



Education for Sustainable Development Pedagogy in Pre-Primary Social Studies Curriculum in Kenya: Review of Literature

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Abstract

Education for sustainable development (ESD) emphasizes integration of values inherent in all curricular to encourage changes in behavior that allows a just society for all. The ESD pedagogy initiated by UNESCO highlights a shift towards active participation and experiential learning methods which engage learners in critical thinking and ability to act responsively for informed citizenship. Integrating sustainable development pedagogies, which include problem-based, inquiry-based and reflective learning in social studies curriculum, encourages creativity, critical thinking and respect for cultural diversity and creation of a sustainable society. Anchored on constructivism theory, the study used data from both primary and secondary sources on influence of ESD through social studies curriculum. Secondary data was sourced mainly from the internet, focusing on the work of UNESCO on education for sustainable development. Literature reviewed established that social studies curriculum, which is entrenched in values of humanity provides opportunities for lifelong learning and sustainable development. The ESD pedagogies facilitate learning of knowledge, promotes skills, perspectives and values that sustainable societies require for spurring the 21st Century and beyond. The systematic review recommends that teaching and learning of social studies should incorporate appropriate pedagogies for sustainable development for learners to progress to adult life as responsible and functional citizens for collective harmony.

Introduction

Education for sustainable development advocates for reorientation of instruction and pedagogical approaches which promote critical thinking, creativity and problem solving competencies for cultural diversity. Adoption of ESD pedagogies provides opportunity for the learner to develop values, actions, lifestyles and positive societal transformation for maintaining sustainable societies for future generations. According to UNESCO (2005-2015), ESD principles and related educational approaches, nurture competencies that enable learners to find solutions for demanding issues in society, transforming behavior, as well as preventing conflict arising from school and society for effective citizenship. Echoing these sentiments, Ganira et al. (2019) affirms that ESD ideals supports development of learners towards knowledge, skills and values, which nurture sustainable behavior and civic engagement for enhanced quality of life. This is based on premise that appropriate implementation of ESD prepares learners for lifelong learning that safeguards well-being both in present and future generations as effective and dependable citizens. In instances where ESD pedagogies are entrenched effectively through pre-primary social studies curriculum, there is a likelihood of influencing knowledge, attitudes, values and actions that contribute to a sustainable future generation. Supporting this position, Julia & Susan (2017) in a systematic review of ESD,

indicates that responsible sustainable systems in schools strengthen appropriate behavior for surviving in the 21st century. To achieve this, social studies curriculum requires grounding of sustainable development practices by reorienting pedagogy towards sustainability through; Problem-based learning, Etherington, (2011); Dyne & Ang (2009); inquiry-based learning, Farren et al. (2012); and reflective learning, Stewart & Richardson, (2000). Reorienting social studies curriculum pedagogy towards ESD ideals would influence decision making in school through creative judgment, which in turn promotes exploring processes where learners voice opinions in an inclusive environment as productive citizens.

Social studies curriculum as a value-laden discipline emphasizes sustainable development principles for realizing needs and aspirations of the 21st century for learners to emerge as productive and functional citizens. Although linkage between education and sustainable development is complex, structure of values developed in early years of learning forms a strong foundation for a nation's ability to develop and achieve sustainability. In supporting this position, Fisher & McAdams (2015), in a study on gaps in sustainability education asserts that education is transformed by ESD pedagogies through appropriate content focusing on interdisciplinary and holistic principles embedded in the whole curricular and not as a separate discipline. Earlier, UNESCO (2010) proposed a shift from teacher-centered pedagogy to learner centered strategies and from rote learning to participatory culture, that creates sustainability for effective citizenry. This is based on acknowledgment that pedagogies anchored on ESD stimulate learner to ask questions, analyze, think critically and make appropriate decisions as participative citizens. Drawing from this assertion, Ganira (2019) affirms that effective implementation of ESD requires a curriculum that focuses on developing abilities for informed and ethical decision-making as well as inculcating values that support sustainable national cohesion. This is in concurrence Turkey, (2017) who pointed out that sustainable development principles reinforced through themes in social studies curriculum should be connected to the concept of development for sustainable behavior. Thus, ESD pedagogies such as problem-based learning; inquiry-based learning and reflective learning embedded in social studies curriculum should support development of knowledge, skills, perspectives and values for maintaining sustainable societies for future generations. For this reason, Ganira et al. (2018) argue that social studies curriculum is developed on a framework of sustainable principles that advocate for appropriate values for learners to develop as productive and participating citizens. Instances where social studies curriculum is implemented through appropriate pedagogy; there are high chances of enabling self-determined participation in transformation of unsustainable paradigms, policies and practices for realization of ESD ideals.

