ROLE OF PROBLEM-SOLVING ABILITY IN PROMOTING SUSTAINABLE DEVELOPMENT

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Abstract

Education for sustainable development is referred to as education that "empowers learners to take informed decisions and responsible actions for environmental integrity, economic viability and a just society, for present and future generations, while respecting cultural diversity." Sustainable development needs innovation to drive competitiveness, and demands technological infrastructure to create an environment where the latest technology and knowledge can blend to trigger new approaches and solutions. Therefore, sustainable economic growth requires new qualities and different features, and solicits educational systems to equip learners and students with skills and competencies that help them manage change and generate and execute ideas through flexibility and initiative. Problem solving ability is one of the important abilities that students need to achieve in learning and is part of the Education for Sustainable Development (ESD) goal competence. Problem-solving skills are essential for sustainability, as they allow you to address complex and dynamic challenges, find innovative solutions, and adapt to changing circumstances.

Keywords: Sustainable Development, innovation, problem solving, environment.

EDUCATION FOR SUSTAINABLE DEVELOPMENT

Sustainable development requires creativity to promote competitiveness, as well as a technological framework to provide an environment in which cutting-edge innovation and understanding can combine sparking novel strategies and clarifications. It is thoroughly accepted that present-day

society comprehension is a growth promoter, workforce skills are critical to commercial progress, supportable economic growth, public unity, non-discrimination in opportunities, and that abilities must meet the demands of the information age. As a result, long-term economic growth necessitates new qualities and distinct characteristics, as well as educational institutions that provide students with expertise and competencies that enable them to manage change and generate and execute ideas through flexibility and initiative.

Education is a key strategy for sustained development (SD) and can help to address global concerns. Education for Sustainable Development (ESD) empower "students to take well versed decisions and accountable actions for stability of environment, economic existence, and an equitable society for latest and future ages" (UNESCO, 2017).

The UN Decade of Education for Sustainable Growth was declared in December 2002, and it will run from 2005 to 2014, emphasizing how education can help in increasing global sustainability. The purpose of the initiative was "to combine the postulates, ethics and practices of sustainable development into all facets of education and learning." with the goal of achieving "a better supportable future in connection with economic survival and fair society for present and future generations."

Coupled with a feeling of integrity, answerability, discovery, plus discussion, ESD assert to inspire us to embrace behaviors and operations that allow us to lead a life in which we need not sacrifice any essential needs. So, we think that education all around may create the subsequent world by providing persons and communities with the mastery, outlook, information, and ethics required to dwell and work justifiably. For ESD to be more productive, schools and colleges must incorporate the philosophy of sustainability into activities of daily living and promote the expansion of ESD, growth of competencies, and thorough value education, additionally in all mainstream education curricula, inclusive of education in preadolescence period, elementary and secondary education, training and post-secondary education, carry learning objectives linked with sustainability (Furthermore, skills are necessary for the development of ESD; students must possess ESD capabilities (Daniella and David, 2004).

PROBLEM SOLVING ABILITY

Problem solving is at the heart of human rise. It is the strategies we use to comprehend what is going on in our environment, identify what we want to change, and then determine what has to be done to get the intended result. It is the origin of all newly discovered creations, communal and ethnic evolution, and the foundation of market-driven economies. It forms the foundation for ongoing refinement, communication, and learning.

The ability to solve difficulties is equivalent with the problem-solving process, in which problems are solved by experiencing diverse occurrences in daily life (Rahma & Windyariani, 2020). According to Dwiyogo, a learner's critical thinking skills and talents are required to investigate and analyse varied information. (Ariyanto et al., 2020; Rahma & Windyariani, 2020). It is understandable that students' talents and capacities will do it easy for them to come up with an answer to a problem.

Problem-solving skills are essential for sustainability, as they allow you to address complex and dynamic challenges, find innovative solutions, and adapt to changing circumstances. However, developing these skills is not always easy, as it requires a combination of knowledge, creativity, and critical thinking.

SIGNIFICANCE OF PROBLEM-SOLVING ABILITY IN PROVIDING SUSTAINABILITY

Problem-solving is crucial for both individual learners and institutions as it authorize us to have check over our surroundings. The following are various examples of how problem-solving skills can pave the path for a sustainable future:

- Fixing things that are broken

  Some things wear out and break over time, while others are defective from the beginning. Personal and business settings are full with things, activities, interactions, and processes that are broken or do not perform as they should. Problem-solving provides a framework for detecting these things, establishing why they are broken, and deciding how to remedy them.

- Addressing risk

  Humans have evolved to recognize trends and build an understanding of cause-and-effect linkages in their surroundings. These abilities allow us to not only repair things when they break, but also

predict what might happen in the future (based on past experience and present occurrences). Problem-solving can be used to expected future events, allowing for action in the present to influence the possibility of the event occurring and/or change the impact if it does.

- Improving performance

  Individuals and organizations do not exist in isolation in their environment. There is a complicated and ever-changing web of relationships, and as a result, one person's actions frequently have a straight or oblique exert influence on others by altering the dynamics of the environment. These interdependencies allow humans to collaborate to tackle more complicated problems, but they also create a force that demands everyone to constantly improve their performance in order to adapt to the improvements of others. Problem-solving enables us to comprehend relationships and execute the modifications and improvements required to compete and survive in an ever-changing environment.

