Students' Perceptions of Education for Sustainable Development (ESD) to Achieve SDG 4 in Indonesia: A Case Study of Universitas Islam Riau

by Elfis Elfis

Chapter 18
Students' Perceptions of Education for Sustainable Development (ESD) to Achieve SDG 4 in Indonesia: A Case Study of Universitas Islam Riau

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Abstract Sustainable development at higher education level plays an important role in achieving the Sustainable Development Goals (SDGs). Higher education holds a great responsibility to increase the awareness and knowledge of students who will manage and develop resources. For the purpose of the sustainability of resources, awareness and knowledge of sustainable development are needed. This knowledge can be conveyed through Education for Sustainable Development (ESD) to achieve high education quality and equal access to education for women and men. Perception

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of ESD must be studied to gather information about the facts, problems and challenges faced by Universitas Islam Riau (UIR) to achieve SDGs, especially SDG 4 (Quality Education). This study aims to identify the perception students of both genders at Universitas Islam Riau (UIR) hold about Education for Sustainable Development (ESD). This research is a descriptive survey research conducted using a quantitative approach. There were 99 respondents in this study, consisting of 43 men and 56 women. Data was collected by distributing questionnaires containing 70 statements, while processing of questionnaire data was done through the frequency analysis formula. Generally, the results of social, environmental and economic aspects in the 'Good' category are between 71.08 and 78.75%. Based on gender, both female and male students scored a higher percentage in economic aspect than other aspects, whereby female students scored 77.76%, whereas it was 76.50% for male students. Based on this study, it can be concluded that the students of Universitas Islam Riau have a good perception of Education for Sustainable Development. Therefore, the University must begin to apply the concept of sustainable development in every aspect in order to contribute to achieving SDG 4.

Keywords Education for sustainable development · Students' perception · Sustainable development goals · Quality education

18.1 Introduction

To ensure planet sustainability, in September 2015, UN member states agreed to establish 17 Sustainable Development Goals (SDGs), which include social, environmental and economic dimensions (Sustainable Development Solutions Network (SDSN) 2015). To achieve these goals, ESD is expected to empower all levels of society to be able to plan, overcome and find solutions to problems that threaten the sustainability of our planet (UNESCO 2005, 2015). Education for Sustainable Development (ESD) is the main media for achieving sustainable development goals, especially SDG 4 (Quality Education); point 4.7 strives to ensure that all learners obtain the knowledge and skills needed to promote sustainable development through education for sustainable development and practicing a sustainable lifestyle (UNESCO 2017, 2018a).

SDG 4 proposes equal and inclusive education related to the implementation of the other 16 SDGs, which focus on promoting peaceful and inclusive communities, to build effective and responsible institutions at all levels. SDG 4 advocates to ensure education that is inclusive, is equitable and promotes lifelong learning opportunities for all. It is targeted that by 2030, all boys and girls will have access to free, fair and quality primary and secondary education, thus leading to relevant and effective learning outcomes. This is also to ensure that all learners acquire the knowledge and skills needed to promote sustainable development through sustainable lifestyles, human rights, gender equality and global citizenship, promoting a culture of peace and brotherhood (Nazar et al. 2018; UNESCO 2018b; Webb et al. 2017).

According to Kanyimba et al. (2014), the goal of ESD is to transform environmental, social and economic aspects of society to sustainable levels. Mogren et al. (2019) stated a specific goal of ESD is to improve learning that helps students to become responsible individuals, thereby fostering sustainability in hopes of maintaining world equity and conservation of natural resources at local and global levels. Quality education in the area of SDGs increases the ability of students to overcome various global sustainability crises. Specifically, there are two pedagogical interpretations in ESD. The first is ESD as a means to transfer concepts of knowledge, attitudes and values that are appropriate to students. The second develops people who have pro-sustainability thinking so that they can apply that mindset in everyday life (UNESCO 2009). Therefore, quality education that integrates ESD perspectives includes measurable learning targets of the Global Action Program on ESD and Sustainable Development Goals (SDGs) in 2015 as a pathway for reform and improvement of global education (Ofei-Manu and Didham 2014).

