Journal of Harbin Engineering University
ISSN: 1006-7043

Vol 44 No. 11
November 2023

"ESD Integration in Education Systems and Its Relationship to Faculty Mandated Functions"

Jestoni P. Babia [2],
Benedict Al E. Candia [1],
Maria Victoria B. Trinidad[2],
Roxanne Jul L. Tandang[2],
James Patrick R. Santos[2]
[1] University of San Jose- Recoletos
[2] City College of Cagayan de Oro

Abstract
This study examined the correlation between ESD integration in TEIs' systems and the mandated functions of teacher education. 109 faculty respondents from TEIs in the Visayas Region, Philippines, answered the two researcher-made survey questionnaires. The results show that (1) learning environment and policy have no correlation with the mandated functions, (2) capability building and youth engagement correlate with the mandated functions, and (3) community partnerships have a correlation in community extension and professional development, excluding research productivity among faculty. During the focus group discussion, the themes for the challenges are: (1) the limited capability among faculty to publish ESD research studies, (2) limited understanding and awareness among students and faculty on the ESD-SDGs competencies, (3) lack of time and training, and (4) less support from the school administrators for ESD project implementation. Themes for the enablers are: (1) existing community partners, (2) unpublished research journals, (3) professional development programs, (4) existing laws and policy from DepEd and CHED schools to align syllabi to the ESD-SDGs competencies, and (5) strengthen the implementation of ESD to achieve internationalization. Furthermore, this study concludes that ESD integration and implementation in schools and faculty still need alignment and improvement.

Keywords*: ESD-SDGs, School programs, Mandated functions, Teacher Education, & Sequential-explanatory*

1.0 Introduction

Education for Sustainable Development (ESD) for 2030 highlights the five priority action areas: policy, learning environment, capability building, youth engagement, and community partnerships (Agbedahin, 2019). It emphasizes the role of the 17 SDGs and the individual and societal transformation (Leicht, Heiss, & Byun, 2018; Agbedahin, 2019; UNESCO, 2020). To achieve these goals, Philippine Teacher Education Institutions (TEIs) play a crucial role in integrating the priority action areas in the school systems (Babia & Cotejo, 2021; Flores & Delos Reyes, 2021). As part of the mandated functions, faculty contribute to the SDGs through ESD implementation in research, extension, instruction, and professional development (Okayama University ESD Promotion Centre, 2022, pp. 76-104; Balanay & Halog, 2016). Furthermore, ESD in the school systems and the mandated functions are the keys to achieving SDGs. This study investigates the correlation of ESD integration in TEI programs vis-a-vis the implementation of ESD in faculty mandated functions.

Professional development, teaching standards, the output of research, and community extension are the responsibility of faculty in academic institutions (Matthews, Mclinden, & Greenway, 2021). Boyer (1990) originally published these faculty-mandated functions on the scholarship of integration, scholarship of discovery, scholarship of engagement, scholarship of teaching, and scholarship of application. Through the years, academic institutions implemented the concept of "faculty as scholars of research, extension, development, and teaching" inspired by the works of Boyer (Matthews, McLinden, & Greenway, 2021). In addition, Shiel, Smith, and Cantarello (2020) suggested aligning the school systems and

the mandated functions of faculty to the ESD concept towards the 17 SDGs for 2030.

Meanwhile, Godfrey (2016) assessed the development of a school research culture as taking place within an interconnected ecosystem by drawing on a biological analogy. Findings suggest a systemic connectedness, leadership for knowledge creation, teaching as a research-informed practice, and the school as a learning organization to develop a culture of research on sustainable improvement strategy.

Chankseliani and McCowan (2021) suggested the following strategies to integrate and implement ESD to achieve the SDGs such as: (1) show an indication and conceptualization of higher education's impact on the SDGs; (2) discover the scope to which SDGs can provide a framework to understand the role of higher education institutions; (3) to examine how the current higher education may fulfill the mandated functions of faculty and school programs that will contribute to SDGs; and (4) determine the factors that influence or limits the academic institutions to contribute to the SDGs such as social dynamics, issues and trends, and higher education policy.

According to Mulà, et al. (2017), universities have limited capacities to include ESD in instruction, learning, or training approaches. Many ESD programs continue to focus on modules or courses in sustainability and teaching issues derived from research on sustainable development. Only a few countries and organizations have staff development programs to enhance ESD competencies and support their academic leadership for ESD. This problem highlights the assessment of the multi-level task of integrating ESD into professional development activities, not only for individual impact in the classroom but also to advance institutional change (Benayas & Alba, 2017).

There is no study published that investigates the correlation between the integration of ESD in the TEIs' systems and the ESD implementation among faculty based on their mandated functions under the laws and provisions of Philippine Education. The Department of Education (DepEd) Memorandum number 24, series of 2019, enforces the implementation of sustainable development, global citizenship education, climate change education, and environmental education in the Basic Education of the Philippines. Meanwhile, the Commission on Higher Education Education (CHED) memorandum order number 52, series of 2016, tackles the role of TEIs in providing research and innovations, community extension, quality instruction, and professional development towards SDGs. However, there is a need to investigate whether the ESD integration in the school systems aligns with the capability of faculty to implement the existing ESD in their mandated functions.

