Repercussions on Innovation in Education for Sustainable Development: A Theoretical Reflection

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ABSTRACT

The preservation of our planet's resources while promoting the wealth and well-being of a growing population is a crucial issue of our time. Education for Sustainable Development (ESD) was launched in response to the goals of sustainable development to address the demands of sustainability. The aim of our study was to investigate the impact of education for sustainable development on innovation and the social dimension. We examined the variables of educational expenditure, intellectual property patents, and the human development index, comparing two groups of countries: the first with the highest educational ranking in the world, and the second with the highest educational ranking in Africa. Our findings indicate that the first group of countries had a positive educational impact on innovation and human development index, while the second group did not experience the same effects. In this context, we propose a new line of reflection, outlining the necessary steps for a country to adopt a responsible approach in education and to achieve positive results in terms of sustainable development, specifically on the social side.

Keywords: Education for sustainable development, Sustainable development, Innovation, Human development

INTRODUCTION

Sustainable development is a goal that requires the involvement of all sectors contributing to the economy of countries, whether developed or developing. Therefore, this study focuses on human capital, specifically on education for sustainable development. The aim is to move away from conventional education towards a more responsible approach. Education for sustainable development is essential in promoting sustainable development. It enables learners to comprehend the environmental, social, and economic issues associated with sustainable development, as well as the actions they can take to contribute to a more sustainable world, Uralovich, Kiyosov Sherzod, et al (2023).

The value of education for sustainable development lies in its ability to shape responsible and committed citizens who can make informed decisions and actively participate in building a more sustainable world. Additionally, it raises awareness of global issues and encourages learners to act for positive change. This education is introduced and applied through various methods and practices. Many countries are incorporating sustainable development concepts into school curricula. These concepts cover topics such as environmental conservation, renewable energies, natural resource management, and social responsibility. Teachers are then trained to raise awareness of sustainable development issues and integrate these concepts into their teaching practices. Schools set up practical projects and activities that enable students to experiment with and put into practice the principles of sustainable development Rieckmann, Marco (2018).

These include creating community gardens, managing waste, and raising awareness of responsible consumption. Finally, schools collaborate with local communities to raise awareness of sustainable development issues. They do this by organizing events, awareness campaigns, or volunteer actions McKeown, Rosalyn, et al (2002).

The aim of education for sustainable development is to find solutions to these issues, rather than just seeking to understand them (Barth & Michelsen, 2013; Wals & Jickling, 2002). According to Wiek, Withycombe, and Redman's (2011) extensive review, the essential learning outcomes, and competencies that students should acquire in education for sustainable development are systems thinking, anticipatory (foresight), normative, strategic, and interpersonal competence. In 2017, UNESCO formalized and expanded its set of core competencies to include eight: systems thinking, anticipatory skills, normative skills, strategic skills, collaboration skills, critical thinking, self-awareness, and integrated problem-solving.

UNESCO (2018) has specifically highlighted the importance of cognitive (knowledge), socio-emotional (interpersonal and motivational) and behavioral (action and promotion) learning objectives to act and bring about change. Learning approaches with an active and experiential design are highly valued for education for sustainable development. These approaches combine cognition, perception, behavior, and experience, empowering individuals for critical self-reflection in the social context. This, in turn, leads to thoughtful and responsible actions (Clark & Dickson, 2003; Wiek et al., 2011; Wiek, Xiong, Brundiers, & van der Leeuw, 2014; Pipere, 2019). So, our initial problematic appears as follows: **To what extent does the integration of education for sustainable development influence innovation and contribute to improving the life quality?**

Our article adopts the following structure, beginning with a synthesis of the literature in Section II, which examines the impact of education for sustainable development on innovation. Section III then provides an overview of the adoption of education for sustainable development in selected countries. The methodology of our study is presented in Section IV, where we introduce the stylized fact, method, and reflection, followed by an in-depth discussion of the results and interpretations in the section V, and finally the conclusion.

EDUCATION FOR SUSTAINABLE DEVELOPMENT, INNOVATION, AND ECONOMIC GROWTH: THEORETICAL BACKGROUND

In recent years, the discourse on sustainable development has evolved to include a multifaceted approach that integrates education, innovation, and economic growth. This comprehensive perspective recognizes the interconnectedness of these elements and their vital role in shaping the trajectory of global development. This Section explores the theoretical foundations that sustain the intersection of education for sustainable development, innovation, and economic growth. The theoretical underpinnings of these concepts will be explored to elucidate their synergistic potential and shed light on the pathways towards achieving sustainable and inclusive development outcomes. Our aim is to provide an overview of the dynamics of educational innovation and its impact on promoting economic growth in the context of sustainable development. Relevant theories and frameworks linking education to innovation, economic growth and subsequently to sustainable development will be examined in detail in the following sub-section.

