

# Factors Affecting Participation in Environmental Conservation of Undergraduate Students

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Received: October 31, 2023

Accepted: December 9, 2023

Online Published: December 15, 2023

doi:10.5430/wje.v13n6p41

URL: <https://doi.org/10.5430/wje.v13n6p41>

## Abstract

The purposes of this research were to study the level of participation in the environmental conservation of undergraduate students and to study and compare the factors affecting participation in the environmental conservation of students of different genders and academic years. The sample used in the research were 231 undergraduate students of 1 - 4 years in the Environmental Education, Faculty of Environment and Resource Studies, Mahasarakham University, from voluntary sampling. The tools used in the research include participation factors in environmental conservation. The statistics used in data analysis were frequency, percentage, mean, standard deviation, and One-Way ANOVA. The results showed that:

1. The level of factors affecting participation in environmental conservation of undergraduate students, classified by aspect, it was found that undergraduate students participated in environmental conservation at a high level, equal to 3.52. When considering each aspect, it was found that all aspects were at a high level, including leadership factors, support factors (cooperation, public sector, government sector, and private sector), personal attributes factors (gender, age, year, domicile), environmental factors (economic, social, environmental cultural aspect), media factors, legal factors, educational factors, and ideological/ inspirational factors, respectively.
2. There was no difference in students who have different genders and academic years in participation in environmental conservation.

**Keywords:** factors, participation, environmental conservation, undergraduate student

## 1. Introduction

### 1.1 Introduce the Problem

Natural resource and environmental problems are considered important problems in Thailand. Because natural resources and the environment are used for development and deteriorate continuously. In addition, the management of natural resources and the environment of the country is centralized and lacks connection with the area affecting various problems, including decreasing forest area, deteriorating soil resources, making biodiversity threatened, and coastal ecosystems are destroyed. And water resources still have parts that cannot be allocated according to needs. Environmental problems, therefore, increase in line with the expansion of the economy and urban communities (Department of Environmental Quality Promotion (DEQP, 2008).

Impacts on natural resources and the environment, there is a change in a more degraded direction. It can be seen from the important natural resources that are necessary for the livelihood of humans and animals that have been

greatly destroyed. The environment around humans was getting worse. To the point that is generally accepted as an environmental crisis. Destruction of natural resources and the environment is caused by natural disasters and by human hands, caused by human selfishness. Focusing on the material factor, namely money, as a set, causes destruction to find things that meet their own needs. Natural resources are currently a problem for the country. Because of deterioration or deterioration, namely soil and land use, forestry, mineral water, energy, marine, and coastal resources. Environmental problems include water pollution, air pollution and noise, pollution from solid waste and sewage, pollution from harmful substances, etc. During the country's development in the era of globalization convenience from modern, advanced technology. The increase in population has brought about natural resource and environmental problems. Humans both create problems and must solve them. But it seems that the solution to the problem will be delayed, not on time, not on point, the more you solve, the more problems will arise, wasting a lot of budget. There were conflicts between people in the community and wider society (Kachayuthdej, 2008).

Guidelines for environmental conservation provide education and public relations to make people aware of their roles and responsibilities in the environment so that they can change their behavior in a way that promotes environmental quality. Quality improvement is a direct solution to the problem of resource scarcity and environmental deterioration. Reducing the rate of deterioration is not consuming resources extravagantly, making use of those resources gives the best value. Reuse is the use of damaged or deteriorated materials, tools, and appliances by melting them to have them or reducing them and then remanufacturing them. The use of substitutes for resources that were well utilized in the past began to wear off because the demand for consumption was high. Therefore, it is necessary to study other resources that have similar quality to replace the existing resources that are about to run out, for example, humans prefer to use hardwood for its strength and durability. But when the amount of hardwood decreased. Therefore, finding a way to solve the problem is to use wood of inferior quality. By finding ways to maintain the quality of not being durable, such as baking or bathing in medicine, etc. Prevention is a direct method of manipulation. It is about preventing resources and the environment from depleting and deteriorating too quickly or preventing pollution from contaminating the environment in which humans live. Including ancient sites and antiques, if the atmosphere is contaminated with poison or toxins, unclean water cannot be used for consumption. Because there is foreign matter in the form of toxins and germs (Department of Environmental Quality Promotion (DEQP, 2008).