The results of this study will serve as a basis for enhancing the integration and implementation of ESD among TEIs of the Visayas Region, Philippines. TEIs will be able to determine whether the existing ESD programs and curriculum align with the mandated functions of faculty. The ESD integration and implementation will subsequently rank the TEIs as indicated in the TIMES Higher Education ranking criteria (Veidemane, 2022). Hence, it will recognize and award the TEIs for their ability to address sustainability issues. Meanwhile, faculty who contributed to SDGs through research, community extensions, quality of instruction, and professional development will attain higher academic ranking based on the Position Classification and Compensation Scheme for Faculty Positions (PCCSFP) by the Philippine Association of State Universities and Colleges (PASUC), together with CHED and the Department of Budget and Management (DBM),

2.0 Conceptual Framework

The five priority action areas of UNESCO (Diemer, Khushik & Ndiaye, 2020), and the scholarship of integration (Matthews, McLinden, & Greenway, 2021) mainly support the concept of this study.

ESD is the integration into teaching and learning as the key themes of sustainable development, such as climate change, natural hazard prevention, biodiversity, poverty reduction, and sustainable consumption by UNESCO (Diemer, Khushik & Ndiaye, 2020). It involves the adoption of participatory pedagogical methods to transform learners becoming actors in sustainable development. Thomas and Depasquale (2016) examined the ESD integration in the system versus the capability of its implementation. One of the findings suggests that the project-based learning

(PLB) approach is one of the effective ways to assure system analysis, problem-solving, assessment, skills development, and collaboration toward the SDGs. The key findings show that the least developed skill is the ability to assess sustainability in the systems. Meanwhile, the highest capability is to negotiate, deliberate, collaborate, and have leadership skills toward SDGs.

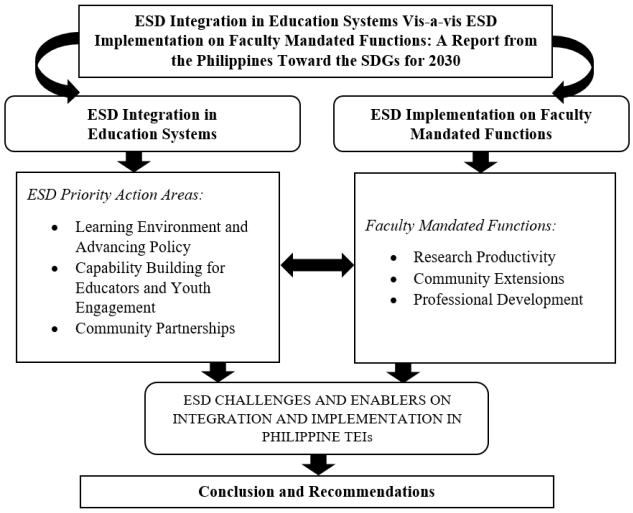

Figure 1. The Conceptual Framework of the Study

The concept of this study mainly focuses on providing and assuring faculty to engage in discovery, engagement, teaching, application, and integration (Boyer, 1990, as cited by Matthews, McLinden, & Greenway, 2021). Research means the capability of faculty to contribute to innovations, scholarly works, patent inventions, publications, engagement, and advisership for thesis and dissertations related to ESD. Community extensions are the participation among faculty in various ESD programs and projects conducted by public and private organizations. It will also show the capability of the faculty to give professional services to society, the environment, and the community through capability buildings related to ESD. Lastly, leadership and participation show the capability of faculty to manage, administer, and engage in ESD-related projects, seminars, training, and workshops.

3.0 Research Methodology

This study utilizes a sequential explanatory research design (Mixed-method). It starts with statistically correlating the extent of integrating ESD into the TEIs' systems and the faculty-mandated functions. And then, the researcher conducts semi-structured interviews through focus-group discussions among the participants to identify the challenges and enablers of ESD integration and implementation based on the three futures of learning by UNESCO.

109 randomly selected faculty from the different TEIs in Visayas Region, Philippines, shared their quantitative and qualitative responses using sets of questionnaires. The researcher-made survey questionnaires for the extent of integration and implementation underwent pilot testing and expert validation before data collection. The first questionnaire is for the ESD integration in the school systems (Learning Environment and Policy, Capacity Building and Youth Engagement, and Community Partnerships). Then, the second questionnaire is for the capability of the faculty to implement ESD based on the mandated functions (Research productivity, Community Extension, and Professional Development).

