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A model of young leader development on environmental education in Thailand

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Abstract

Youth have a strong role to play in environmental protection, and we should focus on developing their leadership skills through environmental education (EE). This research aimed to: (1) examine the competencies of environmentally educated young leaders; and (2) design an EE model for young leader development in Thailand. Questionnaires, focus group discussions, and in-depth interviews were conducted to collect data on what participants perceived to be key competencies for environmentally educated young leaders. Next, these data were used to create the EE model for young leader development. Finally, the model was applied to a training program for high school students, and its effectiveness was evaluated based on pre- and post-tests administered on the students. The evaluation results showed that the mean evaluation score rises from a moderate level before evaluation ($\bar{x}$ = 6.31, *SD* = 1.70) to a high level after evaluation ($\bar{x}$ = 8.85, *SD* = 1.01). The highest mean score is for public benefits ($\bar{x}$ = 9.06, *SD* = 1.02), followed by learning ($\bar{x}$ = 8.87, *SD* = 0.98), satisfaction on innovation ($\bar{x}$ = 8.78, *SD* = 1.02), and pro-behaviors ($\bar{x}$ = 8.70, *SD* = 1.02). Therefore, our proposed model can be used as a part of EE in schools for youth leader development.

Introduction

Despite consistent efforts on environmental protection and conservation both domestically in Thailand and internationally, several environmental challenges continue to persist and grow. These challenges not only include extreme weather events (e.g., January-September 2016 extreme weather events exacerbated by the severe El Nino in 2015–2016; Lahive et al., 2019) but also complex social-ecological challenges that will lead to and arise from climate change, air and water pollution, ocean acidification, soil degradation, and biodiversity loss (Ardoin & Bowers, 2020; Barnosky & Hadly, 2016).

The process of solving these problems successfully involves being aware of and starting from the root cause of problems from the human being to global socio-technical systems, and engaging both the public and private sectors at global, regional, national, and local levels.

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As such, environmental education (EE) becomes even more important to support and accelerate these efforts. EE's main goal is to develop a world population that is aware of and concerned about environmental issues, and provide them with the knowledge, skills, attitudes, and motivations to participate in the preventing and collectively solving these issues (Mastrángelo et al., 2019; The United Nations Educational, Scientific and Cultural Organization [UNESCO], 1978). This in line with Agenda 21, signed at the United Nations Conference on Environment and Development (UNCED) held in Rio de Janeiro, Brazil, which emphasized the importance of the education for a sustainable environment, and by extension, the concept of EE (The United Nations Educational, Scientific and Cultural Organization [UNESCO], 1992).

The United Nations (UN) also outlined a development plan–the 17 Sustainable Development Goals (SDGs), which outlined the development direction from 2015 to 2030–for sustainable development that incorporates economic, social, and environmental dimensions (Allen et al., 2018). Moreover, there was emphasis on applying the principles of Education for Sustainable Development (ESD) in educational processes at all education levels (The United Nations Educational, Scientific and Cultural Organization [UNESCO], 2017). ESD aims at developing competencies that empower individuals to reflect on their own actions from both local and global perspectives, considering their current and future social, cultural, economic, and environmental impacts (Cebrián & Junyent, 2015).

Thailand has focused on the environment in its national policy frameworks, such as the country's 20-Year National Strategy (2017–2036), by setting goals related to environmental dimensions that can help create continuous human development, including human capital, knowledge, finance, industrial machinery, social and natural resources, and the environment; this strategy also includes the National Education Plan (2017–2031). Thailand's formal education sector emphasizes teaching and learning in various subject groups such as science, foreign language, mathematics, etc. However, the environment is not included as an important subject in the national curriculum of the Thai education system; instead, it is included in the form of voluntary or club activities in school (Department of Environment Development Promotion, 2015). Moreover, there are no clear patterns of EE activities because each school operates in a different context. As such, a clearly differentiated model of environmental education that can be applied in every school can then concretely embed the environment in school education.

