



SINGLE NATIONAL CURRICULUM AND SUSTAINABLE DEVELOPMENT GOAL 4 UP TO ELEMENTARY LEVEL: A REVIEW OF PAKISTAN'S EDUCATION REFORM

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Abstract

The Sustainable Development Goal 4 (SDG 4) emphasizes inclusive and equitable access to quality education and fosters lifelong learning for all. To address these global issues, the Government of Pakistan has adopted the concept of Single National Curriculum (SNC) to make learning standards common and to fill in the gaps between the learning standards of various education systems and enhancing the educational quality. The aim of this narrative literature review is to critically discuss how well the SNC meets the SDG 4 goal up to elementary level. A thematic approach was applied to review and analyse relevant and recent peer-reviewed journal articles, government policies and official government documents from 2018 to 2025. The results suggest a high level of conceptual congruity of the SNC with SDG 4 as it is focused on educational equity, competency-based learning, Student Learning Outcomes (SLOs), values-based learning, and sustainable development. The review also notes that the curriculum is aligned with international foci on Education for Sustainable Development (ESD) and Global Citizenship Education (GCED) and fosters critical thinking, problem-solving, collaboration and responsible citizenship. Despite these, research has shown that there are a number of implementation challenges that could hinder the effectiveness of the SNC, such as limited teacher professional development, continued focus on rote memorisation in assessment, unequal access to educational resources, governance challenges and institutional capacity constraints. These results indicate that the goal of SDG 4 cannot be accomplished through curriculum reform alone, and additional reforms including teacher education, assessment, educational governance, and resource allocation are needed. Overall, the review finds that the SNC has a robust policy framework for promoting quality and equitable education in Pakistan, but the impact of such a policy on sustainable educational development will rely on effective implementation, ongoing monitoring and evidence-based policy adjustments.

Keywords: Single National Curriculum (SNC), Sustainable Development Goal 4 (SDG 4), Curriculum Reform, Education for Sustainable Development (ESD), Competency-Based Education, Educational Quality, Educational Equity, Pakistan.

Introduction

The crucial role of education in promoting social change, economic development, environmental sustainability and personal health is well known to the public and is recognized as a fundamental human right. Quality education fosters learning and the acquisition of knowledge, skills, values



and competencies to engage in inclusive and sustainable societies (United Nations [UN], 2015; UNESCO, 2021). Recent studies also point to its role in poverty alleviation, gender equality, public health, democratic engagement and innovation, and the need to build critical thinking, creativity, collaboration, global citizenship, and sustainability skills that will help to solve new global challenges (Leicht et al., 2018; Tikly, 2020; Reimers, 2024).

The Sustainable Development Goals (SDGs) in the 2030 Agenda strengthened the importance of education as a tool for sustainable development. Sustainable Development Goal 4 (SDG 4) aims at creating "inclusive and equitable quality education and promote lifelong learning opportunities for all" (UN, 2015). In contrast to the MDGs which were largely concerned with access to education, SDG 4 focuses on quality, equity, inclusion, lifelong learning and meaningful learning outcomes (UNESCO, 2021; Reimers, 2024). In this context, curriculum reform has become a strategic tool to put those global commitments into practice, by integrating curricular themes across disciplines, Global Citizenship Education, Education for Sustainable Development (ESD) and competency-based learning (Leicht et al., 2018; Rieckmann, 2018). In addition, there is evidence that reforming curriculum that is based on ESD supports the development of competencies for sustainability and improves the relevance of education for current social problems (Buchanan et al., 2021).

