MANAGEMENT AND LEADERSHIP FOR SUSTAINABLE DEVELOPMENT OF LOCAL UNIVERSITIES AND COLLEGES (LUCS) IN THE CITY OF MANILA

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Abstract

On January 1, 2016, the 2030 Agenda for Sustainable Development came into effect to set the world towards a better future for every human in 2030. The goals and targets of SD were integrated into the three dimensions of SD: the economic, social, and environmental. The study focused on the management and leadership for sustainable development of Manila's local universities and colleges (LUCs). It aimed to determine the schools' contributions to sustainable development in teaching and learning, organizational governance, culture, school operations, research, and external leadership. The researcher utilized the descriptive cross-sectional method of design. Cross-sectional research studies are based on observations in different groups at one time. The respondents of the study were purposely selected. The academic heads and administrative heads of the three schools participated in the study. The respondents were 71 academic and administrative heads of the schools; 24 from (school A), 27 from (school B), and 20 from (school C). Based on the results and findings, there is a significant difference in the management and leadership of the school respondents in all areas, in terms of research, learning, and teaching, external leadership and organizational governance, culture, and operations of the school. The school administrators should proactively develop policies and measures to solve the negative consequences of environmental, economic, and social sustainability. Education, research, operations, and external leadership should be synergized. Further study on the 17 SDGs to determine what solutions could be made to end poverty, environmental protection, and promote individuals' social and economic stability in any country. The schools' vision, mission, and curriculum should also be further studied.

Keywords: Sustainable development, management, leadership, local universities and colleges, cross- sectional design, Manila, Philippines.

Introduction

In the 1992 Rio Summit, Sustainable Development (SD) was established as the guide or basis for development in industrialized and developing countries. (Sustainable Development Solutions Network SDSN 2015). Without exception, world leaders at the United Nations (UN) adopted the "Transforming Our World" one of the most critical agreements globally in recent history. On January 1, 2016, the 2030 Agenda for Sustainable Development came into effect to set the world towards a better future for every human in 2030. "The goals and targets of SD are integrated into the three dimensions of SD: the economic, social and environmental" (UN, 2015). The importance of sustainability was published (UNESCO, 2005b; UNESCO, 2005a;) to help shape the future we want (UNESCO, 2014c) during the Nagoya Declaration on Higher Education for Sustainable Development (UNESCO, 2014a). It also included in the United Nations' final report in a conference on SD entitled "The Future We Want" (UN, 2012b) and the Peoples' Sustainability Treaty on Higher Education as stated by the Copernicus Alliance (Tilbury, 2012). The primary objectives and worldwide targets of sustainable development by 2030 were to ensure all people enjoy peace and prosperity, end poverty, and protect the planet (United Nations General Assembly, 2015). Since sustainability and ESD are new in the higher education system, the implementation criteria related to curriculum concerning SDGs and educational methodologies are inadequate. Nevertheless, according to (Amaral et al., 2015), SD has been promoted in HEIs, through charters and declarations (Lozano et al., 2013b), redesigning of curricula (Qian, 2013, Du et al., 2013), partnerships in regional and global perspectives (Kawabe et al., 2013) and sustainable campus activities and programs (Vaughter et al., 2016). In 1987 HEI engagement with SD has increased and was promoted through the UN Decade of Education for Sustainable Development (DESD, 2005-2014), (Lozano et al., 2013 b) aimed to integrate the principles of SD in all aspects of HEIs (United Nations Educational, Scientific and Cultural Organization, 2014).

In recent decades, Asian higher education has experienced several major development trends. Higher education institutions (HEIs) in East Asia encountered sustainability issues from the United Nations Sustainable Development

Goals (UN SDGs) perspective and financial sustainability perspective, aside from unlimited resources. Integrating sustainability into institutional visions and missions is an underlying goal of HEIs. It covers different aspects, including teaching, operations, research, reporting, knowledge transfer, and governance (Bauer, 2018). A deeper and meaningful agenda for sustainable development, its concept, and explanation of the critical proportions are desirable (Gray, 2010; Mensah & Enu- Kwesi, 2018). This need, conferring to Gray (2010), as cited in Giovannoni and Fabietti (2014), has remained approved and recommended by academics and practitioners in promoting sustainable development (Jarvis, 2019; Neubauer (2018). However, present studies show the implementation of sustainability at various universities (Disterheft et al., 2012; Albareda Tiana and Alférez Villarreal, 2016; Calder and Clugston, 2003; Barrón Ruiz et al.,2010; Ferrer-Balas et al.,2008; Lozano, 2009, 2011; Geli de Ciurana and Leal Filho, 2006; Michelsen, 2016; Leal Filho, 2012, 2015a, 2015b; Müller-Christ et al.,2014; Wals, 2014; O'Byrne et al., 2015; Ramos et al.,2015; Wals et al., 2016). In addition, as sustainability and ESD are peculiar concepts in the higher education system, curriculum-related criteria concerning SDGs and appropriate educational pedagogies have been found lacking. Higher education institutions have a significant role in implementing the SDGs. Working with faculty, staff, students, and their wider stakeholder community and alumni body are essential (Trencher et al., 2014; Findler et al., 2019). As Jeff Sachs (Director, UN Sustainable Development Solutions Network) said, "Advancing the SDGs is the 'moon shot' for our generation." (Sachs, 2018). Encouragement of university staff, particularly at the executive level, to support institutional approaches on SD should be emphasized Nomura et; al (2010). Moreover, least developed countries should have sustainable development programs that encourage and convince local leaders in the government, the academe, and the civil society to build a country where human, ecological, and societal development is sustained. However, the education institutions hold the key to this development for future generations (Mascose 2010). Sustainability education is a framework wherein learners should engage in social, ecological, economic, and political problems (Nolet, 2009) and work collaboratively to solve problems in their communities (Weissman, 2012). According to Parkin (2010), good leadership is an essential component for sustainability. It includes educational leadership elements that help prepare future leaders' influential policymakers in their communities (Shriberg & MacDonald, 2013). In addition, the government's policy should relate to the vision, mission, purpose, and main objectives of a university. Transforming policies into actual results demands a sustainability culture and implements appropriate systems of direct accountability to internal and external stakeholders Darmstadt et al. (2014). According to Shiffman (2010) and Frenke (2013), the principle of sustainability is only achieved when it was accepted and integrated with the university governance culture and became part of the implemented activities. As far as promoting sustainable development is concerned, the Philippines has been part of the global community. In fact, during the Rio Earth Summit of 1992, the Philippines formulated its action plan, called Philippine Agenda 21 (PA21), which was patterned after the United Nation's Agenda 21. It consists of social, economic, and environmental indicators to ensure the achievement sustainable development. Unfortunately, only a few leaders have used PA21 and its localized version as an essential tool in policy decision-making (Dacumos, 2015). In addition, sustainable development is not just about the environment, also. It is the balancing of the economic, social, and environmental objectives of society. It also includes the three dimensions of sustainable development integrated wherever possible, with mutually supportive policies and practices.