Youth are crucial for shaping the future of the nation. Hence, the fields of education and social sciences have focused on youth leadership skills and their development. Considering the environmental challenges that communities and nations face, we should promote and strengthen children/youth with knowledge about the environment and abilities to tackle the environment issues. Furthermore, they should have the awareness about solving environmental issues at both local and global levels. For example, youth participation in environmental protection can be pursued by encouraging them to participate in environmental maintenance and restoration activities. This can awaken their environmental consciousness as citizens to not destroy the environment, and foster the correct way of preserving, restoring, and utilizing natural resources and engendering a sustainable environment (Buldur & Ömeroglu, 2018).

Zeldin and Camino (1999) define youth leadership development as "the creating of experiences through informal structures, where young people can develop their potential for others." Potential can then be defined as the "knowledge, values, abilities, and behaviors that enable us to use or succeed" (Seemiller, 2013). Capacity development has been widely used in education (Palardy & Eisele, 1972; Schilling & Koetting, 2010) for young leader development. EE processes can be also used to develop the potential of youth leaders, and foster their awareness, attitudes, skills knowledge, participation, and ability to assess (Barr et al., 2014; Tilbury & Wortman, 2005; The United Nations Educational, Scientific and Cultural Organization [UNESCO], 2014a; 2014b).

Many studies have examined young leader programs which incorporate EE. For example, building leaders of the present and future for developing an environmentally friendly and sustainable society via EE (Norris, 2018), developing leadership programs for high school students and the elderly from the community to manage the environment in the community sustainably (Klein et al., 2021), and finding the impact of the environmental youth leadership program's performance, and the development of the next generation of conservation leaders by fostering the predictability of environmental action, their willingness to do it, and their contributions to environmental action (Ernst et al., 2017; Heather et al., 2009). However, to the best of our knowledge, there is no study on the development of youth leaders using EE in Thailand. Here, the researchers aimed to fill this gap by: (1) examining the competencies of environmentally educated young leaders; and (2) designing an EE model for developing young leaders in Thailand.

Literature Reviews

Concepts of Human Resource Development

Curricula reflect the characteristics of the principal curriculum master, which are based on the theory. Learners will learn better and faster when they are ready; however, Brunner notes that there are not the subjects which can be effectively taught to children in every stage of development. Therefore, the children's ability is not necessary to the curriculum's contents. Finally, curriculum improvement refers to the improvement or curriculum planning in that the objective is more than planning process or curriculum development.

Leaders and Leadership

Leadership is one of many functions of administrators. Leaders often do not undertake this line of work, but perform a broader role than the administrator and often do not take part in daily operations. A firm's leadership will focus on group processes, information gathering, providing feedback, and exercising power for other people. Thus, leadership is a key factor in management/administration. Importantly, leadership is an indicator of department success. The implementation will be good and achieve objectives depending on the skills and art of leadership management.

Environmental Education

The researchers aimed to use the environment as an educational process using various models. The focus was on the process of creating environmental youth leadership, and organized into several categories in education to help the youth understand what the environment means.

Environmental Educator Characteristics

The UNESCO-UNEP International Environmental Education Program offers qualifications for environmental educators, which is similar to typical qualification acquired by educators teach about the environment and EE teachers. The researcher presented information on detailed features of educator, teachers, environmental awareness, education, environmental studies, the environmentalists.

The United Nations Educational, Scientific and Cultural Organization [UNESCO] (1996) has also developed environmental sustainability programs for environmental educators from Asia and Pacific under the Innovation Program to develop EE in Asia Pacific region by John Fien and Daniella Tilbury. The purpose of this project is to provide a way for environmental educators/educators in regional educational institutions in Asia Pacific to engender environmental personnel through the transfer of environmental knowledge on sustainable conservation and develop the characters/qualities of these educators.

Psychological Learning for the Youths

Freud's Psychological Age Development Theory posits that human development and the development of an individual's body through satisfaction includes the following steps: Oral, Anal, Phallic, Latency, and Genital stages. Meanwhile, according to Ericsson's Theory, personality development has eight stages: (1) Trust-Not trust; (2) Self-confidence–Not confidence; (3) Initiatives–Conscience; (4) Diligence-Feeling low; (5) Identity-Confusion in role; (6) Engagement–Separation; (7) Benefit the Society–Thinking only about own self; and (8) Integration–Despair. It includes the developmental theory of pre-school age, comprising infants, newborn, babies, childhood, and early childhood.