The impact of education on growth: Theoretical aspects:

Education for sustainable development relies on various theories and conceptual frameworks to guide its practice and impact. One such theory is experiential learning, developed by David Kolb (2014), which highlights the significance of practical experience and reflection in promoting meaningful learning. Integrating this approach into educational programs encourages learners to engage in concrete experiences

related to sustainable development, such as community projects or environmental internships, thus strengthening their understanding and commitment. Additionally, Albert Bandura's (2011) social learning theory emphasizes the role of models and observation in the learning process. In the context of sustainable development, providing learners with models of sustainable and ethical behavior, as well as opportunities to observe and interact with individuals and communities engaged in sustainable practices, is crucial. Partnerships with environmental organizations or socially responsible companies can provide concrete learning experiences. Critical education theory emphasizes questioning existing social norms and power structures. In the context of sustainable development, this approach encourages learners to critically analyze the economic, political, and social systems that underpin sustainability challenges, while exploring innovative alternatives. It can also encourage reflection on how education can contribute to positive change. Integrating these theories into the practice of education for sustainable development can foster a deeper understanding of the inequalities and injustices associated with development Kopnina, H. (2020). Educators can create stimulating learning environments that foster engagement, critical reflection, and transformative action. These theoretical approaches support the idea that education plays a crucial role in promoting sustainable development by shaping individuals who are not only well-informed but also empowered to act in favor of a more sustainable future.

Education is a crucial component in promoting sustainable development, as it has a significant impact on various key aspects. Firstly, it raises awareness by providing individuals with an in-depth understanding of crucial environmental and social issues, such as climate change and biodiversity loss. Additionally, education motivates learners to adopt sustainable lifestyles, recycle, save energy, and support ethical practices, thereby encouraging behavioral change. Education equips individuals with the necessary skills to make informed decisions that integrate social, environmental, and economic considerations. Additionally, education fosters innovation and research in crucial areas such as renewable energies, contributing to the discovery of sustainable solutions. It also serves as a powerful tool in the fight against poverty by providing individuals with the skills they need to access sustainable employment. Education stimulates community involvement, encouraging participation in local sustainable development initiatives. Educational institutions play a key role in developing leaders who are aware of sustainable development and capable of integrating these principles into various sectors. Finally, education develops skills such as critical thinking and problem-solving, enabling individuals to adapt to change and propose innovative solutions to the complex challenges of sustainable development. In this way, an education system focused on sustainability helps to create engaged citizens, capable of positively influencing their communities and creating a more sustainable future.

The impact of education for sustainable development on innovation according to different approaches:

Education for sustainable development is an interdisciplinary educational approach that aims to integrate the principles, values, and practices of sustainable development into all aspects of learning.

Education for sustainable development necessitates a comprehensive and cohesive strategy. An interdisciplinary approach is essential, merging diverse perspectives to effectively address the intricate challenges posed by environmental, social, and economic sustainability, Annan-Diab, Fatima, and Carolina Molinari (2017). Embracing a systemic approach is imperative, acknowledging the intricate interplay among the environmental, social, and economic facets of sustainability Sala, S., Ciuffo, B., & Nijkamp, P. (2015). Furthermore, a participatory approach is crucial, involving learners in both the educational process and decision-making, thereby fostering their engagement and empowerment. Encouraging critical thinking is also paramount, urging individuals to question existing models and propose innovative ideas to confront sustainability challenges, Tilbury, D., & Wortman, D. (2004). The educational framework should be practical, motivating learners to apply acquired knowledge and skills in real-life scenarios, promoting the actualization of sustainable solutions. Lastly, an evaluative approach is necessary, systematically measuring the impact of sustainable actions and initiatives on the environment, society, and the economy, facilitating

continuous improvement. (Aurélie Zwang et Yves Girault, 2012)

The collaborative learning approach, developed by Elliot Aronson (2000), emphasizes the importance of collaboration and the exchange of ideas in the learning process. This theory encourages learners to work together to solve problems related to sustainability. Project-based learning theory, developed by John Dewey (1986), emphasizes the importance of firsthand learning and the implementation of concrete projects. Dewey encourages learners to design and implement sustainability-related projects, thus fostering deeper understanding.

Regarding the relationship between education for sustainable development and innovation, this is a topic that is increasingly being explored in academic research. According to Zwang and Girault (2012), education for sustainable development can play a crucial role in promoting innovation by encouraging individuals to adopt innovative behaviors and mindsets that are geared towards sustainability. Indeed, effective education for sustainable development can raise learners' awareness of environmental, social, and economic issues and motivate them to seek innovative solutions to these challenges.

In addition, several studies highlight the relationship between education for sustainable development and the stimulation of innovation in fields such as engineering, technology, natural resource management and public policy design. By fostering critical thinking, creativity and problem solving, education for sustainable development can create an environment conducive to innovation in these fields.

According to Clément and Caravita (2011), Education for sustainable development stimulates pedagogical innovation by incorporating innovative approaches to dealing with environmental issues. Indeed, it encourages teachers to adopt more participatory and interactive teaching methods, involving students in concrete projects and encouraging them to think critically about environmental issues. This innovative pedagogical approach fosters the development of key skills such as critical thinking, creativity, collaboration, and communication, all of which are essential to address current and future environmental challenges.