The study focused on the management and leadership for sustainable development of Manila's local universities and colleges (LUCs) relative to teaching and learning, research, organizational governance, culture, and operations of the school, and the external leadership. The result of the study will aid the local government and the school administrators in their pursuit of leadership on sustainable development. It would also help the student develop their awareness of the importance of protecting the planet, how to help and deal with other people, and being economically and financially able.

Materials and Methods

The researcher utilized the descriptive cross-sectional method of design. Cross-sectional research studies are based on observations in different groups at one time. The study was conducted in Universidad de Manila (UDM). Universidad De Manila (UDM, formerly known as City College of Manila, was established in 1995 under Ordinance No. 7885, approved by the City Council of Manila during the administration of Mayor Alfredo S. Lim. The pioneer school of free tertiary education for the underprivileged but deserving youth in Manila, who are financially inept at obtaining a college education. It was elevated to university status by the City Council thru Ordinance No.8120 during the administration. At this time, the University moved to Mehan Garden, which houses its main campus. Pamantasan ng Lungsod ng Maynila (PLM) is the first chartered and autonomous university funded by the city government of Manila.

On June 19, 1965, PLM was created by the Congress of the Philippines by Republic Act No. 4196 or "An Act Authorizing the City of Manila to Establish and Operate the University in the City of Manila." It was opened on July 17, 1967, to 556 first-year students in the historic Intramuros district. Presently, about 10,000 graduate and post-graduate students grace its halls to receive PLM's quality education. On June 11, 1978, Eulogio Amang Rodriguez Institute of Science and Technology (EARIST) was created through Presidential Decree 1524, during the administration of then-President Ferdinand E. Marcos. The school was converted into a chartered state college with a Board of Trustees as its governing body and Dr. Hilario G. Nudas as its first college president. The respondents of the study were purposely selected. The academic heads and administrative heads of the three schools were under study. The respondents were 71 academic and administrative heads of the schools; 24 from UDM (school A), 27 from EARIST (School B), and 20 from PLM (school C).

Table 1. The participants of the study

Participants	Frequency	Percentage
A	24	33.80
B	27	38.03
C	20	28.17
Total	71	100%

The construction and development of the instrument were uneven for the researcher because of the limited literature on sustainable development in HEIs, especially in a locally funded university. There were only a few studies undertaken. After reading other literature on sustainability, the researcher decided to adopt questionnaires from a peer-reviewed journal. The quantitative set of questionnaires was adopted from Sustainable Development Solutions Network (SDSN) (2017). The instrument was used to determine and study the school programs on sustainable development and the school contributions to the sustainable development goals in the following areas: learning and teaching, research, governance, culture, and operations of the school, and external leadership. There were ten questions for each area and a total of 40 questions in all. The questions were administered to the respondents through google forms. After the construction and development of the instrument, the researcher asked for help from the experts for its evaluation. It was evaluated and validated by the experts. Concerning validity, the face validity and content validity were determined.

The face validity was to evaluate the appearance of the questionnaire in terms of readability, consistency of style and formatting, feasibility, and the clarity of the language used. In content validity, the new survey instrument was evaluated to include all the essential items and eliminate undesirable items to a particular construct domain (Lewis et al., 1995, Boudreau et al., 2001). The researcher no longer tested the instrument's reliability because of the problem in administering due to pandemic and barriers due to restrictions from AITF. Besides, the questions were already adapted from a peer-reviewed journal of Sustainable Development Solutions Network (SDSN) (2017).

Like any research, the researcher observed the ethical considerations in the study such as a) the participants /respondents were asked voluntarily to participate and were given the right to withdraw from the study anytime, b) the participants participated based on informed consent, c) avoidance of offensive and discriminatory language, d) privacy and anonymity of the respondents were observed, e) referencing system was used to acknowledgment works of other authors, f) maintain objectivity in discussions and analyses throughout the research, and g) follow rules of Data Protection Act. Informed consent is the central ethical matter in conducting the study. According to Armiger: "it means that an individual perceptively, voluntarily and intelligently, and clearly and manifestly, gives his consent." The researcher also informed the participants about the methods used to protect anonymity and confidentiality; considerations were given to persons with cultural, emotional, and physical barriers that may require a straightforward language to understand them. The freedom to withdraw was also explained. All needed essential measures were taken to protect respondents from physical, psychological, or social damage during the research and or after the circulation of the results.

To gather the data needed in the present study, the researcher followed the different steps in data gathering. A letter of permission was referred to the university president of the school respondents, citing the intent to conduct the study and administer the questionnaire.

Upon approval of the request letter, a copy of the same was given to the study participants' academic and administrative heads. The respondents were assured of the privacy and anonymity of the data gathered. Questionnaires were administered through google forms. The researcher retrieved the responses from the google forms sent to the respondents to ensure the confidentiality of their responses since they dealt with their heads. To support the result of the findings interview was also conducted. Data are gathered with their corresponding analysis and interpretation in tabular and graphical forms. Organization, analysis, statistical treatment, and interpretation of data were made with the help of a statistician and with the use of SPSS.

The frequency distribution was used to present the respondents' responses to the administered questionnaire statements. The arithmetic means of each of the forty (40) questions were computed through Microsoft Excel and SPSS and analyzed and interpreted. The respondents' ratings on the learning and teaching, research, organizational governance, culture, and operations of the school and external leadership were also evaluated. The total mean score of the ratings was obtained based on the following ranges and their corresponding interpretation. Mean rating of 4.21 – 5.00, strongly agree, 3.41 – 4.20, agree, 2.61 – 3.40, moderately agree, 1.81 - 2.60, disagree, 1.01 - 1.80, strongly disagree. The analysis of variance (ANOVA) was used to determine the significant differences in the management and leadership for the sustainability of LUCs.

Results and Discussions

The Sustainable Development Pillars Implemented by the Schools. The table reveals that the schools implement the three sustainable development pillars as reflected in the table with a frequency of 61 or 86 percent in terms of environmental sustainability, 61 or 86 percent in economic sustainability, and 59 or 83 percent in social sustainability.

Table 2.
Frequency and percentage of sustainable development pillars implemented by the schools (N = 71)

Sustainable Development Pillars	Schools						Total	
	A (n=24)		B (n=27)		C (n=20			
	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Environmental	16	67	26	96	19	95	61	86
Economic	18	75	26	96	17	85	61	86
Social	16	67	26	96	17	85	59	83