Environmental and natural resource conservation may be used as elements of the environment that must be interrelated. Which will balance the environment or ecosystem but the depletion of resources including production process resource privatization and the increasing use of resources has created toxins in the environment, making the environment unbalanced (Veeravatnanond, V., 1998). Environmental conservation utilizes resources for maximum benefit and efficiency and can be used for the longest time. Conservation principles also include wise use and sustainability. Restoration of deteriorating conditions and preserving rare items conservation methods or actions to conserve natural resources and the environment have a variety of methods. In choosing each method for successful conservation operations, it must be suitable for the situation, time, place, and control with the use of technology (Chankaew, 1997).

Participation of the people in environmental conservation is the people in the community cooperation in controlling the use and conservation of the environment for both the economic and social benefits of the community. By participating in the study of various problems that exist in the community, finding the cause of the problem, and defining solutions and guidelines for preventing problems. Decision-making and action to solve community environmental problems. Which requires cooperation from many parties to help solve the problem if solving problems and dealing with natural resources and the environment is successful. The community has rich natural resources and the environment and can contribute to future sustainability (Poboan, 2012).

Participation in preserving the environment is therefore necessary. Everyone must play a part in helping to restore the environment to reduce pollution to a minimum. Creating awareness for everyone to pay attention to the environment nowadays. It is therefore an important issue that urgently needs to be studied. Especially instilling the subject of participation in preserving the environment among young people, children, and everyone to participate in preserving a good environment. Institute of Good Governance for Social and Environmental Development (2012) discusses international environmental trends. It shows the intention of the nations in pushing forward the model for sustainable development and influences in determining the direction of the development of Thailand. It can be observed from the direction of the economic and social development plan that reflects the direction of sustainable development which began appearing in the 6th National Economic and Social Development Plan onwards. Environmental management within the university is therefore something that everyone must participate in through activities as a driver. Educating

students so that they can come up with good ideas to be environmentally friendly. A commitment to help each other create the environment, making students aware of the dangers of pollution in the environment. Providing information so that each student is responsible for maintaining a healthy environment. Therefore, the researcher foresees that the environment is an important fundamental factor of human life and living things influence human behavior and participation in environmental conservation. To utilize resources for maximum benefit and efficiency can be used for the longest time. And smart use to achieve sustainability, rehabilitation of degraded conditions, and conservation of natural resources.