Furthermore, UNESCO (2014, p.1) emphasizes that "sustainable development begins with education". By integrating Education for sustainable development into the education system, students are made aware of environmental issues and encouraged to adopt responsible, sustainable behaviors. This awareness can also stimulate innovation by encouraging students to find innovative solutions to environmental problems.

Our reflections fall within the framework of the systemic and interdisciplinary approach, since they respond to the three pillars of sustainable development at once (i.e., the economic, social and environmental pillars), and this is the ultimate objective of recent research in education and economics in general.

THE CURRENT SITUATION: WHAT HAS BEEN ACHIEVED IN THIS CONTEXT: SOME EXAMPLES OF COUNTRIES THAT HAVE ADOPTED EDUCATION FOR SUSTAINABLE DEVELOPMENT PROGRAMS:

Over the past decade, education for sustainable development has become an integral part of the educational landscape, alongside environmental education, development education, health education, citizenship education and solidarity education, relegating the latter to the sidelines. Some even believe that education for sustainable development is taking over the field of education, Uralovich, Kiyosov Sherzod, et al (2023), Stein, Sharon, et al (2023) relegating the term "environment" to the background.

We present below a table summarizing education for sustainable development programs as well as their results in certain countries.

Table 1: Education for sustainable development programs and their results in a selection of countries.

Countries	***Sustainable development education programs***	***Results***
France	The official bulletin n° 14 of April 5, 2007 is a notable illustration of this, highlighting the generalization of environmental education for sustainable development (EEDD) Tutiaux-Guillon, N. (2012)	This mobilization has encouraged teachers and trainers to adopt multidisciplinary, interdisciplinary, and even transdisciplinary approaches to sustainable development issues.
Canada-Ontario	Several Canadian provinces, such as Ontario, have adopted the EcoSchools program, which encourages schools to adopt sustainable practices, reduce their ecological footprint and integrate education for sustainable development (ESD) into the curriculum. Igbokwe, A. B. (2012)	it helps school communities develop environmental literacy and practices aimed at creating responsible citizens while reducing the schools' environmental footprint. EcoSchools could become an excellent environmental education program promoting Environmental literacy, awareness, and student involvement in environmental issues.
Australia	Australia has set up national initiatives to integrate education for sustainable development into schools, with programs focusing on environmental sustainability, social equity, and economic responsibility. Gough, A. (2006).	Education provides a platform for raising awareness of environmental issues. It also encourages critical thinking, enabling people to assess environmental implications. the influence of educated individuals on environmental policies can foster more environmentally friendly industrial and governmental practices.
Brazil	Brazil has established national environmental education programs that include initiatives to raise awareness of sustainable development issues among students and the community. Trajber, R., & Mochizuki, Y. (2015).	The study points out that environmental education has lost its dialogical and critical character, in favor of a utilitarian, market-oriented perspective. This orientation has had an impact on the practice of environmental education, leading to a gradual loss of its reflective and participatory dimension. This means that for such programs to succeed, economic policies will have to follow the same path as sustainable education programs, to achieve more responsible innovation and economies.

Germany	The Bildung für nachhaltige Entwicklung (BNE) programme, Rieckmann, M., & Holz, V. (2017).	Encouragement of critical reflection on global issues, promotion of sustainable lifestyles and raising teacher's awareness of ESD, capacity-building for teachers, integration of ESD into teacher training.
South Africa	Environmental education in South Africa, Belaidi, N., Gonçalves, R. S., & Maciel, G. G. (2019)	Environmental education remains instrumental, serving the objectives of economic growth without going into any depth of reflection.
United States	The Eco-Schools program, the Green Schools movement promotes sustainable practices in schools. Floris, M. (2022).	Eco-Schools is a major catalyst for instilling knowledge, skills, and values for a sustainable future, while encouraging critical thinking and environmentally responsible behavior.
Japan	Environmental education program in Japan, Inoue, S. (2020).	Preservation of nature, waste management, promotion of renewable energies, alternative perspective on the relationship between man and the environment, integration of inochi knowledge, enrichment of environmental education.

Source: the authors

The table above on education for sustainable development programs in different countries highlights the crucial importance of integrating environmental education and sustainable development into education systems worldwide. These programs aim to promote environmental awareness, critical thinking, student engagement and a reduction in the ecological footprint of schools. The multidisciplinary, interdisciplinary, and transdisciplinary approaches adopted by some countries have shown positive results in terms of awareness and involvement of teachers and students. It is also pointed out that to ensure the success of these programs, it is essential that economic policies follow the path of responsible innovation and sustainable economies.

METHODOLOGY FOR THE STUDY

In this paper, we adopt a stylized fact methodology in economic research to study the crucial interconnection between education, innovation and the Human Development Index (HDI) in the context of global sustainability. A stylised fact is an empirical generalisation that simplifies and illuminates the complex relationships between these key variables. We chose this approach because of its ability to provide a clear and robust conceptual framework to better understand how investment in education and innovation influences the HDI. By focusing on the stylised fact that higher levels of education and innovation are associated with a higher HDI and a deeper engagement with environmental and social issues, our study examines how these elements contribute to human development and sustainability on a global scale. This simplified approach facilitates comparison between different economies while guiding an in-depth empirical analysis of the impact of education and innovation policies on sustainable development.