However, it reveals that school A has the lowest percentage in implementing social sustainability and environmental sustainability with a frequency of 16 or 67 percent, followed by School C with 17 or 85 percent in economic sustainability. Likewise, school B has the highest frequency with 26 or 96 percent implementation in all SD programs. Generally, the schools are more than 50 percent responsive to the sustainable development pillars. These findings have favored and seemingly addressing the previous observations of other researchers. The world is confronted with impediments in each of the three pillars of sustainable development - economic, social, and environmental. Over a billion people continue to live in extreme poverty. Income disparity has risen within and across many nations; simultaneously, unsustainable consumption and production methods have incurred tremendous economic and social costs and may threaten life on the planet. Sustainable development will need a concerted global effort to satisfy the rational desire for economic and social progress, which demands growth and jobs, while simultaneously enhancing environmental protection. Sustainable development must be inclusive and prioritize the most disadvantaged members of society. Bold, action-oriented, and collaborative strategies must be developed and adaptable to various phases of growth. They will need to systematically modify consumption and production patterns, which may entail significant price adjustments; they will also need to promote natural resource conservation; reduce inequality; and enhance economic governance, among other things (WESS, 2013). Likewise, a report highlights several achievements in education, water, health, and the economy. Notably, the study identifies areas where further work is needed to enhance the lives of our individuals, communities, families, and our economy while also contributing to the sustainable future of people worldwide. While all countries have a shared ambition to accomplish the SDGs, each country has a distinct set of national traits and capabilities that will shape its path toward achievement. Israel will

continue to pursue new technologies and projects, limiting environmental degradation and facilitating more expansive access to the advantages of technological advancements and expanded possibilities for everyone (Elkin & Katz, 2019). Additionally, an assessment of the generic sustainability abilities was done in higher education (HE). It compiles these sustainability abilities into an instrument that may be used to measure them during university study. The Bologna process advocated competency-based education within the context of the European Higher Education Area (EHEA). Implementing these abilities at the university level, in conjunction with the global difficulties posed by the Sustainable Development Goals (SDGs), will not be simple. Higher education institutions (HEIs) have a critical role in implementing the United Nations' 2030 Agenda for Sustainable Development, and building sustainability skills is one method to do so.

This study presented a competency map on sustainability. The map was created as part of the EDINSOST initiative, which aims to educate graduates capable of tackling society's issues by incorporating sustainability education into the Spanish university system (SUS). This map has been successfully modified for various undergraduate education programs (Primary Education, Pre- School Education, Pedagogy, and Social Education) and a master's degree program in Environmental Education at eight Spanish institutions (Albareda-Tiana et al., 2020). It presents educators with a dilemma since it is not viable to build sustainability competencies in formal learning environments, such as critical thinking. The third group was made up of pupils who were opposed to altering their conduct and cooperating. Methodological problems and student issues associated with reluctance to change can be solved by viewing them as conquering tasks. Individual ecological footprint research conducted at the University demonstrates how students' consumption behavior may be influenced by utilizing various teaching-learning techniques. The efficacy of the methodology employed can be indirectly validated. Integrating sustainability into higher education is inextricably linked to the development of students' character (Albareda-Tiana et al., 2018).

The Management and Leadership for the Sustainability of LUCs

2.1 Management and Leadership for Sustainability in terms of Learning and Teaching. Table 3 shows that the lowest rating was given to statement 6, “provide training on the SDGs and ESDs to all curriculum developers, course coordinators, and lecturers,” with a total mean rating of 3.27, which is moderately agreed. Likewise, the highest rating was given to statement 2, “empower and mobilize young people,” which agrees. However, the overall rating in teaching and learning was 3.52 that all respondents agreed. A sustainable university should "walk the talk" it should teach the concept and philosophy of SD to their students Martins et; al (2015). According to Reza et al. (2016) development of an appropriate and effective pedagogy for teaching and learning is necessary, a center or faculty for learning and research of all domains of sustainability. Global perspective development and a strategy to develop global citizens who appreciate sustainable development should be integral components of all higher education curriculum, regardless of subject area (Omisore et al., 2017). When considering the concept and features of a global institution, higher education would bear the following points in mind: Adopt an institutional ethos approach in which mission statements, policies, and other documents stress establishing a global environment (Nations, 2015). It is frequently a comprehensive, university-wide strategy that encompasses rules governing recruiting, teaching and learning techniques, curriculum development, and staff competence. Such institutions have a worldwide perspective on their existence and the lives of their students. Increase the international dimension of course material; for example, increase the number of courses, units, and modules that have an international or global component - this is referred to as 'internationalization of the curriculum through the introduction of specialized curricula (Crespo et al., 2017). It can range from specialty degrees to elective courses on global/development concerns (skill sharing) to activities integrated into current subject-specific curricula. Internationalize the curriculum by utilizing student mobility through exchange programs (Findler et al., 2018). Introduce innovative teaching techniques that reflect and address all pupils' cultural and educational contexts and their indigenous learning styles. Encourage international research and collaboration to advance education, research, and enterprise (Caeiro et al., 2020). Place a premium on and strengthen relevant general graduate qualities such as language competence and international business skills (Copernicus- Campus, 2010).

Table 3.
Management and leadership for the sustainability of LUCs in terms of learning and teaching (N = 71)

Learning and Teaching	Schools			Overall Mean	Descriptive Rating
	A	B	C		
11) Provides students with the knowledge, motivation, and skills to understand the challenges of the SDGs.	3.54	4.11	3.65	3.79	Agree
12) Mobilizes and empowers young people.	3.71	4	3.95	3.89	Agree
13) Provides academic or vocational trainingto implement SDG solutions.	3.5	4.37	2.85	3.65	Agree
14) Enhances opportunities for capacity building of students, faculty, and staff to address challenges relating to the SDGs.	3.17	3.93	2.95	3.39	Moderately Agree
15) Integrates principles of ESD and SDGs to all undergraduate and graduate courses and research training.	3.08	4.11	2.95	3.44	Agree
16) Provides training on the SDGs and ESD to curriculum developers, course coordinators, and lecturers.	2.79	4	2.85	3.27	Moderately Agree
17) Encourages and supports all student organizations, clubs, and societies to engage with the SDGs and collaborate on SDG-related events and activities.	3.08	4	3	3.41	Agree
18) Advocates the national and state education policies that support education for the SDGs.	3.08	4.11	3.15	3.49	Agree
19) Engages students in the learning environments and opportunities that support learning the SDGs.	2.92	3.93	2.95	3.31	Moderately Agree
20) Structures courses on real-world collaborative projects for change, for students to have the opportunities to act and reflect iteratively towards a purpose.	3.38	4	3.05	3.52	Agree
Overall	3.23	4.06	3.14	3.52	Agree

2.2 Management and Leadership for Sustainability in terms of Research. Table 4 reveals that statement 6, "Support capacity building for developing countries to undertake and use research on the SDGs," was rated the lowest with a total mean of 3.2, to which the respondents moderately agreed. Likewise, statement 1, "provide students with the knowledge, skills, and motivation to understand and address the challenges of the SDGs, "was rated the highest with a total mean of 3.62. School A has the lowest mean rating of 2.78 in all statements under research.