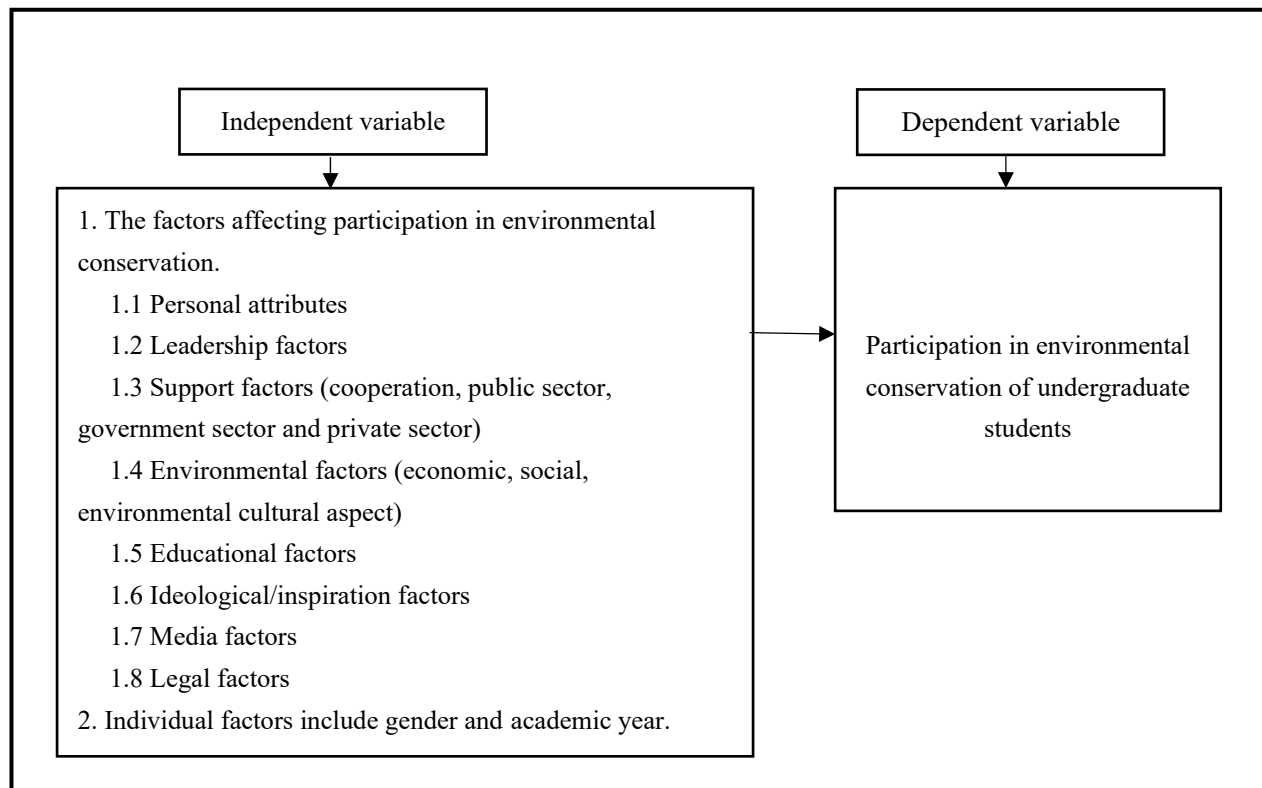
### 1.2 Research Purpose

- 1) To study the level and correlation level of participation in environmental conservation of undergraduate students.
- 2) To study and compare the factors affecting participation in environmental conservation of students of different genders and academic years.

## 2. Method

### 2.1 Conceptual Framework for Research

Factors affecting participation in the environmental conservation of undergraduate students are steps in the study as follows: The factors affecting participation in environmental conservation consisted of 8 factors, namely personal attributes; leadership factors, support factors (cooperation, public sector, government sector, and private sector) environmental factors (economic, social, environmental cultural aspect) educational factors, ideological/inspiration factors, media factors, and legal factors, of students with different gender and different academic year that resulted in students participating in the environmental conservation of undergraduate students as shown in figure 1.



**Figure 1.** The Conceptual Framework Used in Research

### 2.2 Population and Sample

The population used in this research were 329 undergraduate students in years 1-4 in the Environmental Education program, Faculty of Environment and Resource Studies, Maharakham University.

The sample used in the study were 231 undergraduate students in years 1-4 in the Environmental Education program, Faculty of Environment and Resource Studies, Mahasarakham University which were derived from voluntary sampling.

### 2.3 Study Variables

Independent variable variables are:

- 1) The factors affecting participation in environmental conservation consisted of 8 factors, namely personal attributes: leadership factors, support factors (cooperation, public sector, government sector and private sector) environmental factors (economic, social, environmental cultural aspect) educational factors, ideological/inspiration factors, media factors, and legal factors.
- 2) Gender.
- 3) Academic year.

The dependent variable was participation in environmental conservation.

