



Sustainability Model for Private Higher Education of North Sumatra Indonesia

Haniza¹, Nazaruddin Matondang¹, Juliza Hidayati¹

¹Industrial Engineering, Universitas Sumatera Utara, Indonesia

ARTICLE INFO

Article History:

Received: 12 June 2021

Final Revision: 20 August 2021

Accepted: 22 August 2021

Online Publication: 30 August 2021

KEYWORDS

sustainability; higher education; global challenges; integrated model; Medan municipal

CORRESPONDING AUTHOR

*E-mail: rivaijuliza@gmail.com

A B S T R A C T

The sustainability of private higher education depends on the adaptive competence that universities apply in facing global challenges. This research developed an integrated sustainability model of managing higher education which used the local and global challenges to face the competitiveness in handling higher education. With a Research and Development Model, this study offered a sustainability strategy that includes dimensions; education and research, community involvement, operation, and administration. Data found that many higher education institutions in Medan Municipality of North Sumatra face human resources problems; the majority of private universities only have less than 10 percent hold a doctoral degree and most of their working time doing teaching and administration tasks, but the low publication of research. The sustainability of private universities in Medan Municipality of North Sumatra Province mostly was found in threat conditions due to the lack of an integrated model that could adapt to global challenges. This model recommends the private universities build an integrated model which changes the workloads of lecturers to be research-oriented.

1. INTRODUCTION

1.1. Research Background

Indonesia Many universities struggle to apply the principle of sustainability. Indeed, knowledge on sustainability in higher education should be exchanged among universities worldwide, but especially those located in regions with serious social and environmental challenges. Without such exchanges of information, universities will not be able to meet the expectations concerning their impact on this subject [1].

Ref. [2] argued that despite the aforementioned efforts, there have been limited efforts combining pedagogical approaches and competencies, such as the case-based approaches for sustainability science; the effectiveness of different pedagogical approaches in engineering courses for improving student awareness of sustainability; the connections between pedagogical approaches and knowledge domains (declarative, procedural, effectiveness, and social knowledge); and four key competencies (systems thinking, foresight, collaboration, and change-agent skills) in the context of primary and secondary education. Nevertheless, as sustainability challenges can no longer be ignored, there is a general agreement on the need to reform scientific expertise at the university level, by developing new ways of knowledge production and decision-making [3].

Much higher education in Medan Municipality emphasizes individual learning of students and competition and ultimately results in professionals who are unable to work in the future. Fragmented and intensive learning has long been established and professional practice, often hampering them from expanding their work to other disciplines or inviting interdisciplinary collaboration. Higher education institutions Medan Municipality should have been assigned and have the responsibility to increase the awareness, knowledge, skills, and values needed to create a just and sustainable future. Many programs in Private Higher education in Medan often overlooked their role in realizing this vision. Higher education institutions in Medan ought to develop, lead, manage, teach, work and influence community service. Based on the challenges of the sustainability of Private Universities in Indonesia.

1.2. Literature Review

The concept of "sustainable development" is based on a strong relationship between human well-being and the scope of human activity, which impacts system integrity [4]. Ref. [5] further states that "Education for Sustainable Development enables the development of knowledge, values, and skills, individually and collectively, locally and globally, which will improve the quality of life". Thus, sustainable development for tertiary education is embedded in a process of maintaining educational stability that requires long-term thinking, educational goals, multidimensional approaches, and plans in a systematic

and integrated manner. In other words, adopting the concept of sustainable development for higher education must successfully combine local and global knowledge, join the talents of students, faculty, and staff, and transformative and systematic long-term planning to create synergies and develop new solutions [6].

One track is sustainability reporting as a tool to publicize all actions regarding performance. Several reporting methodologies have been applied at universities. For example, Ref. [7] proposed a determined best option for the Global Reporting Initiative Methodology. Although it was not designed for higher education institutions but covered most of the activities except for research and teaching. First, universities need to establish a "sustainability" committee that will be responsible for sustainability policies and evaluate data to report. If there is an existing committee that takes care of environmental issues in the institution then this can be accounted for in terms of sustainability. Analysis of sustainability reports (using the Global Reporting Initiative (GRI) methodology) delivered by more than 20 universities around the world provides a starting point and allows identifying the most relevant and most used for sustainability indicators. The list of performance indicators can help the tertiary institution of education that compiles the first sustainability report and builds milestones for sustainability in the future.

Changes in mindset are needed on an ongoing basis and for a long time to achieve this vision to change all levels of education. Graduates are coming out of the world of the best colleges and universities that lead us but are on an unhealthy, unfair, and unsustainable path today. Only a few schools have made sustainable designs for basic education and practice [8].