Methodology

Research Design

A mixed methods research design was used. First, questionnaires, focus group discussions, and in-depth interviews were used to collect data on what different participants considered as key competencies for environmentally educated young leaders. Then, these data were used to create an EE model for young leader development in Thailand. Next, this model was applied to a training program for high school students, and its efficiency was evaluated using the pre- and post-test of the students before they started the program and after they finished the program, respectively.

Population and Research Tools

Participants were classified into four groups: (1) Students in Mattayomsuksa 1–6; (2) Teachers who cared for or responded to environmental projects in Eco-schools; (3) Individuals involved at the policy level in the Eco-schools' project in Thailand; and (4) Young environmental activists.

The first group included 403 Students in Mattayomsuksa 1–6 from 51 Eco-schools in Thailand. These students answered the questionnaire on what competencies should environmentally educated young leaders have. The sample size was decided using multi-stage cluster sampling techniques (Direk et al., 2020; Teddlie & Yu, 2017) using the Taro Yamane theory at significance level of .95.

Next, focus group discussions were conducted with the second group, which included 24 Teachers responsible for environmental projects in Eco-schools, who were recruited using purposive sampling. They were asked to share their experience of being advisors for EE projects in Eco-schools. These teachers were chosen based on three qualifications: (1) They had at least three years of experience of being advisors on EE projects; (2) taught in Eco-schools; and (3) were interested in developing youths or students, especially, environmentally educated youth leaders in schools.

The third group included persons who were involved at a policy level in the Eco-school project in Thailand. Using purposive sampling, these individuals were invited for in-depth interviews on competencies of environmental education young leaders. There were eight respondents, including school directors in Eco-schools and staff belonging to the Department of Environmental Quality Promotion of Thailand's Ministry of Natural Resources and Environment. Participants were selected based on four qualifications: (1) Persons who were responsible for EE project management in Eco-schools, and the Department of Environmental Quality Promotion, 2015; (2) were knowledgeable about EE project management in Eco-schools; (3) had been an administrator in Eco-schools for at least three years; and (4) had at least five years of experience in organizing youth activities.

Finally, in-depth interviews were conducted with the fourth group, which included five young environmental activists in Thailand, who were recruited using purposive sampling. Participants were recruited based on three qualifications: (1) Individuals who were knowledgeable about EE project management in Eco-schools; (2) had been an administrator in Eco-schools for at least 3 years; and (3) had at least five years of experience in organizing youth activities.

Model Design

Data on competencies of environmentally educated young leaders reported in questionnaires, focus group discussions, and in-depth interviews were analyzed to design a model of young leader development with leverages EE. Next, the model's effectiveness was evaluated by applying it to a training program for 34 high school students in a young leaders' development camp. Then, the model was evaluated by comparing the pre- and post-test effectiveness scores on internal (Satisfaction and Learning) and external (Behavior and Public Benefits) skills.

Results and Discussion

Competencies of Environmentally Educated Young Leaders

Most informants confirmed the high effectiveness of school EE projects. They identified eight competencies (shown in Table 1) for environmentally educated young leaders: (1) Competency on leadership and management ($\bar{x}$ = 7.52, *SD* = 1.87); (2) Competency on creativity ($\bar{x}$ = 7.11, *SD* = 1.80); (3) Competency on media and technology ($\bar{x}$ = 7.05, *SD* = 1.87); (4) Competency on evaluation ($\bar{x}$ = 7.00, *SD* = 1.77); (5) Competency on performance ($\bar{x}$ = 6.90, *SD* = 1.77); (6) Competency on communication ($\bar{x}$ = 6.83, *SD* = 1.81); (7) Competency on education ($\bar{x}$ = 6.83, *SD* = 1.93); and (8) Competency on inspiration ($\bar{x}$ = 6.83, *SD* = 1.81).

