Sustainability Education in Pakistan: A Qualitative Content Analysis of The 10th Grade Pakistan Studies Textbook

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Abstract

Using the Sustainability Framework proposed by Tavanti (2010), depiction of sustainability in 10th grade Pakistan Studies textbook. This textbook was selected through purposive sampling. For data analysis, Qualitative Content Analysis was used facilitated by NVivo 12 software. The findings of the study revealed that sustainability in the 10th grade Pakistan studies textbook was limited and lacked integration and concentration among several dimensions of sustainability as per Tavanti's framework of sustainability. Partial coverage has been given to social, economic, cultural, and values dimensions of sustainability. Also, it lacks depth and does not discuss them critically. On the other hand, the environmental and institutional dimensions are almost non-existent. The textbook mostly emphasizes the economic use of natural resources and relatively ignores the role of environmental conservation and responsible use of natural resources. Moreover, the textbook failed to cover the role of indigenous knowledge, cultural diversity, and values in the promotion of sustainable development.

Keywords: *Sustainability, textbook, Pakistan Studies, qualitative content analysis, Nvivo*

Introduction

The concept of sustainability is complex and involves environmental, social, economic, institutional, cultural, and value-based considerations (Sachs, 2015). Several frameworks have been developed to operationalize and guide sustainability in education (UNESCO, 2017). One such framework is the Sustainability Framework by Tavanti (2010), which embodies exposure to sustainability and its seven dimensions- environmental, social, economic, institutional, cultural, and values-based. Sustainability education has been receiving a lot of attention recently alongside the so many world problems dealing with climate change, environmental degradation, and social inequalities (Bandh et al., 2021) and as the world deals with the United Nations' Sustainable Development Goals (SDGs) and their focus on sustainability, the importance of education in promoting sustainable development and empowering learners to take change into their own hands has become crucial (UN, 2015). Since Pakistan is a signatory to these SDGs, the country is also committed to integrating sustainability into their education systems (Government of Pakistan, 2017), however, it is still largely unknown how well they integrate sustainability into their curriculum, especially in their secondary schools.

As per UNESCO (2017), textbooks play an important role in building knowledge, shaping attitudes, and developing the practices of students towards sustainability. Textbooks are important learning resources as they provide structure and organized learning systems for teachers' and learners' engagement with the concepts and themes of sustainability (Kalsoom & Khanam, 2017). Hence, analyzing the content of textbooks can clarify the current situation of sustainability education in a given context (Khushik & Diemer, 2018).

Sustainability's environmental element has a primary focus on holding natural resources back and coping carefully with them, keeping the star of ecological harmony upright to dispense with as little as possible. This vision is committed to making sure that industrial and consumptive patterns are truly sustainable, generating employment is good for the environment (Sachs, 2015). The purpose of the economic facet is to provide the learner with the knowledge, skills, and attitudes necessary to create a new kind of economy; one that is both sustainable and resilient (UNESCO, 2017). Environmental sustainability is the process of making sure the usage of resources, greenhouse gases, and waste can be used and decomposed without affecting nature (Rockstrom et al., 2009). Environmental sustainability education is learning based on the idea of

developing knowledge, like any capability and dependencies, and values that can be related to the environment to prevent and solve environment or environmental-related issues like effective resources, biodiversity conservation, gross ecological ruin, and climate control that effects the whole earth's life (UNESCO, 2017).