A report by UNESCO (2011) indicated that the government of Kenya is committed to implementing ESD pedagogies through an enabling environment aimed at enhancing the role of education and learning for equitable, efficient and sustainable utilization of resources. This is demonstrated by supporting social studies curriculum through diverse learning and public awareness for improving quality of life and promoting teaching and learning that inculcates values, behaviors, and lifestyles for appropriate citizenship and sustainability. In an effort to achieve sustainability, Tarus et al. (2015) opined that the government has provided adequate teaching-learning resources and equipment for ESD to learners and teachers especially from early year's education (EYE). However, despite UNESCO (2011) commitment to ESD ideals, Odundo & Ganira (2017) observes that implementation is slow in most schools, creating discrepancy between behavior exhibited by learner and knowledge, skills and attitudes developed. Emphasis on cognitive skills rather than affective and psychomotor domains undermines purposes of ESD for entrenching values and attitudes for responsible, active and

productive citizenship in a democratic society. This is in concurrence with O' Flaherty and Liddy (2018) who indicated that even though the government is commitment to ESD principles, challenges in implementing sustainable development goals in school curriculum originate from inappropriate teaching methods to monitoring, evaluation and assessment strategies. Inability to entrench ESD pedagogies in social studies curriculum widens effects of unsustainable practices including school dropout, truancy, disrespect, and drug abuse, which are destructive to sustainable development manifested in schools, communities and in society. Additionally, in a study on experiential learning and conditional knowledge Ganira & Kinyua (2018) indicates that inadequate preparation in educational programmes coupled with reprehensible supervision and feedback weakens implementation of ESD pedagogies leading to low value systems in society. In environments where teachers integrate ESD pedagogies appropriately, Ganira & Odundo (2020) aver that learners are become dedicated, responsive and informed citizens capable of creating a world that is equitable and socially sustainable for all. Hence, problem-based learning, inquiry-based learning, and reflective learning pedagogies implemented effectively through social studies curriculum would enable learners develop knowledge, skills, abilities and values required for sustainable development and effective citizenship.

Problem Based-Learning and Sustainable Development

Problem-based learning (PBL) is a learner-centered pedagogy, which emphasizes active listening, collaboration and brainstorming as opposed to direct presentation of facts for enhanced content knowledge. The PBL approach integrates essential life skills of problem solving in social studies curriculum for learners to transform attitudes and lifestyles for sustainable development as effective citizens. Premised on this position, Ganira et al. (2020) affirms that social studies curriculum is developed on a framework of sustainable principles which assist learners to balance immediate and long-term goals, with absolute awareness that solutions to societal problems demand patience and contemplation of future needs. Hence, social studies curriculum is instrumental in fostering sustainability when learners are equipped with problem-solving abilities including active listening, collaboration, and brainstorming skills for developing accountable, innovative, creative and supportive citizens. In the view of Rodrigo,et al (2017), in an effort to achieve sustainable future, social studies curriculum is established on appropriate values and attitudes, which provide constructivism criticism and problem solving. Further, in a study on adoption of value creating pedagogy, Odundo & Ganira (2018) argued that problem based learning provides opportunities for the learner to evaluate opinions, share ideas, address complex challenges for supporting sustainable behavior. In cases where problem-based learning is adopted appropriately in SSC learners are likely to develop positive thinking, determine alternatives to societal challenges and ascertain causes of various situations as well as impact relationships confidently resulting from self-esteem as responsible citizenship.

Düşek and Ayhan (2014) suggested that for responsible citizenship, school and family should provide a favourable environment for learners to acquire knowledge, skills and values for sustainable development. Adoption of problem-based learning skills in social studies curriculum would provide a platform for adopting cognitive experimentations when dealing with interpersonal matters that impact on future responsibility among learners. In confirming this argument, in a study on adopting value creating pedagogy and problem based learning, Odundo & Ganira (2018) opined that problem-based learning is suitable for encouraging and enhancing societal responsibility, respect and mutual understanding for developing life-long impact and survival in society. Hence, sustainable problem-based learning pedagogy inspire learners to create solutions by assessing effective intervention, considering other's opinions,

analyzing factors of contribution as well as generating possible alternatives to challenges arising from the society. This is in agreement with Guo, (2013) who emphasized that increased engagement and interest in problem-based learning broadens perspectives and global awareness, enhances critical thinking, responsiveness and respect for diversity and commitment to sustainable actions as effective citizens. Implementing problem-based learning effectively would assist learners develop insights as reliable and dependable citizens through encouraging sense of hope, appreciation and values for sustainable development.