Table 4.
Management and Leadership for the sustainability of LUCs in terms of research (N = 71)

Research	Schools			Overall Mean	Descriptive Rating
	A	B	C		
11) Provides students with the knowledge, skills, and motivation to understand and address the challenges of the SDGs	3.29	4.04	3.45	3.62	Agree
12) Supports the research approaches needed to address the SDGs, including interdisciplinary and transdisciplinary research	2.75	4.11	3.15	3.38	Moderately Agree
13) Supports and incubates innovation for sustainable development solutions	2.79	4.07	2.95	3.32	Moderately Agree
14) Actively supports the national and local implementation of the SDGs	2.79	4.3	3.05	3.44	Agree
15) Integrates the principles of ESD and SDGs into all undergraduate and graduate courses, as well as graduate research training	2.71	4.15	3.05	3.35	Moderately Agree

16) Supports capacity building for developing countries to undertake and use research on the SDGs	2.67	4	2.75	3.2	Moderately Agree
17) Helps researchers to understand how their research currently relates and connects to various goals	2.79	4.19	3.1	3.41	Agree
18) Maps the university's research and research strengths align with the SDGs to identify the key researchers	2.75	3.96	2.85	3.24	Moderately Agree
19) Encourages and supports researchers to engage in global research to support the SDGs	2.63	4.15	2.95	3.3	Moderately Agree
20) Showcases research relating to the SDGs in major flagship projects	2.63	4	2.9	3.23	Moderately Agree
Overall	2.78	4.1	3.02	3.35	Moderately Agree

It was followed by school C with a mean of 3.02. However, the respondents moderately agreed on the schools' contributions in terms of research, with a total mean of 3.35. The success in achieving the SDGs will depend on cooperation and collaboration by all actors. Mobilization and collaboration need significant leadership and support of all stakeholders on board, building their capacity to understand and implement the SDGs. It implies that university leaders may have better knowledge in research and education, essential for building capacity and supporting policymaking (Sustainable Development Solutions Network, 2017). The higher education and scientific research segments are expressly acknowledged in several the Sustainable Development Goals; nevertheless, the participation of universities is required in a much broader sense to fulfill all the SDGs. The Sustainable Development Goals (SDG) agenda encompasses many linked social, economic, and environmental issues, and universities' particular functions and expertise are essential to solving all of them. It is possible that the SDGs will not be fulfilled without the participation of this sector (Grecu & Ipia, 2015). The SDGs will demand new information and new methods of doing things to be met. It will also necessitate difficult decisions between competing options, and in some instances, fundamental reforms. Universities are at the forefront of technical and societal advancement through research, discovery, knowledge production, and acceptance of new technologies. They are key actors in regional and national innovation systems, attracting and nurturing talent and creativity and serving as catalysts for change. To assist the global community, comprehend the problems, possibilities, and connections between the Sustainable Development Goals, create and implement solutions, establish and analyze policy choices and transformation paths, as well as monitor progress, these services are essential (Kardos, 2012; Litman, 2019; Richardson Rose, 2019; Vaidya, 2016; Zhang & Crooks, 2012). People gain professional and personal skills and capacities because of their university education. Large groups of young and curious individuals who are enthusiastic, creative, and driven by a desire to make the world an improved place are readily available to them. They also have a rising impact on global development by recruiting international students and alumni, establishing overseas campuses, and capacity-building initiatives. Everyone's contribution will be required to achieve the Sustainable Development Goals. Universities must thus guarantee that they are providing present and future leaders, decision-makers, teachers, innovators, entrepreneurs, and citizens with the information, skills, and motivation that will enable them to contribute to the achievement of the Sustainable Development Goals (Albareda-Tiana et al., 2018; Basiago, 1998; Elkin & Katz, 2019; Nations, 2015; Omisore et al., 2017; Shaikh & Al-Dahhan, 2010; WESS, 2013).

2.3 Management and Leadership for Sustainability in terms of Organizational Governance, Culture, and Operations. Table 5 states that all respondents agreed and rated the lowest mean of 3.45 the statement 8 "provide sustainable, nutritious and affordable food choices on campus." Likewise, the respondents rated "statements 7 "provide support structures for students living in poverty, such as scholarships and assistance packages" and 9 "Implement "no smoking" policies inside the campus" the highest rating with a total mean of 3.85. As reflected, school A has the lowest rating with a total mean of 3.44, followed by school C with a total mean of 3.55 in organizational governance, culture, and operations. School B has the highest rating, with a mean of 3.99. However, the overall rating was 3.68, of which all of the respondents agreed. The SDGs are still new, and the Philippine government is still in the awareness-raising and advocacy stage in the roadmap to localizing them. There is still a need to develop a system to develop aggregated data from the LGUs and other sectors that add to the national performance in measuring SDG implementation (Roldan, 2018). It indicates that these educational institutions are complicated and diversified in nature. They leave substantial social, economic, and environmental footprints through their employees, students, campuses, communities, and supply networks, among other things. Incorporating the concepts of the SDGs into their

administration, operations, and culture, universities will be able to contribute to them directly accomplishing the SDGs across a wide range of domains (Grecu & Ipia, 2015), made a significant difference globally.

Table 5
Management and leadership for the sustainability of LUCs in terms of organizational governance, culture, and operations (N = 71)

Organizational Governance, Culture, and Operations	Schools			Overall Mean	Descriptive Rating
	A	B	C		
11) Aligns university governance structures and operational policies with the aims of the SDGs.	3.04	4	3.5	3.54	Agree
12) Provides programs to enhance literacy and education in SD among communities and schools in the university's local area and beyond.	3.25	4.07	3.65	3.68	Agree
13) Provides facilities that promote and encourage inclusivity in learning.	3.5	4	3.6	3.72	Agree
14) Supports vulnerable and disadvantaged people to access and participate fully in the university.	3.58	4	3.8	3.8	Agree
15) Provides a supportive and safe working and learning environment for people from the financially and socially disadvantaged.	3.63	4	3.7	3.79	Agree
16) Develops procedures, policies, and plans to ensure the campus is safe for all staff, students, and visitors.	3.33	4	3.7	3.69	Agree
17) Provide support programs for students living in poverty, such as scholarships and assistance packages.	3.75	4.04	3.7	3.85	Agree
18) Provides sustainable, nutritious, and affordable food choices on campus.	3.08	3.96	3.2	3.45	Agree
19) Implements "no smoking" policies inside the campus.	3.79	4.07	3.6	3.85	Agree
20) Implements workplace gender equity strategies.	3.46	3.78	3	3.45	Agree
Overall	3.44	3.99	3.55	3.68	Agree

University administrators and faculty members also occupy a unique place in society as unbiased and dependable stakeholders. Because of this, they have the ability and duty to guide and lead the local, national, and international response to the SDGs through cross-sector discussions and collaborations on various issues. They also play an essential role in informing the general public and other sectors about the Sustainable Development Goals (SDGs) and advocating for the relevance of the SDGs (Australia/Pacific SDSN, 2017).

4. Management and Leadership for Sustainability of LUCs in terms of External Leadership. The table shows that statement 2, "initiate and facilitates cross- sectoral dialogue and action on SDG implementation," was rated the lowest mean of 3.21, which is moderately agreed. Among the respondents, school A has the lowest rating in terms of external leadership with a mean of 2.93, followed by School C with a mean rating of 3.09, and school B has the highest rating with 4.07. However, the respondents agreed in terms of external leadership with an overall mean rating of 3.41.

