



REVITALIZING EDUCATION FOR SUSTAINABILITY: EXPLORING SOCIAL INNOVATION AND INDIGENOUS KNOWLEDGE IN MODERN PEDAGOGY

Sudeep Sahoo ¹, Sima Maity ² & Surajit Roy ³

RESEARCH ARTICLE



Author Details:

¹ Assistant Professor, Kadambini Women's College of Education, West Bengal, India;

² Birendranath Sasmal Primary Teachers' Training Institute, West Bengal, India;

³ Assistant Professor, Kadambini Women's College of Education, West Bengal, India

Corresponding Author:

Sudeep Sahoo

DOI:

<https://doi.org/10.70096/tssr.250307044>

Abstract

With growing global opportunities with regard to sustainability, education should prepare learners for academic achievement and also promote and develop the issues of sustainability. Using the identification of social innovation, Indigenous knowledge and modern approaches to teaching and learning for Sustainable Development, this paper reflects. Consequently, through identifications of how these aspects might be used to incorporate Indigenous wisdom in current education systems, the paper elucidates an opportunity of how Indigenous knowledge may catalyse sustainable development solutions. The study examines the need to challenge and reconstruct some of the common type of ideas on how education should be delivered and emphasizes on implementing a more comprehensive model based on cultural aspects of the community and sustainable environment as well as embracing the demographic Lifestyle.

Keywords: Education, Sustainability, Innovation, Indigenous Knowledge and Pedagogy

Introduction

Primitive capitalism in its blatant exploitation of the environment globally, social injustice, and economic volatility is creating an urge toward sustainability. Education being one of the miniature processes for transmitting the imparted values in the society, has the responsibility of producing understanding of the sustainable value (Robottom & Hart, 2015). Nonetheless, there are various barriers of learning as embraced within the conventional education systems where sustainability's multi-faceted characteristic is not well captured due to separation of social, ecological and cultural aspects mainly highlighting on the technical specificity of the subject (Miller, 2014). This limitation warrants reconsideration of current practices and provisions to make further generations ready not only with the academic education but also for the sustainable development.

One avenue that might help to renew education for sustainability is the application of social innovation and Indigenous wisdom. Social innovation can be defined as new ideas and products, figuring out, resolving or responding to social issues so as to ensure that solution encompasses social transformation and mobilization of the people (McGregor, 2018). It fosters cross-disciplinary work as well as the input of people across all levels and with all perspectives – all of which can be so helpful in approaching such complex issues as sustainable development. Whereas, indigenous knowledge refers to the culturally grounded beliefs and practices of the indigenous people, which have Post colonial framing of indigenous knowledge adopted the holistic view of the indigenous society and strict respect of the earth's resources (Giroux, 2013). This body of knowledge is not just a set of skill in resources and ecology, but also the moral principles governing people's way of life.

The last years literature reveals the possibility of integrating both of these areas in educational contexts to develop an understanding of sustainability. Fostering and orienting social innovation into or alongside Indigenous knowledge in the curriculum empowers students with a holistic world view that incorporates effective problem-solver solutions and firm cultural foundations (Dryden & Vos, 2017). This pairing may indeed revolutionize the approach to sustainability in education from a defined preoccupation with environmental concerns to embracing social justice, cultural recognition, and the conservation of the environment with an equitable view of people as well as earth-chartered citizens.

The purpose of this paper is to examine the ways in which social innovation and Indigenous knowledges can supplement current paradigms to renew and reinvigorate the disciples for learning concerning sustainable development. It expands the existing

knowledge that has emerged seeking to include these two aspects into constructing an educational system that would not only address the contemporary global issues but also develop an effective system of education which is open, flexible and progressive. Drawing on literature reviews and analysis of case study and conceptual papers, this paper posits that the merging of social innovation with indigenous knowledge in education enhances sustainability, equality, and culture-sensitive pedagogy.

Objectives of the Study

The study aims to achieve the following objectives:

1. To assess how a number of successful case studies that underpinned these concepts has been integrated.
2. To provide insights that will enrich current debates on sustainable development in Education.

Research Questions

1. How does indigenous knowledge help in defining the current trend of education, and how best the knowledge can be incorporated into various systems of learning?
2. Aspects such as which aspects make it difficult and possible to integrate SI and IK within educational frameworks, and the role that this integration enhances sustainable development both locally and globally?

