Education for Sustainable Development: Lesson Learned from Malaysia, Sweden, Romania for Applying in Thailand in the Digital Age

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Abstract

The objective of this academic paper is to present the knowledge, experience and perspective on the lesson learned of Education for Sustainable Development from Malaysia, Sweden, and Romania in order to apply for Thai ESD in the digital age by documentary study from the research results. Analyzing and synthesis by content analysis in order to classify the phenomenon how 4 countries has been developed ESD in the digital age. The research found that: 1) The educational policies of Malaysia are geered towards the sustainable development goals, and are reaching the 7 main targets and the 3 supporting targets required by UNESCO, except the expansion of scholarships to developing countries and the participation in quality development of teachers in developing countries; 2) the suggestions for application to implement educational development in Thailand are the strategies for early childhood education and care, the strategies for opportunities to technical, vocational and higher education, and the strategies for improvement of youth and adult literacy. 2) Lesson learned from Sweden for Thailand can be applied concludes as followings: the effectiveness of ESD has produced valuable new insights. The results establish that ESD has potential to be effective, and show that there is no simple fix-it-all solution and that education practice need to be attuned specifically to the target group and the key role that ESD in addressing SD and securing a sustainable future for the next generations to come. 3) Lesson learned from Romania new training schemas and training programs will be very helpful for those who have the responsibility to develop skills, change attitudes and form characters. Teachers of the future (actual students) must understand the simplicity and complexity of sustainability. "Education is the most effective means that society possesses for confronting the challenges of the future". Indeed, education will shape the world of tomorrow. Progress increasingly depends upon the products of educated minds: upon research, invention, innovation and adaptation.

Keywords: Education for sustainable development; digital age

1. Introduction: How important of ESD in the digital age.

According to the as stated by UNESCO's documents and reports, the promotion of quality education is critical for enhancing people's lives and advancing sustainable development. For this reason, the 4th Sustainable Development Goal was established, with a specific target focused on education for

sustainable development: "By 2030, ensure that all learners acquire the knowledge and skills needed to promote sustainable development, including, among others, through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship and appreciation of cultural diversity and of culture's contribution to sustainable development". Education for sustainable development has been supported by UNESCO different initiatives, and following reports have shown the progresses made and the discrepancies around the World. Education for sustainable development (or the environmental education) has been recognized as an imperative to help plan and prepare the young generation (involved in the pre-university or university education) for the environmental changes in the future. **"It is important to inform future generations on ways to meet the challenge of climate change issues through education and awareness**.

In the literature, many studies present the interconnection between education for sustainable development and their associated competencies. The main idea underlined by the studies is that key competencies are essential for individuals to transform their own lifestyles and to contribute to societal transformation towards sustainability. Above all, OECD considers three categories of key competencies related to the sustainable development: (1) using tools interactively (the ability to use language, symbols and texts interactively, the ability to use knowledge and information interactively, and the ability to use technology interactively); (2) interacting in heterogeneous groups (the ability to relate well to others, the ability to cooperate, and the ability to manage and resolve conflicts); and (3) acting autonomously (the ability to act within the big picture; the ability to form and conduct life plans and personal projects; and the ability to defend and assert rights, interests, limits and needs).

2. Educational Development for Sustainable Development Goals: A case study of Malaysia by Thak Udomrat (2021)

After we Learned on how important of ESD I would Like to present as following: This research written by Thak Udomrat (2021) aimed to study the current state, Educational Development for Sustainable Development Goals: A Case Study of MALAYSIA. The objectives of this study are to review the educational policies of Malaysia towards sustainable development goals, and to describe the present system of all educations in Malaysia and to find the suggestions for the application of **good practices to the educational development of Thailand in line with the targets of Education 2030.** The research methodology was qualitative, based on documentary analysis and focus group discussions.

Background and importance of the problem in Malaysia

The concept of education for sustainable development has been widely accepted throughout the world. But there are challenges in many ways, such as enhancing awareness Curriculum integration, educational reform definition about sustainable development, Community participation Integration of content and the role of the agency responsible, etc. (Harakunarak, 2009)

Tertiary Education in Malaysia:

Malaysian higher education institutions are classified according to the Malaysian Qualifications Framework (MOF) used to separate the Ministry of Higher Education from the Ministry of Education from 2004 - 2013 and then came back together again. After introducing the university preparatory curriculum (matriculation programmer) as an alternative to the STPM exam alone. It has become an alternative to the STPM exam only since 1999. Students who graduated from college Prepare for higher education (matriculation colleges / matriculation colleges) were able to study at a local university and have the option to study at the institution Private higher education which many institutions have collaborated with famous universities in the USA, England, Australia, etc., spend some time studying in the country. These can earn degrees from both.