To address these global priorities, the Single National Curriculum (SNC) was launched in Pakistan, which aimed to provide a common curriculum framework for public, private and religious schools (Government of Pakistan, 2020). The SNC's objectives are to tackle educational inequalities, support competency-based education, enhance the quality of education and consolidate national cohesion. However, its implementation has sparked a lot of debate about both teacher readiness and the role of language policy, as well as governance, curriculum content, and assessment practices, suggesting that curriculum reform is not only a process of policy design but also of effective implementation and institutional capacity (Tikly, 2020; UNESCO, 2021). Following the initial implementation of Pakistan's Single National Curriculum (SNC), the government further strengthened the curriculum framework through the **National Curriculum of Pakistan (NCP) 2022–2023** for Grades 9–12. The NCP does not represent a departure from the guiding principles of the SNC; instead, it builds upon them by refining learning standards, updating subject-specific content, and providing a more comprehensive framework for secondary and higher secondary education. This revised curriculum aims to ensure greater coherence across grade levels while aligning students' learning outcomes with national educational priorities and emerging global competencies. Through these enhancements, the NCP serves as the operational continuation of the SNC, promoting consistency, quality, and improved educational standards across Pakistan's school system (Ministry of Federal Education and Professional Training [MoFEPT], 2022).

There are multiple studies that have explored various facets of the SNC, but there is still a lack of cohesive study that captures the multi-faceted nature of the SNC while also examining some of the challenges of implementation or stakeholder perceptions. While some of this evidence has been collected, gathered, and analysed in isolation, few studies have rigorously synthesized the evidence to assess the effectiveness of the SNC for meeting the broader SDG 4 goals for educational quality, equity, inclusion, and lifelong learning (UN, 2015; Leicht et al., 2018; Reimers, 2024). This literature review, therefore, critically synthesizes and examines the fit between the Single National



Curriculum of Pakistan and SDG 4; challenges to implementation; and implications for enhancing educational quality and equity.

This review is an addition to the body of literature that brings together evidence from peer-reviewed studies, international policy reports and national education documents to consider the SNC in the context of sustainable development. The findings highlight theoretical insights for curriculum reform and Education for Sustainable Development and empirical recommendations for policy makers, curriculum developers and education planners to enhance curriculum implementation towards achieving Sustainable Development Goal 4 in Pakistan (Government of Pakistan, 2020; UNESCO, 2021; Rieckmann, 2018).

Research Objectives

Following are the research objectives of the study

1. To explore how the Sustainable Development Goal 4 (SDG 4) can be applied to curriculum reform as a pathway towards quality, equitable, and inclusive education.
2. Critically analyze the congruence between the principles and targets of Sustainable Development Goal 4 and Pakistan's Single National Curriculum (SNC).
3. To identify opportunities, challenges and policy implications in the implementation of the Single National Curriculum in Pakistan for achieving SDG 4.

Research Questions

Following are the research questions of the study

1. What role curriculum reform play in achieving Sustainable Development Goal 4?
2. To what extent is Pakistan's Single National Curriculum aligned with the principles and targets of Sustainable Development Goal 4?
3. What opportunities, implementation challenges, and policy implications arise from the literature on the role played by the Single National Curriculum in the pursuit of SDG 4?

1. Sustainable Development Goal 4: Evolution, Concept, and Global Education Agenda

The adoption of the 2030 Agenda for Sustainable Development is an important milestone in the field of global education policy because it throws the focus on education as a means to achieve sustainable social, economic and environmental development. The Millennium Development Goals (MDGs) were more about access to education while Sustainable Development Goal 4 (SDG 4) is focused on inclusive and equitable quality education, lifelong learning, and the building of knowledge, skills, and values to promote the development of sustainable societies (United Nations, 2015). Educational quality is therefore increasingly defined as not only in terms of students' enrollment and their performance on exams, but also in terms of their critical thinking, creativity, collaboration, ethical reasoning, digital literacy, and responsible citizenship (UNESCO 2021; Reimers 2024).

Education for Sustainable Development (ESD) is also acknowledged as one of the main approaches to embed sustainable development, social justice, human rights, peace and global citizenship concepts within education. ESD is a transformative approach that allows learners to come to understand the interdependent, multifaceted nature of environmental, economic, and social systems (Leicht et al., 2018) and Rieckmann (2018) identifies four crucial skills for SD: Systems thinking; Collaboration; Critical reflection; Strategic action. This view is a clear reflection of the current transformation of education from the transmission of knowledge to the development of competences.