Ref. [9] point out: "Sustainable university projects address the challenges of sustainability in higher education at the institutional level. To modify tertiary education as an institution, as a whole, towards sustainability remains a big challenge, and only a few universities around the world have accepted this challenge. "Important issues related to sustainable development very strongly influence the university's mission, its research and education system, and its relationship with external stakeholders. Several research cases prove that sustainable change occurs throughout the world [10].

Today a university is expected to engage in crucial social problems, and to find innovative solutions. The university is expected to be involved with social, technological, and environmental issues. It is important to highlight another aspect, which fulfills these expectations towards a modern university halfway: transdisciplinary, which is an attribute of ongoing development [11]. Transdisciplinary is especially significant in times of crisis, when the need for universities to be economically involved and where their innovative advice is emphasized.

Data on sustainable development of Private Higher Universities in North Sumatra revealed that many universities had not set the perfect model for sustainability. If a new point of reference for global problems is now characterized by three levels: natural, economic, and social justice, there would be problems that have a strong influence on universities. There are relatively low changes been introduced at the university concerning the direction of sustainable development. The Private universities in Medan Municipality had not made the new role, which includes formative assignments, directed at students as well as the universities of the environment. In contrast, accepting the sustainable university model implies the implementation of

complex institutional reforms. Ref. [12] points out two basic institutional tasks for sustainable universities: 'design indicators of sustainability in higher education (which is a means of transforming a university into a more sustainable institution) and 'initiating and assessing transformative learning processes' (which means finding good practice and design suitable for sustainable policies for universities).

The first, and perhaps the most important area related to change, is the university's mission. A sustainable university concept satisfies this dilemma in business travel, making it possible to find new levels of growth in economic and ethical action. The mission is proof of the academic will of the community and the main direction of change. The sustainable mission can be considered in two dimensions. First, the institutional dimension implies the provision of universities with institutional support in the form of accepting their activities and values that lead to sustainable development policies. Second, the formative dimension implies educational policy; where the mission is the foremost symbol of university education priorities. The concept of sustainability must be seen in the mission to create the possibility of implementing sustainable strategies according to the 'top down' method.

Another component that influences universities in the context of sustainability in university administration. Clark notes that universities must find entrepreneurial solutions for their departments and research [13]. Universities, like other public institutions, adopt company activities such as material suppliers and technical staff to provide food and office supplies for the campus, etc. Corporate actions permit the administration of sustainable development policies. Therefore, universities like choosing companies. The crucial issue is the administration of research, where research on sustainable development will be a priority

1.3. Research Objective

This research aimed to (a) Formulate measurements of the level of sustainability of tertiary institutions; (b) Analyze the level of readiness of Private Higher Education in terms of sustainability in Medan Municipality; (c) Analyzing the factors that influence the level of sustainability of tertiary institutions.

2. MATERIALS AND METHODS

This study looks at how private universities perceive and understand sustainability, and examines it through a survey involving private universities in Medan Municipality of North Sumatra and see how these universities incorporate sustainability-related practices, as part of their operations. With the Research and Development Model, this research offers a sustainability strategy that includes the dimensions; education and research, community involvement, operations, and administration. The sustainability model states that there are four levels in the sustainability of higher institutions. The four levels are as follows: the vision of higher education on sustainability, sustainability mission; the sustainability committee and a sustainability strategy consist of: Education, Research, Affordability, and Partnerships.

3. RESULT AND DISCUSSION

3.1. Morphometric Proposed Fully Integrated System Sustainability Model

Data obtained showed that the majority of private higher education in Medan Municipality had not made a good design sustainability model. The Fully Integrated System seems to be the right one for private universities in Medan of North Sumatra. This model helps universities to prepare the future competitions. Ref. [14] introduces the Fully Integrated System, which states that the sustainability of a tertiary institution is formed by four dimensions, namely: aspects of education, aspects of research, aspects of campus operations, and aspects of community outreach, as stated in Figure 1.

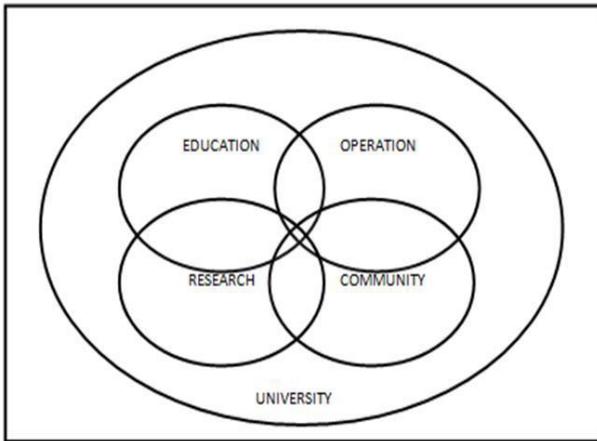


Figure 1. Fully Integrated System [14].