Education for sustainable development and being a good citizen of the world in Malaysia

Education for sustainable development and global citizenship for Malaysia, it is a guarantee that all children are proficient in Bahasa Malaysia and English and was encouraged to learn another language. There is support to do an integrated curriculum so that different types of schools where students of lower ethnic groups interact with each other using development guidelines sustainably across the world rather than emphasizing globality like a joint business and emphasizes sustainable consumption and production Including the unity of primary and secondary schools.

Curriculum development teaching Measuring and evaluating teacher development according to SDG 4.2:

Development of early childhood education curriculum

In the year 2010, the pre-primary education curriculum was announced, called National Preschool Standard Curriculum (NPSC). The Objectives. "To ensure a holistic Reduce academic status fulfill needs and has more continuity with the Primary 1 curriculum" emphasizing the 4 R's (Reading, Writing, Lectures, and Reasoning).

Arrangement of teaching and learning at the early childhood level:

The policy for the care and provision of early childhood education according to the educational blueprint (2013 - 2020) is to achieve pre-primary education standards, which aims to develop in a balanced manner in all aspects, consisting of develop communication skills in Malay, English, Chinese and Tamil, develop spirituality, attitudes, popular beliefs, including religious practices and beliefs. (Islam) and the cultivation of desirable attitudes and attitudes, develop humanity provide knowledge and perform the duties of being a good citizen in society and in the local environment, love and be proud of the nation and the world and have the unity. personality development (Grooming) strengthens leadership and personal development using Classroom activities and extra-curricular activities, develop the body and aesthetics by developing well-being, imagination, and initiative, creative, special abilities and satisfaction in various things, develop science and technology by using the method of asking questions to search for answers (inquiry)

approach) provides scientific knowledge, science skills, scientific attitude, knowledge and skills mathematics, problem Solving and information technology (Mariani MD. Nor, University of Malaysia).

Early childhood teacher development in Malaysia :

Early childhood teachers in Malaysia must meet National Occupational Skills Standards. Skill Standard -NOSS) teacher training for pre-primary/early childhood teachers in Malaysia. There are important characteristics: Teacher training for pre-primary/early childhood teachers in Malaysia, The important characteristicare : (1) All teachers who teach in pre-primary schools under the state must have completed teacher training or received a certificate at least an advanced degree in teaching (Diploma in Teaching) under the department of Community Development (Kemas) must be training by the home ministry for another 6 months under the Department of National Unity and Integration (Perpaduan) must be received. Training by the home ministry for another 3 weeks, (2) Teacher training courses approved by the Ministry of Education Organized by a higher education institution, (3) Early childhood teacher training By the Malaysian Kindergarten Association (The Malaysian Association of Kindergartens-PTM), (4) Training of child care center owners and caregivers Early Childhood (Childcare Provider and Childcare Minders), both positions must be trained by the Ministry Women, Family and Community Development (Mwfcd) by Basic Child Care Courses (KAAK) takes 10 days for organize a module-based curriculum.

Development of teachers and school administrators in Malaysia:

Development of teacher production institutions:

There are 7 operational processes: (1) increasing concentration and using a holistic system in admission to teacher training institutes, (2) Improve teacher training curriculum and increase experience training hours to 40% of total study time/credits to provide teachers with new teaching skills and learning evaluation methods, (3) Improve the leadership of various campus administrators of teacher training institutes, (4) Raise the quality of teaching staff on teacher training institutes in order to increase the proportion of doctoral graduates. and has expertise in both teaching, researching, and having academic work published (5) Upgrading, the infrastructure of Teacher training educational institutions, such as buildings, textbooks, research and information technology learning resources, (6) Increase research activities and innovation and (7) raise the level of acceptance of the quality of teacher training institutions through multidimensional assessment, which Operated by the National Qualifications Agency (Malaysia Qualifications Agency-MQA). The goal is that the Malaysian National Teacher Training Institute will meet world-class quality standards within the year 2018.