### 2.4 The Research Tools and Quality of Tools

- 1) Study relevant research documents and guidelines for constructing a participation measure in environmental conservation.
- 2) Use the data to create a participation measure in environmental conservation. It is a rating scale, which is a form of answer determination, divided into 5 levels, which are highest, high, moderate, low, and lowest. There were 40 questions.
- 3) Take the participation measure in environmental conservation and send 5 experts to consider the participation in environmental conservation and check the accuracy of the content to improve it to be more complete. Criteria for judging the IOC value, if there is a value of 0.50 or more, it means that the question is measured on purpose or according to the content, that can be used. From the analysis, it was found that the IOC value of the measure of participation in environmental conservation was equal to 0.94, indicating that the question was applicable.
- 4) Take the environmental conservation participation measure that has been analyzed by experts to try out with the second year 30 undergraduate students in the Environmental Education program, Faculty of Environment and Resource Studies, Mahasarakham University, to find the power of discrimination and reliability of the environmental conservation participation measure found that the power of discrimination was between 0.306 – 0.768 and reliability was 0.935, which was by the specified criteria, can be used to store data.

### 2.5 Data Collection

- 1) Explain the details of answering the environmental conservation participation measure for students to understand before collecting data to obtain complete information through an online system.
- 2) Prepare a questionnaire for environmental conservation participation measures. Which was divided into 8 factors, namely personal attributes, leadership factors, support factors (cooperation, public sector, government sector, and private sector) environmental factors (economic, social, environmental cultural aspects) educational factors, ideological/inspiration factors, media factors, and legal factors. There were 40 items.
- 3) Take the environmental conservation participation measure to collect data via the online system, using a data collection period of one month with a sample of 231 students who are undergraduate students, 1-4 years in Environmental Education program, Faculty of Environment and Resource Studies, Mahasarakham University by voluntarily participating in the online environmental conservation participation measure through Google form.
- 4) Analyze participation in environmental conservation measures by statistical methods to test the hypothesis.

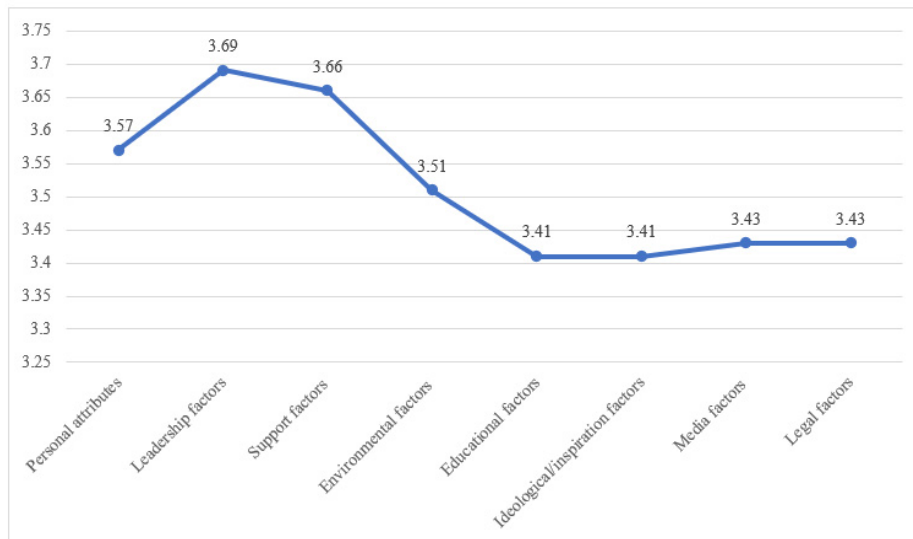
## 3. Results

3.1 The results of the analysis of factors affecting participation in the environmental conservation of undergraduate students classified by aspect found that undergraduate students participated in environmental conservation at a high level, equal to 3.52. When considering each aspect with the highest mean, leadership factors ( $\bar{X}$ =3.69) was at a high level, followed by support factors (cooperation, public sector, government sector, and private sector) ( $\bar{X}$ =3.66) was at a high level, personal attributes (gender, age, year, domicile) ( $\bar{X}$ =3.57) were at a high level, environmental factors (economic, social, environmental cultural aspect) ( $\bar{X}$ =3.51) was at a high level, media factors and legal factors ( $\bar{X}$ =3.43) were at a high level. The aspect with the lowest average was the educational factors and the

ideological/inspiration factors ( $\bar{X}$ =3.41) were at the high level, respectively. (Show Table 1.)