This change has also given a new meaning to curriculum reform. In addition to the subject matter reform, the emphasis on curriculum reform now is placed on learning outcomes, pedagogy, assessment and institutional practices. For UNESCO 2021, curricula need to be learner-centred, inclusive and interdisciplinary to achieve SDG 4, and for Reimers 2024, the curriculum reform needs to be supported by teacher preparation, leadership, governance, and accountability. Along these lines, Buchanan et al. (2021) found that inquiry-based, collaborative and experiential learning would improve sustainability competencies, while Weiss et al. (2021) drew the conclusion that the change of curriculum would be best supported by institutional leadership, culture and continuous professional development. The literature also mentions that SDG 4 is not only feasible, but only possible through a change in the curriculum. Teacher readiness, effective governance, assessment reform, proper resources, involvement of stakeholders, and institutional capacity are essential to successful implementation (Tikly, 2020; UNESCO, 2021; Reimers, 2024). In addition, Global Citizenship Education (GCED) builds intercultural awareness and democratic values, as well as ethical responsibility and action to address global challenges, which help to contribute to SDG Target 4.7 (Bourn, 2020; United Nations, 2015).

Overall, the literature can be viewed as a multidimensional pathway to quality education in an equitable and inclusive manner, in a competency-based approach, and in a sustainable and lifelong one, all of which are connectable to SDG 4. Overall, SDG 4 is seen as a multi-faceted framework that aims at promoting quality education through equity, inclusion, competency development, sustainability and lifelong learning. While curriculum reform is considered a key route to these goals, there is a need for good implementation, which demands teacher development, governance, assessment and institutional capacity (Tikly, 2020; UNESCO, 2021; Reimers, 2024). The following statements are part of the conceptual framework for analysing the Single National Curriculum within the context of the goals of Sustainable Development Goal 4.

2. Curriculum Reform and Education for Sustainable Development

Curriculum reform is one of the main strategies for improving the quality of education and for making the education system more capable of responding to the social, economic, technological and environmental demands of the 21st century. There are growing shifts in modern reforms, where the emphasis on learning content and results of examinations alone is inadequate to teach learners for the rapidly changing societies. In this regard, it is essential to develop curricula that are competency-based and are centered on critical thinking, creativity, and collaboration, as well as communication, ethical thinking, problem-solving, and lifelong learning, and are conducive to sustainable development (UNESCO, 2021; Reimers, 2024).

This transition is closely tied to Education for Sustainable Development (ESD) that advocates the embedding of sustainable development in the curriculum content, pedagogy, assessment, and institutional practices, instead of as an independent subject. According to Leicht et al. (2018), however, this view enables students to understand how environmental, economic and social issues are interlinked; and Rieckmann (2018) identified five main sustainability skills: systems thinking, anticipatory thinking, collaboration, strategic action and critical reflection. The opinions here focus on the "purpose reform" and the "learner competence reform" from content reform in curriculum reform.

While curriculum reform is seen as a necessary step towards realizing SDG 4, scholars have noted that curriculum reform is not enough to change educational systems. From the point of view of



UNESCO (2021), curriculum reform is a positive educational reform that is inclusive, cooperative and lifelong learning; whereas, Tikly (2020) argues that the educational inequalities that arise from political, economic and social factors cannot be solved without curriculum reform. Likewise, Reimers (2024) identifies needed reforms in teacher preparation, governance, leadership, assessment and accountability that must be on the same page to enable meaningful reform. Combined, these views imply that curriculum effectiveness as much as relies on capacity for implementation as it does on curriculum design.

This systemic understanding is confirmed by empirical evidence. Buchanan et al. (2021) have reported that the following pedagogies are effective in improving the competences of sustainability: learner-centred, inquiry learning, collaborative projects and experiential learning, as they motivate the transfer of knowledge to real-life sustainability issues. Likewise, Weiss et al. (2021) shows that curriculum reform is enhanced by institutional leadership, organisational culture, quality assurance and ongoing professional development. The results suggest that the curriculum innovation and pedagogical reform should go side by side in order to bring about an educational transformation.