According to Sustainable Development Solutions Network (SDSN) (2017), there is increasing awareness of universities' critical role in SDG implementation. However, there is little guidance material available on what this means in practice. Also, existing guides on implementing the SDGs in *other sectors* do not address universities' unique needs and opportunities. According to Dartey- baah (2015), one can vehemently affirm that it all boils down to effective leadership, which means if the top of the pyramid is good, the bottom will more likely be good too. Hence, in the absence of effective leadership, sustainable development initiatives cannot be achieved. Constructing a shared vision of sustainability guided by the SDGs can help educators and learners in working together to select the competencies needed, develop appropriate curricula and pedagogies, and evaluate progress towards sustainability as a well-defined goal Voulvoulis and Nikolaos (2019). Through the current actions in these areas, universities already make essential contributions to the achievement of the SDGs. However, universities need to become advocates of sustainable development and leaders to be globally successful in implementing SDGs (SDNS, 2017).

Thus, strong leadership is imperative among HEIs. Organizations produce positive and negative externalities because they create and provide value to their many stakeholders (Vaidya, 2016). Negative externalities can have a detrimental effect on economic, social, and environmental systems, impeding attaining sustainable development (SD). Sustainability leadership refers to the methods by which leaders, politicians, and academics execute sustainable development policies and other activities inside their companies (Grecu & Ipia, 2015). It comprises ideas, tactics, and systemic solutions to resolve issues and influence institutional policy toward a more sustainable organization. Higher education institutions (HEI) play a critical role in promoting sustainable development, particularly institutional leadership (Zhang & Crooks, 2012). In universities, there is a dearth of study on sustainable leadership. Concerning the abilities, respondents chose from a pre-defined list of alternatives the ability to innovate, think long-term, and handle complexity. Interdisciplinarity and understanding of organizational contexts and global difficulties and dilemmas were identified as critical in the knowledge necessary to be a leader. Concerning universities' need to modify their curricula to be more sustainable, investments in education for sustainable development (ESD), sustainable procurement, and reporting were emphasized.

Additionally, the survey found that gender concerns were addressed seriously in the sampled institutions, which is a positive trend. The difficulties encountered in adopting sustainable leadership include a lack of enthusiasm from the university administration and some sections of the academic community and a shortage of knowledge, tools, and resources. Based on empirical findings, a set of future metrics was developed to assist leaders of higher education institutions in improving their sustainability performance (Filho et al., 2020)

Table 6.
Management and leadership for the sustainability of LUCs in terms of external leadership (N = 71)

External Leadership	Schools			Overall Mean	Descriptive Rating
	A	B	C		
11) Strengthens participation and public engagement in addressing the SDGs	2.83	4	3.05	3.34	Agree
12) Initiates and facilitates dialogue and action on SDG implementation	2.63	4.11	2.7	3.21	Moderately Agree
13) Plays a lead role in policy development and advocacy for sustainable development	2.83	4.33	2.8	3.39	Moderately Agree
14) Demonstrates the critical role of the university sector in SDG implementation	3	4.11	3.15	3.46	Agree
15) Advocates for the action of other sectors and governments of the importance of SDGs and the need to address them	3	3.96	2.85	3.32	Moderately Agree
16) Speaks with business and industry partners what is being done in the sustainable development space	3	4.11	3.3	3.51	Agree
17) Works with policymakers to identify problems, options, and solutions and to assist policy evaluation	3.13	4.04	3.3	3.52	Agree
18) Builds partnerships and networks with other universities towards mobilizing sector action on the SDGs	3.04	4.15	3.35	3.55	Agree
19) Actively supports the implementation of the SDGs within the university through teaching, research, and operations	3	3.96	3.25	3.44	Agree
20) Ensures the sector is represented in all national dialogues and processes on the implementation of the SDGs	2.83	3.93	3.1	3.32	Moderately Agree
Overall	2.93	4.07	3.09	3.41	Agree

3. Significant Differences in Management and Leadership for Sustainable Development of the Schools. Table 8 indicate that schools have a significant difference in the management and leadership for sustainable development in terms of learning and teaching, $F(2,68)=15.78$, $p < 0.001$; research, $F(2,68)=22.03$, $p < 0.001$; organization governance, culture and operations of the school, $F(2,68)=5.68$, $p < 0.05$; and external leadership, $F(2,68)=17.53$, $p < 0.001$. Among these schools, school B has an average score in terms of learning and teaching ($M = 4.06$), research

(*M* = 4.10), organizational governance, culture and operations of the school (*M* = 3.99), and external leadership (*M*= 4.07), and was consistently the highest.

Table 7
Significant differences in management and leadership for sustainable development of the schools

Development Goals	Schools	M	s	df Between, Within	F	p-value	Interpretation
Learning and Teaching	A (n=24)	3.23b	0.82	2,68	15.776	.000	Significant
	B (n=27)	4.06a	0.29				
	C (n=20)	3.14b	0.72				
Research	A (n=24)	2.78b	1.10	2,68	22.029	.000	Significant
	B (n=27)	4.10a	0.26				
	C (n = 20)	3.02b	0.69				
Organizational governance, culture and operations of the school	A (n=24)	3.44b	0.78	2.68	5.677	.005	Significant
	B(n =27)	3.99a	0.25				
	C (n-20)	3.55ab	0.75				
External Leadership	A= n=24)	2.93b	1.06	2.68	17.532	.000	Significant
	B(n = 27)	4.07a	0.29				
	C (n =20)	3.09b	0.72				

Plans and Recommendations for Sustainable Development. Table 9 shows the plans and recommendations for sustainable development. The respondents rated research the lowest ratings. During the interviews the interviews the respondents revealed the following; motivation from the school administration, lack of financial support, lack of rewards and incentives, lack of seminars and training on research. The researcher came up with the plan and recommendation through strategic goals and objectives for the school respondents. Through the current actions of the schools in these areas, significant contributions have been made in achieving SDGs (SDNS 2017). According to Dartey-baah (2015), one can fervently confirm that it all boils down to effective leadership. Moreover, as the old Nigerian proverbs go, "a fish starts to get rotten from the head," meaning that if the top of the pyramid is good, the bottom will more likely be good too." Hence, in the absence of effective leadership, sustainable development initiatives cannot be achieved.

Table 8
Plans and recommendations for sustainable development

Strategic goals and objectives for Sustainable Development

Areas	Goals	Objectives	Participants
Learning and Teaching	Cultivate new and innovative curriculum in consonance with the 21st century	• To implement the curriculum set by CHED on the environment, society, and economic sustainability • Focus on the practicum relevant to the needs of the market or industry	Stakeholders such as; Curriculum planners, Faculty members, students
	Expand and implement professional development	• Provide a system of dynamic communication for teachers to share their professional development skills and experiences • Motivate teachers to participate in professional development through incentives with appropriate recognition	Faculty members and school heads
	Broaden and expand advanced technologies and digital educational tools to sustain an innovative culture and curriculum	• Sustain technology as essential professional development for teachers at various points. • Provide the leadership and resources to incorporate technology in a steady and balanced manner • Utilize the school resources to maintain and keep aware of the current trends, issues and, best school-based technology practices	Students, Faculty members, and administrators
	Offer meaningful and constructive feedback to Teachers to motivate them and to pursue expert	• Align the evaluation experience fair and just with other relevant school documents	Academic heads and students
	teaching with higher levels of student achievement	• Evaluation should be based on aggregated results from observations, student surveys, parent communications	
	Provide students with trusted advisors and mentors to support and inspire academic, social, and personal success	• Ensure that the advisory program contributes to the school's mission in academic success.	Students and faculty members
Research	Maintain a culture of research excellence	• Conduct write shops /workshops on research • Identify and develop the research skills of the faculty members through	