A university campus is defined as an institutional space designed to be used for education (Matloob 2018). It is an area that has unique features that enable it to assist a country in solving many challenges within the context of sustainable development implementation. A university, either directly or indirectly, performs various operations and activities that have the potential to impact the environment either positively or negatively. ESD has been widely implemented at university level in countries such as Japan, South Korea, China, Australia, Sweden, Ireland, South America, Namibia, Philippines and Malaysia (Abas et al. 2018; Anyolo 2015; Choi et al. 2008; Hassan 2017; Isa 2016; Kanyimba et al. 2014; Komatsu and Rappleye 2018; Laurie et al. 2016; Mogren et al. 2019; Mohanty and Dash 2018; Parello-marin et al. 2018; Pauw et al. 2015; Razak et al. 2011; Valencia 2018). In continuing to focus on developing countries, SDGs maintain the emphasis set by the Millennium Development Goals (MDGs), and consequently they are as likely to have the same partial success as MDGs (Pogge and Sengupta 2015; Webb et al. 2017), whereas in Indonesia, the development of ESD is carried out by each policyholder based on the interpretation of the concepts and directions outlined by UNESCO. Up to now, there has been no specific concept developed by various policyholders related to ESD development in Indonesia. Center for Education and Culture Policy and Innovation Research Center Ministry of Education and Culture in 2009 produced an ESD guide to education in Indonesia. Even so, based on the experience of many non-governmental organisations that assist a number of schools in various regions in Indonesia, socialisation from the authorities is still very minimal. Even in some regions a number of related officials still appear to have not mastered the concept of sustainable development and ESD.

The successful delivery of a higher education ESD strategy depends on the universities' understanding of sustainable development. The concepts of SD should be integrated into the policies, approaches and learning of all members of university stakeholders (administrators, faculty and students) (Filho et al. 2017). However, at the level of higher education in Indonesia, ESD is implemented through a sustainable campus or green campus programme. In the Voluntary National Reviews ((VNR) 2019), there are several universities that are incorporated into the centre for implementing SDGs

in Indonesia, such as Universitas Indonesia, Institut Teknologi Bandung, Universitas Padjajaran, Institut Pertanian Bogor, Universitas Hassanuddin, Universitas Jember, Universitas Mataram and Universitas Bengkulu. Meanwhile, based on the International NGO Forum on Indonesia Development ((INFID) 2016), Universitas Islam Negeri Sunan Kalijaga Yogyakarta, Universitas Gadjah Mada, Universitas Katolik Soegija Pranata, Universitas Hassanudin, Universitas Negeri Sebelas Maret and Universitas Katolik Widya Mandira explained the roles they played in achieving SDGs, starting from village community service programmes to conducting research on the development of development models for a sustainable city.

However, Universitas Islam Riau (UIR) as one of the universities located in Riau has not taken up the role to meet SDGs explicitly. Factors like lack of commitment of university management towards sustainable campus and the lack of awareness about ESD are considered to affect the mindset and attitude of UIR students in leading a sustainable lifestyle. To achieve the goal of a sustainable campus, it is necessary to conduct research related to student perceptions of Education for Sustainable Development, which will be the first step to establish the starting point of the ESD integration journey at this university.

18.2 Method

This study uses a quantitative descriptive survey approach. The survey was conducted by distributing questionnaires to respondents. Determination of the number of samples was done using the Slovin formula, resulting in 99 students from 10 different faculties selected as respondents. Because this study also investigates perceptions of ESD by gender, the respondent pool consisted of 43 male students and 56 female students. Data was obtained by distributing questionnaires containing 70 statements to students directly by visiting each faculty in the UIR. The questionnaire was developed from three aspects of sustainable development, namely social, environmental and economic. Processing of data was done using a frequency analysis formula (Sudijono 2011) as shown below:

$$P\% = \frac{F}{N} \times 100 \tag{18.1}$$

Explanation:

P   Percentage,
F   Frequency,
N   Number of respondents.