The new curriculum also contributes to the movement of Global Citizenship Education (GCED) with a focus on intercultural understanding, democratic participation, ethical responsibility and respect for cultural diversity. Current curricula support the aims of SDG Target 4.7 (United Nations, 2015) to equip learners with critical thinking skills to address sustainability, human rights and interdependence in the world. Current curricula facilitate the objectives of SDG target 4.7 of the UN plan to foster critical thinking to tackle sustainability, human rights and global interdependence. However, it is essential to have ongoing institutional support for successful implementation. To achieve better learning outcomes in implementing curriculum policies, Reimers (2024) and UNESCO (2021) emphasize teacher preparedness, professional development, assessment reform, role of teacher leader, monitoring and provision of resources. In addition, curriculum development should take into account international education principles, national priorities, and local environments to make the curriculum more relevant, more owned by the participants and more sustainable, especially in developing countries (Tikly, 2020; UNESCO, 2021).

Overall, the literature places curriculum reform as a strategy to promote SDG 4 by placing competency-based learning, ESD and GCE in national education. But development of curriculum is not sufficient for meaningful education improvement; it is also vital to implement it, enhance institutions' capacity, develop teachers, and ensure evidence-informed policymaking. Based on these insights, this study focuses on reviewing the concept of a Single National Curriculum as a strategy to ensure the congruence of national curriculum policy with the National goals of Sustainable Development Goal 4.

3. Pakistan's Single National Curriculum: Development and Key Features

The school system in Pakistan has always had parallel schooling streams with varying curricula and assessment systems, such as public schools, private schools, religious schools (madrassas), and international schools. This disintegration has helped to cause differences in educational quality and educational opportunities. Without common learning standards, curriculum scholars claim that it is educational inequality that is being reinforced and that national cohesion is being eroded (Kelly, 2009; Print, 1993). In response to these challenges, the Single National Curriculum (SNC)



was introduced in Pakistan to provide uniformity in Educational Standards across all the school sectors (Government of Pakistan, 2020).

The SNC adopted a common curriculum framework with the help of Student Learning Outcomes (SLOs), competency-based curriculum and common education expectations. It is the vision of the Government of Pakistan to give all learners equal opportunities in education and inculcate desired knowledge, skills and values in the learners towards personal and national development. This is a trend towards outcome-based rather than content-based curriculum design, whereby the assessment of educational quality is based on the competencies demonstrated by the learner, and not on whether or not they have covered the syllabus (Print, 1993).

In addition, the SNC aims to foster educational equity through equality by narrowing gaps between various school systems. Comparative studies indicate that fragmented education systems contribute to socioeconomic inequalities by providing unequal opportunities and quality of education for learners (Priestley et al., 2015). Differences between public and private schools have also led to unequal educational experiences in Pakistan (35) (Rahman 2004; Ali 2021). Yet, there is a debate about whether curriculum uniformity can provide educational equity when there are inequities in teacher quality, school resources, and institutional capacity (Kelly, 2009; Priestley et al., 2015).

One of the most important aspects of the SNC is its focus on competency-based learning, which mirrors the international trends that focus on critical thinking, problem solving, communication and creativity over memorisation. Darling-Hammond and Oakes (2021) contend that competency-based curricula encourage deeper learning, whereas Priestley et al. (2015) stress the need for flexibility in teachers' approaches to learning. Likewise, Fullan (2020) argues that curriculum reform is effective if there is a synergy between the curriculum goals, curriculum pedagogy, curriculum assessment, and curriculum professional development. The results from Pakistan suggest that the implementation of the curriculum is still restricted due to inadequate teacher preparation and institutional support (Mahmood, 2022).

Themes of ethical development, civic responsibility, environmental awareness, and national identity are also part of the SNC and are consistent with global perspectives on the importance of curricula in preparing learners to be responsible members of democratic and culturally diverse societies (Biesta, 2020). However, there's still a controversy about its effectiveness. Favourable people have interpreted the SNC as a way to ensure fairness and uniformity in education, while its detractors say that changing the curriculum is not enough to address inequalities in education stemming from issues of teacher quality, educational facilities, language diversity, and socioeconomic inequalities (Government of Pakistan, 2020; Rahman 2004; Mahmood 2022).

