlight the larger

context of sustainable development before focusing on specific SDGs (Amos and Levinson, 2019). A formal or an informal approach could be used depending on the familiarity with the student group. This could involve:

- Posing questions
- Motivating young people to ideate on answers related to the questions
- collating the answers and categorizing them
- Explaining the evidences that emerge
- Tying these responses to the larger context of the question

This step could be kept as broad as possible so that it gives room for increasing the breadth of thinking before going to depths of certain problems and solutions

4.2 Understanding Global Challenges:

Young people who have limited global exposure often relate to problems only in the local context. To create environmental stewardship, exploring the global context becomes important (Karen and Sund, 2020). This can be done through data, visualizations and multimedia. That way solutions, though local, can also be globally optimal and align with the larger vision of the sustainable development goals.

To bring an understanding of the global challenges, facilitators can use any of the following activities:

- Picking an ecological issue or issues related to any of the SDGs and explaining the larger context and global data pertaining to the issue
- Showcasing videos that explain the larger sustainability issues around the globe and zeroing down on local contexts
- Data visualizations pertaining to the UN SDGs
- Comparing and contrasting development and resource consumptions across nations: developed vs developing / tropical vs temperate zones / Collective vs individualistic societies / modern vs indigenous approaches etc
- Using global databases (eg. world bank) for simple analytics to gain a perspective of global challenges that face humanity.

Understanding global challenges calls for an exploration of the larger causes and effects. This helps young people to map several (if not all) causes of a problem and as many consequences as possible. While looking at global challenges the following dimensions could be focused on

- **Ecological:** Focusing on ecology helps young people to connect with nature, natural resources and brings a local context and focus on diversity of landscapes, flora and fauna.
- **Social:** Social behavior, priorities of societies and cultural contexts can be extremely useful in understanding global challenges
- **Economic:** While young people do not get exposure to economics, simple principles of economics that drive the modern world and how it motivates a large population to keep up growth and the limitations of current growth models can bring a holistic perspective to the challenges that humanity is facing today.

These three dimensions can be translated into the following activities:

- **Introducing the SDGs:** It is important that young people have a clear picture of the UN SDGs. Charts, posters, infographics and mnemonic-based learning of the SDGs can help them retain the knowledge better
- **Focusing on SDG 12:** Understanding current economic scenarios and the drivers of modern day consumption patterns can help young people design personal and social interventions to regulate the usage of resources. Highlighting the products of economic development including waste generation and introducing them to alternate thought processes like circular economics can be eye-opening for young people. Consumption patterns of various societies could be compared and mapping the causes and consequences of the consumption patterns can go a long way in building a holistic perspective of the real problems.

- **Reflection on Local Knowledge Systems:** Once a global understanding is developed, a need for focusing on local problems arise. Indigenous or local knowledge can be a key factor in bringing in transformation (Adeyeye 2019; Franquesa-Soler and Sandoval-Rivera, 2019) In this context
 - Many young people are distanced from the source and destination of resources.
 - They do not know where the food is grown and what happens to the waste.
 - They have limited exposure to manufacturing locations or waste sorting facilities.
 - Several of them have very less knowledge of traditional methods of resource usage and management

Hence exposing them to local problems and solutions that come from local knowledge becomes important. This could be done through videos or interviews or secondary data sources that highlight local contexts.

4.3 Case studies:

Case studies are effective tools to practically ideate on problems and propose solutions. young people could be divided into teams and get the opportunity to work on specific case studies in the areas of Education, Health, Food and Environment. The case studies about real life situations which require them to put themselves in the shoes of a leader. It includes themes like self sufficiency, soil management, reinventing the education system, energy management. The case studies describe specific problems in rural and urban settings. A few are also based on model villages which have achieved success in Education or Health. Teams are given frameworks to analyze problem space. They are guided to identify the various factors and sub-factors that led to the problem and the consequences. An in-depth exploration of the problem space gives them insights on identifying the core issues. Once they identify the core problem, they are guided to move to the solution space. Team members ideate on various solutions. This activity forms the basis of building integrated problem solving competency in young people. The following steps could be adopted while working on the case studies:

- **Problem Identification:** The first part of this activity requires them to draw “a dumbbell diagram” citing the main problem, its root causes and possible consequences. It also requires them to discuss ideas, work as a team, and also share resources with other teams. A participatory approach to problem solving is encouraged in which young people listen to multiple perspectives from their team members, and converge on core ideas together as a team.
- **Solution Guidelines:** Young people are provided with a guidelines sheet highlighting various parameters to evaluate their solutions. The guidelines sheet addresses different dimensions of the solution including aspects of : Sustainability, Ethicality, Legality, Goal-centrism, Inclusivity, Fund-Generation, Economic Viability, Stakeholder participation and motivation and uniqueness of the solution.
- **Evaluation Metrics:** The solutions and outcomes are evaluated based on Empathy, Creativity of the Solution and Depth of Exploration of problem space. Teams are given time to present their solutions and explain their charts. Reward points were given to those teams who are able to incorporate multiple Sustainable Development Goals into their solution space. The activity gives young people an opportunity to look at social issues and ideate on practical solutions including the SDGs.
- **Envisioning alternate futures:** Evaluating the multiple possible outcomes of an action or decision, including the risks and changes that are involved is an anticipatory competency that is built with *Futures thinking* (Cebrián, 2015). Educating young people to envision a more sustainable, just and inclusive tomorrow and map it as a consequence of their actions and decisions today play a crucial role in bringing about a transformation in their thought process and outlook in which they view themselves as active shapers of the future and not passive bystanders.

5. Socio-Emotional Learning

Current global leadership challenges expect a holistic individual who is analytical in problem-solving, creative in design, innovative in approach and has a humane touch. Strategies designed across the SEL paradigm enables this where “*SEL is the process of acquiring and effectively applying the knowledge, attitudes, and skills necessary to recognize and manage emotions; developing caring and concern for*

others; making responsible decisions; establishing positive relationships; and handling challenging situations capably” (Zins and Elias 2007). Such cohesive action requires tremendous inner clarity which, when cultivated at a young age can result in an exceptional transformation of both self and society.

The framework inculcates five key areas of social-emotional competence in the following manner:

- **Self-awareness:** The problem and solution space give the opportunity for young people to reflect on their personal lifestyles, consumption patterns, expenditures on products, usage and disposal patterns etc and this drives transformation through process.
- **Self-management: Understanding the global goals and bringing local changes including one’s own life enhances self-management**
- **Social Awareness:** To bring social awareness skills to the kids we introduce them to the problems that the local community face. During group-activities, children will be guided to identify the various factors and sub-factors that led to the problem and the consequences. This will help them understand the root-cause analysis and bring better social-awareness skills.
- **Relationship-Skills:** As a way of inculcating different relationship-skills such as a. Team spirit b. Group decision-making approach to learning, the children are grouped into several teams to work on case studies that deal with ecological issues
- **Responsible-decision Making Skills:** While ideating on solutions, young people do not just think of impact on immediate societies but are encouraged to envision the far reaching consequences of the same (to the extent possible). This makes them more responsible.

6 Conclusion

In this paper, we have described in detail, the framework that could adopted to teach sustainable development goals to young people and cultivate environmental stewardship in them. We have also presented the core competencies that this framework can help to build among young people. Keeping the framework expandible and globally relevant makes it easy for various stakeholders utilize it creatively. While a pilot has been carried out, in future we hope to share our findings of implementing this framework in various educational and geographical contexts.

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