The process of conducting the study is from UNESCO Japan and Okayama University's roadmap for implementing the Global Action Programme (GAP) based on the three futures of learning such as: facilitating, connecting, collaborating, and engage, and continuing to learn and Create

(UNESCO, 2013, p. 21, cited by Scott, 2015). Members of the United Nations in which the University of San Jose – Recoletos (USJ-R), Cebu Normal University (CNU), Cebu Technological University (CTU), and Philippine Normal University (PNU) are the representatives from the Philippines for ESD and SDGs integration and implementation in TEIs.

The ESD focal persons facilitated the focus-group discussion, and the qualitative responses were validated and analyzed through thematic analysis. The qualitative results provide additional information on the quantitative results. And lastly, the researcher used Pearson correlation statistics to determine the relationship between the variables for school systems and the mandated functions of faculty with a support of qualitative response to determine the challenges and enablers not indicated in the quantitative questions.

4.0 Results and Discussion

This chapter shows the significant correlations of TEIs' systems in terms of advanced policy and learning environment, capacity building and youth engagement, and community partnerships and the mandated functions of teacher education faculty such as community extension, research productivity, and professional development using Pearson correlation analysis.

ESD Integration in TEI systems Vis-a-vis ESD Implementation on Faculty Mandated Functions

After a series of ESD training and workshops conducted by the USJ-R in partnership with other TEIs in the Visayas, Philippines and UNESCO, the proceeding tables will present the statistical correlation on the extent of ESD integration in the school systems vis-a-vis the implementation of ESD on the mandated functions of teacher education faculty. The faculty from different TEIs in Visayas, Philippines participated in the ESD training and workshops based on the concept of facilitating learning, connecting ESD programs, collaborating with stakeholders and community partners, and engaging with the youths and educators, and continuing to learn and create future ESD-based programs.

Learning Environment and School Policy vis-a-vis Mandated Functions of Faculty

The advancing policy entails incorporating ESD into the learning environment and sustainable development strategies to transform the learning environment (Agbedahin, 2019). It explicitly and implicitly identifies the capabilities to incorporate ESD principles, lesson plans, curriculum and instruction, physical environment, and policies and processes. Improving the learning environment entails incorporating ESD concepts into educational systems (ethics, governance, and campus administration).

Table 1. The Correlation Between Learning Environment- School Policy and Mandated Functions of Faculty

N=109

Components:		**Extension**	**Research**	**Professional Development**	**Interpretation**
Learning Environment and School Policy	Pearson Correlation	0.161	0.142	0.159	**There are no significant correlations**
	P-value	*0.145*	*0.202*	*0.152*	

Correlation is significant at the 0.05 level (2-tailed).

Table 1 shows that the integration of ESD in the TEIs' systems in terms of the learning environment and the school policy has no significant correlation with the capability of the faculty to implement ESD on community extension with a *p-value of 0.145*, research productivity with a *p-value of 0.202*, and professional development with a *p-value of 0.152.* The results show that there is already a presence of ESD concepts in the TEIs' learning environment and policy. However, the implementation of these ESD policy and utilization of the learning environment does not connect to the faculty's role of implementing it to their community extension programs, research publications and innovations, and professional developments, exposures, and engagements locally and abroad to share their ESD practices.

Capability Building and Youth Engagement Vis-a-vis Mandated Functions of Faculty

Empowering and organizing young people entails creating information and communication technology (ICT) to encourage sustainable behaviors in social networks and online communities (Agbedahin, 2019). It also integrates ESD principles in field trips, science fairs, student activities, studies and literature, forums, and other ESD presentations. In addition, Enhancing educators' capacity entails incorporating ESD into pre-service and in-service training, early childhood education, and TEIs.

Table 2. The Correlation Between Capability Building - Youth Engagement and Mandated Functions of Faculty

N=109

Components:		Extension	Research	Professional Development	**Interpretation**
Capability Building and Youth Engagement	Pearson Correlation	0.288	0.245	0.227	**There are significant correlations**
	p value	*0.008*	*0.025*	*0.039*	

Correlation is significant at the 0.05 level (2-tailed).

Table 2 shows that the integration of ESD in the TEIs' systems in terms of capability building and youth engagement has significant correlation with the capability of the faculty to implement ESD in community extensions with a *p-value of 0.008*, research productivity with a *p-value of 0.025*, and professional development with a *p-value of 0.039.* The programs of TEIs for capability building and youth engagements connect to the capability of the faculty to implement it on their community engagements, services, and programs, research publications and innovations, and their participation in local or international training, workshop, and seminars. The result shows a positive indication that the faculty involved themselves in ESD-based youth programs and capability buildings.

The Locale Level Actions Vis-a-vis Mandated Functions of Faculty

Local-level action indicates that local, rural, and urban communities are the primary spark of sustainable development and should be encouraged (Agbedahin, 2019). It integrates the ESD principles in girl and boy scouts, student community leadership and engagements, and student community outreach programs.