Higher education institutions bear a deep moral responsibility to increase the awareness, knowledge, skills, and values needed to create a just and sustainable future. Higher education plays an important but often overlooked role in realizing this vision. It prepares most professionals who develop, lead, manage, teach, work in, and influence community institutions.

Higher education has a unique academic and critical mass freedom and diversity of skills to develop new ideas, comment on society and its challenges, and engage boldly with experiments in a sustainable life. Then why is it so risk-averse and difficult to change? Because the change sought is deep culture - the most difficult to achieve - but one of the most important leverage points for institutional transformation [15]. The relationship can be seen in Figure 2.

3.2. Managerial Sustainability Model

It noted that the managerial sustainability model might have a good opportunity to be applied in Medan Municipality. Ref. [16] introduced the Managerial Model based on the results of research on 80 universities in the world. The model they developed states that there are four levels in the sustainability of a tertiary institution. The four levels are as follows: a vision of higher education on sustainability, the sustainability mission; the sustainability committee, and a sustainability strategy consisting of: Education, Research, Affordability, and Partnerships.

The four stages are followed by a quality cycle that starts from planning (plan), implementation (do), evaluation (check), and corrective action (act), as shown in Figure 3.

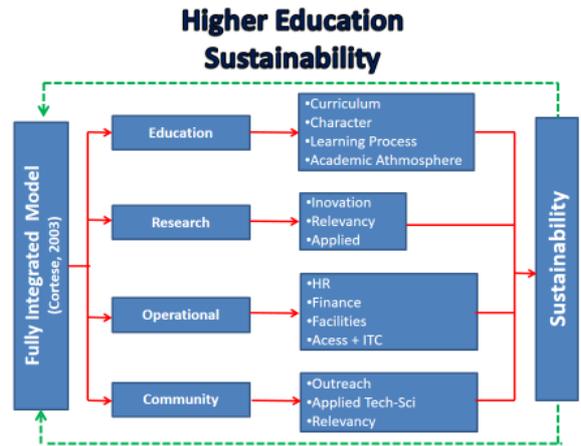


Figure 2: Factors affecting the level of sustainability in tertiary institutions.

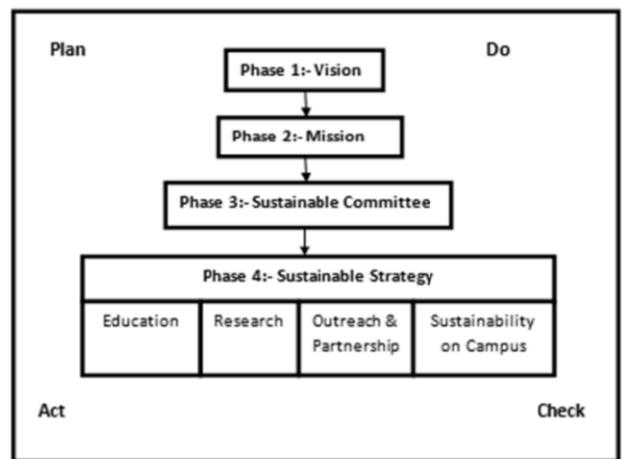


Figure 3. Managerial Model [16]

3.2.1. Phase one: Develop a Sustainability Vision for the university

Phase one is a strategic step towards sustainability that starts when someone, or many people, at a university "dreams" about the possibility of the behavior of institutional members under the philosophy of sustainable development. This means that all of its resources are used to complete the university's mission sustainably. At this point, an understanding of obstacles or obstacles is needed and requires imagination and creativity. At this stage, universities must define their concepts and definitions of how to achieve sustainable universities.

3.2.2. Phase Two: Mission

The ideal future imagined must be used as a fundamental basis for mission development. The mission statement conveys inspiration and vision motivation. However, mission statements tend to be more realistic than vision statements and answer three key questions: who, what, and why (1). The mission lays the foundation for future actions and philosophies that underlie these actions (2). Epistemological and political philosophy is often found in university missions as a way to do it legitimately for these institutions (3). The ultimate goal of university members advocating for sustainability is to change or create, the

university's mission statement to include sustainability as one of the core values of their university.