Table 1 Competencies of Environmentally Educated Young Leaders

Items	$\bar{x}$	*SD*	Level of Opinion
1. Competency on leadership and management	7.52	1.87	High
2. Competency on inspiration	6.72	1.69	High
3. Competency on creativity	7.11	1.80	High
4. Competency on performance	6.90	1.77	High
5. Competency on education	6.83	1.93	High
6. Competency on communication	6.83	1.81	High
7. Competency on media and technology	7.05	1.87	High
8. Competency on evaluation	7.00	1.77	High
Total Average	7.00	1.49	High

In the focus group discussions and in-depth interviews, teachers and directors in charge of Eco-schools and youth activities highlighted some particular concepts: "The necessary principles of young leader development are to focus on leadership and management[,] which are significant to perform the EE projects in a school" (Director of Eco-School); "Actually, the most significant qualification for environmentally educated young leaders should be the competency of creativity, because creative thinking will help them to design creative new projects, not conventional projects" (Staffs of Environmental Quality Promotion); "Competency on media and technology is one of [the] significant qualifications for environmentally educated young leaders because it is presently the age of social media, [and] it is sometimes necessary to distribute those school environment projects through modern technology to public society" (Teacher of Eco-School); and "The student leaders have to work participative[ly] among their friends and also build inspiration to help each other together with analyzing the school environmental problems before designing the environmental projects" (Youth Activists).

An EE Model of Young Leader Development

According to the environmental situations in both schools and communities with the school environmental projects, the findings revealed three significant problems: (1) connecting schools and communities via school environmental projects; (2) a lack of system regarding school environmental projects; and (3) a lack of diversity of environmental problems in school environmental projects.

Our model is outlined in Figure 1. It comprises of five factors based on system theory. The first factor is Input, comprising learners and their families, EE curriculum, activity, media and technology, school directors, and advisors. The second factor is the EE process. The third factor is the output of the process, comprising the young leader's awareness, attitude, knowledge, skill, participation, and ability to evaluate. The fourth factor comprises the outcomes of the program, and is subdivided into primary and secondary competencies. The primary competency includes the single item of competency on leadership and management on environmental management. Meanwhile, the secondary competencies include seven items: (1) Competency on creativity; (2) Competency on media and technology; (3) Competency on evaluation; (4) Competency on performance; (5) Competency on communication; (6) Competency on education; and (7) Competency on inspiration. Finally, the fifth factor includes the impacts, which is creating a sustainable environment in schools and communities.

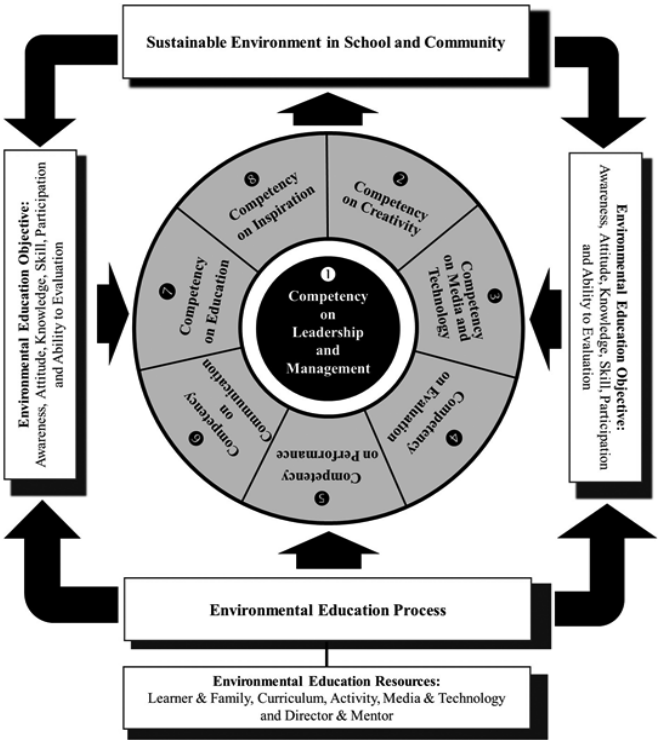

Figure 1 The Environmental Education Model of Young Leader Development

Model Effectiveness

Table 2 shows that the effectiveness of the model was very high posttest, on average ($\bar{x}$ = 8.85, *SD* = 1.01) compared to a moderate level on pretest, on average ($\bar{x}$ = 6.31, *SD* = 1.70). The highest to lowest scores for each part of innovation efficiency evaluation, based on the concept of Kirkpatrict Evaluation Model, were as follows: (1) Public Benefits ($\bar{x}$ = 9.06, *SD* = 1.02); (2) Learning ($\bar{x}$ = 8.87, *SD* = 0.98); (3) Satisfaction ($\bar{x}$ = 8.78, *SD* = 1.02); and (4) Behavior ($\bar{x}$ = 8.70, *SD* = 1.02).