Table 3. The Correlation Between Locale Level Actions and Mandated Functions of Faculty

N=109

Components		Extension	Research	Professional Development	**Interpretation**
Locale Level Actions	Pearson Correlation	0.253	0.199	.240	**There is no correlation to research productivity**
	p value	*0.021*	*0.071*	*0.029*	

Correlation is significant at the 0.05 level (2-tailed).

Table 3 shows that the ESD integration in the TEIs' system in terms of locale level actions has correlation with the capability of the faculty to implement it in community leadership, engagements, and participation with a *p-value of 0.021*. In addition, ESD integration in the TEIs' system in terms of locale level actions has correlation with the professional development among faculty with a *p-value of 0.029*. The results show that the TEIs' integration of ESD in their

community partnerships allow the faculty to engage themselves through in ESD-based community leadership, training, and professional development toward the SDGs.

However, ESD integration in the TEIs' system in terms of locale level actions has no correlation with the capability of the faculty to implement it in their research publications, innovations, patents, inventions, and other scholarly works with a *p-value of 0.07.* It implies that the faculty performed their mandated functions to implement ESD in community extension programs and training, seminars, and workshops, however, the faculty failed to publish research outputs during their ESD-based community programs, projects, and professional activities.

Challenges and Enablers of ESD Implementation and Integration in the Philippines

This chapter presents the challenges and opportunities of implementing and integrating ESD in the Philippines. Hence, the themes and vignettes showed the responses of the respondents based on the online focus-group discussion answering the open-ended questions provided by the researcher.

Theme 1: Building human capacity

According to the United Nations' Sustainable Development Goals, everyone must possess the skills and knowledge required to handle the difficulties of creating a more sustainable world. As the institutions and the academe embrace ESD, they face critical issues which include the institutionalization of ESD across the curriculum and structuring and placing ESD in the Curriculum. These are manifested in the following vignettes:

"Fast turnover rate of employees and reorganization of the department requires training of human resources."

"There is training for new teachers to come in, of course, we still have existing teachers that will need retraining on some appropriate teaching practices especially when we talk about ESD. "

"There are some teachers who have been with the institution for a long time. "Thus, there is a need to retrain them, especially on the trends and practices on ESD."

"There is a continued effort to include this in the different meetings and/or seminars/workshops."

ESD must be seen as a very meaningful avenue for institutions to apply sustainability principles. There is a need to provide coherent professional development among educators and administrators to ensure sustainable principles in a broader context are well understood Laurie et.al. (2016).

Theme 2: Increasing Awareness of ESD

Educating the public and the educational community about the importance of reorienting education toward sustainability is the first step in starting an ESD program. Education will not be reoriented to address sustainable development if policymakers or school administrators are oblivious of the critical links between education and sustainable development. The following vignettes are claims of participants as to lack of ESD awareness.

"Declining institutional memory"

"There is a lack of awareness about the concepts of ESD among the community members"

"Awareness and Consciousness of the various colleges on ESD and SDG"

"Not all colleges/ departments in the university are fully aware of ESD."

"We can better appreciate the implementation of different programs or projects of ESD if we are conscious and we understand the significance of ESD"

The goal of education for sustainability is to increase environmental knowledge and the population's ability to participate in decision-making as a means of sharing responsibility for the monitoring and management of ecological degradation agents (Avila et.al., 2018). The clamor for the importance of ESD in achieving sustainability must permeate Philippine institutions and the general public to address the current societal issues and challenges.

Theme 3: ESD in the Curriculum

ESD enhances the curriculum by transforming it more holistically and integrally. Although considerable work has been done by various institutions, this direction remains a goal for many schools (Ilisko and Badyanova, 2014).

"Capacitation of faculty and staff in terms of subject integration"

"There are subjects, especially in the lower units that would have difficulty in integrating ESD in their lesson"
"Difficulty to integrate ESD in some subjects"
"ESD concepts were integrated or required to be integrated before (2014-2015) in the syllabi of teacher education but later on this was changed"
"Institutionalizing ESD integration across the curriculum"
"Integration of ESD to classroom instructions"

Theme 4: Facing the Complexity of Sustainable Development Concept

ESD's contribution to high-quality education confirms current movements to reorient education away from its long-standing emphasis on economics and toward issues of social justice, sustainability, and global citizenship (Laurie et.al., 2016). However, educators are yearning for systems thinking on sustainability. These are manifested in the following vignettes:
"One issue is on organizational awareness of ESD, its concepts, frameworks, and most especially, its significance to achieving a better world. "
"Teachers and stakeholders of schools and institutions, if they know about ESD, remain limited only to concepts related to Environmental Education, which is only part of it."
"Along with upskilling on ESD, capacity building activities/training for teachers may also be focused on real-life application of ESD in daily settings, as well as its localization so that teachers and students may better relate and apply it."

Even though many governments and educational institutions are willing to implement ESD initiatives, the problem of education for sustainable development persists. The need for capacity building will lead to a thorough grasp of the aspects of high-quality education that reflect its essential qualities.