The social dimension of sustainability has been all about equity, fairness, justice, and more. Just like the inventor, others say that poverty, food, education, water, and healthcare (Sachs, 2015) are important. The institutional dimension of sustainability refers to the roles of institutions, governance, and policy to support sustainable development. It acknowledges the need for effective, accountable, and transparent institutions, which can integrate sustainability considerations into their decision-making (UN, 2015). Institutional sustainability education aims to foster a deep and contextual understating of the complex interactions among institutions, society, and the environment, and to empower learners to participate in governance for sustainability (UNESCO, 2017). UNESCO acknowledges Sustainability's Values dimension through learning to know education and skills, through learning to be: cultural heritage, through learning to live together: cross-cultural skills and, finally, learning to do: behaviour and lifestyle. The cultural dimension of sustainability is related to the conservation of the diversity of cultures, languages, and heritage, and ensuring that the viewpoints and knowledge systems of different cultures are used in ways that are appropriate and meaningful and enhance the development of sustainable thinking and working. Cultural dimension concerns are that individuals should respect and understand others and their viewpoints, history, and concerns, through the dialogue in diversity, which represents intercultural and intergeneration interaction and learning (UNESCO, 2017). Cultural sustainability education encourages to appreciate diversity aware of their contribution to make solutions in various ways by appreciating the value of different cultures, and to feel they can influence the sustainability of their own culture.

The integration of sustainability education in the curriculum and its pedagogical practices has confronted many challenges in the Pakistani education system (Kalsoom & Khanam, 2017). The evidence of these challenges showcases the fact that sustainability is a missing link in the curriculum, non-availability of training to the teachers in this context, scarcity of resources to implement sustainable initiatives in schools and colleges and the learning-by-rote methodology

is not subjugated to deprivations in teaching and education in Pakistan, thinking critically and solving problems (Aziz et al., 2014).

Literature Review

Different studies have been conducted in the context of sustainability education. A study by Filho et al. (2018) analyzed the introduction of sustainability training in higher education institutions across seven countries: Germany, Brazil, South Africa, Italy, Spain, Portugal, and the United Kingdom. Whilst the researchers observed a rising tide of interest in sustainability-focused courses, they also acknowledged the several obstacles that colleges and universities would have to negotiate in successfully integrating sustainability into their classes, campuses, and institutional missions. Of these challenges, the researchers underline limited institutional support, inadequate financial resources, and opposition from faculty and administrators to the prospect of change.

Laurie et al. (2016) studied the practice of sustainable development education (SDE) in primary and secondary schools worldwide. While some schools have implemented SDE as a stand-alone class, others have achieved SDE through a cross-curricular effort, or a comprehensive school-wide program. However, the authors provide evidence that the success of these various methods varies greatly. In addition, the authors argue that an extensive increase in research on SDE is essential, including the effects of SDE on student learning and behaviour.

According to Gough (2016), a study was conducted examining the challenges and benefits associated with incorporating sustainability education into teacher training programs. The author used examples from Australia, Canada, and the United Kingdom and argues that the teaching environment plays a crucial role in preparing future teachers to effectively integrate sustainability into their practice. However, they do note that many teacher training programs lack a consistent approach to sustainability education and that further professional development for teachers is needed.

Prior research on sustainability education has focused on segmented parts of sustainability education such as how schools and universities can push students toward sustainable behaviors and knowledge. Redman and Larson (2011) published in 2011 set out to map and evaluate the characteristics and outcomes of the most effective sustainability teaching since 1990 and to

identify key themes. Per the article, the most effective sustainability education approaches often involve experience beyond as well as within the classroom.