In an era of rapid technological advancement and complex global challenges, the convergence of education, innovation and human development offers a beacon of hope for sustainable progress. By delving into the intricate relationships between these cited pillars, we aim to reveal the transformative potential they hold in shaping a more equitable, prosperous, and resilient world. Through a comprehensive examination of their interplay, this section seeks to illuminate pathways for harnessing the power of education and innovation to

advance human development while fostering sustainable solutions for the benefit of present and future generations.

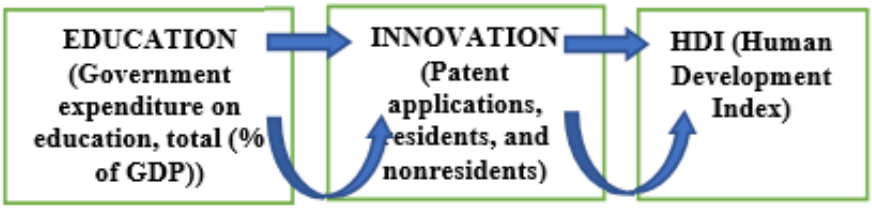
The methodology used is detailed in the following paragraph:

We have chosen to use a stylized approach. In the social sciences, particularly in economics, as a simplified representation of an empirical result. It is often a broad generalization that summarizes data that may be true in general but inaccurate in details.

We employed a database containing education expenditures, intellectual property patents, and the Human Development Index for the period 2000 to 2021 (the database was taken from the World Bank's official website- https://data.worldbank.org/).

We observed a significant difference in the impact of education between two samples. The first sample consists of the top-ranked countries in education worldwide: 33 country :(Singapore, Japan, Korea.Rep, Estonia, Switzerland, Canada, Netherlands, Ireland, Belgium, Denmark, United Kingdom, Poland, Austria, Australia, Czechia, Slovenia, Finland, Latvia, Sweden, New Zealand, Lithuania, Germany, France, Spain, Hungary, Portugal, Italy, Viet Nam, Norway, Malta, United States, Slovak Republic, Croatia – according to the PISA survey2022/2023), while the second sample consists of the top-ranked countries in education in Africa :21 country: (Seychelles, Sao Tome and Principe, South Africa, Tunisia, Kenya, Mauritius, Algeria, Gabon, Botswana, Burundi, Egypt, Arab Republic, Namibia, Cabo Verde, Zimbabwe, Ghana, Rwanda, Malawi, Tanzania, Cameroon, Morocco. – according to the PISA survey2022/2023) The following variables (in figure 1) were considered in this analysis:

Figure 1: The determinants of education, innovation, and human development



Source: the authors

Using the stylized fact method, our analysis focuses on key variables such as public spending on education, intellectual property patent applications, and the Human Development Index (HDI). This approach allows us to examine in depth how education and innovation influence human development across different countries and regions. By simplifying the complexity of the data, this method makes it easier to compare the effects of education and innovation on the HDI, while recognizing the importance of interpreting the results carefully, taking into account specific local contexts and varying national policies.

RESULTS AND DISCUSION

Based on data observation and comparisons our findings are as follows:

Deduction 1: The world's top-ranked countries in terms of education tend to integrate education for sustainable development into their educational programs, which leads to the generation of more responsible innovations, and more effective responses to the demands of sustainable development.