The literature as a whole indicates that the Single National Curriculum was a powerful policy initiative in response to the fragmented education system in Pakistan. While the focus on competency based learning, common learning standards, and educational equity highlights the current theory of curriculum, the effective implementation of curriculum, teacher preparation, assessment reform, institutional capacity, and policy support are necessary to achieve meaningful educational improvement. These views underpin an exploration of the congruence of the SNC and the SDG 4 targets. 2.4 Ensure that the SDG 4 is implemented by aligning the Single National Curriculum with SDG 4 in Pakistan.

4. Alignment of Pakistan's Single National Curriculum with Sustainable Development Goal

Adoption of Pakistan's Single National Curriculum (SNC) marks the most significant curriculum reform in recent decades in the country and it is an effort to enhance educational quality and minimize educational inequalities in various schooling systems. The SNC was basically created for setting common learning standards but there are several aspects of SDG 4 (Equitable access, Quality education, Competency-based learning and Lifelong learning) that closely align with the objectives of SNC (Government of Pakistan, 2020; United Nations, 2015). It is important, however, that alignment with SDG 4 is not only judged based on the curriculum objectives, but also on how it affects the teaching, learning and educational outcomes (OECD, 2020; World Bank, 2022). A key area of convergence is around the focus on education equity.

The SDG 4 calls for inclusive and equitable quality education for all learners and the SNC aims to eliminate inequalities that have been caused by the historically disunited education system in Pakistan through the development of uniform standards for the curriculum offered by public schools, private schools and madrassas (United Nations, 2015; Government of Pakistan, 2020). Research indicates that standardisation of the curriculum fosters greater consistency in education (OECD, 2020); but experts have warned that the standardisation of curriculum documents does not eradicate inequalities in teacher quality, infrastructure, learning resources and access to the digital environment (Unterhalter, 2019; World Bank, 2022). The SNC is conceptually aligned with SDG 4, but more comprehensive structural changes are needed to achieve educational equity. One significant commonality is moving to competency-based learning. Critical thinking, problem-solving, collaboration and knowledge application are increasingly becoming the focus of international curricular reform, while rote memorisation is being de-emphasised (OECD, 2020; Darling-Hammond & Oakes, 2021).

Similarly, the SNC uses Student Learning Outcomes (SLOs) which emphasize competency building and conceptual grasp (Government of Pakistan, 2020). This approach is consistent with the current theory of curriculum which sees meaningful learning as being reliant on pedagogies and assessments that are learner centered, which can assess higher-order thinking (Priestley et al., 2015; Biesta, 2020; Darling-Hammond & Oakes, 2021). The SNC also reflects the principles of SDG Target 4.7, through incorporation of Education for Sustainable Development (ESD), values education, civic responsibility, awareness of the environment and global citizenship in the curriculum (United Nations, 2015). Research in the modern times state that the focus should not be on sustainability content but on the development of ethical reasoning, interdisciplinary thinking, and responsible citizenship (Sterling, 2021; Wiek et al., 2016). However, implementing effectively requires teachers to convert these curriculum goals into activities that are participatory and inquiry-based (Lozano et al., 2019; Sinakou et al., 2019).

The literature consistently highlights challenges to implementation that constrain the SNC's contribution to SDG 4, even though there are areas of alignment. The major problems that impede successful implementation of the curriculum are teacher preparedness, teacher professional development, assessment reform, institutional capacity, governance, and the availability of resources (Hargreaves & Fullan, 2012; Fullan, 2020; OECD, 2020; Darling-Hammond & Oakes, 2021). Further evidence shows that improving education sustainably relies not only on curriculum reform but also on institutional leadership and engagement, continuous quality improvement and

effective policy implementation among others (Ogbolu et al., 2025; Hanif, 2023; UNESCO Global Education Monitoring Report, 2023; World Bank, 2022).

In general, the literature suggests that Pakistan's Single National Curriculum is in line with the goals of SDG 4 as it focuses on equity, competency based learning, sustainability, and common education standards. But successful performance of these goals is as much dependent on good implementation, competent faculty, a new assessment system, help from the institutions and a coordinated educational management as it is on curriculum policy.