Several studies have looked at the condition of sustainability training in Pakistan and studied the catalysts and solutions for inculcating sustainable growth through education in general in a country specifically Pakistan. For instance, Kalsoom and Khanam (2017) in their report have declassified the pre-service teacher's consciousness regarding sustainability and tried to find out the role of teacher education in sustainability education in Pakistan. They found out that our educational doctrines can make a student aware of sustainability but not that much identify with the root causes and residual consequences of the issue. They further concluded that teacher education should encompass more community-engaged content, action research content, and critical reflection regarding the platform of sustainability education and sustainability itself. Another study by Malik et al. (2019) investigated students' sustainability awareness with curriculum regarding technology education in the Pakistani context. According to the findings, the technological curriculum did not cover the relevant topics of sustainability. Two studies regarding sustainability in higher educational institutions in Pakistan were conducted (Habib et al., 2021; Hinduja et al., 2023). Another study was conducted in the Pakistani context about teacher education for sustainability (Jumani & Abbasi, 2015). The participants of the B.Ed and ADE programs were of the view that this aspect was not addressed in both programs. Another study was conducted by Khushik and Diemer (2020) regarding "Education and sustainability, how SDG4 contributes to change the representations of developing issues? The case study of Pakistan". Similarly, another research explored the effect of sustainable education on pre-service teachers' attitudes towards sustainable development (Nousheen et al., 2020). Barriers to sustainability were explored in the Pakistani context in a study (Bukhari et al., 2022). The results of the study found poor governance, uncertainty, and lack of resources as the main barriers to sustainability. In the Pakistani context, there have been conducted recent studies about sustainability education in Pakistan through analysis of English textbook grade IX and X keeping in view Tavanti (2010) framework for sustainability (Jamil, Anwar, & Sohail, 2024; Jamil, Nosheen, et al., 2024). The English textbook for grade IX includes social, environmental, institutional, cultural, and value-based sustainability through different units. On the other hand, in the English grade X textbook, there is a significant focus on cultural, social, and moral values of sustainability with a minor focus on economic, environmental, climate change and

institutional frameworks. Furthermore, a recent study has been conducted in the Pakistani context for Pakistan Studies grade XII with findings with the presence of social, cultural and value-based sustainability (Jamil, Yousaf, et al., 2024).

The current study aims to become a part of the growing body of education research on sustainability in Pakistan by exploring how sustainability is visually represented in the Pakistan Studies textbook for grade 10th. The study is not interested only to know the content, but it tries to seek a comprehensive range of interpretations by taking into account various aspects of the present curriculum, concerning sustainability potential within the secondary education system of Pakistan. Knowing the current importance of the study and the direct implications of all these subjects, a comprehensive research program is becoming part of the education research on sustainability in Pakistan. The study is intended to explore the present shape of sustainability education in the secondary education system of Pakistan by examining the Pakistan Studies Textbook for grade 10th.

Objective of the Study

- To examine the extent to which the Pakistan Studies textbook grade X incorporates the various dimensions of sustainability as per Tavanti's framework.

Research Methodology

The approach employed in this study was a qualitative content analysis. This approach is chosen because it fits the study's aim, which identify the latent meanings and themes in the textual data (Hsieh & Shannon, 2005). In choosing the sample of the textbook studied, purposes sampling was applied. It was the most suitable method as it systematically examines large text data to understand the meanings (Kyngäs, 2020). This method is used to analyse the textbooks (Mayring, 2014). The Pakistan Studies textbook for grade 10 was chosen purposefully as it is a subject that is compulsory, and aims to develop a national identity, reinforce social cohesion, and refine responsible citizenship (Ministry of Education, 2006). The coding, sorting, and categorizing of the textual data were assisted through NVivo 12 software, which is a computer program system for constructing and executing qualitative analysis on the textual fields of data. The sustainability framework proposed by Tavanti (2010) was applied to analyse the data. The sustainability framework provides an umbrella to examine sustainability over six dimensions,

which are environmental, social, economic, institutional, cultural, and values. Initially, a coding scheme was developed by extracting the themes and indicators that represent the sustainability of each dimension of Tavanti (2010) sustainability framework. Then the coding scheme was developed so that text that corresponds to each theme falls into each node to represent the facet of sustainability. This process improved the reliability and validity of the theme development by involving an iterative process of coding and recoding (Hsieh & Shannon, 2005).