Methodology

This research utilizes an exploratory research design to analyses the relationship between social innovation and indigenous knowledge in current approaches to education for sustainability. The study emphasizes primarily data collection which aims at gaining detailed information, analyzing essences of the study topic and comprehending personal perception on the research questions. Consequently, this research work assumes an exploratory research design in addressing the emerging or unknown facets of the discussed phenomenon of integrating social innovation and indigenous knowledge into educational systems. Data is collected in this study by means of in-depth interviews, focus group discussion (FGDs), and field observation.

Data Analysis

A. Thematic Analysis of In-Depth Interviews

Theme 1

Social innovation has been recognized as vital to school improvement and has been defined as a key solution with regard to instructional practice.

Finding

More than half of those that participated in the study (for instance 20 interviews) identified high emphasis on project-based learning as effective in instilling sustainability consciousness among learners.

Example Insight

One consultant summed up the contention, a teacher from a rural school said, “Yes when students can design solutions themselves for k such local issues such as water conservation, they are not only learning science but feel that they are making a difference too.”

Theme 2

Discussion on Some of the Difficulties in Adopting Indigenous Knowledge

Finding

Curriculum that has been set and no teacher training were cited as the main reasons hindering the integration of indigenous practices by participants.

Example Insight

A policymaker noted that, “due to Test-Driven Learning, traditional knowledge is downplayed ‘for it does not fit into tests.

B. He further uses **Focus Group Discussions (FGDs)** in an endeavour to examine the research questions and advance the arguments.

Theme 3

This paper focuses on the following research question: How do Indigenized education curriculum developers perceive Indigenous Knowledge in teaching practices?

Finding

Urban students had lower awareness with regards to indigenous practices than the rural students. But both of them are interested in doing experiment-based activities based on cultural backgrounds.

Example Insight

One of the rural FGD students said, “This made me learn how we as the people in this village can manage water scarcity through rain water harvesting systems.”

Theme 4

Community Involvement

Finding

In concerns to indigenous knowledge teachers and parents urged about elders of the community that they are useful resources of IK.

C. Field Observations

Observation 1

Classroom Practices

Finding

When schools utilized cross-curricular approaches, for instance, incorporating indigenous practices of planting and farming in the scientific teaching approach, the learners had improved knowledge in the balance of ecology compared to learners in common schools.

Observation 2

Community Workshops

Finding

Implementing knowledge from the discussion with the community elders, using ideas that adopt traditional practices to the modern concepts of sustainability, the level of the participants' engagement was high.

Findings and Interpretation

i. By emphasizing how social innovation can be used to promote change in education, this paper builds on the overrated concepts as its key findings.

Finding

All mentioned in the interviews 70% of educators and community leaders supported the general idea of social innovation especially through PJBL as a way that can help students to develop deeper understanding of sustainability issues. Projects that involved sustainability initiatives the students themselves observed in areas such as water and waste management, or use of renewable energy revealed enhanced problem-solving abilities and ownership over issues and solutions.

Interpretation

Social innovation stimulates the population's engagement and questioning attitude. Pbl is effective for a student not only because through project completion students establish relationships between the received knowledge and real-life situations but also because learners become deal-makers. This finding supports a view that the use of innovative teaching methods is vital in producing learners who will effectively address sustainability challenges. Social innovation also works to overcome the gap between mainstream education and the realities that shape the world today.

ii. Issues faced in curriculum implementation Name Professor Course Date Introduction Curriculum implementation is a process that entails putting into practice the knowledge that has been gained in the teaching and learning arena through classroom practices, research, educational policy and other integral educational practices (Moloi & Mokhele, 2009).

Finding

Although interviewees recognized the potential of indigenous knowledge in education, 60 % of the interviewees pointed out the challenges of implementing the indigenous knowledge more so in curricular, preparation and training. There were also several issues on the indigenous practices while many schools especially in the urban setting they lacked the necessary resources in order to support the said practices efficiently.

Interpretation

The difficult is that it takes place in systematic conditions of formal education where more emphasis is given to curriculum enemas and examinations enemas. Organized in this way, those applying indigenous knowledge, which mitigates against the applicability of generic or standardized structures due to its contextualized and empirically developed nature, will have an easier time of applying the east African model. This finding suggests that to promote the Indigenous knowledge systems and practice there is a right direction for the educational policy to embrace a transformative approach in education policy to promote the Indigenous knowledge systems and culturally appropriate training for teachers. Finally, the lack of resources raises questions and concerns about the appraisal and funding of teacher professional development, as well as the development of curriculum structures which acknowledge indigenous epistemologies.

iii. Some teachers' perspectives of indigenous knowledge in education.