To determine the extent of students' perceptions of the ESD concept, the percentage figure obtained was adjusted to the set criteria (Riduwan 2016), presented in Table 18.1.

Table 18.1 Score interpretation criteria

| Number (%)	Category
0–20	Not good
21–40	Less good
41–60	Enough good
61–80	Good
81–100	Very good

18.3   Results and Discussion

Based on the results of the survey conducted, the perceptions of Universitas Islam Riau students about Education for Sustainable Development fit in the 'Very good' category with an average percentage of 83.13%. The results of the study focused on aspects of sustainable development (sociocultural, environmental and economic aspects). The results obtained from each aspect of sustainable development are presented in Table 18.2 and Fig. 18.1.

Table 18.1 shows that the results of frequency analysis obtained an average percentage of 74.71%, meaning that students already have a good understanding of the concept of ESD based on sustainability aspects. Previous studies show that student

Table 18.2 The results of the analysis of each indicator

No.	Indicator	Percentage (%)	Category
1	Social	74.3	Good
2	Environmental	71.08	Good
3	Economic	78.75	Good
Total		224.13	
Average (%)		74.71	
Category		Good	
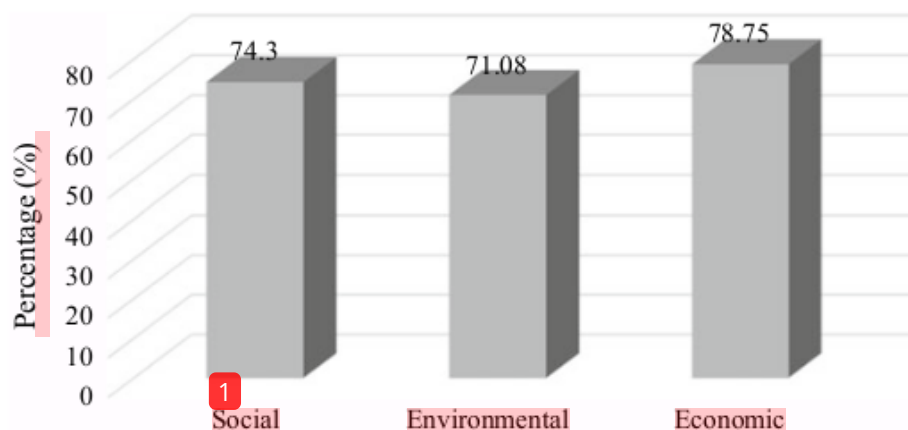
Fig. 18.1   Percentage results from each indicator

perceptions of sustainable development are also positive (Kagawa 2007; Sharma and Kelly 2014; Zeegers and Clark 2014). For example, Zeegers and Clark (2014) through the analysis of students' views on environmental aspects showed that students can develop more balanced perspectives of sustainability, highlighting their existing good understanding of the subject matter. Furthermore, Kagawa's (2007) study of students' understanding and perceptions of sustainable development at the University of Plymouth found that the majority of respondents thought sustainability was 'a good thing'. Similarly, Sharma and Kelly (2014) explored the perspectives and students' understanding of ESD at Delta Business School (DBS) in New Zealand, whereby it found that most students considered ESD to be 'a good thing'. Students support the sustainable business learning experience offered at DBS.