Findings of the Study

The following aspects are discussed in detail regarding the findings of the study:

Environmental Dimension

It seems that the book provided does not cover in detail environmental and ecological sustainability. Chapter 8 (pages 54-92) in the provided book covers natural resources such as minerals, water, and even agriculture. On pages 62-63, the *"Agriculture"* section discusses, for example, the role of agriculture in the economy of Pakistan, however, it does not cover sustainable agriculture, maintenance of soil productivity, and even biodiversity conservation. The same goes for the Section, *"Water Resources of Pakistan and Existing Irrigation System"* (pages 64-69). The section goes over over-irrigation structure and water distribution, but it does not go over water conservation, water use efficiency, and sustainability of water in climate and population pressures. There seems to be limited knowledge in the book in terms of environmental and ecological sustainability. This is alarming as having some mention within the book will provide better knowledge and make the reader more aware of the topic from both the economic view and ecological views.

The section on agriculture lays a lot of emphasis on the significance of agriculture to the economy of Pakistan but does not go into the details of sustainable farming practices, soil health and maintenance, and biodiversity preservation. Similarly, the water resources section talks about the irrigation infrastructure and water distribution but does not throw light on water conservation, efficiency, and long-term sustainability due to climate change and the increasing water demand.

After a complete reading of the chapter, there is no doubt that very little has been mentioned regarding the importance of maintaining a balance in the components of an ecosystem, the

importance of minimizing waste, the importance of managing resources efficiently, and the importance of making all of these happen in a sustainable manner ensuring the availability of resources for future generations.

Social Dimension

The textbook does mention a few aspects of social sustainability such as education, and health care, but there is much more to social sustainability. Chapter 9 discusses *"Population, Society and Culture of Pakistan"* and includes sections on *"Educational Condition in Pakistan"* (pages 98-101) and *"Health Condition in Pakistan"* (pages 101-103). These sections acknowledge the challenges in providing adequate access to education and healthcare services, especially in rural areas, and mention some government initiatives to address these issues. However, the discussion of equitable resource allocation, poverty alleviation, and social justice is not very extensive or critical.

Economic Dimension

The book has a whole chapter (Chapter 8) on the *"Economic Development"* of Pakistan which includes topics like Minerals, Agriculture, Industries, Energy, and Trade, it all talks about how these sectors are growing, being produced, and developed but not a lot in specifically about providing jobs and improving living standards (though there are mentions here and there e.g. p75 & p88). But one could see, that none of this is directly tied to the long-term economic sustainability of such a way of running the economy. It does not touch on how we could sustain long-term, how we are depleting our natural and human capital, nor it does question if there could be other viable models of growth that could indeed optimize human development and would be more sustainable and protect/enhance other sources of capital such as human/develop and social capital.

The book is very weak in terms of providing an in-depth analysis of the sustainability of Pakistan's economic model. While it rightly points out on different occasions (e.g. pages 75,88...) that priority must be given to employment and living standards, but overall approach is very weak and does not see a strong analysis of the long-term economic sustainability of Pakistan's current market system. The concepts of Social-Sustainable Capital, Human Development, and Natural Capital are hardly discussed.

Institutional Dimension

In the book, this is not applicable because there is no detail about the institutions giving knowledge about what they are and how they work based on sustainability which I believe makes them a part of institutions. This is what the book does not explain in detail as here in the case of Pakistan where it does not even discuss the institutions of Pakistan and how they are functioning in Pakistan in line with sustainability less likely the capacity, willingness, and integration of sustainability principles in the policy mechanisms and institutions of Pakistan. How institutions have been animated to promote sustainable development across three spheres of sustainability. (SES).

There is limited discussion on how Pakistan's institutions, such as government agencies, regulatory bodies, and educational institutions, can promote sustainable development across social, economic, and environmental domains. The textbook does not provide insights into the challenges and opportunities for mainstreaming sustainability into institutional frameworks and decision-making processes.

Cultural Dimension

Chapter 9 includes a section on *"Major Features of Pakistani Society and Culture"* (pages 103-107) which highlights some aspects of Pakistan's cultural heritage, such as social values, religious uniformity, mixed culture, arts, and festivals. However, the discussion is more descriptive than analytical and does not delve into the role of cultural diversity in promoting sustainability. The distinctive worldviews and values of indigenous peoples in Pakistan and their potential contributions to sustainable practices are not mentioned.