Suggestions from lesson learnned for applying research results for Thai context:

Application guidelines for Thailand (policy): Thailand has developed education according to the direction of sustainable development has keen already there. but still not successful in some matters. Therefore, there is the important dimension for Thailand to apply and improve like Malaysia include caring for and providing quality and comprehensive education for early childhood children. from birth until before entering primary school, and Auppart the opportunities for technical education, vocational education and

higher education have been increased. So, Thailand should strengthen the royal science and Philosophy of Sufficiency Economy for sustainable development by:

1. Promote and provide correct knowledge and understanding to "Thai people of the state" regarding "Royal Science" and "Sufficiency Economy Philosophy" thane related to sustainable development to be able to transfer this knowledge with each target group understandably and the able to act correctly appropriate and resulting in continuous practice throughout life.

2. Strengthen and provide correct and appropriate "development skills" to "Thai people of the state" in perform development work according to the philosophy of sufficiency economy with self-discipline, use networks, use work processes that emphasize concrete work. The work that is continuous and connected. with the target group and area. There should be evaluated systematically and use the evaluation results for true continuous development.

The Solution: for Thai education professionals in the digital age:

In the digital age, teachers must be aware that in learning design, teaching and learning development Skills, organizing experiences, measurement and evaluation must be focused on both knowledge content and skills must be given importance related to the economic development process (production, distribution, sales, development) that is based on sustainability. There must be correct understanding of human rights, children's rights, sexual rights, sex education, Gender Education, Family Education and Inclusive Education in onder to prevent and eliminate various problems that will affect the quality of life and opportunities for growth to the full potential of every child, which is an important human resource of the nation.

3. Lesson Learned from analyzing the research results of "The Effectiveness of Education for Sustainable Development in Sweden" By Jelle Boeve – de Pauw et.al. (2015)

3.1 The Context of Education for sustainable development ESD in Sweden:

In Sweden, the compulsory school system consists of grades 1–9, starting with the year children become seven years old and ends the year they turn 16. Students leaving grade 9 have completed compulsory school, and are entitled to apply for a three-year upper secondary school education. Upper secondary education offers a mix of vocational and academic programs. Both the compulsory school system and upper secondary education received new curricula in 2011. For compulsory school the curriculum is designed so that students should have achieved certain capabilities and knowledge requirements in grade 6 and in grade 9. For upper secondary there are also competences and knowledge requirements that need to be achieved for each subject area.

The concept of SD is not included as a separate subject in the Swedish school system. However, SD is included as parts of the descriptions of all subjects in the curricula. All teachers are therefore expected to include sustainability issues in their teaching. Teachers should also enable students to train subject specific capabilities for the future. Moreover, SD is described as one of the comprehensive

perspectives in education that Swedish schools have to include in their work. The idea of the DESD was to implement ESD at all levels of education. As a consequence, there are clear linkages between the Swedish curricula and the international DESD documents.

There have been few political initiatives to support schools with the implementation of SD teaching and learning during the DESD, except for its infusion into in the new curricula. Therefore, schools have relied heavily on supporting organizations and authorities. The eco-schools project is an international program which aims to raise student awareness of issues associated with SD. In Sweden, the non-governmental Keep Sweden Tidy Foundation administers the eco-school green flag certificate and develops programs attuned to the needs of the Swedish school system. Every year, schools send a report of their activities to the Keep Sweden Tidy Foundation, which then gives feedback to the schools on their progress. If schools do not send in reports they will lose their green flag certification. Independently of the eco-school certification system, the Swedish National Agency for Education hands out the award of School for sustainable development, which Swedish schools from preschool to upper secondary school can apply for. Schools have to apply for a new award every three years. In 2007 the World Wide Fund for Nature (WWF) initiated another initiative in Sweden; the three-year school development project called School on sustainable way. Schools that participated in the school development project have to a high extent continued their work on implementing sustainability into their education in the spirit of the project. Finally, The Global School, (a section of The Swedish Council for Higher Education) offers professional development for teachers, school leaders, and policy makers with a focus on globalization and ESD

The Solution: Lesson learned for Thailand can be applied concludes as followings: the effectiveness of ESD has produced valuable new insights. The results establish that ESD has potential to be effective, and show that there is no simple fix-it-all solution and that education practice need to be attuned specifically to the target group and the key role that ESD in addressing SD and securing a sustainable future for the next generations to come.