		appropriate support systems and clearly defined expectations. • Provide Research seminars and training to faculty members and students	Students, faculty members, and admin staff
	Showcase research that would address the SDGs	• Emphasized the social and economic benefit of research • Establish and embed thematic research programs	Students, faculty members, and admin staff
	Avail research funds and grants	• Maximize effort in funded research through innovative research • Provide financial support to participants	Students, faculty members, and admin staff
	Participation/affili ation in research organizations or consortiums	• Establish a good reputation as distinctive world-class research through conferences and research congress locally and internationally and ensure the best and most supportive research environment. • Develop research knowledge and skills through proper and constant exposure and introduce the university to national and international events	Students, faculty members, and admin staff
	Integrate the SDGs into all undergraduate and graduate courses	• Keep the students' awareness of sustainable development • Support the full spectrum of research, including interdisciplinary and transdisciplinary	Students, faculty members
Organization, culture, and operations of the school	Align university structures and policies with the aims of SDGs	• Incorporate biodiversity in environmental management on campus • Promote communication/information about environmental performance	School administrators
		• Ensure sustainable approaches in all work	
	Provide a supportive, inclusive and safe working and learning environment	• Provide appropriate environmental training for all the staff and students • Incorporate environmental responsibility in all staff job descriptions.	School administrators
		• Comply with all pertinent environmental legislation, regulations, and requirements.	
	Develop policies, procedures, and plans to ensure the campus is safe	• Encourage suppliers and contractors to minimize adverse environmental products and services they provide.	School administrators

	Implement workplace gender equity	• Implement fairness and equal treatment to men and women according to their individual needs. • Provide equal treatment in terms of rights, benefits, obligations, and opportunities.	School administrators, academic staff, and students
	Provide the students with scholarships and assistance package	• To help the underprivileged students by providing financial assistance and scholarships	School administrators, academic staff, and students
External leadership	Regular dialogue with the city government officials	• To identify problems, choices, and solutions, and to assist in policy evaluation and implementation	School administrators
	Build partnerships and networks with other universities	• To mobilize sector on the SDG implementation	School administrators, faculty members, and students
		• Ensure that the schools are represented in all national dialogues and processes on the implementation of the SDGs	
	Speak with business and industry partners	• To understand what the trend and issues in the sustainable development space are	School administrators, faculty members
		• Determine what are the sustainable development programs to be offered based on industry standards	

Conclusions

The study's three components were economic, social, and environmental, aiming to end poverty, protect the earth, and ensure peace and prosperity for all. The study's main goal was to examine management and leadership for sustainable growth in Manila's universities and colleges. The study found that schools incorporated the three pillars of sustainable development: environmental, economic, and social. School A has the lowest social and environmental sustainability proportion, followed by School C for economic sustainability. Similarly, school B has the best SD program implementation. Schools must provide SDG and ESD training to all curriculum developers, course organizers, and lecturers. They must also empower and engage youth in teaching and learning. They also require improvement in research, organizational governance, culture, and operations. However, respondents were divided on the schools' research contributions. Due to the absence of financial support, seminars, training, connection to research organizations and consortiums, administrations' lack of enthusiasm, and rewards and incentives. School structures and policies did not support SDGs. Education for everyone: providing access to quality education at affordable prices, building the capacity of scholars and specialists from developing countries, and empowering and mobilizing young people were all priorities. Providing information, facts, solutions, technologies, routes, and innovations to help developing nations achieve the SDGs. External leadership was rated lowest for School A, followed by School C, and best for School B. The importance of universities in SDG implementation is growing, but little information is provided on how to do so. Also, existing SDG implementation guidelines do not address universities' unique demands and possibilities. The school respondents' management and leadership varied significantly in all areas: learning and teaching, research, organizational governance, culture and operations, and external leadership. School C's organizational governance, culture, and operations were like School B's. There was also no significant difference between schools A and C in their commitment to the SDGs. Putting the SDGs into effect through governance structures and operational policies and choices may also be beneficial. Increasing public involvement and participation in SDG implementation will result in positive outcomes, guaranteeing higher education sector representation in national implementation, aiding in SDG-based policy creation, and showing sector commitment to the SDGs. A lack of school

administration interest, funding, awards, and incentives was mentioned throughout the interviews. The researcher built the strategy and proposal on the schools' strategic goals. Results of the study will assist local governments in developing environmental, economic, and social initiatives. In addition to assisting policymakers, research may help them gather resources, select and assess projects, and manage to spend. It will also assist school administrators in grasping current sustainability issues and trends. It will help them to design school-based sustainable development initiatives and goals. Create, revise, and execute curriculum. This research assists curriculum developers. We must teach and learn about the environment, economy, and socially sustainable development. The research will also educate the community on environmental preservation, interpersonal relationships, and financial stability. The results will help scholars write about SD and enhance their studies. Students will study environmental protection and the need for sustainable development.

Schools and colleges should make a concerted effort to include the three elements of sustainable development into their curricula: environmental preservation, economic growth, and social equity. A particular emphasis on the four Sustainable Development Goals (SDGs) areas, namely, teaching and learning, research, organizational governance, and external leadership, should be offered. The participation of the whole university community is essential to promoting sustainability. A caring culture should prevail to impact sustainability plans following the UN Sustainable Development Goals significantly. Environmental, economic, and social sustainability have negative repercussions, and school administrators should take the initiative to establish policies and procedures to mitigate these effects.

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References

Abe, (2018) Higher education for sustainable development in Japan: policy and progress International Journal of Sustainability in Higher Education 11(2):120-129. Retrieved from DOI: 10.1108/14676371011031847

Albareda-Tiana, S., Ruíz-Morales, J., Azcárate, P., Valderrama-Hernández, R., & Múñoz, J. M. (2020). The EDINSOST project: Implementing the sustainable development goals at university level. Universities as Living Labs for Sustainable Development: Supporting the Implementation of the Sustainable Development Goals, 193-210.

Albareda-Tiana, S., Vidal-Raméntol, S., & Fernández-Morilla, M. (2018). Implementing the sustainable development goals at university level. International Journal of Sustainability in Higher Education, 19(3), 473-497.

Amador, F., Martinho, A. P., Bacelar-Nicolau, P., Caeiro, S., & Oliveira, C. P. (2015). Education for sustainable development in higher education: evaluating coherence between theory and praxis. Assessment & Evaluation in Higher Education, 40(6), 867-882.

Arowoshegbe, A. O., Emmanuel, U., & Gina, A. (2016). Sustainability and triple bottom line: An overview of two interrelated concepts. Igbinedion University Journal of Accounting, 2(16), 88-126.

Kestin, T., van den Belt, M., Denby, L., Ross, K., Thwaites, J., & Hawkes, M. (2017). Getting started with the SDGs in universities: A guide for universities, higher education institutions, and the academic sector.

