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Examining the Concept of Sustainable Development: A Conceptual Analysis

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Abstract

This concept analysis contributes to a deeper understanding of sustainable development by clarifying its meaning, usage, and application across disciplines. The analysis presents an examination of sustainable development using the eight steps of concept analysis developed by Walker and Avant in 2011. It highlights the interconnectedness of various factors such as society, environment, politics, and economy in achieving sustainable development goals. Moreover, it emphasizes the role of nursing and other professions in addressing climate change and promoting sustainable practices. This paper offers valuable insights for researchers, policymakers, educators, and practitioners working towards a sustainable future by providing a comprehensive analysis of the concept of sustainable development.

Keywords: Conceptual analysis, education, nursing, sustainability, sustainable development

Introduction

Studies show that the concept of Sustainable Development (SD) is relatively new in the literature and has been used interchangeably with other synonymous terms such as sustainability, ecological sustainability, sustainable growth, eco-development, environmental education, education for sustainable development, education for sustainability, and education for eco-communities across various disciplines.[1-3] This concept analysis aims to examine SD for its meaning, usage, relevance, and appropriateness of application using the eight steps of concept analysis developed by Walker and Avant.[4] These steps include choosing a concept, determining the purpose of analysis, identifying all the uses of the concept from dictionaries, thesauruses, and existing literature on sustainable development, defining the attributes of the concept, identifying a model case, borderline case, related case, and contrary case, and finally identifying the antecedents and consequences of the concept.

The concept of SD arose as a result of the world experiencing climate change. Climate change has been identified as the biggest threat to humanity, leading to numerous adverse effects on the ecosystem. These effects include overheating the planet to temperatures above six degrees Celsius, resulting in extreme heating, bushfires that destroy forest reserves, the extinction of some animal species, and flooding in many countries. Other effects of climate change include the burden of disease conditions such as infectious diseases, malaria cases, and vector-borne diseases.[5] Climate change has become an issue of politics, economics, culture, and social change, requiring individuals, groups, and communities to take action to achieve a society that values people and the planet and promotes the well-being and quality of life of its citizens.[6]

The concept of SD is one of the important global measures put in place to curb the menace of climate change, which has resulted from the emission of carbon dioxide from the use of fossil fuel energy into the environment, industrialization, and human activities such as lifestyle changes, acceleration of social practices, and ownership of private properties. Through sustainable development, societies, communities, groups, and individuals are encouraged to envision a better world where every individual, irrespective of their age, can contribute to sustaining the environment and the ecosystem.[7]

A second reason for the introduction of the concept of sustainable development is the concern that existing challenges such as environmental destruction, degradation, and

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pollution cannot be resolved without considering the interconnectedness of factors such as the political system, the social system, and the economic system, which can affect the processes of sustaining the environment. In 1987, the Brundtland report from the World Commission on Environment and Development highlighted the need for sustainable development as a means of bringing nations together in a harmonious way to sustain themselves as humans and also contribute to the creation of sustainable societies that will improve the health of the citizenry.[8] Nursing as a profession cannot be left out in the fight against climate change. In 2021, the International Council of Nurses issued a public declaration stating that it is the responsibility of nurses and midwives to protect and sustain the environment from depletion, pollution, degradation, and destruction, and also to protect the vulnerable such as children, the elderly, and the poor from the effects of climate change.[9]

Definitions and Uses of the Concept of Sustainable Development

The concept of Sustainable Development is derived from two words: sustainable and development. The Oxford Learners' Dictionary[10] defines the term "sustainable" as involving the use of natural products and energy in a way that does not harm the environment. The Merriam-Webster Dictionary[11] defines sustainable as relating to, or being a method of harvesting or using a resource so that the resource is not depleted or permanently damaged. According to the Oxford Learners' Dictionary,[10] "development" is described as the progressive expansion of something, leading to increased advancement and strength. The Merriam-Webster Dictionary[11] defines "development" as the action, procedure, or outcome of developing something. When the two words "sustainable" and "development" are combined, the phrase "sustainable development" is created. The Collins Dictionary[12] defines SD as economic growth that can be maintained at a steady level without depleting natural resources or causing severe ecological damage. According to the Oxford Reference Dictionary,[13] SD is a concept that pertains to community and economic development, aiming to fulfill present needs without jeopardizing the ability of future generations to meet their own needs. Similarly, the Encyclopedia Britannica[14] describes sustainable development in urban planning as development that addresses current needs without compromising the ability of future generations to satisfy their own needs.

