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Sustainability Enhancement Through Information Technology in Higher Education

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Abstract

The quick evolution and development of digital technologies contribute to changes and turning points in every aspect of the modern society. Managing these the digital changes and turning them into long-term sustainable solutions for higher education could be a real challenge. Technology offers immeasurable opportunities to the learning environment and higher education system which is intensively absorbing information and communication technology (ICT). This paper is discussing the concept of enhanced sustainability in education through learning technologies like applications, electronic resources, and teaching methods for educational development. Technology in higher education is particularly important, therefore it is important to assess the quality that it can provide and the impact on sustainable education. The educational system has been also harshly affected by the latest pandemic situation, which brought significant consequences on the socio-economic life worldwide. This paper aims to contribute with insights to the literature in the field, by emphasizing that the latest situation around the world could be a great opportunity for further implementation and development of digital technologies for sustainable learning. The methodology used for fulfilling the study goal is a qualitative one, particularly the technique used is data analysis from secondary sources. This analysis disseminates that there is need and room for improvement of digital sustainable resources in higher education, which includes the challenges that the academic environment face and need to overcome if their goal is to stay relevant on the education market.

Keywords: *Sustainability, higher education, technology-based learning, digital technologies.*

1. Introduction

The notion of sustainable development has dominated research on organizational and environmental excellence throughout the last decade. Due to its importance on the global stage, this situation is expected to continue and even gain more relevance in the future. Universities serve as centers for developing a talented, knowledgeable, and capable workforce. Therefore, the sustainability of the university is a fundamental component of the long-term growth of all essential stakeholders (enterprises, industry, and society).

Higher education's long-term development is critical to national, regional, and global growth. The fast expansion of information technology capabilities and

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capacity, as well as communication channels, has increased information flow and effect. Knowledge increasingly takes over as a driving force for economic development. As a result, universities are essential advocates of the knowledge economy, not only because they train future employees, but rather because they provide the community with their own structure and results, from the laboratory and library to knowledge outcomes.

As a result, sustainability is a criterion that defines the quality of the stakeholder-university relationship. This relationship's quality is reflected in the ability to meet educational expectation and scientific progress, ensure employment, and contribute to the country's economic and social well-being adequately.

2. Technology enhanced learning

Technological improvement and long-term growth is characterized as "enhancing the outcomes of higher education in a sustainable manner via the use of information and communication technology." To be effective in the academic system, digitalization must be founded on sustainable management, specifically in terms of implementation and adaptability to new technology (Wong, 2019). HEIs are more and more conscious that digital advancement is crucial to attract more students and increase the quality of the programs they offer, as well as teaching materials and methodologies; in other words, digitization integrates the overall education experience. The most current research on COVID-19 and the pandemic's repercussions on educational environment is united in proposing that higher education environment is crucial in promoting remote learning through the use of digital technologies (Wolff, 2020). While this unstable environment presents several impediments and obstacles to learning environment and teaching methods, it must be regarded as a chance for change. Traditional learning and teaching techniques are evolving more than ever before to meet new academic requirements. Despite the fact that institutional partied did not have enough time to plan this transformation, as a matter of fact a lot of them still try to keep up with the transition to e-learning or b-learning is imminent (Sa & Serpa, 2020).

3. Sustainable & long-term development in higher education environment

A sustainable University is distinguished by the identification of techniques, procedures, and resources critical to realizing a university's effect on economy, humanity, and social life. In order to obtain excellence in sustainability – it is required university's dedication to openness, justice, and accountability at all stages (Lai & Peng, 2020). A sustainable university pursues tendencies that involve stakeholders along with their expectations and interests, which are then used to define the vision and objectives, as well as to monitor the goals to promote activities and governance, in enhancing community-university engagement (Rowe, 2007). Therefore, sustainability is linked to openness, image, agreement, and

effective outcome monitoring, assuring ongoing improvement in the main activity of the higher education institution (Figure 1) (Salvioni et al., 2017).