Finding

Even during focus group discussions, students originating from rural regions, who seemed to be more acquainted with indigenous practices, demonstrated a better appreciation and better interaction regarding knowledge of sustainable practices from their culture. But urban students knew very little about indigenous know ledge and much more had difficulty in identifying with it.

Interpretation

As this finding implies, education should be contextualized therefore education without context is not well acceptable. Students from rural areas find friendly ways of embracing indigenous knowledge since it forms part of their natural Venn. But for urban students, this disconnection should be a reminder to educational programs to try and close this gap. One approach is the ability

to develop blended learning, whereby the new approach and practice of sustainability can be integrated with the knowledge that Indigenous learners already possess, and therefore enable all the learners of today to learn balanced theories of sustainability.

iv. Engagement of people

Elder activation

Finding

Elders are seen as holding the knowledge of Indigenous Australians and this knowledge is used by both teachers and parent to educate young Australians. Parents also noted that when they take their children to school with elders in the classroom, teachers end up noting high level of participation among children.

Interpretation

A main finding was that the engagement of elders within educational practices is an important way of helping to maintain and pass forward Indigenous knowledges. The fortunes of elders with deep teachings enrich the subject with examples of everyday life and speak to the students. This learning indicates that getting knowledge holders of local education to work with scholars and educators is ideal as it will help maximize on sustainability education within Indigenous learning institutions.

v. Effectiveness of Interdisciplinary Practices in sustainability Education

Finding

When students were taught to relate indigenous knowledge in agriculture to the scientific approach, ecological balance and sustainability of the farming systems was understood well among school going youths. For instance, the students that participated in the project were implementing crop rotation activities by integrating the traditional ways of farming with the newly emerging organic farming methods.

Interpretation

Interdisciplinary method implies integrated education in which the learner can easily relate between the various fields of learning and relate and appreciate the real-life implication of what they learn in class. This paper helps students to integrate indigenous and scientific knowledge approaches to a subject such as sustainability that enhances their understanding of sustainability. This notion is good evidence for the fact that education for sustainability should not be taught in isolation of one another, but should be rather integrated as a system where students learn with an integrated approach.

Discussion

District implications based on the outcomes of the present investigation comprise possibilities of utilizing social innovation and local wisdom to enhance the mainstream educational practices that can facilitate the concept of sustainability. The study of different educational processes, including project-based learning, interdisciplinary curriculum, and a focus on the input of local indigenous knowledge, demonstrates that all these structures can improve the students' learning and heed to sustainability subjects. However, it is also shown that more widespread practice of these attributes is still limited due to curriculum interference, lack of preparation of teachers for these ends, and low recognition of indigenous knowledge within non-tribal formal education systems. The role of indigenous communities in shaping sustainability education is critical, as it ensures that students connect with practices that are locally relevant and culturally significant.

i) Social Innovation as a Driver of Sustainability Learning

The facts proved that social innovation based on the project approach enhances students' interest in sustainable development issues. Through engagement in local problem-solving projects students empower them, which give them a sense of ownership of the problems they solve, and clearly see the efforts they put towards changing their communities and the environment. Working this way will not only serve the purpose of environmentally conscious methods and actions while cleaning up and recycling, but it will also help to cultivate the very much needed 21st-century skills like cooperation, analysis, and decision making.

However, the approaches of social innovation for learning are not without challenges where establishment education dominates such as standard assessment and pre/structured curriculum. The task here is to establish a niche for these new strategies in conventional academic settings. PPP, thus, have to support social innovation, key changes in policies to establish ones that promote sustainability education and reconsidering assessment paradigms that respond to broader learning paradigms.

ii) Characterization of Indigenous Knowledge and its Implementation in Sustainability Education

The study emphasizes, therefore, on how indigenous knowledge is informative to sustainability education. Eco-friendly techniques like Argo foreseen natural agronomical system for farming, water to conserve the water, water storing systems, and bio-diversity conservation has been a long and full tested model to studying the life and existence. Adopting these practices in today's curricula can enable students get a broader and relativistic look at sustainability. But here lies the rub: how can one overcome the lens slate on indigenous knowledge, which on most occasions is looked down by formal schooling systems that avails a scientifically endorsed means of learning, and well-structured curriculum.

This study's implication is that the adoption of indigenous knowledge must involve the training of teachers as well modification of curriculum to include different ways of knowing. One of the most significant approaches and responsibilities of the community is the use of elders who are the knowledge bearers for indigenous people.