Furthermore, the MacMillan Dictionary[15] offers a similar definition, explaining SD as the development of a country or region that does not exceed the utilization of natural resources that can be replaced, thereby avoiding harm to the environment. In the Encyclopedia Britannica,[14] SD in environmental law is described as an approach to economic planning that strives to promote economic growth while safeguarding the environment's quality for the well-being of future generations. In the context of ecological footprint, the Encyclopedia Britannica[14] defines SD as having a per capita ecological footprint lower than the available per capita biocapacity, alongside a high rating (above 0.8) on the United Nations Human Development Index (HDI). The HDI is a composite measure that takes into account a country's average life expectancy, educational attainment, and income to gauge its economic and social progress. Within the field of sustainability, the Encyclopedia Britannica[14] explains that SD entails a process of social advancement that addresses the needs of both present and future generations while effectively integrating economic, social, and environmental factors into decision-making. Additionally, SD, as described in the Encyclopedia Britannica[14] in the context of biodiversity loss, involves economic planning that fosters growth while preserving environmental quality. This consideration becomes essential when establishing new farmland and human living spaces. To protect biodiversity, laws prohibiting poaching and the indiscriminate trade in wildlife must be strengthened and enforced. The World Bank also defines SD as an endeavor to reconcile economic growth and environmental protection in developing countries.[14] In the discipline of politics, the World Commission on Environment and Development's 1987 Brundtland report "Our Common Future" defined SD as development that meets the needs of the present without compromising the ability of future generations to meet their own needs, which include economic growth together with the protection of the quality of the environment, each reinforcing the other.[8] According to Marouli,[7] SD has been implemented in all spheres of life including the economy, culture, society, and politics to maintain continuous economic growth, healthy ecosystems, and increasing consumption patterns among the populace.[7] The International Union for the Conservation of Nature in 1980 defined sustainable development as a plan for the global environment from a biological point of view.[16]

SD encompasses innovative technologies and novel business approaches that enable us to enhance the present quality of life across economic, environmental, and social dimensions. Crucially, these advancements aim to ensure that future generations can also experience a quality of life and opportunities that are at least as favorable as ours, without compromising their well-being.[17] In the discipline of nursing, sustainable development is integrated into the curriculum to train nurses at both the pre-registration and post-registration levels. Nursing educators are to adopt pedagogical approaches such as critical pedagogy, reflective learning, and transformative learning to train nurses who will become critical reflectors and thinkers, conduct research, and collaborate with others to help create change in the lives of their clients and the communities they serve.[18,19] In the field of agriculture, SD seeks to produce fiber, food, and animal and plant products using sophisticated farming techniques that are geared towards protecting the welfare of humans, animals, public health, and the environment. Tomar, Sharma, and Kumar[20] sustain that the call for citizens to sustain their bodies and the environment has led to a lot of individuals consuming organic products and locally grown foods, and this has made farmers manage their farms and step up their game of producing sustainable foods. Mckeown[21] maintains that to achieve SD, there is a need to consider the interconnectedness of other factors that greatly impact achieving sustainable development. These factors include society, environment, politics, and the economy. For the members of a society to be healthy and have an improved quality of life, the three components of sustainable development should be interrelated and be in equilibrium. In the field of hydrology, the World Water Development Report (United Nations Educational, Scientific and Cultural Organization - World Water Assessment Programme, UNESCO-WWAP),[22] maintains that water remains fundamental to achieving SD. This assertion is supported by Bhaduri et al.,[23] who substantiated that sustainability in the field of hydrology seeks to ensure that communities have access to adequate quantities of water that is of high quality to enhance human and socio-economic development and also preserve healthy ecosystems.