Figure 18.1 depicts that economic aspect scored the highest percentage at 78.75%. Based on the responses to the questionnaire items relating to economic aspects, it shows that students have a good perception of the concept of ESD. Economic aspects are considered important by students to be applied in learning to achieve a sustainable life. Analysis of economic processes in various countries shows that rapid economic growth has caused serious problems from the point of view of sustainable development, such as social and regional inequality, the dramatic loss of rural infrastructure and environment (Kruja 2013) depletion of natural resources and deteriorating environmental services (Kurniawan and Managi 2018). Indirectly, current economic growth will hinder the achievement of SDGs. According to UNESCO (2017), special learning objectives (ESD) must be seen in tandem with cross-sectoral sustainability competencies. For example, one specific learning goal for SDG 1 (No Poverty) can be defined as students knowing about the causes and effects of poverty. This knowledge can be obtained by conducting case studies of poverty in certain countries. At the same time, this learning activity will affect one's thoughts or perceptions that many factors influence poverty, so students are expected to be able to understand the complex interrelationships with other SDGs.

The environmental aspect scored the lowest percentage at 71.08%, but still placed within the 'Good' category. Based on the response to the questionnaire items relating to environmental aspects, it portrays the perspective held by students of the current state of the environment which is threatened by sustainability. Diminishing natural resources are influenced by human attitudes and behaviour in managing them. The Convention on Biological Diversity ((CBD) 2006) states that understanding the impact of biodiversity on human welfare needs to be included in basic education programmes and promoted through mainstream media. This is important to develop the potential of students so that they can face global challenges in environmental sustainability (UNESCO 2013). For this purpose, natural systems including environmental issues relating to water, energy, waste, transport, climate change and biodiversity need to be integrated into subjects of higher education, teaching resources, knowledge, skills, attitudes and values of lecturers in universities (Kanyimba et al. 2014).

Based on gender, the results found that the economic aspect scored a higher percentage than other aspects. Female students have a higher perception than male students in economic aspects. While the average percentage of all indicators is based on gender, male students (74.84%) obtained a higher percentage than female students

Table 18.3 The results of the percentage analysis of each indicator based on gender

Indicator	Male (%)	Female (%)	Category
Social	74.79	74.57	Good
Environmental	73.24	71.31	Good
Economic	76.50	77.76	Good
Average	74.84	73.21	Good
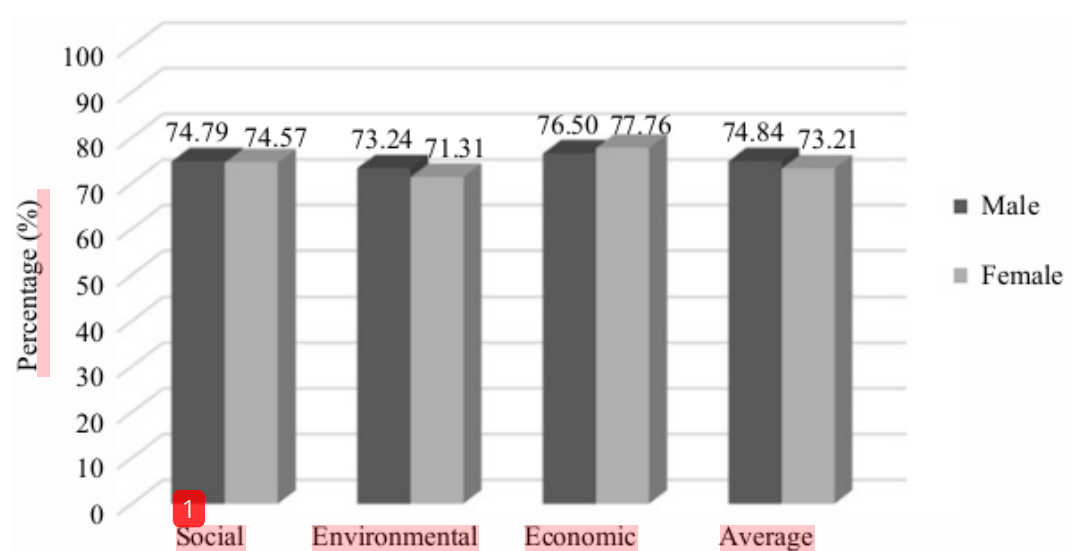
Fig. 18.2 The results of the percentage analysis of each indicator based on gender

(73.21%), but both groups sill fall within the 'Good' category. The results obtained from each aspect of sustainable development based on gender are presented in Table 18.3 and Fig. 18.2.