Theme 5: Organizational Behavior

The organizational behavior of an institution will determine the success of ESD in the workplace. Bauer and Erdogan (2012), asserted that motivation, strong work ethics, and interpersonal skills as some of the top personal skills in an organization that are critical to more engaged members. Some of the challenges mentioned by the participants are as follows:

"Oftentimes, teachers and students are bombarded with major tasks and activities due to competing priorities and large coverage of content"
"Hard to let them (faculty/staff/students) integrate ESD in their classroom and/or work/activities on the value of ESD."
"Difficulty in seeking support and collective effort to integrate ESD and follow policies."
"Minimal support from both the teaching and non-teaching personnel due to several reasons (e.g., conflicting priorities, lack of awareness, no tangible rewards and consequences, overlapping functions).

Motivation is lost if educators are overwhelmed with their workload. The demand for teachers has grown in recent years, especially in light of their expanding workloads and changing job responsibilities. The increased workload for teachers could have a detrimental effect on them, their work, and their ability to manage work and life balance.

Theme 6: Developing a Creative, Innovative, and Risk-Taking Climate Change Action

Classroom discussions ought to be a reflection of the most important contemporary issues in society. Giving students the chance to make knowledgeable decisions about their futures and the futures of their society is crucial. Educators see the need to develop a creative, innovative, and risk-taking climate change action strategy. The following vignettes are evident of some actions and the need to give more attention to climate change Actions
"We have this green laboratory equipment and facilities that should be purchased by the university which could help protect the environment because there could be problems with the disposal of broken computers."
"Better to use green facilities and equipment and computers, our campus has started to purchase facilities and equipment supporting green technology, and our students in ICT have started to have research and innovations on green technology as also to help our environment for conservation and protection."
"However, there are still plastics, especially pet bottles, found on the campus despite the ban, plastics can still be found even if there is a zero waste policy."

"The weather in our locality is identified as one of the low areas or catch basins during the rainy season."
"Aiming to cultivate the green environment in the area towards mitigating the deleterious effects of climate change and global warming"
University education is crucial because it is structured and advances knowledge in the field of education and its use in the real world, which is troubled by societal and environmental problems. Environmental and climate awareness needs to be emphasized in lessons (Tolstikova, 2021). Students' sense of identity must be strengthened, and teachers must promote cultural awareness through problem-solving and other critical thinking pedagogies.

Theme 7: Developing an ESD Program with Stakeholders and the Community

The application of the sustainable principle necessitates the participation of a wide range of interest groups due to its complexity, depth, and diversity. These groups may be the local government units, Youth groups, government, and non-government sectors. The need to collaborate with these groups is shown in the following vignettes:
"Lack of Support and Guidance from the Local Council /LGUs"
"Lack of engagement from the SKs"
"Since NYC's mandate is policy making, implementation and monitoring and evaluation of these are lodged to the DILG/LGUs."
"Inclusivity within LGU"
"Support to increase consciousness and intent of community's doer's of change."
"The commitment of lay mission, partners, students, and teachers towards the achievement of ESD."
"MOA and MOU with Line agencies on Policies relative to partnership on ESD like Youth development, school site, etc."
"Building community of practice beyond the partnerships established"
"Establish linkages and partnerships with stakeholders"
"Strengthening engagement with the private sector"
These vignettes revealed that partnership with the stakeholders and the community needs a lot of fine-tuning. Higher education institutions and similar institutions must take into account the engagement with their stakeholders at the strategic level due to complex operational environments. Such collaboration produces knowledge that influences the innovation's focus on sustainability, which may help maintain development, and environmental decision-making (Rhodes et al. 2014).

Theme 8: Financial and Material Viability

Teachers and school administrators frequently cite financial and resource limitations as obstacles to ESD implementation. In order to get the support of school administrators, governments, and teachers alike, it is crucial to emphasize to decision-makers the cost savings that can come from more sustainable operations within schools. Sample vignettes from participants claim the following:
"Policies, especially those that require a budget, human resource, and facilities and equipment, require the approval of many levels in the organizational structure"
"Resources and Facilities are limited"
"The inclusion of ESD related projects and programs and also, facilities and equipment (technology) leading to green technology, computer-related programs."
"We have an MC forest, it is far. However, given the situation that we have now, transportation is expensive. Thus, doing outreach and immersion activities for our students is a bit difficult this time"
"We needed to include in the Budget and Strategic Planning activities to highlight ESD programs, projects, and activities."
"Forest is far from the campus and transportation is expensive."
"We needed Budget allocation to sustain the proposed programs/projects."
"Address changes brought about fluctuations in demand of the society and market to the project, conversely depression and crisis caused by the economy."
Fund allocations are a must.
Implementing sustainable practices helps businesses increase productivity, reduce operating costs, and reduce environmental events. It also improves operational efficiency (Bello, 2020). Having this consideration, administrators must

weigh out the advantages that can be gained from the implementation of sustainability actions.