The foregoing argument shows that a country's economic growth is tied to its ability to achieve sustainable development. Therefore, governments must put in measures to ensure that everyone is brought

on board, especially the younger generation in attaining sustainable development for countries, communities, and neighborhoods. The measures to promote sustainable development include creating public awareness and training on sustainable development at the basic levels of education so that children and the youth grow up to become responsible citizens who contribute to the creation of a society that values people and the planet to promote well-being and quality life.

Defining Attributes

Defining attributes are critical features that help to differentiate the concept of SD from other related concepts. Defining attributes also help in clarifying the meaning of the concept.[4]

The literature search suggests the following as attributes of the concept of SD:

- A global policy adopted for the economic, political, and social systems of all nations to advance the attainment of a society that is free from the effects of climate change.
- Creating economic development with more environmentally friendly and sustainable alternatives to the current exploitative and destructive types of development.
- Educating people to make radical changes in personal attitudes, values, and behavior toward creating environmentally friendly societies.
- Empowering and enabling communities with resources to care for their environments.

What then becomes the role of the nursing profession in achieving sustainable development?

The nursing profession's contribution to achieving sustainable development for all can be explored across three key dimensions: nursing education, nursing practice, and nursing research.

Nursing Education

The World Health Organization (WHO)[24] explains that the nursing profession remains very significant to the attainment of sustainable development in many countries. This is because climate change has heightened the impact of some determinants of health such as economic, environmental, and social issues on health, leading to an increase in the number of disease conditions. Therefore, there is a call for nurses to be trained to understand the connections between the effects of climate change and how it impacts the determinants of health and disease causation. The International Council of Nurses (ICN)[25] also maintains that an effective way for nurses to contribute to sustainable development is by training nurses, especially the younger generation of nurses, to assume leadership positions to participate in making decisions and developing policies that are geared towards establishing robust healthcare systems to meet the healthcare needs of the populace.

However, despite the call for training the current nursing workforce on issues concerning sustainable development, the WHO[24] in the State of the World's Nursing 2020 report argues that the nursing workforce worldwide is not adequate to help countries and communities in attaining sustainable development. This low number of nurses can be attributed to an aging population of the nursing workforce retiring from service, low numbers of a younger generation of nurses, and a shortage of nurses. Hence, there is a need for countries to invest in the training of competent nurses and also put in measures to ensure that graduates of nursing training programs are recruited and maintained in active service.

Education for Sustainable Development also emphasizes the importance of improving basic education and reorienting current educational frameworks to integrate sustainability. As a result, some researchers advocate for incorporating SD principles into the nursing curriculum and improving pedagogical strategies to engage students more actively in learning.[26] They suggest moving away from traditional teaching methods that position students as passive recipients of knowledge towards engaging them with critical pedagogies like problem-solving that encourage active participation and critical thinking. This shift helps prepare nurses who can make informed decisions about patient care and contribute to achieving the sustainable development goal of good health and well-being for all. It is further proposed that students' involvement in meaningful projects can effectively transform patient care.[27] Similarly, fostering a democratic environment in classrooms to encourage diverse viewpoints helps in developing critically empowered nurses.[7]

Nursing Practice

The impact of climate change, including issues like inadequate drinking water, unsanitary conditions, and malnutrition, calls for an enhanced role of nurses in health education, promotion, and prevention. It is emphasized that there is a need for nurses to adapt their practices to address these challenges comprehensively.[28] The importance of considering various health determinants—including environmental, biological, and social factors—in patient care is highlighted.[29] This understanding of how health determinants underlie physical ailments aids in tailoring nursing interventions that address the root causes of health issues. The necessity for healthcare services to prevent harm to patients and enhance societal and environmental sustainability is underscored. The importance of healthcare accessibility, especially in underserved areas, advocating for localized healthcare services and supportive insurance schemes to mitigate financial and accessibility barriers is stressed.[30]

Nursing Research

There is a growing recognition of the need to elevate nursing research. Advanced nursing education programs, such as Doctorates in Nursing, are recommended to cultivate leaders who can spearhead impactful research and policy development towards universal health coverage.[31] When nurses' abilities, skills, and knowledge are enhanced, it will prepare them to conduct robust and evidence-based research. By improving research skills, nurses can better identify health disparities and contribute solutions that improve healthcare delivery, particularly for minority groups.[32] Together, these dimensions illustrate the integral role of nursing in driving sustainable development, emphasizing a holistic approach that spans education, practice, and research.