Balanay, R. M., & Halog, A. (2016). Teaching education for sustainable development at university level: A case study from the Philippines. Teaching Education for Sustainable Development at University Level, 163-174.

Barth
es, A., Alpe, Y., & Bader, B. (2013). Questions and positions on education for sustainable development at university in France: Example of short professional cycles. Environmental Education Research, 19(3), 269-281.

Basiago, A. D. (1998). Economic, social, and environmental sustainability in development theory and urban planning practice. Environmentalist, 19, 145-161.

Caeiro, S., Sandoval Hamón, L. A., Martins, R., & Bayas Aldaz, C. E. (2020). Sustainability assessment and benchmarking in higher education institutions—A critical reflection. Sustainability, 12(2), 543.

Clugston, R. M., & Calder, W. (1999). Critical dimensions of sustainability in higher education. Sustainability and university life, 5(1), 31-46.

Campus, C. (2010). Copernicus Guidelines for Sustainable Development in the European Higher Education Area, European Commission, Geneva.

Crespo, B., Míguez-Álvarez, C., Arce, M. E., Cuevas, M., & Míguez, J. L. (2017). The sustainable development goals: An experience on higher education. Sustainability, 9(8), 1353.

Dacumos (2015) Developmental Issues in the Educational System of Japan and the Philippines. Retrieved from https://www.researchgate.net/publication/280610688. DOI:10.13140/RG.2.1.4809.3922

Dartey-baah (2015). Effective leadership and sustainable development in Africa: is there “really” a link?" Retrieved from DOI: 10.1108/JGR-03-2014-0014

Desha, Hargroves, & Smith, (2009). Cents and sustainability: a panel on sustainable growth politics, and scholarship. Geographical Journal Vol. 178, No. 2 DOI 101111/1475- 4959.2011.00448 Retrieved from https://www.jstor.org

Elkin, Z., & Katz, I. (2019). Implementation of the Sustainable Development Goals: National Review. Global Risk Insights, 430. https://sustainabledevelopment.un.org/content/documents/23576ISRAEL_13191_ SDGISRAEL.pdf

European Managers (2018). CEC Managers: A new leading team at the head of CEC. Activity Report, 2018-2021, Retrieved from https://www.cec-managers.org

Evers, B. A. (2018). Why adopt the Sustainable Development Goals? The case of multinationals in the Colombian coffee and extractive sector: Master Thesis Erasmus University Rotterdam

Farazmad (2016). Studying Crisis and Emergency Management Using Global Cases of Best and Worst Practices. In book: Global Cases in Best and Worst Practice in Crisis and Emergency Management (pp.1-14) DOI:10.1201/b19456-2

Leal Filho, W., Eustachio, J. H. P. P., Caldana, A. C. F., Will, M., Lange Salvia, A., Rampasso, I. S., ... & Kovaleva, M. (2020). Sustainability leadership in higher education institutions: An overview of challenges. Sustainability, 12(9), 3761.

Findler, F., Schönherr, N., Lozano, R., & Stacherl, B. (2018). Assessing the impacts of higher education institutions on sustainable development—an analysis of tools and indicators. Sustainability, 11(1), 59.

Dagilienė, L., & Mykolaitienė, V. (2016). Sustainability reporting in the higher education sector–Case study of Lithuania. Zeitschrift für öffentliche und gemeinwirtschaftliche Unternehmen: ZögU/Journal for Public and Nonprofit Services, 163-174.

Giovannoni, E., & Fabietti, G. (2013). What is sustainability? A review of the concept and its applications. Integrated reporting: Concepts and cases that redefine corporate accountability, 21-40.

Gray, R. (2010). Is accounting for sustainability actually accounting for sustainability… and how would we know? An exploration of narratives of organisations and the planet. Accounting, organizations and society, 35(1), 47-62.

Grecu, V., & Ipiña, N. (2014). The Sustainable University-A Model for the Sustainable Organization. Management of Sustainable Development, 6(2).

Gusc, J., & Heijes, C. (2018). "Oh This Learning, What a Thing It Is!"—Putting Sustainability First in Teaching Techniques and in Content. Sustainability, 10(8), 2803.

Holmberg, J., & Larsson, J. (2018). A sustainability lighthouse—Supporting transition leadership and conversations on desirable futures. Sustainability, 10(11), 3842.

Lozano, R., Lukman, R., Lozano, F. J., Huisingh, D., & Lambrechts, W. (2013). Declarations for sustainability in higher education: becoming better leaders, through addressing the university system. Journal of cleaner production, 48, 10-19.

Kardos, M. (2012). The reflection of good governance in sustainable development strategies. Procedia-Social and Behavioral Sciences, 58, 1166-1173.

Kawabe, S., Shimokawa, T., Miki, H., Okamoto, T., Matsuda, S., Itou, T., ... & Endo, H. (2013). Relationship between brain volume and brain width in mammals and birds. Paleontological Research, 17(3), 282-293.

Kestin, T., van den Belt, M., Denby, L., Ross, K., Thwaites, J., & Hawkes, M. (2017). Getting started with the SDGs in universities: A guide for universities, higher education institutions, and the academic sector.

Kolk, A. (2016). The social responsibility of international business: From ethics and the environment to CSR and sustainable development. Journal of World Business, 51(1), 23-34.

Ave, P., & Babolsar, I. (2010). Environmental performance index and economic growth: evidence from some developing countries. Australian journal of basic and applied sciences, 4(8), 3098-3102.

Leal Filho, W. (2011). World Trends in Education for Sustainable Development. Environmental Education, Communication and Sustainability. Volume 32. Peter Lang GmbH, Internationaler Verlag der Wissenschaften. Eschborner Landstrasse 42-50, D-60489 Frankurt am Main, Germany.

Litman, T. (2015). Developing indicators for sustainable and livable transport planning (Victoria Transport Policy Institute). Tiré de http://www. vtpi. org/wellmeas. pdf.

Long, T. B., Looijen, A., & Blok, V. (2018). Critical success factors for the transition to business models for sustainability in the food and beverage industry in the Netherlands. Journal of cleaner production, 175, 82-95.

Lozano, R. (2006). Incorporation and institutionalization of SD into universities: breaking through barriers to change. Journal of cleaner production, 14(9-11), 787-796.

Mader, C., & Series, H. (2015). Leadership for sustainability in higher education. ELTT education for sustainable development handout series, University of Zurich.

Mandela, N. (2003). Lighting your way to a better future. Speech delivered at the launch of Mindset Network. Planetarium, University of Witwatersrand, Johannesburg, South Africa, 16.

McMillin, J., & Dyball, R. (2009). Developing a whole-of-university approach to educating for sustainability: Linking curriculum, research and sustainable campus operations. Journal of education for sustainable development, 3(1), 55-64.

Mensah, J. (2019). Sustainable development: Meaning, history, principles, pillars, and implications for human action: Literature review. Cogent social sciences, 5(1), 1653531.

Nolet, V. (2009). Preparing sustainability-literate teachers. Teachers college record, 111(2), 409-442.