3.2.3. Phase Three: Sustainability Committee: making policies, targets, and objectives

The managerial step further mandates that the organizational structure for a sustainable university reflects its commitment by incorporating its policies into its usual operations and the means needed to successfully achieve the mission. In the sustainable university model, the establishment of a sustainability committee facilitates the task of creating and setting comprehensive targets, policies, and targets throughout the campus. This committee is the main decision-making level. The committee does not take over initiatives around the campus, it helps the people responsible for these initiatives by disseminating and receiving information, coordinating initiatives, avoiding overlapping efforts, obtaining funds, and ensuring that policies are being implemented effectively. Ideally, a committee should be formed with representatives from all key players in the university community such as students, professors, staff members, trade unions, administrators, and if possible, many representatives of distinguished members of the surrounding community. Sustainability must be promoted by policies that aim to inspire changes in the behavior of university members. A university policy that had not been existed or developed with broad unit input, of course, tends to be uncoordinated, and the results become unfocused and short-lived.

4. CONCLUSION

Data analysis gave some conclusions: (1) There are many private universities in Medan Municipality that face the competitiveness to be survived had not had Sustainability Models. The sustainability model should have been applied by policies. University policies are planned to change the behavior of university members. It found that those efforts had not been uncoordinated and the result in the unfocused and short-lived; (2) It found many the departments implement ongoing initiatives at the university to contribute to achieving the goals and objectives of the institution. However, it noted that there is no policy on the entire campus; the leaders responsible for each initiative had not been perfectly set their specific policies, goals, and objectives.

REFERENCE

- [1] Bizerril, M., Rosa, M. J., Carvalho, T., & Pedrosa, J. 2018. Sustainability in higher education: A review of contributions from Portuguese Speaking Countries. *Journal of Cleaner Production*, 171, 600-612.
- [2] Lozano, R., Barreiro-Gen, M., Lozano, F. J., & Sammalisto, K. 2019. Teaching Sustainability in European Higher Education Institutions: Assessing the Connections between Competences and Pedagogical Approaches. *Sustainability*, 11(6), 1602.
- [3] Tejedor, G., Segalàs, J., & Rosas-Casals, M. 2017. Transdisciplinary in higher education for sustainability: How discourses are approached in engineering education. *Journal of cleaner production*, 175, 29-37.
- [4] Quaddusa, M. A. & Siddique, M. A. B. 2001. "Modelling sustainable development planning: A multi-criteria decision conferencing approach". *Environment International* 27, 89-95.
- [5] Sanusi, A. Z., & Khelghat-Doost, H. 2008. Regional Centre of Expertise as a transformational platform for sustainability: A case study of Universiti Sains Malaysia, Penang. *International Journal of sustainability in higher education*, 9(4), 487-497.
- [6] Hooi, K. K., & Hassan, P. 2010. Sustainable education: an assessment of carbon footprint at UCSI University and proposed green campus initiative framework. *Business Management Quarterly Review*, 1(3), 14-27.
- [7] Lozano, R. 2011, "The state of sustainability reporting in universities", *International Journal of Sustainability in Higher Education*, Vol. 12 No. 1, pp. 67-78. <https://doi.org/10.1108/14676371111098311>
- [8] Glyphis, J. 2001. How can the architect contribute to a sustainable world? In *Proceedings of the Wingspread Conference* (pp. 24-26).
- [9] Beringer, A., & Adomßent, M. 2008. Sustainable university research and development: inspecting sustainability in higher education research. *Environmental Education Research*, 14(6), 607-623.
- [10] Fihlo, W. L. 2010. *Universities and Climate Change*. Springer: Berlin, Heidelberg. DOI: <https://doi.org/10.1007/978-3-642-10751-1>
- [11] Scholz, R.W. 2011. *Environmental literacy in science and society. From knowledge to decisions*. Cambridge University Press, Cambridge, UK
- [12] Michelsen, G., 2011. *Future Challenges of Higher Education in the Context of Sustainable Development from a European Point of View*. Presentation in Summer School of Sustainability, Leuphana.
- [13] Clark, B., 2000. Collegial entrepreneurialism in proactive universities: lessons from Europe, change. *The Magazine of Higher Learning* 32 (1), 10-19.
- [14] Cortese AD (2003) The critical role of higher education in creating a sustainable future. *Plann high educ* 31(3):15-22.
- [15] Meadows, D. 1997. Places to Intervene in a System. *Whole Earth* 91: 78-84.
- [16] Velazquez, L., Munguia, N., Platt, A., & Taddei, J. (2006). Sustainable university: what can be the matter?. *Journal of Cleaner Production*, 14(9-11), 810-819.