4. Lesson Learned on ESD in Romania

Nowadays in Romania, knowledge about why sustainability should be guiding life style (in our day to day life) and about the effects of climate change is very low; teachers are frequently confronted with difficulties in answering to some simple questions of pupils or students. The challenge should be transformed into opportunities of education and learning a new way about what are the real challenges of our life and how we can face them. Furthermore, an important aspect is related to the behavior change paradigm very fast into a custom human and civilized behavior concerning environment problems. Thus, we must be aware about our activities, actions and their impacts. To do that we have to understand first WHY, and if we will know HOW to do it and change our behavior, this will positive affect all of us during the next decades.

Therefore, new training schemas and training programs will be very helpful for those who have the responsibility to develop skills, change attitudes and form characters. Teachers of the future (actual students) must understand the simplicity and complexity of sustainability. "Education is the most effective means that society possesses for confronting the challenges of the future". Indeed, education will shape the world of tomorrow. Progress increasingly depends upon the products of educated minds: upon research, invention, innovation and adaptation. Furthermore, educated minds and institutes, are needed not only in laboratories and research institutes, but in every walk of life (10) As a literature review result. in Tabel 1, is presented a synthesis of the general agreed key competencies that are of great importance for thinking and acting for supporting sustainable development.

Table 1. Key sustainability competencies – literature review

Key competence	Description
1. Systems thinking competency	The ability to recognize and understand relationships, to analyze complex systems, to perceive the ways in which systems are embedded within different domains and different scales, and to deal with uncertainty
2. Anticipatory competency	The ability to understand and evaluate multiple futures – possible, probable and desirable – and to create one's own visions for the future, to apply the precautionary principle, to assess the consequences of actions, and to deal with risks and changes
3. Normative competency	The ability to understand and reflect on the norms and values that underlie one's actions and to negotiate sustainability values, principles, goals and targets, in a context of conflicts of interests and trade-offs, uncertain knowledge and contradictions
4. Strategic competency	The ability to collectively develop and implement innovative actions that further sustainability at the local level and further afield
5. Collaboration competency	The ability to learn from others; understand and respect the needs, perspectives and actions of others (empathy); understand, relate to and be sensitive to others (empathic leadership), deal with conflicts in a group; and facilitate collaborative and participatory problem-solving
6. Critical thinking competency	The ability to question norms, practices and opinions; reflect on own one's values, perceptions and actions; and take a position in the sustainability discourse
7. Self-awareness competency	The ability to reflect on one's own role in the local community and (global) society, continually evaluate and further motivate one's actions, and deal with one's feelings and desires

Key competence	Description
8. Integrated problem-solving competency	The overarching ability to apply different problem-solving frameworks to complex sustainability problems and develop viable, inclusive and equitable solution that promote sustainable development – integrating the above-mentioned competencies

Adopted from Anca Draghici (2019)

5. The solution of Education for Sustainable Development (ESD) written by Kanchana Ngourungsi (2016)

Analyzing and Solution on ESD Thai Context:

From the consensus that education is a tool for sustainable development, a society that has development that Sustainability must therefore rely on education as a mechanism for implementation which strategies for organizing education to achieve the goals of develop people for sustainable development. There will be strategies for proceeding. The work can be summarized in a diagram as follows:

Dimensions	Indicates and How to
The curriculum programme	The main body of knowledge in the field of study that will be counted towards creating wisdom in solving problems. Knowledge about phenomena and changes of current phenomena with understanding Knowledge that has family and community as the base for building
Personne	The teacher is the role model. Learners have analytical and creative thinking. Have a spirit of helping build the future for the next generation.
Target	Education society, green economy (Sufficiency and do not destroying resources To be disaster occurs) Environment (longevity by replacement and conservation, use resources with necessity, not by desire or want)
Successful results	- A society with life-long education society. - An economy that is caring and relies on each other like friendship. - An environment that restores biodiversity and The diversity that is the multiculturalism of the world's population - Living together with friendly multi and having lasting happiness.

Adopted from Kanchana Ngourungsi (2016) Journal of Association of Researchers. Volume 21.

Solution:

We have learnt from this academic paper that every country should be needed and responsed to implement the SDGs policies in the real situation in Thailand and every institution level in order to save the world in all directions, especial for young generation that have to learn more for their lives and focus on life long education for people. Finally, lesson learned form Malaysia, Sweden and Romania can be

inspired us to develop ESD in Higher Education in Thai context such as the OBE curriculum the AUNQA and EdPEx So it's duty for all of us to design the programme, the projects and activities to improve ESD systemically in practicing for Thai context in order to reach the SDGs goals like other counties at last.