Theme 9: Development and implementation of Policy

The authoritative impetus for ESD must come from governments at the national, regional, and local levels if policy development is to succeed. The paucity on ESD policy is manifested in the following claims:

"In the area of community extension, we use the Action Principles of ESD as a guide in the implementation of our project. This has been practiced in the past few years, but this has not yet been made into a policy."

"When it's time to create policies to ensure that it is achieved."

"The policy is not consistently enforced among all the members in the university as some of them do not strictly adhere to it.'

'We envision that the segregation campaign will be practiced by all learners and youth in our school."

"No clear-cut policies/policy on ESD although the core practices of the University is towards sustainability and targets the SDGs."

"We have various ESD practices upon closer examination most of these are sustainable but the lack of specific directive towards ESD prevents its full mainstreaming in the consciousness of the BU community."

The integration of ESD components in national development strategies can aid in supplying the tools and viewpoints required for achieving sustainable development. It is critical to consider education and learning as processes that can improve policy design and implementation (UNESCO,2010).

Theme 10: Traditional Disciplines translated to a Transdisciplinary Framework

Transdisciplinary processes for sustainable development are the delivery of complex theoretical, value-laden, and action-driven themes of sustainable development by academic and non-academic actors. (Kraps, 2019). The translation of ESD across disciplines gained few initiatives to translate it to sustainability actions. Here are a few examples:

"Planting vegetables in school for feeding program utilization

"ESD applied on school gardens

"City Agriculture engaged in food production, poverty alleviation, and alternative livelihood"

"Environmental activities for example "Dare to Share, Plant with Care), Educational webinars (E-CONNECT), "Public Speaking in the New Normal", "Mental Health", "Making Change for Women Entrepreneurs in the Digital World" and "Boosting Parental Engagement"

Rich as it may seem however the very limited responses are sufficient to describe ESD as comprehensive and interdisciplinary by nature. Due to the division of subjects and the disciplinary structure used to teach them, ESD is challenging to teach in standard school settings. It will be difficult to install ESD, but doing so calls for innovative teachers who are at ease and adept at teaching across disciplines.

Theme 11: Monitoring and Evaluation

There are many examples of ESD all over the world, its ability to scale effectively and its contribution to the achievement of sustainable development goals are frequently questioned particularly when we are trying to gauge the country's performance. The following participants claim the dearth of monitoring and evaluation mechanisms for ESD in their institutions.

"M and E results may improve the image of TVET"

"M and E help us to realize the identity and mainstream best practices of our implemented projects."

"We needed some metrics to measure our performance."

"We still lack some monitoring and evaluation of Youth Projects; we also need to measure the institution's commitment to realizing project targets set aligned to ESD through sound actions."

"Need constant monitoring of the activities such as the growth of the seedlings"

"Cascading targets aligned to actualize relevant actions"

"Monitoring and evaluating the implementation of the project and its impact on the community"

"Community-Based Monitoring of LGU"

Gleaning from the vignettes, it is noteworthy to mention that there is a limitation on monitoring and evaluation of ESD works across institutions. Smilka (2019) purported the goals of monitoring as follows: assist decision-making with analytical data; monitor knowledge gained; track qualitative and

quantitative changes; establish an algorithm for sequential action; to be proactive. The M and E are Indicative are necessitated to assess the extent to which an institution's values comply with the required standards.

Theme 12: Need for Lead Person

Leadership challenges lie ahead as schools and their larger administrative communities move toward a more systematic approach to ESD in the classroom. (Jackson, 2007). The need for a lead person to handle ESD was pointed out during the focus-group discussion:

"The need for Link person or Focal Person in Charge of the ESD"

"Changes in leadership leave ESD activities hanging"

"The support from the School head / top management is necessary to strengthen the implementation of the approved policies."

"There is a need to revitalize the WJPIC and provide a link person, someone in charge."

"Establishment of LYD Office and hiring of staff to implement the proposed programs/projects by the SK Officials specifically in DRRM."

"There is a need for manpower and an office to monitor and evaluate ESD"

Institutions must capitalize on the enthusiasm and tenacity of individuals, leaders, communities, and NGOs who support the whole-school approach to ESD in order to promote a more systemic application of ESD for a greater impact. According to the research by Jackson and Parry (2008), school administrators who support sustainability do so because they are passionate about it and share its vision. The governance framework necessary to ensure the lifespan and sustainability of ESD initiatives can be established with effective leadership.

Theme 13: Pandemic limitations

ESD is a process that has the potential to change people's knowledge, skills, and attitudes in ways that will make society more sustainable and inclusive for all. The effective implementation of ESD necessitates a transformational, action-oriented pedagogy that prioritizes collaborative learning environments.

"The pandemic limited the movement and programs of the institution, although virtual activities have been conducted."