After the identification of the attributes of the concept, Walker and Avant's[4] eight steps of concept analysis allow for the creation of Model, Borderline, Related, and Contrary Cases. These cases are imaginary scenarios that are developed to give a detailed explanation of the concept of SD.

Model Cases

The model case depicts all of the defining attributes of the concept of SD.

Imaginary Scenario of a Model Case

The president of People for All Country has realized that the indigenes of the remotest villages in his country are being deceived by the big men in the country to engage in the destruction of their forest reserves and water bodies in search of minerals such as gold, diamond, and bauxite to support their livelihood. The government, through the district chief executives and environmental protection officers, organizes durbars in these remote villages to educate the people on the harmful effects of illegal small-scale mining (galamsey) activities. They explain how the chemicals used in such activities will poison all their water bodies, which will in turn affect their health negatively and also lead to a shortage of water. The destroyed farmlands will also result in a shortage of food, thus causing malnutrition among the citizens. To empower the citizens, the government sets up food processing companies to process the farm products of the farmers, and also establishes a mining company in the locality that will employ the citizens to help them acquire some money to cater to their families, thereby promoting sustainable development for the people and the environment.

Analysis of the Model Case

- The government implemented the global policy of helping create sustainable societies in its country.
- The people were educated on the harmful effects of their illegal small-scale mining (galamsey) activities, such as destroying the sources of drinking water and food shortages resulting in disease conditions and malnutrition among the indigenes.
- The president of the country empowered the people by providing employment through the establishment of food processing companies that would process their farm inputs to secure them with money to cater for themselves so that they do not go back to their illegal small-scale mining (galamsey) activities.

Borderline Case

A borderline case is an imaginary case that contains most of the attributes of the concept of Sustainable Development.

Imaginary Scenario

The people of Yaakrom village have resorted to cutting down trees to sell and also burning these trees for charcoal production. Deforestation has resulted in a decrease in the rainfall pattern of the community, and the fumes from the charcoal production have led to most of the people contracting respiratory tract infections. The people were educated on the effects of deforestation on their health, but they were not provided with any source of employment. As a result, they could not put a stop to the deforestation activity, which is a threat to their very existence.

Analysis of the Border Case

- The chief adopted the global policy of SD.
- The people were educated on deforestation activity and its impact on their health.
- The deforestation activity resulted in the acquisition of respiratory tract infections among the citizens, but they were still engaged in the activity because they did not have any sources of employment to depend on for their survival.

Related Case

Related cases are imaginary cases that are related to the concept but do not contain all the defining attributes.

Imaginary Related Case

Akua Mansah gains admission to the university to pursue a Bachelor of Science in Nursing. During her four-years stay in school, she received all the education she required to become a competent nurse but did not receive any training on climate change and the need for her to change her attitudes and values towards loving her fellow man and contributing to the creation of a sustainable society that would improve the health of people and prevent them from falling sick.

Analysis of the Imaginary Scenario

Akua Mansah has gone through formal education to become a nurse, but the curriculum for her training did not include aspects of education for SD. She is unable to help contribute to creating sustainable societies and cannot even educate people on what SD is and what is expected of them as citizens in the creation of sustainable environments.

Contrary Case

The contrary case is an imaginary scenario that does not explain the concept of SD.

Imaginary Scenario

Yaa Okyere has heard about the need for individuals and communities to contribute to creating sustainable societies, but she does not understand the concept of SD and has not received any form of education—formal, informal, or non-formal—on SD.

Analysis of Scenario

Yaa Okyere has heard about the concept of SD but has not been educated and empowered to become an agent of change in her society.

Antecedents

Antecedents are events that will enforce the occurrence of the concept of SD.[4] Antecedents may be equated to factors that will motivate or assist nations, communities, groups, and individuals to practice SD in their communities. These factors may include global acceptance of the policy of SD, education for SD, active participation, and partnership among all sectors of the economy.