6. References

Anca Draghici. (2019). **Education for sustainable development.** MATEC Web of Conferences 290, 13004.

C. Li, H. Zhou. (2018). Enhancing the efficiency of massive online learning by integrating intelligent analysis into MOOCs with an application to education of sustainability. **Sustainability-Basel, 10(2);** 468.

C.N. Stevenson. (2019). Addressing the Sustainable Development Goals Through Environmental Education in Building Sustainable Through Environmental Education (pp.121-148). IGI Global.

D.S. Rychen, L.H. Salganik, (Eds.). (2003). **Key competencies for a successful life and well-functioning society.** Hogrefe Publishing.

G. de Haan. (2010). **The development of ESD-related competencies in supportive institutional frameworks.** Int. Rev. Educ., 56(2), 315-328.

G. Lueddeke. (2015). **Global population health and well-being in the 21st century: toward new paradigms, policy, and practice**. Springer Publishing Company.

Harakunarak, A. (2009). **Knowledge for people: Education for Sustainable Development volume. 1 Think...Look...Focast about "Education for Sustainable Development in Thailand context".** Nonthaburi : Thailand Environment Institute Foundation.

Jelle Boeve – de Pauw et.al. (2015). **The Effectiveness of Education.** page 15713-15714, 15697-15698

K. Howells. (2019). **The future of education and skills: education 2030: the future we want OECD (2018).** Available at: http://create.canterbury.ac.uk/17331/1/E2030%20Position%20Paper%20(05.04.2018).pdf (Accessed March 15).

Kanchana Ngourungsi. 2016. Education for Sustainable Development. **Journal of the Association of Researchers, 21(2),** May – August. page 13-18.

Keep Sweden Tidy Foundation. (2014). **The Eco-School Green Flag Certification.** Available online: http://www.hsr.se/gronflagg. (accessed on 7 February).

M. Rieckmann. (2018). Learning to transform the world: Key competencies in Education for Sustainable Development. **Issues and trends in Education for Sustainable Development;** p. 39-59.

Noguchi, F., Guevara, J.R. and Yorozu, R. (2015). **Communities in Action: Lifelong Learning for Sustainable Development.** Hamburg, UIL. Available at: http://bit.ly/1NxGncP.

Swedish National Agency for Education. (2014). **Curriculum for the Upper Secondary School.** Available online: http://www.skolverket.se/publikationer?id=2975. (accessed on 5 May 2014).

Thak Udomrat. (2021). **Educational Development for Sustainable Development Goals : A Case Study of Malaysia.** (Faculty of Education, Naresuan University), P. 9

UNESCO. (2014). **UNESCO roadmap for implementing the Global Action Programme on Education for Sustainable Development.** Paris, UNESCO. Available at: http:// bit. ly/ 2liKWQ9.

UNESCO. (2015). **CLCpedia.** Online portal: http://clcpedia.net/index.php.

UNESCO. (2016a). **Community-Based Lifelong Learning and Adult Education: Role of Community Learning Centres as Facilitators of Lifelong Learning.** Bangkok, UNESCO. Available at: http://bit.ly/2kVd3kAf.

UNESCO. (2016b). **Education 2030: Incheon Declaration and Framework for Action for the implementation of Sustainable Development Goal 4: Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all.** Paris, UNESCO. Available at: http://bit.ly/2lsQaZv.

United Nations Educational, Scientific and Cultural Organization (UNESCO). (2005). United Nations Decade of Education for Sustainable Development 2005–2014: UNESCO International Implementation Scheme; UNESCO: Paris, France, 2005.

United Nations Educational, Scientific and Cultural Organization (UNESCO). (2015). ESD—Building a better, fairer world for the 21st century. Available online: http://u4614432. fsdata.se/wp-content/uploads/ 2013/09/esd.pdf (accessed on 15 May 2015).

Wiek, A., Bernstein, M., Foley, R., Cohen, M., Forrest, N., Kuzdas, C., Kay, B., & WithycombeKeeler, L. (2015). **Operationalising competencies in higher education for sustainable development.In: Barth, M., Michelsen, G., Rieckmann, M., Thomas, I. (Eds.) (2015).** Handbook of Higher Education for Sustainable Development. Routledge, London. pp. 241-260