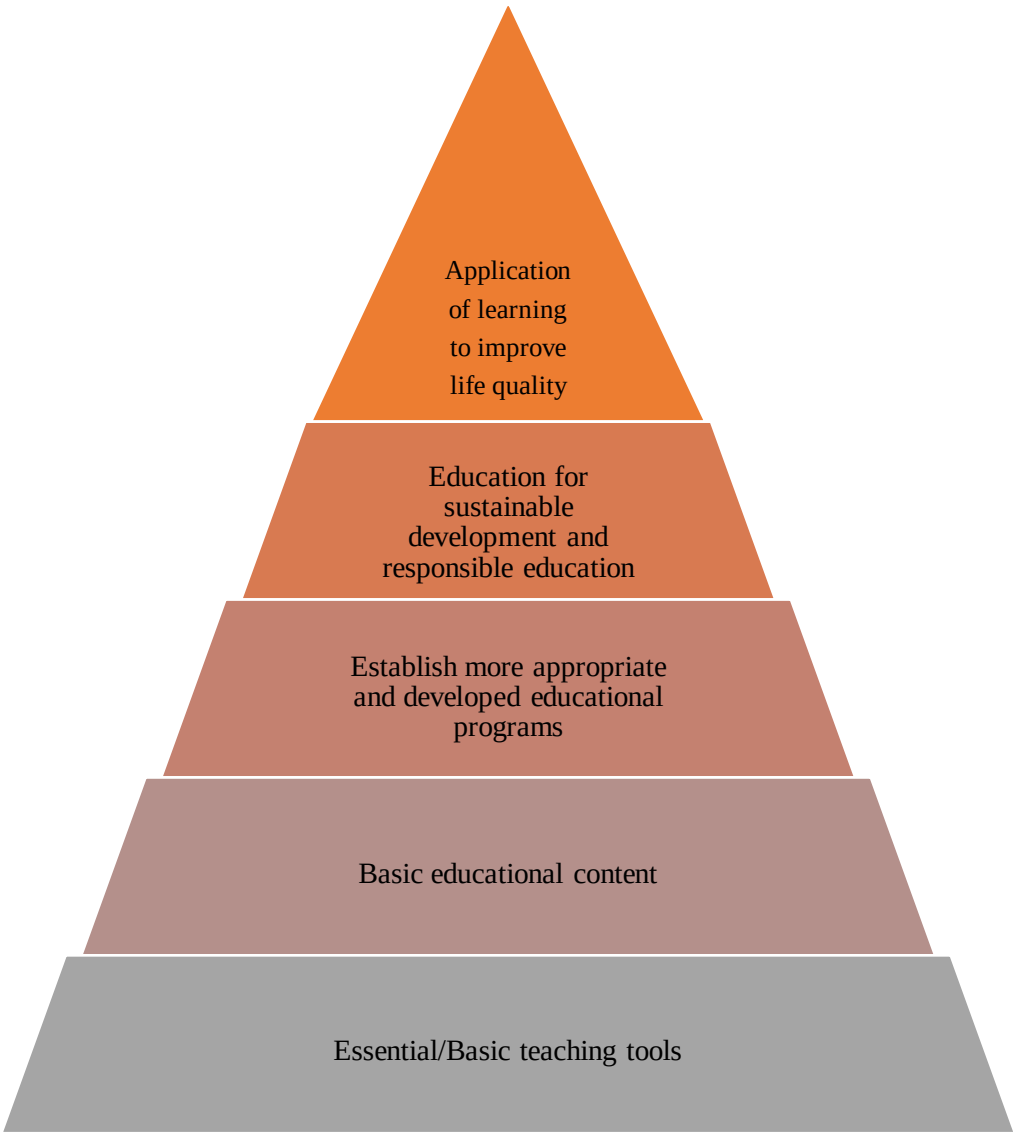
Deduction 2: In the case of the top-ranked countries in Africa, due to lack of integration in terms of

education for sustainable development, tend to result in less innovations and consequently a less efficient economy, especially in terms of sustainable development and planetary respect.

It is observed that there are two types of education: classical education and education for sustainable development. Therefore, to better understand why countries with the highest education rankings in Africa either do not adopt education for sustainable development programs or do not achieve expected results, we propose the following reflection:

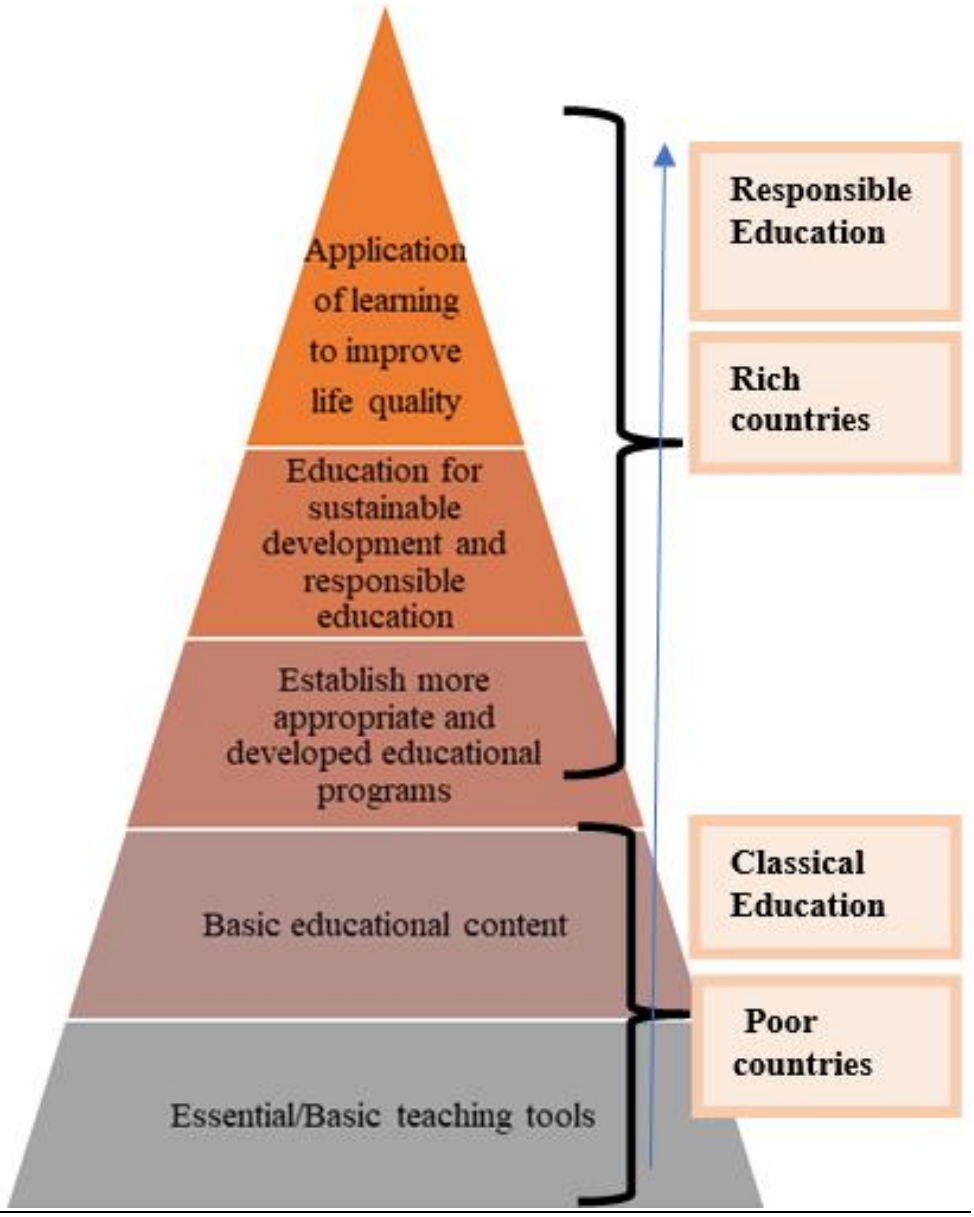
Our study is based on the pyramid of educational needs, presented below by figure 2, which is inspired by Maslow's pyramid of needs. The pyramid consists of phases of development that must be achieved to apply responsible education. It is important to go through the first elementary phases of education. Our aim is to demonstrate that sustainable education cannot be explicitly implemented in all countries, regardless of their level of development. It is necessary to go through elementary stages, such as investing in education and ensuring essential elements for a good education, including high-level training. Only then will education programs for sustainable development be applied, leading to the goal of using this education and new human capital to improve the quality of life and society in general (Source: authors' reflection).