Reflective Learning and Sustainable Development

Reflective learning is a pedagogical approach that allows learners to interpret, analyze and evaluate experiences, knowledge, skills and values for democratic and sustainable society as effective citizens. In concurrence, Guo (2014) asserts that having learners to gain reflective skills is a basic requirement for effective democratic life which protects and entrench sustainable development goals for global citizenship. Reflective learning as a universal principle of ESD enables learners to explore rational behaviors of acting, making informed choices and creating alternatives to present choices as informed and participating citizens. Through reflective learning, Turkey (2017) opined that learners develop meta-cognitive skill for interpreting, analyzing, reasoning, evaluating and for dealing with various real-life problems in society. Drawing from this assertion, the process of reflective learning requires collaborative class environment that leads learners in taking ownership and responsibility for sustainable future as productive citizens. By implementing reflective learning through social studies curriculum, there are high chances of learners adapting to evolving complex situations and developing appropriate thinking skills, problem-solving abilities and values for sustainable development. In support of this contention, Ayodeji (2017) confirms that reflective learning in social studies curriculum assists learners recognize interrelations and interconnections in ESD issues and positions in order to incorporate such perspective when solving problems and addressing concerns in daily life. To achieve this, Ganira et al. (2018) suggests that learners need skills for reflective thinking in order to ask questions, think critically develop high levels of problem solving, make evaluations and find alternatives to societal challenges as responsible and conversant citizens.

Earlier, Dewey (1993), Schon (1983) and Kolb (1984) indicated that reflective learning allows learners to think about learnt content and relate knowledge acquired to own experiences, feelings and thinking towards a sustainable future. In concurrence, Oakes et al. (2013) established that reflective teaching of social studies curriculum reinforces identification of societal issues addressed in a multidimensional, complex, and a combination of logical approaches to conflicting perspectives to reach reasoned decisions for sustainability in society. Based on this argument, appropriate implementation of reflective learning would allow learners to take responsibility for own learning, assess self, think creatively and contentedly, and make correct decisions, solve problems and adapt to social relationships for communal unity. As noted by Kus (2014), social studies curriculum raises effective citizens for social life, creating opportunities to practice knowledge, gain reflective thinking anchored on developing citizens adoptive to democratic values, active participants, and considerate to sustainable development ideals. However, in a study on teacher position in spurring value based education, Odundo & Ganira (2017) indicated that unsustainable behavior experienced in schools stems from inappropriate pedagogical approaches which weaken chances of achieving sustainable development goals. Therefore, reflective learning requires recognition that societal concerns addressed in social studies curriculum needs appropriate pedagogies for learners to engage in disciplined inquiry about issues including openness to considering viewpoints different from own in order to create sustainable society for the good of all.

Inquiry-based Learning and Sustainable Development

Inquiry-based learning is a pedagogical approach involving learners in formulating and clarifying questions, investigating problems, analyzing information and developing rationale conclusions supported by evidence. This is in tandem with Anyiendah & Odundo (2018) view that appropriate pedagogical approaches encouraged by ESD principles promotes innovation, creativity and encourage challenging tasks for learners to effectively participate in the learning process. As a principle of ESD, inquiry-based learning contributes to developing learner's abilities and confidence, communication skills, cooperation and investigation of issues to independently solve problem in ways that respect practices of others in a just society. Echoing these sentiments, Rodrigo et al. (2017) emphasized that incorporating ESD principles through inquiry-based learning enables learners to be attentive to global issues, learn to act as responsible citizens locally and globally, develop a compassionate outlook and commitment to participating in democratic decision making. Further, inquiry-based learning would assist learners incorporate knowledge, skills, attitudes and values embedded in social studies curriculum towards creating a healthy and sustainable future by appreciating diversity, assuming responsibility and solving problems as positive contributors to society. To achieve this, Shuttleworth & Marri (2014) in a study on teaching for sustainability indicated that the more exposure learners have in facing real-world issues, the more likely they will be able to address challenges in the future as independent citizens. However, Ayodeji, (2017) in a study on social studies training curriculum and sustainable development goals affirmed that though the course is loaded with values for sustainable development, teachers emphasize on skills and competencies rather than values. It is based on this realization that the study reviewed literature on integration of ESD pedagogy in pre-primary social studies curriculum in Kenya.