The role of indigenous communities in shaping sustainability education is critical, as it ensures that students connect with practices that are locally relevant and culturally significant.

A critical component in the teaching and learning of sustainable education is the engagement of indigenous communities in the relevant curriculum because this makes teaching relevant to students' practice.

iii) Context in Development of Education for Sustainability

Arguably, one of the key discoveries of the study is the role of local context in context of sustainability education. Social innovation and indigenous knowledge are both context sensitive and it is important that integration with curricula addresses the environmental, social and cultural setting within which services to communities would be provided. This paper reveals the fact that education for sustainability has better impact and relevancy in case local knowledge and practices are incorporated using case studies drawn from New Zealand, India, and Peru. This underlines the relevance of studying within such conditions, which should provide for the possibilities for the integration of both the modern scientific schools and ecological experience handed down from generation to generation.

iv) Challenges and Futures Possibilities

At the same time, the given research reveals several critical challenges of integrating social innovation and indigenous knowledge into education. Among which it is possible to underline such ones as rather conservative approaches to school and educational process providing, strict control for students' performance, and implications of homogeneous educational models. This system tends to under compensate for local knowledge and innovation and is, therefore, between what students are taught at school level and what they are able to do at the community level.

To overcome these barriers, the study calls for a multi-pronged approach

- **Policy Reform**
Sustainability education and Local Indigenous knowledge systems need to be promoted and included into policies of education.
- **Teacher Professional Development**
Teachers require professional development to acquaint them with skills that will enable them to infuse both social innovation as well as indigenous knowledge.
- **Community Engagement**
The educational activities in schools should establish strong collaboration with different residents of a particular community, especially when it comes to indigenous communities, or with professional ethnologists to ensure that educational practices reflect cultural values most suitable for a given context.

Conclusion

This study shows that the application of social innovation and indigenous knowledge processes in sustainability education has great potential in creating a sustainable and just world. Hence through co-developing the creativity and innovation of social innovation with the time-tested knowledge in the indigenous knowledge education systems can produce learners who are not only knowledgeable but can also proactively undertake the necessary changes as adulated by sustainable development. However, the integration of these elements into mainstream education systems has several issues such as: curriculum fixed practices, defiance to change, and lack of teacher induction. Thus, a multi-sectoral solution is required, that include changes in the policy level, teachers training, and the participation of the community at the local level. The results presented imply that sustainable education should be broad, cultural, and contextual as well as based on the current research and indigenous knowledge. It is true by encouraging interdisciplinary learning and given the opportunities to the students to actively participate in extra curricula projects tutors can effectively shape the learners to be responsible and active members of the society in as much as sustainable development is concerned. Therefore, for education to embrace sustainability, it must embrace the social, environment and culture aspects fully. When school professionals and Native peoples embrace lateral synergy, creativity, and cultural practices, education can be a means towards solving the world issues.

Acknowledgment: No

Author's Contribution: *Sudeep Sahoo:* Methodology, Analysis; *Sima Maity:* Data Collection, Literature Review; & *Surajit Roy:* Drafting, Referencing

Funding: No

Declaration: All the authors have given consent for the publication.

Competing Interest: No

References

1. Dryden, G., & Vos, J. (2017). *The new learning revolution: How we can teach our children to learn*. Network Continuum Education. <https://archive.org/details/learningrevoluti00dryd>

2. Giroux, H. A. (2013). *Education and the crisis of public values: Challenging the assault on teachers, students, & public education*. Peter Lang Publishing. <https://archive.org/details/educationcrisiso0000giro>
3. McGregor, D. (2018). Indigenous knowledge and sustainability: Moving beyond the dominant paradigm. *International Journal of Sustainability Education*, 12(2), 45-58.
4. Miller, D. T. (2014). The construction of indigenous knowledge and its relevance to sustainable education. *Journal of Sustainability Education*, 8(1), 32-40.
5. Robottom, I., & Hart, P. (2015). Education for sustainable development: A critical review. *Environmental Education Research*, 21(1), 44-57.

Publisher's Note

The Social Science Review A Multidisciplinary Journal remains neutral with regard to jurisdictional claims in published data, map and institutional affiliations.

©The Author(s) 2025. Open Access.

This article is licensed under a Creative Commons Attribution 4.0 International License, which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons licence, and indicate if changes were made. If material is not included in the article's Creative Commons licence and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder. To view a copy of this licence, visit <http://creativecommons.org/licenses/by/4.0/>