5. Challenges and Policy Implications

While Pakistan's Single National Curriculum (SNC) aims for ambitious goals, its effective implementation requires attention to structural, institutional, and pedagogical concerns. Considerable attention is consistently given to the need to have curriculum reform happen only when education systems are able to implement the curriculum objectives effectively in the classroom. Despite the SDG 4 priorities in the field of education, including international priorities related to educational equity, competency-based learning, and sustainable development, continued challenges surrounding teacher preparedness, assessment, governance, resource allocation, and policy continuity remain, limiting the contribution of the SNC to SDG 4 (UNESCO, 2021; Reimers, 2024). Therefore, the effectiveness of curriculum reform should be evaluated, not only as regards policy goals, but also in terms of the outcomes of the implementation.

In these difficulties, the most consistent is the lack of teacher preparedness. On the one hand, teachers are key to the implementation of the curriculum, while on the other hand, competency-based education calls for teachers to adopt pedagogies that are learner-centred, with a focus on inquiry, collaboration, critical thinking, and problem-solving, instead of the traditional lecture-based pedagogy (Fullan, 2020). UNESCO (2021) highlights that this transformation must be ongoing and involve continuous professional development and institutional support, and research in Pakistan indicates that variations in teacher qualifications, teacher training, and teacher resources have an impact on consistent implementation of the SNC (Hanif, 2023). In the same way, the assessment practices are still oriented towards exams, and the curriculum has not been used to develop the higher-order thinking skills. Assessment systems that focus on memorisation, rather than analytical thinking, creativity, communication, collaboration, and/or problem-solving, will not drive curriculum reform, researchers argue (Buchanan et al., 2021; Weiss et al., 2021).

Other primary challenges mentioned in the literature are the lack of educational inequality and institutional capacity. Despite being common curriculum standards set by SNC, the differences in school facilities, teachers, digital resources, and learning environment still limit equal opportunities for learning (Tikly, 2020; Hanif, 2023). Similarly, there must be good governance, coordination, monitoring, and accountability to ensure effective curriculum reform. However, Reimers (2024) notes that often governments put more effort into curriculum design and lack attention to implementation and UNESCO (2021) emphasises on transparency of governance and evidence-based policy evaluation. The implementation capacity of these challenges is especially crucial in the decentralized education system in Pakistan with the varying capacity of implementation in different provinces.

Another key issue is access to education and stakeholder engagement. A shortage of resources in schools persists despite the need for technology, digital tools, and new learning content that are all suited to the competency-based curricula (UNESCO, 2021). Also, when teachers, school leaders,



parents, students, and communities are active participants in the curriculum reform process, it is more likely to be sustainable because of the increased sense of ownership among those who will implement it and because of the contribution of local communities to the educational improvement process. Based on these, researchers call for sustained teacher professional development, change in assessment system, re-distribution, improvement of monitoring systems, and more cooperation between governments, universities, teacher education schools, and local communities.

In general, the literature shows that the concept of introducing the Single National Curriculum in Pakistan is oriented toward SDG 4; however, it is not the curriculum design that will ensure the success of the program over time, but rather successful implementation. To achieve meaningful changes in teaching, learning and educational quality, problems of teacher capacity, assessment, governance, institutional support, and educational inequality need to be addressed in relation to curriculum goals.

Research Design

The present study adopted a narrative literature review approach, which involved exploring the relationship between Single National Curriculum (SNC) in Pakistan and SDG 4 (Sustainable Development Goal 4). The method allowed for the synthesis and critical analysis of empirical studies, policy documents and theoretical literature on curriculum reform and sustainable education.

Inclusion Criteria

The review encompassed peer-reviewed journal articles, government publications and policy reports in English from 2018 to 2025. The study focused on curriculum reform, SDG 4, Education for Sustainable Development (ESD), competency based education, educational policy, teacher professional development and Single National Curriculum of Pakistan, and irrelevant and duplicate sources were excluded.