Figure 2: The pyramid of educational needs



Source: the authors

Figure 3: Schematic diagram of the transition from classic education to responsible education



Source: the authors

This discrepancy in responsible education can be explained by the fact that investment in sustainable education in wealthy countries is the result of a long-term policy, moving along the pyramid from conventional education to responsible education: whereas investment in education in poor countries is the result of a short-term investment. Poor countries have only recently begun to invest in education.

To conclude, In this case, if countries want to be adapted to the new global education system, and move on from the classical or traditional education to a more responsible education(figure 3), it will be necessary to go through the pyramid of educational levels, namely the essential/Basic teaching tools, Basic educational content, then establish more appropriate and developed educational programs, Education for sustainable development and responsible education, to finally achieve the application of learning to improve life quality, so that countries become ready to begin responsible education programs, and to take advantage of these gains, which are not only economic but also have a positive impact on all the pillars of sustainable development.

The pyramid of educational stages we developed in our article was used to explain the obstacles to the adoption of education for sustainable development in developing countries. What we're looking for now is a faster and more effective solution to facilitate the adoption of sustainability practices in developing countries, since the process of stages explained in our reflection is a process that requires a lot of time and long-term investment.

Figure 4: The rapid adoption process of education for sustainable development (for developing countries)

Source: the authors

The rapid adoption process of education for sustainable development in the (figure 4) means that:

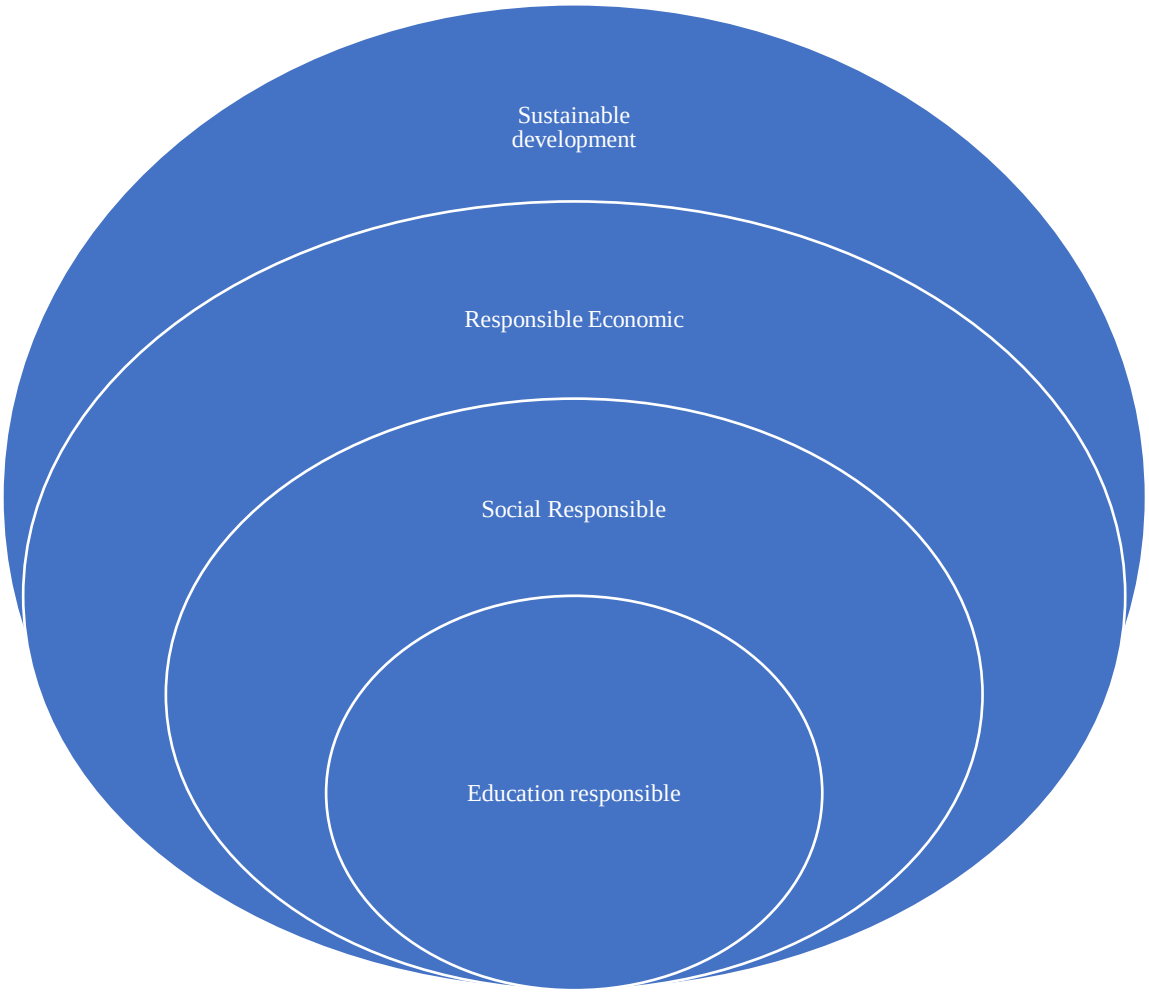
To accelerate the adoption of education for sustainable development in developing countries, we propose the following solution: integrating education for sustainable development into the basic education system, either through activities or through the integration of responsible behavior among students, will help to establish the values of commitment to all aspects of sustainable development, as well as the generalization and transmission of these values in society. This means that the establishment of sustainable development will also depend on basic education incorporating education for sustainable development.

The adoption of education for sustainable development in basic education programs raises awareness about the importance of preserving natural resources, promoting social equity, and fostering sustainable economic growth. By applying this knowledge in everyday life, individuals can contribute to improving quality of life by embracing more sustainable lifestyles and adopting environmentally friendly practices. This application of learning leads to the realization of sustainable development, where communities can meet their present needs without compromising the ability of future generations to meet their own, thereby establishing a balance between the environmental, social, and economic aspects of society.

This process will prepare nations to implement responsible education initiatives, capitalizing on the multifaceted benefits they offer. These benefits extend beyond mere economic gains, encompassing positive impacts across all dimensions of sustainable development. Such collective efforts foster opportunities that prioritize the common good over individual interests, aligning with the principle of social innovation. Furthermore, responsible innovations not only contribute to an increase in GDP per capita but also address environmental concerns. Industrial innovations geared towards reducing CO2 and greenhouse gas emissions not only enhance air quality but also promote human well-being by curbing diseases, leading to an improvement in life expectancy.

Despite the emphasis on education to promote sustainable development more quickly, the process of achieving it takes time, since it has to go through the following stages, which can be detrimental to the implementation of sustainable development, as shown in the following diagram.

Figure 5: Classical education process model for sustainable development: long-term model



Source: the authors

The figure above (figure:5) represents the long-term or it can be characterized as a classical process of responsible education to achieve sustainable development. Therefore, responsible education is a process that aims to teach individuals not only academic skills, but also values such as empathy, respect for the environment, social justice and personal responsibility. When people are educated responsibly, they develop a social conscience and an awareness of the challenges facing their society, including economic and environmental ones.

This social awareness encourages them to act responsibly in their daily lives, whether as consumers, employees, citizens or entrepreneurs. For example, they may choose to support ethical businesses, reduce their ecological footprint, participate in community initiatives or campaign for more sustainable public policies.