However, the textbook does not explicitly link cultural diversity and heritage to sustainability. It misses the opportunity to explore how indigenous knowledge systems, traditional practices, and local values can contribute to sustainable resource management, social harmony, and environmental conservation.

Values Dimension

The values dimension of sustainability, which recognizes the role of individual and collective values in driving sustainable development, is not explicitly addressed in the textbook. The textbook does not explicitly discuss the values and spirituality dimension of sustainability. While there are references to Islamic values and their influence on Pakistani society and culture (e.g.,

pages 104, 107), there is no deeper exploration of how these values can drive sustainable development across social, economic, and environmental spheres. The role of individual and collective values in shaping organizational cultures and institutional policies towards sustainability is not addressed.

Conclusion and discussion

Conclusion

This current study was conducted to study the textbook Pakistan Studies for 10th grade according to the sustainability framework proposed by (Tavanti, 2010). The results of the qualitative content analysis showed that the awareness of the textbook about sustainability is limited and non-integrated, and the study material was least aligned with different dimensions, especially the environmental dimension followed by institutional and cultural dimensions. After finding this gap for sustainability the study result recommends the insertion of the related dimensions of sustainability.

These findings contradict current policies and practices in schools that tend to interpret 'sustainability' simply in terms of 'environmental issues. They suggest there is a need for a more holistic, integrated approach to sustainability education in the curriculum in Pakistan's secondary schools that extends well beyond the environmental, to encompass the social, institutional, economic, cultural, and values dimensions of sustainability. This requires a paradigm shift in the curriculum and textbooks and these results provide a basis for arguing against sustainable school programs or policies that merely encourage students to recycle paper or glass. There is a need instead for a sustainability-focused education that embraces issues of politics, economics, society, culture as well as the environment. Such an education would include more substantive coverage of sustainability issues in the curriculum and would pay particular attention to developing students' critical thinking, problem-solving solving, and action-learning skills.

Furthermore, the results demonstrate that there is a need for more professional development opportunities for teachers to gain more knowledge and skills to teach education for sustainable development. Teacher education institutions have a critical role to play in preparing future teachers to effectively teach education for sustainable development. As well, there is a need for in-service teachers to update their teaching strategies and knowledge of the concept, therefore, require ongoing professional development opportunities for in-service teachers so that they are

up to date with the latest information and teaching strategies needed to teach ESD. Ultimately, the study reinforces the importance of engaging all different stakeholders - students, teachers, administrators, the wider community, etc., in the process of promoting sustainable education and sustainable development rather than just teaching students at the school level only. In other words, to achieve the Sustainable Development Goals (SDGs), it is essential to implement a holistic, whole-school approach and engage all different stakeholders in the process of producing a sustainable and just world.

Discussion and Recommendations

The purpose of the current study was to examine the portrayal of sustainability in a 10th-grade Pakistan Studies textbook by using the Sustainability Framework (Tavanti, 2010). The results revealed that sustainability in the textbook is fragmentary and poorly integrated across dimensions. Considering the existing research on sustainability education in the international context and particularly in the Pakistani context, the discussion unfolds below.

The minimized exposure of sustainability education in the textbook of Pakistan Studies for the 10th grade is reflexive of the findings of previous studies of focal points for sustainability education in Pakistan. Kalsoom and Khanam (2017), from research with pre-service teachers, establish that pre-service teachers possess some general knowledge of sustainability however they fail to deepen this knowledge into the complexities of sustainability issues.