The evaluation was performed by comparing the mean score ($\bar{x}$) of pretest and posttest of internal and external skills during the operational training program based on the EE model of young leader development. Satisfaction refers to the satisfaction levels of student volunteers. Table 3 shows that the overall satisfaction was very high (Pretest: $\bar{x}$ = 6.49, *SD* = 1.74; Posttest: $\bar{x}$ = 8.78, *SD* = 1.02). Innovation satisfaction has seven items on which the environmentally educated youth performed: (1) clearly on the innovation at a very high level ($\bar{x}$ = 8.97, *SD* = 1.06); (2) clearly and systematically on the evaluation at a very high level ($\bar{x}$ = 8.91, *SD* = 0.97); (3) the skill on training effectively at a very high level ($\bar{x}$ = 8.88, *SD* = 1.04); (4) school environmental projects at a very high level ($\bar{x}$ = 8.85, *SD* = 0.93), (5) overall innovation at a very high level ($\bar{x}$ = 8.76, *SD* = 1.05); (6) media and technology applications at a very high level ($\bar{x}$ = 8.62, *SD* = 0.95); and (7) the enjoyable activity at very high level ($\bar{x}$ = 8.47, *SD* = 1.13), respectively.

Table 3 shows that the post-test mean scores ($\bar{x}$) on satisfaction, learning, behavior, and public benefits were all significantly higher than the pre-test mean scores ($p < .01$).

The student volunteers also proposed 18 environmental projects, which can be further classified into 3 school projects, 5 community projects, and 10 projects connecting the school and community. The school projects were: (1) Green Leaf for Food Container; (2) Beautiful Canal with Clean Water; and (3) Reducing Solid Waste for Environment. The community projects were: (1) Fresh Breath; (2) Environment Actualization Building for Youths; (3) Increasing Green Area for Radar Mountain; (4) Green Herbal Plants; and (5) Dustless Community. Finally, projects which involved connecting the school and community included: (1) Bank of Solid Waste; (2) Prosperity, Stability, and Sustainability; (3) Forest for Life; (4) Decreasing, Increasing, Screening, and what we are to increase; (5) Decreasing, Increasing, Screening, and what we are to decrease; (6) Decreasing, Increasing, Screening, and what we are to screen; (7) Community Shading; (8) Eco Cosmetics; (9) Green Schools; and (10) Decreasing for Increasing.

Table 2 Efficiency of the Model.

Items	Pretest			Posttest		
	$\bar{x}$	*SD*	Level of Efficiency	$\bar{x}$	*SD*	Level of Efficiency
Internal Skills						
1. Satisfaction	6.49	1.74	High	8.78	1.02	Very high
2. Learning	6.39	1.77	Moderate	8.87	0.98	Very high
External Skills						
3. Behavior	6.16	1.59	Moderate	8.70	1.02	Very high
4. Public Benefits	6.20	1.69	Moderate	9.06	1.02	Very high
Average total	6.31	1.70	Moderate	8.85	1.01	Very high

Table 3 Comparison of Pre- and Post-test Scores on Internal and External Skills.

Items		*n*	Mean	*SD*	*t*	*p*-value
Internal Skills						
Satisfaction	Pre	34	6.50	1.42	9.05***	.00
	Post	34	8.78	0.69		
Learning	Pre	34	6.40	1.55	8.03***	.00
	Post	34	8.87	0.73		
External Skills						
Behavior	Pre	34	6.16	1.35	9.36***	.00
	Post	34	8.79	0.74		
Public Benefits	Pre	34	6.20	1.48	9.46***	.00
	Post	34	9.06	0.77		

*$p < 0.01$.

Conclusion and Recommendation

This study developed a model of young leader development for EE in Thailand. We have some practical recommendations.

First, school directors can apply our findings as part of school policy under programs that focus on School Belonging to Community and Community Belonging to School. Second, mentors and young leaders on EE in school should understand the processes of environmental science, environmental studies, ecosystems and cultural environment to improve the school's EE program. Third, schools should organize training sessions on how to apply social media or modern technologies for public relations or efforts to connect with the communities during school projects focused on sustainable development.

Conflict of Interest

The authors declare that there are no conflicts of interest.

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