Statement of the Problem

Education for sustainable development contributes to developing learners' abilities and confidence for adapting to evolving complex situations and appropriate value systems for societal unity. The ESD pedagogy initiated by UNESCO highlights a shift towards active participation and experiential learning methods that engage learners in thinking and ability to act responsively as good citizens. Despite UNESCO's commitment to ESD, implementation is slow in most schools, creating discrepancy between behavior exhibited and knowledge, skills and attitudes developed. Emphasis on cognitive skills rather than affective and psychomotor undermines purposes of ESD for entrenching values and attitudes for responsible, active and productive citizenship in a democratic society. Furthermore, teachers emphasize on skills and competencies rather than knowledge on values and abilities required for responsive and informed citizens capable of creating a world that is equitable and socially sustainable. Therefore a disconnection exists between stated objectives, learning outcomes and behavior exhibited in school, community and in society. As a result of the mismatch between stated objectives and learning outcome, effects of unsustainable practices including school drop-out, truancy, disrespect, and drug abuse weaken sustainable development ideas. This calls for teachers to integrate pedagogies that focus on shaping completely dedicated, responsive and informed citizens capable of creating a world that is equitable and socially sustainable for all. To achieve ESD ideals, problem-based learning, reflective learning and inquiry-based learning pedagogies embedded in social studies curriculum should provide learners with knowledge, skills, values and abilities required for sustainable development.

Purpose and objectives

The purpose of this systematic review is to establish extent to which education for sustainable development pedagogies are integrated in pre-primary social studies curriculum. The

objectives explored extent to which problem-based, inquiry-based and reflective learning pedagogies embedded in social studies curriculum assist learners to acquire knowledge, skills, values and abilities required for sustainable development.

Theoretical Perspective

Social constructivism paradigm view learning as a shared activity embedded in interaction with the environment for development of own knowledge (Dewey, 1938; Vygotsky, 1978; Bruner, 1966). Anchored on collaborative approach, social constructivism theory emphasizes interactions with culture and society where the learner is challenged with tasks beyond level of mastery for critical thinking, motivation and confidence. The learning environment should reflect an appropriate class climate for the learner to construct new ideas, select and transform information, develop hypothesis and make decisions through social negotiation. During interaction process, Vygotsky, (1978) emphasized that information and authority is shared amongst learners while the teacher facilitates learning for construction of knowledge based on personal experiences. In instances where social constructivism learning theory is implemented effectively, the learner develops life skills and confidence for analyzing the surrounding, creates solutions to issues, justifies actions and allows negotiations for conceptual growth and sustainability.

Constructivism approach to learning holds that individuals actively construct own knowledge and reality is determined by experiences of the learner. As stated by Vygotsky (1978), cognitive development stems from social interactions anchored within the zone of proximal development which encourages the learner to accomplish complex tasks with a skilled partner. To advance individual learning, the teacher should focus on the presence of peers with knowledge and skills beyond the learner, social interactions with skillful colleagues to allow observation and practice of new skills and scaffolding activities by competent peers. Based on this premise, Copple & Bredekamp (2009) note that scaffolding entails modeling skills, provision of hints and cues and adoption of effective instructional resources for learners to model. In addition, Silver (2011) suggests that the teacher should assess learner current knowledge and experience, teach from known-unknown, break content to manageable tasks and use verbal cues and prompts for encouraging problem-solving, reflection and inquiry processes.

Pedagogical constructivist environments provide experience for multiple perspectives including evaluation, collaboration, reflection and metacognition which drive learning in realistic and authentic contexts. In support of this contention, Bruner (1966) assert that learner constructs new knowledge and moves beyond information presented when instruction is pre-dispositional towards learning with structured and sequenced content as well as pacing of rewards and punishments. This can be achieved when curriculum is structured in a spiral manner for the learner to constantly build upon previous information for sustained construction of knowledge. Given that constructivism involves active learning, Bruner (1996) emphasizes on the learner as change agents for lifelong sustainability through creativity, problem solving, critical thinking and responsiveness to issues which arise from the environment. Hence, problem-based, reflective and inquiry-based learning should result in new dispositions and increased manipulation of knowledge for critical thinking and sustainable development.