"Threats of COVID-19 and other disasters"

"Disruptions caused by the pandemic"

"Prohibition of Face-to-face involvement of students to the Clean and Green Campaign"

"Health and safety of students and teachers"

"Prohibition of Face to face training"

The customary immersive ESD activities that schools typically engage in such as the Clean and Green campaign and other similar events were not viable owing to the lack of face-to-face interaction. Teachers and students were driven to use digital abilities rather than authentic ESD competencies due to the pressing need to transition to online teaching and learning. Stress, social isolation, and limitations on fieldwork and other outdoor activities were all side effects of the pandemic (Finlayson, et.al., 2022).

Theme 14: Structuring and Placing ESD in the University System

All stakeholders, from the community to educators and policymakers must be committed to change. We can only ensure that ESD expands beyond pilot projects and specific case studies to serve as a more system-wide catalyst for change by collaborating across levels.

"ESD has to be across all levels of the institutional structure, even including the communities the university works with"

"The biggest challenge is how to change the organizational perspective on sustainability"

"The understanding of the importance of a policy for the sustainability of a project or program would require an organizational culture which commits to, not only understands, ESD."

"Integration of ESD-related projects and programs in the tri-fold functions and GAD unit. It has to be embedded in the strategic planning."

"Support from the school because we envision that the practice will be institutionalized."

"Difficulty in seeking support and collective effort to integrate ESD and follow policies"

"Integration/ Strengthening the School-Based Management Practices relative to ESD implementation"

"Gender Development and Social Disability, there is a need to revisit the Women, Justice, Peace and Integrity of Creation (WJ PIC) thrust"

"I saw the challenge or the need to revisit the WJPIC because when it is first implemented, the level of

energy or commitment a person gives off is at the fullest. Yet, as time passes by this energy level drops."

"Strategic Planning - the inclusion of ESD-related projects and programs "

The formal education sector has a large opportunity with a whole-school approach to ESD. The commitment to change must come from all stakeholders by working together. Having this, we can have an assurance that ESD goes beyond pilot projects and specific case studies to serve as a more system-wide change catalyst.

5.0 Conclusion

Philippine implements ESD towards SDGs 2030 in the Educational Policy. Both basic and higher education TEIs under DepEd and CHED initiated the sustainability initiatives through participatory approaches. However, the findings of this study reveals that ESD integration in the school policy and its learning environment did not connect to the capability of the faculty to perform ESD-based community extension, research, and professional development. In addition, TEIs integrate ESD concepts in the capability building and youth development programs with the participation of faculty as the leaders, organizers, and facilitators. TEIs provided locale level actions that enables the faculty to engage in community programs and exposes them to training, seminars, workshops, and other events related to enhance their professional development for ESD. Thus, it is important to establish the connections of both educational systems and faculty performance to integrate and implement ESD-based trifocal functions.

Recommendation

This study recommends to enhance the youth engagement in service-oriented ESD-based projects in the community and other public and private organizations. In addition, ESD seminars, training, national and international exposures, leadership, and other forms of engagement such as educational projects, memberships in the national and international organizations, consultancy, panelist or other engagement and career opportunities, locally and abroad, that develop the professional being of the faculty must be provided and supported by TEIs to strongly implement ESD. More so, faculty should provide innovations, patented inventions, publications, creative outputs, scholarship or fellowship, membership in professional research organizations, competitions, awards, and distinctions based on their ESD-based community projects and professional developments.

References

[1] Agbedahin, A. V. (2019). Sustainable development, Education for Sustainable Development, and the 2030 Agenda for Sustainable Development: Emergence, efficacy, eminence, and future. Sustainable Development, 27(4), 669-680.

[2] Avila, L., Facco, A.L., Bento, M.H., Arigony, M.M., Obregon, S.L., and Trevisan, M. (2018). Sustainability and education for sustainability: An analysis of publications from the last decade. Environmental Quality Management

[3] Babia, J. P., & Cotejo, D. G. I. (2021). Education sustainable development community based projects of the Philippines. *Psychology and Education*, *58*(3), 3998-4007.

[4] 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.

[5] Bauer, Talya and Erdogan, Berrin. (2012). An Introduction to Organizational Behavior. https://2012books.lardbucket.org/pdfs/an-introduction-to-organizational-behavior-v1.1.pdf

[6] Bello, D. (2020). Cost Reduction and Sustainable Business Practices; A conceptual approach. Journal of Economics and Administrative Sciences. Vol.26 (NO. 118) 2020, pp. 78-87.

[7] Benayas, J. D., & Alba, D. Catalysing Change in Higher Education for Sustainable Development: A review of professional development initiatives for university educators Ingrid Mulà, Daniella Tilbury,

Alexandra Ryan, Marlene Mader, Jana Dlouhá, Clemens Mader, Javier.

[8] Boyer, E. L. (1990). Scholarship reconsidered: Priorities of the professoriate. Princeton University Press, 3175 Princeton Pike, Lawrenceville, NJ 08648..

[9] Buckler, C., & Creech, H. (2014). *Shaping the future we want: UN Decade of Education for Sustainable Development; final report*. Unesco.