Global Acceptance of the Policy Sustainable Development

The fight against climate change brought about the introduction of the seventeen Sustainable Development Goals, which all nations must strive to achieve to improve the lives of the populace. However, the benefits that some nations, governments, and individuals stand to gain from human activities that contribute to climate change have made it difficult for them to accept and embrace the concept of sustainable development and the need to contribute to the creation of sustainable societies. For instance, some governments are noted for indoctrinating their citizens with the belief that climate change is not harmful.[14] There are several innovative ideas which are inexpensive and would not cause harm, such as powering vehicles with hydro or solar energy to replace the use of fossil fuels, which is a major contributing factor to climate change. However, because these initiatives would bring about a reduction in the economic gains, some governments are adamant about not supporting these commendable ideas. According to Goodman,[18] the creation of sustainable communities requires the efforts of all and sundry to regard climate change as a

threat to human existence and to help contribute to activities that would eliminate the effects of climate change.

Education for Sustainable Development

The adverse effects of climate change necessitated the introduction of education for SD into the curriculum of our educational institutions to educate individuals about the ecosystem and its components, which include humans, plants, and animal species. The populace needs to understand that each member of the ecosystem plays a significant role in sustaining the environment. If any member of the ecosystem is trampled on, then it would have dire consequences for all other members of society.[21] Education for SD is also geared toward assisting humanity to change its relationship with nature to a lasting and harmonious one that respects existing natural laws and order and values the lives of humans and animals.[19]

The natural laws explain that if human activities affect any member of the ecosystem, then humans will suffer the rippling effects in the future. For instance, if humans deposit liquid waste into our water bodies, individuals who use these waters as their source of drinking water are likely to contract diseases such as typhoid. On the other hand, liquid waste serves as a toxin for aquatic life such as fish and plants. Moreover, humans who consume these fishes would contract several diseases.[7] Furthermore, it is expected that the education individuals receive will help build their capacity and motivate them to plan and manage change towards sustainability within organizations, industries, and communities.[33]

Active Participation and Partnership Among All Sectors of the Economy

SD rests on the principle of getting everyone on board and leaving no one behind. This calls for the active participation of individuals, groups, societies, and economies who have received education on sustainable development to make adjustments in their social and cultural practices to contribute to developing sustainable cities. Active participation requires that in our education on sustainable development, there is a need for individuals to believe in the saying that unity is strength, accept and value others, and collaborate with them to contribute to sustainable societies. Active participation also requires all sectors of the economy—that is, the education, environmental, agricultural, state, health, commerce, and finance sectors—to contribute to the development of sustainable societies by combining expertise, resources, and funding from all these sectors.[21]

Consequences

Consequences are the advantages nations, societies, individuals, and groups would benefit from if they adhere to and practice SD in all spheres of their lives. Walker and Avant[4] describe consequences as incidents or events that occur from the implementation of the concept of SD. The literature highlights the benefits of SD. These benefits include an understanding of the ecosystem, a change in philosophies, the creation of sustainable cities, the production of wholesome food for consumption, inter-generational equity, the use of indigenous technology, reduction, reusing, and recycling of natural resources, the availability of safe drinking water, improvement in the quality of life, and enhanced economic growth.

Understanding the Ecosystem and Its Impact on Life

When sustainable development is promoted and the idea resonates well with the populace, it will help everyone to understand the composition of the ecosystem and the roles each member of the ecosystem has to play to enhance sustainable societies, thereby bringing about a change in the philosophies of mankind from self-centeredness to demonstrating love for fellow humans and having a harmonious relationship with nature.[7] In addition, the policy of SD will inculcate in the citizenry the need to respect natural laws and order. The natural laws explain that humans will suffer the consequences of their actions on the ecosystem. For instance, if deforestation is promoted because we want to make money and build houses, there will come a time when the planet will be depleted of its oxygen stores, which could result in the death of mankind.

Creation of Sustainable Societies

SD assists in the redesigning of societies, which comprises individuals who are ready to overcome differences and move toward a common goal, which is a commitment to improving the environment and sustaining it.[34] Furthermore, SD will result in a new world that would be less polluted and heavily dependent on natural resources and innovative techniques to create longer-lasting societies.