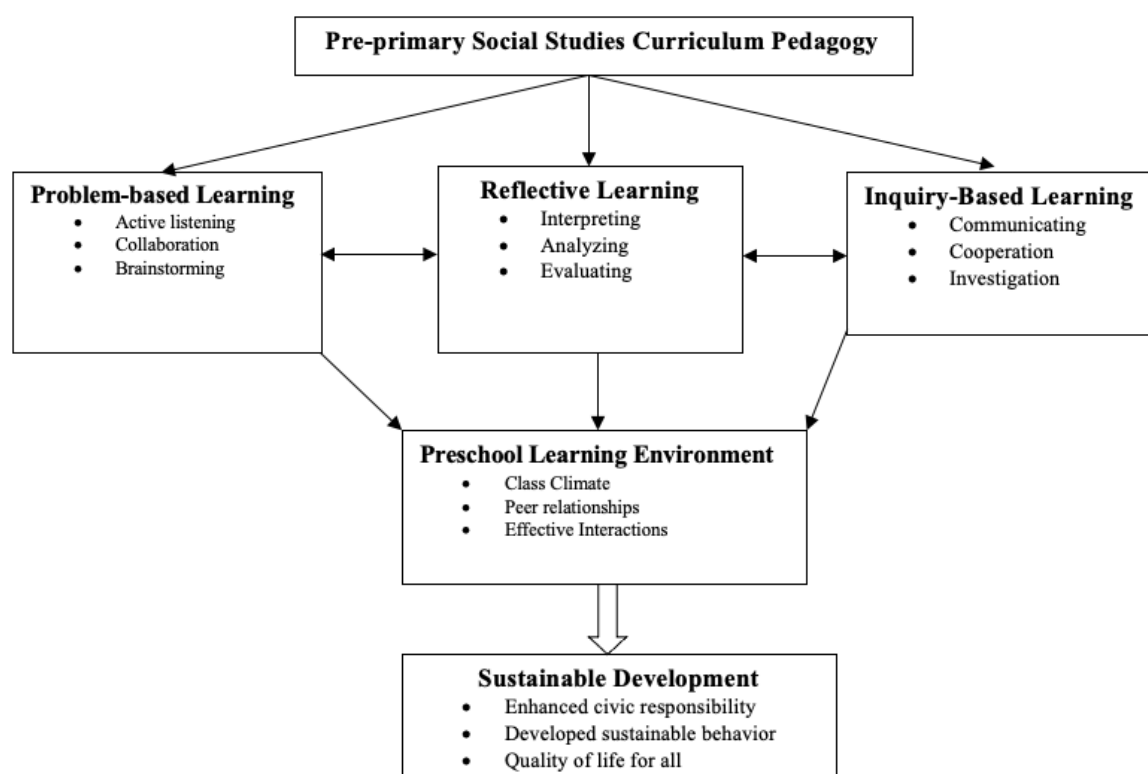


Figure 1. Perceived Conceptual Perspective for ESD pedagogy and Social Studies Curriculum

Conceptual framework provides a model for understanding relationship between independent and dependent variables in a narrative theme focusing on describing phenomenon, (Berman, 2013). Integration of ESD pedagogies in pre-primary social studies curriculum is influenced by effectiveness of instructional methods adopted in developing responsible and informed citizens for the 21st century. Specifically, problem-based learning, reflective learning and inquiry-based learning approaches when implemented effectively, learners are likely to transit to adulthood as good citizens. This is achieved when the learning environment supports appropriate class climate, peer relationships, teacher-learner, and learner- learner interactions. Further, ESD pedagogies supports development of citizens towards knowledge, skills, and values that reinforce sustainable behavior, civic engagement and enhanced quality of life for all, as illustrated in figure1.

Table 1. Systematic Reviews and Knowledge Gaps

This matrix is a summary of systematic reviews on ESD, illustrating author, focus, methodology, findings and knowledge gaps from reviewed studies.