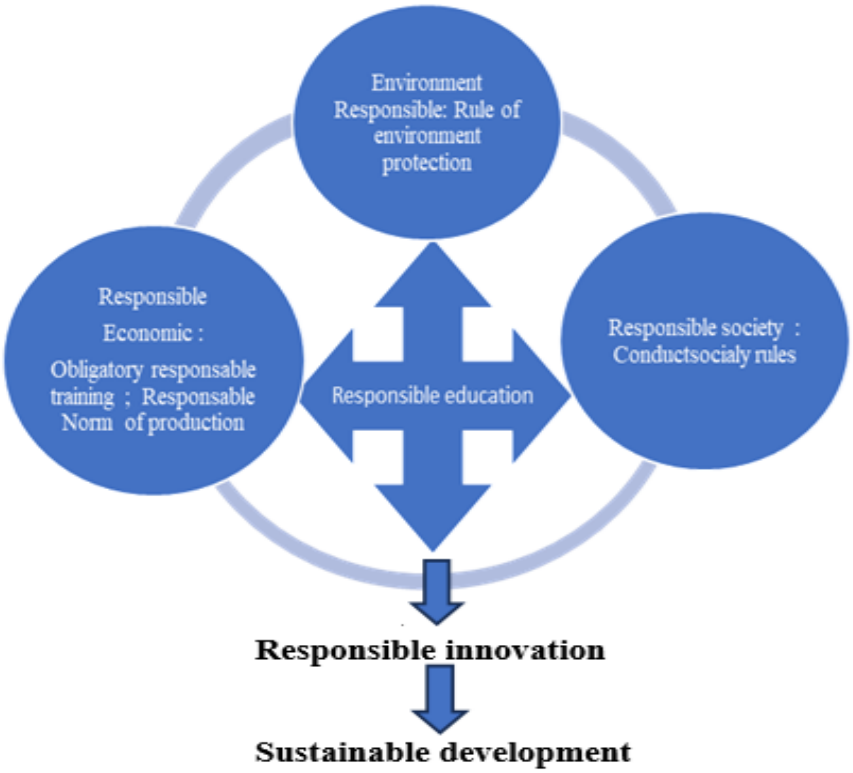
This commitment to social responsibility then contributes to economic responsibility. Responsible individuals and companies integrate sustainable business practices, such as reducing waste, using renewable energy sources, respecting ethical labour standards and promoting social inclusion. By doing so, they contribute to the creation of a more equitable, resilient and environmentally friendly economy.

The application of this process is reasonable and achievable, except that it takes a considerable amount of time, which is an inconvenience for developing countries, since their path to evolution will remain long and

hard.

In order to resolve this problem, we believe it is important to integrate responsible education into a responsible environment for greater efficiency in terms of time savings and sustainable development gains, as advocated in the following model represented in figure 6 below.

Figure 6: Short-term quick process model for sustainable development



Source: the authors

The figure above (figure 6) represents the short-term process of responsible education to achieve sustainable development. To illustrate the process of rapidly integrating education for sustainable development in developing countries, the first point we addressed was the fact of integrating education for sustainable development into the framework of basic education. However, this approach alone is not entirely sufficient, which is why we want to illustrate the importance of integrating regulations at all three levels – social, environmental and economic – at the same time, To illustrate the importance of the regulatory aspect in supporting this approach, we can take the example of a person who has obtained his driving license (acquired in education for sustainable development) and who has found that there are no regulations (regulations for the three pillars of sustainable development in society), so he doesn't carry out a technical inspection, i.e. pollution, and he doesn't respect the road rules, leading to accidents which constitute a risk to life expectancy… in other words, the absence of these regulations will lead to the absence of real involvement and responsible commitment in society.

This correlation between responsible education and regulations leads to environmental protection rules by raising awareness of current ecological challenges and teaching sustainable practices. This can include conserving natural resources, reducing greenhouse gas emissions, managing waste, and preserving biodiversity. Individuals educated in this way are more likely to respect environmental protection rules in their daily lives.

As well as promoting rules of social conduct by encouraging respect, inclusion, diversity, and social justice and civic engagement. Individuals in this context are more inclined to adopt socially responsible behavior, act for the well-being of their community and promote positive interpersonal relationships, and also contribute to a more sustainable and inclusive economy.

CONCLUSION

To conclude the adoption of sustainable development practices is currently one of the most important objectives for all countries in the world, and this adoption depends strongly on human capital and its training, hence the need to integrate education for sustainable development into the educational systems of nations in order to achieve more responsible behavioral changes.

By adopting responsible practices and behaviors, individuals as well as all economic stakeholders contribute to the creation of a sustainable future, where economic, social and environmental aspects are balanced and taken into account in an equitable manner.

Investing in education at higher levels creates a multiplier effect, giving future generations access to better learning opportunities. This accumulation of educational progress creates a snowball effect, propelling societal advancement and development. By nurturing a well-educated populace, nations can navigate the complexities of the modern world more adeptly, fostering innovation and resilience in the face of global challenges. Therefore, fostering educational evolution is not merely an investment in the present but a commitment to shaping a sustainable and prosperous future for generations to come. According to the conclusions of our study, the adoption of education for sustainable development programs has produced positive results in developed countries, unlike in developing countries, for a number of reasons-mainly the existence of stages in the education process that need to be respected to better prepare the educational framework for adaptation to the new sustainable development programs, The solution proposed is to integrate some aspects of education for sustainable development into the basic educational framework, which will generate a faster and more effective sustainable transition in society and the country as a whole.

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