WAYS TO APPLY PROBLEM SOLVING SKILLS FOR SUSTAINABLE DEVELOPMENT

- **Identify the Problem: -** The first step in resolving any issue is to identify it clearly and properly. You must grasp the underlying causes, stakeholders, context, and constraints of the problem you seek to solve. The 5 Whys, the Problem Tree, and the Fishbone Diagram can all assist you identify the problem and its components. This allows you to reduce your focus and scope while avoiding leaping to conclusions or assumptions.

- **Generate Ideas: -** The second phase is to brainstorm and produce as many possible solutions to the situation. Mind mapping, SCAMPER, brainstorming, and ideation sessions are all strategies for stimulating creativity and diverse thinking. The purpose is to investigate other viewpoints, options, and alternatives without criticizing or filtering them. You can also seek thoughts and feedback from others, such as professionals, customers, partners, or beneficiaries.

- **Evaluate and Select Ideas:** - The third stage is to rank and choose the top ideas from your list based on feasibility, desirability, and sustainability. To examine each idea's strengths, weaknesses, opportunities, and dangers, you can utilize criteria like as SMART goals, the Triple Bottom Line, or the SWOT analysis. You can also utilize tools like the Decision Matrix, Prioritization Grid, and

Impact-Effort Matrix to rank and compare ideas. This allows you to identify the most promising and realistic solutions to your situation.

- **Implement and Test Ideas:** - The fourth phase is to implement and test your chosen ideas utilizing an iterative and agile methodology. To help you prototype, validate, and develop your solutions, consider using approaches such as the Lean Startup, Design Thinking, or Scrum framework. You may also utilize tools like the Business Model Canvas and the Customer Journey Map to help establish and express your value proposition and business strategy. This allows you to learn from your mistakes, improve your solutions, and assess your influence.

SOME EFFECTIVE RESOURCES FOR DEVELOPING PROBLEM SOLVING SKILLS IN SUSTAINABILITY

- **Online courses** are an easily accessible and versatile resource for honing problem-solving abilities in sustainability. Platforms provide courses on climate change, circular economy, social justice, and environmental management. These courses will teach you the concepts, frameworks, and tools needed to solve sustainability problems, as well as providing opportunity to apply them in real-world circumstances. Solving Public Problems with the University of Oxford and Sustainable Development: The Post-Capitalist Order with the University of Geneva are two courses that focus on problem-solving abilities in sustainability.

- **Case studies** are a beneficial resource for establishing problem-solving skills in sustainability. They provide a possibility to comprehend the complexity and variation of sustainability issues, as well as the strategies and conclusions of different approaches. Investigating case studies can motivate creativity and critical thinking, allowing you to analyses, compare, and evaluate the problem-solving processes and solutions presented in them. Sources include The Case Centre and MI.

- **Games and simulations** are a third option for improving problem-solving skills in sustainability. These hands-on activities allow you to learn about and experiment with different facets of sustainability issues and solutions, which will help you improve your systems thinking, decision-making, collaboration, and communication skills, as well as your awareness and empathy for the

social and environmental consequences of your actions. Climate Interactive, Eco Challenge, and Footprint Calculator are some examples of such games and simulations.

- **Books and podcasts** are an excellent fourth resource for improving problem-solving skills in sustainability. These media include views, viewpoints, and tales from sustainability experts, practitioners, and innovators. Not only may they assist you broaden your knowledge, but they can also pique your interest and imagination when it comes to solving sustainability concerns. Books and podcasts that emphasize on problem-solving skills in sustainability include The Future We Choose by Christiana Figueres and Tom Rivett-Carnac etc.

REFERENCES

1. IPBES. (2018). *Intergovernmental science-policy platform on biodiversity and ecosystem services. The regional assessment report on biodiversity and ecosystem services for Europe and Central Asia*. IPBES.

2. UNESCO (United Nations Educational, Scientific and Cultural Organization). (2014). *Road map for implementing the global action programme on education for sustainable development*. UNESCO.

3. N, S., & S, P. (2024). Utilization of social media to Enhance Learnability among Secondary School Students (CBSE AND ICSE). *Shodh Sari-An International Multidisciplinary Journal*, *03*(1), 47–54. https://doi.org/10.59231/SARI7653

4. UNESCO (United Nations Educational, Scientific and Cultural Organization). (2017). *Education for sustainable development goals: Learning objectives*. UNESCO.

5. Chavada, J. K. (2024). The role of teacher has changed in the context of classroom education in the 21st century. *Shodh Sari-An International Multidisciplinary Journal*, *03*(1), 66–70. https://doi.org/10.59231/SARI7655

6. Filho, L. W., & Zint, M. (2016). The contribution of social sciences to sustainable development at universities Springer International Publishing · Daniella, T, and David, W. (2004). *Engaging people in sustainability commission in education and communication*. International Union for Conservation of Nature and Natural Resources.

7. Crasta, S., & Coutinho, L. (2024). Impact of metacognitive strategies on student learning. *Shodh Sari-An International Multidisciplinary Journal*, *03*(~~0~~1), 169–185. https://doi.org/10.59231/SARI7663

8. United Nations Educational, Scientific and Cultural Organization. (2017). *Education for Sustainable Development Goals: Learning objectives*.