Nunes, B. T., Pollard, S. J., Burgess, P. J., Ellis, G., De los Rios, I. C., & Charnley, F. (2018). University contributions to the circular economy: Professing the hidden curriculum. Sustainability, 10(8), 2719.

Omisore, A. G., Babarinde, G. M., Bakare, D. P., & Asekun-Olarinmoye, E. O. (2017). Awareness and knowledge of the sustainable development goals in a University Community in Southwestern Nigeria. Ethiopian journal of health sciences, 27(6), 669-676.

Otte, P. P. (2016). Integrating sustainable development in higher education through experience-based learning: Insights from experts in team (EiT) for developing a combined theoretical framework. Journal of Education for Sustainable Development, 10(1), 131-159.

Reza, M. I. H. (2016). Sustainability in higher education: Perspectives of Malaysian higher education system. Sage Open, 6(3), 2158244016665890.

Rose, R. N. R. (2019). The Role of Secondary Education in Promoting Sustainable Development in the Caribbean and Latin America. Seton Hall University.

Roldan, M. D. G. Z. (2018). Towards Attaining the Sustainable Development Goals: The Philippines and the 2030 Agenda. In DLSU Research Congress.

Sady, M., Żak, A., & Rzepka, K. (2019). The role of universities in sustainability-oriented competencies development: Insights from an empirical study on Polish universities. Administrative Sciences, 9(3), 62.

Salmi, J. (2016). Tertiary education and the sustainable development goals—In search of a viable funding model. Retrieved February, 13, 2019.

Salvioni, D. M., Franzoni, S., & Cassano, R. (2017). Sustainability in the higher education system: An opportunity to improve quality and image. Sustainability, 9(6), 914.

Schmitt, C., Bassen, A., & Müller-Christ, G. (2019, July). Sustainable Development at Higher Education Institutions in Germany: Advances, Challenges, Examples. In HEAD'19. 5th International Conference on Higher Education Advances (pp. 1009-1017). Editorial Universitat Politècnica de València.

Scopelliti, M., Molinario, E., Bonaiuto, F., Bonnes, M., Cicero, L., De Dominicis, S., ... & Bonaiuto, M. (2018). What makes you a 'hero'for nature? Socio-psychological profiling of leaders committed to nature and biodiversity protection across seven EU countries. Journal of environmental planning and management, 61(5-6), 970-993.

Kestin, T., van den Belt, M., Denby, L., Ross, K., Thwaites, J., & Hawkes, M. (2017). Getting started with the SDGs in universities: A guide for universities, higher education institutions, and the academic sector.

Shaikh, A., & Al-Dahhan, M. (2010). A new methodology for hydrodynamic similarity in bubble columns. The Canadian Journal of Chemical Engineering, 88(4), 503-517.

Shriberg, M., & MacDonald, L. (2013). Sustainability leadership programs: Emerging goals, methods & best practices. Journal of Sustainability Education, 5(1), 1-21.

Slaper, T. F., & Hall, T. J. (2011). The triple bottom line: What is it and how does it work. Indiana business review, 86(1), 4-8.

O'Sullivan, K. (2017). Student Leadership in Sustainable Development in a Private University in the UAE—A Case Study. Handbook of Theory and Practice of Sustainable Development in Higher Education: Volume 1, 201-216.

Taylor, S. J. (2016). A review of sustainable development principles: Centre for environmental studies. South Africa: University of Pretoria.

Scott, G., Tilbury, D., Deane, L., & Sharp, L. (2012). Turnaround Leadership for Sustainability in Higher Education. Office for Learning and Teaching.

Tosun, J., & Leininger, J. (2017). Governing the interlinkages between the sustainable development goals: Approaches to attain policy integration. Global challenges, 1(9), 1700036.

Trencher, G., Yarime, M., McCormick, K. B., Doll, C. N., & Kraines, S. B. (2014). Beyond the third mission: Exploring the emerging university function of co-creation for sustainability. Science and Public Policy, 41(2), 151-179.

Ukaga, O., Maser, C., & Reichenbach, M. (Eds.). (2010). Sustainable development: Principles, frameworks, and case studies. CRC Press..

UNDP (2010). UNDP in Action – Annual Report 2010/2011. Retrieved from https://www.un.org

UNESCO. 2005a. United Nations Decade of Education for Sustainable Development (2005- 2014): International Implementation Scheme. Paris, UNESCO.

UNESCO. 2005b. Guidelines and Recommendations for Reorienting Teacher Education to Address Sustainability. Education for Sustainable Development in Action Technical Paper no. 2. Paris, UNESCO.

UNESCO. 2009a. Learning for a Sustainable World: Review of Contexts and Structures for Education for Sustainable Development. Paris, UNESCO

UNESCO. 2012b. Education for Sustainable Development Sourcebook: Learning and Training Tools no 4. Paris, UNESCO.

UNESCO. 2014a. EFA Global Monitoring Report 2013/4 – Teaching and Learning: Quality for All. Paris, UNESCO

UNESCO. 2014b. The Muscat Agreement: New proposed post-2015 global education goal and targets announced Today. Paris, UNESCO. (Press Release, 4 June 2014.) http://efareport.wordpress.com/2014/06/04/the-muscat-agreement-new proposed-post-2015-global-education-goal-and-targets-announced-today/ (Accessed 4 June 2014.)

UNESCO. 2014c. Outcome Document: Africa Regional Consultation to Support Planning for an ESD Programme Framework to Follow on the UN Decade of ESD in 2014. Abidjan Ivory Coast, March 4-5, 2013. (Unpublished Internal Report.)

United Nations Conference on the Human Environment. (1992). Rio declaration on environment and development. Rio de Janeiro, Brazil: United Nations. United Nations New York, (2019). The Sustainable Development Goals Report 2019

United Nations Sustainable Development Solutions Network (UNSDN) (2013). An action agenda for sustainable development. http://www.unsdsn.org/files/2013/06/130613

UNSD. (2018a). Open SDG data hub. Retrieved from https://unstatsundesa.opendata.arcgis.com/

UNSD. (2018b). SDG indicators global database. Retrieved from https://unstats.un.org/sdgs/indicators/database/

UNSD. (2018c). SDG indicators metadata repository. Retrieved fromhttps://unstats.un.org/sdgs/metadata/

Vaidya, A. (2016). The utility of the participatory approach for sustainable development assessments (Doctoral dissertation, Michigan Technological University).

Wals, A. E. (2014). Sustainability in higher education in the context of the UN DESD: a review of learning and institutionalization processes. Journal of Cleaner Production, 62, 8-15.

Wals, A. E., & Lenglet, F. (2016). Sustainability citizens: Collaborative and disruptive social learning. In Sustainability citizenship in cities (pp. 52-66). Routledge.

Des, U. (2013). World economic and social survey 2013: sustainable development challenges. United Nations, Department of Economic and Social Affairs, New York, 123-136.

Xiong, W., & Mok, K. H. (2020). Sustainability practices of higher education institutions in Hong Kong: a case study of a sustainable campus consortium. Sustainability, 12(2), 452.

Zhang, Q., & Crooks, R. (2012). Toward an environmentally sustainable future: Country environmental analysis of the People's Republic of China. Asian Development Bank.