Data Analysis

Thematic synthesis analysis was used to analyse the selected literature. These findings were presented in key themes related to curriculum reform, educational quality, educational equity, competency-based learning, teacher preparedness, curriculum implementation, governance, assessment, and policy implications with the aim of assessing how the SNC is connected to SDG

Discussion

The present review research reviewed the literature and synthesized the last few years of studies on curriculum reforms, educational policy and SDG 4 to establish the extent of alignment between the objectives of Sustainable Development Goal (SDG 4) and the Single National Curriculum (SNC) of Pakistan. Overall, the evidence shows that the SNC conceptually resonates to SDG 4, with its focus on equity in education, competency-based learning, and quality education. The results are consistent with the views of Priestley et al. (2015) who stated that it is important to build up the competencies and active participation of the students in curriculum reform rather than content transmission, and UNESCO (2020), which pointed out that curriculum reform should be carried out based on the integration of sustainability, global citizenship and lifelong learning.

One of the important conclusions of this review is that the SNC contributes to educational equity by creating a common set of learning standards in various school systems. It is however evident from the literature that, without improving the quality of teaching and learning, the quality of learning environments and the provision of educational resources, the removal of educational



inequalities is impossible through the standardization of curriculum. This is consistent with Tikly (2020) and Barrett et al. (2022), who suggest that equitable curriculum reform must involve more systemic change, as well as change in the curriculum.

The review also highlights competency based learning as one of the key strengths of the SNC. As critical thinking, communication, creativity and problem solving are its key pillars, it is in line with the international trends of curriculum reform that aims to equip learners for challenges in the twenty first century. These findings have also been noted by OECD (2020) and Voogt and Roblin (2019) who highlight the importance of equipping learners with transferable competencies that will support lifelong learning and active citizenship. The similarities indicate that the SNC is based on internationally accepted principles of curriculum development, although in Malaysia it is being applied in a local education context.

The literature reviewed consistently shows that the implementation is the most important challenge that affects the SNC, even though there is conceptual congruence. The lack of teacher readiness, inadequate instructional resources, differences in institutional conditions and assessment practices are still key impediments to effective implementation of the curriculum. The results are consistent with Fullan (2016) who noted that educational reforms often experience implementation failures because they pay too much attention to the design of the policy rather than implementation and Darling-Hammond et al. (2017) who emphasized the need for ongoing teacher professional development and institutional support. Similarly, Rieckmann (2018) and UNESCO (2021) state that ESD involves the curriculum content as well as pedagogical approach, assessment frameworks, institutional leadership and the need for continuous policy assessment.

In general, literature reviewed shows that Pakistan's Single National Curriculum established a solid policy framework for moving forward the SDG 4's agenda on equitable learning opportunities, competency-based education and sustainable development. It is found, however, that conceptual alignment is not enough to ensure good educational results. The sustainability of the SNC will be ensured by enhancing teacher capacity, assessment system, governance, institutional support, resource allocation and continuous monitoring and policy evaluation. Together, these findings underscore the need to think of curriculum reform as an ongoing and systemic process, not a one-shot policy project.

Conclusion

The explored literature suggests that the SDG 4 (Quality Education, Equitable Access and Competency Based Learning) has a significant conceptual similarity with the Single National Curriculum (SNC) being adopted by Pakistan. But sustainable change in education cannot be guaranteed by curriculum reform. The sustained success of SNC will require effective implementation of the SNC supported by teacher professional development, assessment reform, institutional capacity, governance, and ongoing review of policy. Robust development of these areas will be critical to the success of making a difference in the quality, equity and outcomes of learning in Pakistan.

Recommendations

The following recommendations are proposed based on the findings of the above review for strengthening the implementation of the Single National Curriculum (SNC) of Pakistan and supporting the achievement of Sustainable Development Goal 4 (SDG 4):



- First, teachers need ongoing professional development to enhance competence-based teaching and learner centered approaches.
- Second, assessment systems should be in line with the curriculum, emphasizing the thinking, problem solving, creation and communication elements of learning rather than the memorisation of facts.
- Third, equitable access to textbooks and teaching materials, as well as school resources including in underserved areas, should be ensured to facilitate quality and inclusive education;
- Lastly, monitoring and evaluation of the curriculum implementation should be carried out on regular basis. The better coordination of federal and provincial education authorities, with evidence-based curriculum reviews, will enhance implementation, and facilitate meeting the SDG 4 goal.

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