Author	Systematic Review	Methodology	Findings of the study	Knowledge gap	Focus of this study
Julia, B., and Susann, K. (2017).	Systematic review of Education for sustainable development	Based on qualitative empirical investigation. Data collection was through online	Corporate social responsibility, sustainability management systems, sustainable entrepreneurship practices	Inadequate evidence for sustainability roadmaps.	Integration of education for sustainable development pedagogies in preschool social

		database search.	entrench sustainable issues.		studies curriculum.
Robert, L., Yuko, N., & Rosalyn, M.(2016).	Contributions of education for sustainable development: A systematic Review.	Systematic studies of 18 countries. Five questions were used for interviews in each country to solicit education leaders and practitioners on views on ESD.	Including sustainable content and ESD pedagogies promote learning of skills, perspectives and values that foster sustainable societies.	Inefficient data on how UNESCO and the ESD community aim towards expanding successful projects involving schools and institutions in ESD.	Integrating education for sustainable development pedagogies in preschool social studies curriculum.
O'Flaherty,J., & Liddy, M.(2018).	The impact of development education for sustainable development interventions: a systematic review	Systematic review of literature on 44 abstracts, 26 focused on ESD themes 12 were global citizenship oriented in content and 6 described intercultural education interventions.	Found positive impact on utilization of learning methodologies including multi-media, problem-based learning, discussion forums, role play and concept mapping.	Inadequate awareness on global issues, citizenship and responsibility.	Impact of problem solving, reflective learning and inquiry based learning on ESD.
Rodrigo, L., Michelle, Y.M., Kaisu, S., Kim, C., & Francisco, J.L. (2017).	Connecting Competences and Pedagogical Approaches for Sustainable Development in Higher Education: Review of Literature.	Adopted hermeneutics and grounded theory. Analysis was done through an iterative process.	Lecturing method of teaching had the lowest breath of possible coverage, and was not reliable in providing experiences for sustainable development competences.	Disconnection between pedagogical approaches and competences for sustainable development.	Impact of problem solving, reflective learning and inquiry based learning on ESD.

Ayodeji, P.I., Olabisi, O. & Isaac, T.R. (2017).	The Nigeria Teachers, Social studies training curriculum and sustainable development. A content Analysis.	Utilized content analysis tool of relational analysis to assess extent to which sustainability themes and concepts are reflected in social studies curriculum.	Education for sustainable development is poorly incorporated into curriculum.	Inadequate literature on promotion of education for sustainable development through teacher training programmes.	Impact of problem solving, reflective learning and inquiry based learning on ESD.
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The approach adopted was systematic review, to establish a reliable evidence for recommendations for policy, practice and further research as noted by (Dixon-Woods et al., 2006). The systematic review collected and summarized empirical evidence that supports ESD ideals which was anchored on the work of UNESCO (2002-2015). Most of the studies reviewed used predominantly qualitative data, to the systematic process for assessing the position of social studies curriculum for sustainable development. Data were based on primary and secondary sources. Secondary data was sourced mainly from the internet, focusing on the work of UNESCO (2005-2015) on education for sustainable development.

Conclusion

From the systematic review, this study concludes that social studies curriculum nurtures learners for effective citizenship through development of appropriate values essential for sustainable development. The social studies curriculum focuses on interactions and interrelationships between individuals, groups, peers, families and schools within the physical and social environment. Through social studies curriculum, learners acquire required values for survival in society as effective citizens. This is based on the premise that social studies curriculum is sensitive to human behaviors, both negative anti-social and positive civil behaviors; and that human relationships differ within the society. It is through social studies curriculum that learners learn direct about varied environments in order to develop appropriate knowledge, skills, attitudes and values for sustainable development. Further, ESD pedagogies such as problem-based, inquiry-based learning, and reflective learning embedded in social studies curriculum supports development of knowledge, promotes skills, perspectives and values vital for maintaining sustainable societies for future generations. Despite the fact that skills and dispositions in pre-primary evolve throughout life, they should be reinforced through continued interaction with appropriate pedagogy embedded in practices that support sustainable development principles.

Recommendations

The government should provide professional development for teachers to ensure ESD policy is implemented in all curricular to foster and maintain sustainable societies. There is need for enacting policies for coherent system of professional development aligned with teacher education programmes to entrench ESD ideals. This systematic review calls for examination of policies from the education system in order to encourage reflection on what would be an appropriate pedagogy for achieving ESD ideals. Teaching and learning of social studies curriculum should incorporate appropriate pedagogies for sustainable development for learners to emerge as responsible and informed citizens. Further research is required on integration of

education for sustainable development pedagogies in preschool social studies curriculum for learners to acquire desirable behaviors for surviving in society as effective citizens.

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