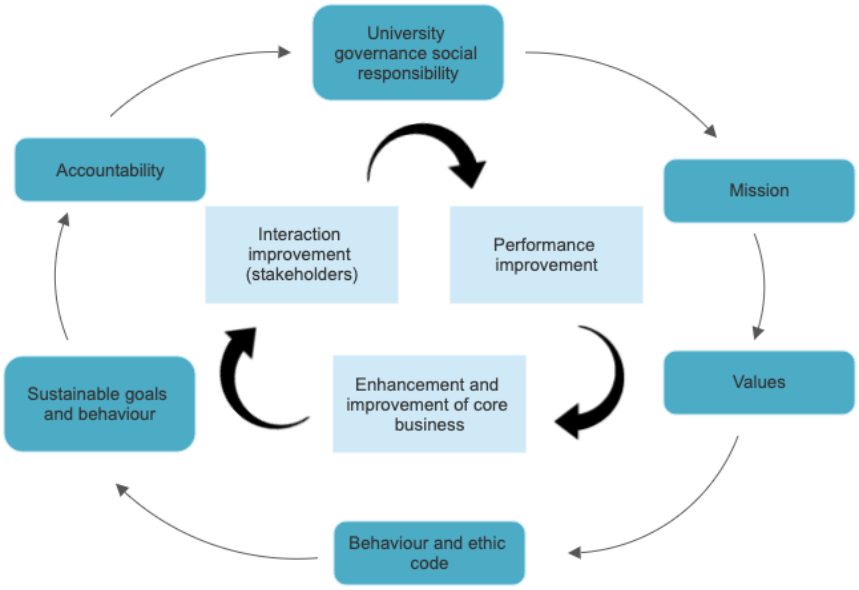


Fig. 1. Cycle of sustainable development in universities

3.1. Quality of teaching and learning

Higher education environment is required to use new teachin gand learning strategies, along with interactive, collaborative, experimental, and simulation-based techniques to strengthen relevant knowledge, skills, and learners' abilities. The university teaching community is morally and legally obligated to acquire advanced topic-knowledge and to develop their teaching skills as well as the talents necessary to facilitate the learning process, according to university policy. (Fook, 2012). The administration of the institution, on the other hand, is responsible for fostering a supportive atmosphere and providing the required resources. Instructional quality is influenced by a variety of factors, including teaching method, material quality, curriculum, the equilibrium across practice and theory, practitioner competences, as well as the successful use of educational technology. Because of technology breakthroughs, overall dynamism underlying effective teaching transforms, putting conventional lecture tactics, as well as approaches, under pressure to remain relevant. More focused measures are necessary for engaging the students to ensure that the educational processes are efficient and applicable for a generation immersed in current communication, access to a wide range of information, and digital content (Sa & Serpa, 2020).

3.2. The academic research framework

Delivering qualitative and meaningful research demands a good connection

across universities and industry along with effective partnerships and engagement. Scientific relationship and cooperation involving academia and industry fosters research culture and makes the process more successful for all parties involved (Bohunovsky et al., 2020). Many studies conducted and disseminated by academia serves the interests of academic environment mainly, and this is particularly specific in developing economies. Unfortunately, most of the studies are not focused on resolution of the true socio-economic, and environmental concerns. When it comes to universities, research development and dissemination are seen as a means of providing answers to problems faced by business and society (Carmichael, 2011).

3.3. Technological enhancement

Technology has produced upheavals in all sectors, including higher education. From sophisticated product prototyping, through instructional assistance, electronic library, and artificial intelligence technology brought a proactive role for research, teaching and learning. Technology innovation destroyed many traditional tasks in the workplace, therefore caused a downgrade in the need for conventional jobs. Based on a study of the literature on technology enhanced learning (TEL), we may conclude that TEL is much more than just enabling tools. For augmented learning, the potential of technologized learning should be tackled via their basic core values (Wong, 2019). Knowledge management, learning process management, knowledge integration, and collaborative development are significant areas of concentration for this method. Education is a system in which we provide information and students acquire knowledge as a consequence of the teaching process. Implementing a TEL strategy allows for the rapid and sustained growth of higher education with a broad reach, but it demands well qualified academics and teamwork (Lai & Peng, 2020).

3.4. Globalization

Universities have investigated different techniques, tactics, and activity strategies targeted towards exploiting international chances. Globalization of academic environment has driven student mobility, and likewise educational programs. Internationalization necessitates universities making context - specific decisions to strengthen their worldwide presence using communication and interaction with the global knowledge society, human capital, academia, exchange programs, international collaborations programs, and joint graduate programs (Little & Green, 2009). Globalization, specifically, the elimination of obstacles to the flow of people and information also in connection to cultural and economic aspects has impacted universities governance. In this respect, the OECD surveys (Organization for Economic Co-operation and Development) over the last two decades have showed a gradual growth in global student mobility, which has fueled the competitive process and therefore competition among institutions. International migration also influences university programs and researches, disrupting the process of selecting the most competent resources and educational programs (OECD, 2018).

4. Conclusion

Over the last several decades, sustainable development has attracted widespread attention, and colleges and institutes of higher education have also paid close attention to it. It is assumed that universities have a double role in long-term and sustainable development: First, by being change agents, universities are required to be more active in responding to global sustainable development initiatives. Create new knowledge through examining the issues and challenges of sustainable development, identifying, and proposing practical solutions and offering appropriate learning opportunities for society. Secondly, universities are the ones that meet the needs of multiple stakeholders by deploying various resources. In the current tough environment brought on by the COVID-19 epidemic, the solution to the question of identifying the basic function of education may be that higher education, must partake and adhere to a transformative process. In these challenging times, education must rethink its own role, particularly in building a fair, inclusive, and sustainable society for everyone. It is the responsibility of higher education to constantly challenge the entire concept of long-term development as the correct road to pursue and foster in its students the desire of "creating new ideas and paradigms to make this world better."

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