Table 18.3 and Fig. 18.2 show that the average percentage of male students is higher than female students. The results of the frequency analysis of male students obtained an average percentage of 74.84%, while for the female students, it was 73.21%. This is because men better understand the concept of sustainable development based on the reasons given compared to women. However, this is in contrast with the results of research conducted by Tuncer (2008) on the perception of Middle East Technical University students (METU) towards sustainable development, which found that male and female students have perceptions at the same percentage. Likewise, research conducted by Al-naqbi and Alshanag (2017) showed that the attitudes of female students towards SD/ESD were similar to those of male students.

This particular research is crucial to help reflect the extent of ESD integration currently at Universitas Islam Riau. Student perceptions are considered important to identify and design the most appropriate strategies for ESD integration at the higher education level because implementation of ESD requires contributions by students.

Figure 18.3 is ESD integration framework, based on ESD indicators (UNESCO 2018c). ESD integration is determined based on relevant content and the use of methods, which are determined through the curriculum. For successful ESD integration,
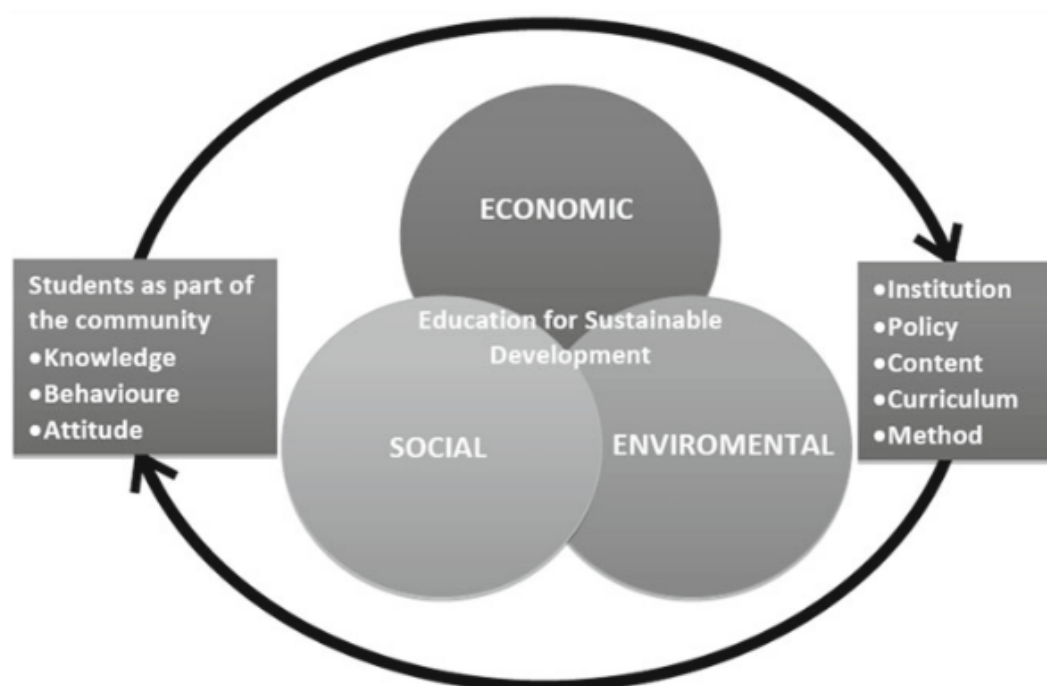
Fig. 18.3 ESD integration framework