[10] Craps, M. (2019). Transdisciplinary Processes for Sustainable Development. Encyclopedia of Sustainability in Higher Education pp 1–9.

[11] Diemer, A., Khushik, F., & Ndiaye, A. (2020). SDG 4 "quality education", the cornerstone of the SDGs: Case studies of Pakistan and Senegal. *Journal of Economics and Development Studies*, *8*(1), 9-32.

[12] DOI: 10.1002/tqem.21537

[13] Finlayson, A, Moso-Díez, M., Lovren, V.(2022). Impact of COVID-19 on Education for Sustainable Development (ESD) in the context of twin transition. European Expert Network on Economics of Education. EENEE Policy Brief No. 01/2022.

[14] Godfrey, D. (2016). Leadership of schools as research-led organisations in the English educational environment: Cultivating a research-engaged school culture. *Educational Management Administration & Leadership*, *44*(2), 301-321.

[15] Ilisko, D. and Badyanova,Y. (2014). A Case Study of ESD Implementation: Signs of Sustainable Leadership. *Discourse and Communication for Sustainable Education. V*ol. 5, pp. 38ñ48, 2014. DOI: 10.2478/dcse-2014-0004

[16] Jackson. and Parry. (2008). A Very Short, Interesting, and Reasonably Cheap Book About Studying Leadership. London: SAGE Publication, 208(2), 25.

[17] Laurie, R., Nonoyama-Tarumi, Y., Mckeown, R., and Hopkins, C. (2016). Contributions of Education for Sustainable Development (ESD) to Quality Education: A Synthesis of Research. https://doi.org/10.1177/0973408216661442

[18] Leicht, A., Heiss, J., & Byun, W. J. (2018). Issues and trends in education for sustainable development (Vol. 5). UNESCO publishing.

[19] Matthews, A., McLinden, M., & Greenway, C. (2021). Rising to the pedagogical challenges of the Fourth Industrial Age in the university of the future: an integrated model of scholarship. Higher Education Pedagogies, 6(1), 1-21.

[20] Matthews, A., McLinden, M., & Greenway, C. (2021). Rising to the pedagogical challenges of the Fourth Industrial Age in the university of the future: an integrated model of scholarship. *Higher Education Pedagogies*, *6*(1), 1-21.

[21] Mulà, I., Tilbury, D., Ryan, A., Mader, M., Dlouhá, J., Mader, C., ... & Alba, D. (2017). Catalysing change in higher education for sustainable development: A review of professional development initiatives for university educators. International journal of sustainability in higher education.

[22] Nikel, J., Lowe, J. (2010). Talking of fabric: A multi-dimensional model of quality in education. Compare, 40(5), 589–605. DOI: 10.1080/03057920902909477

[23] Plaza-Úbeda, J. A., Pérez-Valls, M., Céspedes-Lorente, J. J., & Payán-Sánchez, B. (2019). *The contribution of systems theory to sustainability in degrowth contexts: The role of subsystems. Systems Research and Behavioral Science.* doi:10.1002/sres.2600

[24] Rhodes, J. et al., 2014. A framework for stakeholder engagement and sustainable development in MNCs. *Journal of Global Responsibility*, 5(1), pp.82–103. Available at: http://dx.doi.org/10.1108/JGR-02-2014-0004.

[25] Shiel, C., Smith, N., & Cantarello, E. (2020). Aligning campus strategy with the SDGs: An institutional case study. Universities as Living Labs for Sustainable Development: Supporting the Implementation of the Sustainable Development Goals, 11-27.

[26] Smilka, V. (2019). The Role of Monitoring in Sustainable Development. Baltic Journal of Real Estate Economics and Construction Management ISSN: 2255-9671 (online), 7,

245–254. Available at:https://content.sciendo.com DOI: 10.2478/bjreecm-2019-0015

[27] Thomas, I., & Depasquale, J. (2016). Connecting curriculum, capabilities and careers. *International Journal of Sustainability in Higher Education*.

[28] Tolstikova1, S., Osechkina, L., Tabolova, E., and Travinova, G.(2021).Development of teachers' professional skills in education for sustainable development. E3S Web of Conferences 250, 07007 (2021) Available at: https://doi.org/10.1051/e3sconf/202125007007.

[29] UNESCO. (2010). Education for Sustainable Development in ActionLearning & Training Tools no. 2.

[30] Veidemane, A. (2022). Education for sustainable development in higher education rankings: Challenges and opportunities for developing internationally comparable indicators. Sustainability, 14(9), 5102.

[31] http://archive.ovcrd.upd.edu.ph/wp-content/uploads/2016/10/CMO-52-s.-2016.pdf

[32] https://unesdoc.unesco.org/ark:/48223/pf0000374802.locale=en

[33] https://www.dbm.gov.ph/wp-content/uploads/2012/03/Manual-on-PCC-Chapter-7.pdf

[34] https://www.deped.gov.ph/wp-content/uploads/2019/03/DM_s2019_024.pdf