Production of Wholesome Food for Consumption

SD will equip farmers to adopt less resource-intensive methods of food production and develop efficient methods of producing organic foods that promote sustenance as well as protect the forests.[35] Through SD, farmers are educated to employ methods that reduce the erosion of lands, and store and retain rainwater to sustain the quality of the topsoil of farmlands. Moreover, farmers are also educated on the effects of chemicals, fertilizers, and pesticides on the soil and mankind, and most importantly, how to store farm products and prevent them from being contaminated.[36] When the agriculture sector is enhanced through SD, it contributes to the nutritional well-being of the citizenry, as evidenced by improved food security, poverty reduction, and, most importantly, an increase in the economic growth of various nations.[37]

Inter-Generational Equity

Implementation of SD will result in inter-generational equity, whereby the current generation does not unduly exploit natural resources and engages in activities that reduce carbon dioxide emissions into the environment. Societies can also adopt walking and bicycling to reduce the emission of carbon into the environment and, in so doing, present a resourceful, healthy, and safe society that will promote the life and health of the unborn generation.[38]

Usage of Indigenous Technology

SD will result in the use of locally made technologies that are cost-effective, designed to produce less waste, are useful, eco-friendly, sustainable, and meet the needs of societies. When societies apply the principles of SD, it will reduce the extent to which resources are used.[38] This is because SD calls for the re-usage and recycling of used resources, which will result in a reduction in the use of natural resources and the generation of pollutants and waste in our societies. Above all, the process of recycling waste will serve as a source of employment for others.

Availability of Safe and Quality Drinking Water

Research shows that, despite the vast portion of the Earth being covered with water, only about 3% exists as freshwater for human and

animal consumption. Hence, there is a need for our water sources to be protected because water is life.[39] When all individuals, including children and older adults, understand the concept of SD and it translates into a change in behavior, attitude, perspective, and values, there would be a decline in the pollution of water bodies. In addition, there would be a decline in domestic water waste, which usually occurs through the unnecessary running of water through sinks, and excessive use of water for home gardening, laundry, and car washing. The availability of adequate water will sustain life and lead to a healthy ecosystem after the successful implementation of SD.[23]

Improvement in the Quality of Life and Health

Individuals who are educated on SD will become critical and reflective thinkers who will reflect on their daily activities and how they influence their health and transform their lives by adopting healthy lifestyles such as consuming less meat, more vegetables, exercising regularly, bicycling, and walking to ensure that they have zero carbon levels in their bodies.[19] Moreover, when citizens enjoy good health by adhering to the principles of sustainable development, they will continue the practice of constantly protecting their bodies and ensuring that their environment is safe.

Enhanced Economic Growth

When the populace is educated on the importance of SD to their health and that of the economy, it translates into an improvement in the economic growth of nations.[14] This is because governments would not have to spend extra money on caring for the sick, treating polluted water to make it safe for human consumption, and restoring degraded farmlands. In addition, all the different sectors of the economy such as agriculture, water, sanitation, education, road, and transport would flourish, leading to an increase in the economy's gross domestic product, resulting in economic growth.

Empirical Referent

Walker and Avant[4] define empirical referents as ways of measuring the occurrence of the concept of SD. A lot of research tools have been developed to measure the concept of SD. The Environment Literacy Questionnaire, developed by Michigan State University, was originally used by Kaplowitz and Levine[40] to find out how environmental knowledge is measured among students. The SD Awareness Scale developed by Atmaca et al.,[41] was used by Simsek and Erkin[42] to assess SD awareness and related factors among nursing students. Teksoz, Sahin, and Ertepinar[43] also developed the Environmental Education Perception Survey and Environmental Literacy Test to assess attitudes, knowledge, and concerns about the environment.

Conclusion

In conclusion, the concept of SD offers a comprehensive framework for addressing the complex challenges faced by contemporary societies. By understanding, adopting, and promoting sustainable practices, societies can strive towards a future that balances the needs of the present with the capacity of future generations to meet their own needs. Furthermore, measures such as education on SD, development and implementation of policies on SD, and collaboration among community members for SD, will bring about sustainable societies that prioritize the well-being of both humanity and the environment. Embracing sustainable development is not only a moral imperative but also a pathway to a more prosperous, resilient, and harmonious future.

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