institutions and policies that are relevant to the concept of sustainable development and society are required. In higher education institutions, factors of leadership, teaching staff and students are crucial in applying the concept of sustainable development through sustainable campuses. Students are future decision-makers and act as agents of change. They must develop a thinking and acting pattern in accordance with the concept of sustainable development, which will encourage them to contribute, support and manage a successful campus and even create a more sustainable city (Abubakar et al. 2016; Mcmillin and Dyball 2009). Efforts can be made by providing complete access to education to male and female students for them to develop their potential in various fields of knowledge. Knowledge of sustainability is needed to treat sustainability as an environmental problem related to ecosystems or natural resources. Knowledge of cognitive elements related to mental actions such as perception, memory, learning and prediction of information will influence student behaviour to contribute to the achievement of SDGs (Salas-Zapata et al. 2018).

Challenges for universities in realising SDGs include devising action plans to deal with climate change, improve health and well-being, provide equal education for all and other global problems that require student involvement (Chelliah et al. 2017; Shahrullah et al. 2014). On the other hand, universities should not solely assume responsibility to promote economic, environmental and sociocultural growth for the community.

There are several criteria representing education in sustainability. Husaini and Jusoh (2017) highlighted five educational indicators for sustainable university ranking table which are the ratio of student to staff, percentage of graduated students,

number of international students, online presence and the percentage of graduate employment. Apart from that, curriculum is one of the important elements in education sustainability. Qian and Yang (2018) stated three basic principles of a green campus design, whereby it should be constructed to reduce environmental load in terms of facilities, operation process and prioritise environmental education. Krizek et al. (2011) stated that there are four phases in the effort to adopt sustainability measures, namely grassroots, executive acceptance case for sustainability, the visionary campus leader and fully self-actualised and integrated campus community. In the grassroots phase, efforts are made to advocate for various services and policies related to campus sustainability such as recycling, introducing environment-themed courses, improving pesticide applications, and boycotting sales of plastic bottled water. If it fails to advocate for programmes in this phase, it will be difficult to implement and coordinate other programmes for further progress. At the second stage, the leadership begins to assess the effectiveness of sustainability programmes by considering efficiency that reduces costs and enhances the reputation of the campus, for example, energy efficiency, water conservation and green branding/public relation events. The third phase sees the campus leadership openly promoting sustainability by including it in the university's vision and strategic plan. The fourth phase includes efforts by the university to encourage others to include sustainability in all areas of life on campus. This phase begins to apply and integrate the concept of sustainability in all components of the university, for example, in campus management, student life, staff and activities involving the community. According to Too and Bajracharya (2015), framework for community engagement includes factors such as psychological needs, physical facilities, personal motivations, public perception, price mechanisms and policies which are needed to mobilise and motivate community members to take practical steps towards building a sustainable campus. An observation by Husaini and Jusoh (2017) found that community participation in sustainability programmes is dynamic and intergenerational. The study suggested that it would require multiple components such as education, action, trust, inclusion and strong governance to develop effective community engagement.

Therefore, researchers consider several effective strategies for implementing ESD at the university level. First, a university directs the researchers or lecturers and students towards the global issue of development to support ideas and perspectives for achieving the SDGs. Secondly, policies are made to lead students, lecturers and staff to adopt an eco-lifestyle. Thirdly, efforts are made to create a green campus environment that can be adopted from an existing green campus or sustainable campus model.

18.4   Conclusion

The conclusion that can be drawn from this study is that students of Universitas Islam Riau have a good perception of Education for Sustainable Development. In order to achieve the goal of a sustainable campus, there needs to be a team effort from both students and the university, whereby the actions and voices of students

need to be accounted for. However, the implementation of sustainable development must begin with an awareness of the need to implement sustainability principles and practices, particularly among the stakeholders. Universities play a role in sustainable development through the processes of management, planning, development, education, research, operations, community service, purchases, transportation, design and construction of new buildings, renovations as well as retrofits. These are aspects that require support from the campus community to ensure effective implementation of a sustainable campus.

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