The lack of embeddedness of sustainability and education in Pakistani textbooks and teacher education programs is a concern, especially in the current educational context where the Sustainable Development Goals (SDGs) are endorsed. Laurie et al. (2016) highlight that Education for Sustainable Development (ESD) is one of the powerful means to achieve quality education (Goal 4) because of its ability to foster critical thinking, problem-solving, and action-oriented learning. Critical thinking has been the focus of different current studies in the Pakistani context (Jamil, 2021; Jamil, Anwar, & Ali, 2024; Jamil, Aslam, et al., 2024; Jamil, Bokhari, & Ahmad, 2024; Jamil, Bokhari, & Iqbal, 2024; Jamil, Bokhari, & Rafiq, 2024; Jamil, Bokhari, & Zia, 2024; Jamil, Hafeez, et al., 2024; Jamil et al., 2023; Jamil, Mehmood, et al., 2024) However, this largely depends on student engagement through meaningful and relevant learning experiences which results in deep learning (Laurie et al., 2016).

The findings of this study report that the textbook of Pakistan studies for grade 10 failed to address the critical theme of this study. It was found that the textbook settled more on the economic utilization of natural resources rather than the need to conserve and manage them. At no time has this focus been clearer than the present, under the backdrop of a very high challenge of issues in the environment, which needs quick attention in sustainability including climate change, loss of biodiversity, and energy resources depletion among many other issues. To achieve this goal, sustainability education has to inculcate some key competencies of sustainability in students as suggested by Wiek et al. (2011) as the key competencies of sustainability such as systems thinking, anticipatory competence, normative competence, strategic competence, and interpersonal competence. All these five competencies help in promoting sustainable behaviors and decisions in students and therefore need to be integrated into all sustainability education programs at all levels of education.

The neglect of the institutional and cultural dimensions of sustainability in the 10th-grade Pakistan Studies textbook is disconcerting as institutions and culture play a vital role in shaping sustainable practices and behaviors (Filho et al., 2018). They emphasize the need to foster a culture of sustainability in educational institutions through a holistic and systemic approach that involves various stakeholders such as students, teachers, administrators, and the wider community. This is done through critical reflection, action research, and community-based learning wherein students, teachers, and the wider community grapple with and make informed decisions about sustainability.

The lack of a social dimension of sustainability in 10th-grade social studies in Pakistan is also a problem because social justice, equity, and inclusive development are as important to sustainable development. Sachs (2015) argues that the Sustainable Development Goals (SDGs) require addressing both environmental and social sustainability which means we cannot address poverty, inequality, access to education and health care, etc.

The current findings of this study suggest that the existing grade 10 Pakistan Studies textbook could be improved by adding more material on environmental sustainability, encouraging critical thinking on current development models, and discussing the influence of institutions, culture, and values on sustainable development. Studies by Kalsoom and Khanam (2017) on sustainability education in Pakistan have also recommended a more holistic and interdisciplinary

approach to sustainability education to engage all stakeholders and promote a culture of sustainability in educational institutions. The study has several policy and practice implications. The study indicates that there is a dire need for a more holistic and integrated Sustainability education approach to be adopted in Pakistan. It envisages dimensions of sustainability education including environmental, social, economic, institutional, cultural, and values-based. The curriculum and educational materials need to be revised and more contents need to be added highlighting sustainability issues and concerns. Critical thinking, problem solving, and action-oriented learning need to be facilitated for teaching and learning about Sustainability.

These results also strengthen the case for increased provision of professional development opportunities for teachers to improve their knowledge of, and capacity to, teach for sustainability, a point made by Gough (2016). Teacher education programs have a crucial role in preparing future teachers to teach about sustainability effectively. This necessitates a more coherent and consistent approach to sustainability in teacher education, as well as the provision of ongoing professional development for in-service teachers.

To better prepare students for the sustainability challenges of the 21st century, the textbook could be enhanced by:

- Incorporating more content on environmental sustainability, including the impacts of climate change, the importance of biodiversity conservation, and the need for responsible resource management.
- Providing a more holistic and integrated view of sustainability, highlighting the interconnections between social, economic, and environmental dimensions.
- Encouraging critical thinking on the sustainability of current development models and exploring alternative paradigms that prioritize human well-being and ecological balance.
- Discussing the role of institutions, culture, and values in promoting sustainable development and empowering students to become change-makers in their communities.

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