**Table 1.** The Results of the Analysis of Factors Affecting Participation Were Classified by Side (n=231).

Factors affecting Participation	$\bar{X}$	S.D.	Level
1. Personal attributes	3.57	0.64	high
2. Leadership factors	3.69	0.53	high
3. Support factors (cooperation, public sector, government sector, and private sector)	3.66	0.57	high
4. Environmental factors (economic, social, environmental cultural aspects)	3.51	0.54	high
5. Educational factors	3.41	0.60	high
6. Ideological/inspiration factors	3.41	0.65	high
7. Media factors	3.43	0.61	high
8. Legal factors	3.43	0.61	high
<b>Overall</b>	<b>3.52</b>	<b>0.32</b>	<b>high</b>



**Figure 2.** Chart Showing the Level of Factors Affecting Participation

**Table 2.** The Results of the Analysis of Factors Affecting Participation

Variable	1	2	3	4	5	6	7	8	
1. Personal attributes	1								
2. Leadership factors	.490*	1							
3. Support factors	.415*	.481*	1						
4. Environmental factors	.020	-.039	-.032	1					
5. Educational factors	.029	.016	-.063	.244*	1				
6. Ideological/inspiration factors	-.039	.000	-.056	.138	.517*	1			
7. Media factors	-.002	.043	.005	.191*	.414*	.389*	1		
8. Legal factors	-.068	-.019	-.052	.182*	.513*	.916*	.524*	1	
9. Factors affecting participation in environmental conservation	.420*	.438*	.379*	.381*	.635*	.683*	.609*	.0722*	1

\* Statistically significance .05

The results of the analysis of the correlation level of factors affecting participation in the environmental conservation of students found that personal attributes, leadership factors, support factors (cooperation, public sector, government sector, and private sector) environmental factors (economic, social, environmental cultural aspect) educational factors, ideological/inspiration factors, media factors, and legal factors were correlated in a positive direction statistically significant level .05. (Show Table 2.)

3.2 The results of the ladder multiple regression analysis on the factors affecting the participation in the environmental conservation of students found that personal attributes, leadership factors, support factors (cooperation, public sector, government sector, and private sector) environmental factors (economic, social, environmental cultural aspect) educational factors, ideological/inspiration factors, media factors, and legal factors has  $B = 0.125$ . (Show Table 3.)

**Table 3.** Results of Laddered Multiple Regression Analysis Factors Affecting Participation

Variable	B	SEb	$\beta$	t	Sig
1. Personal attributes	0.125	.000	0.252	223130666.8	.000*
2. Leadership factors	0.125	.000	0.206	176557666.2	.000*
3. Support factors	0.125	.000	0.222	198566846.0	.000*
4. Environmental factors	0.125	.000	0.210	213082906.8	.000*
5. Educational factors	0.125	.000	0.234	199575213.2	.000*
6. Ideological/inspiration factors	0.125	.000	0.255	100869984.9	.000*
7. Media factors	0.125	.000	0.238	198468014.9	.000*
8. Legal factors	0.125	.000	0.238	88927316.86	.000*

\* Statistically significance .05

The comparative results of enhancing participation in the environmental conservation of students classified by gender found that, there was no difference in students of different gender and academic year of participation in environmental conservation (Show Table 4.)

**Table 4.** The Results of the Analysis of the Level of Participation Were Classified by Gender and Academic Year Using One-Way ANOVA

Initial variable	Dependent variable	SS	df	MS	F	p
Gender (N=2)	Factors affecting participation in the environmental conservation	0.228	1	0.228	2.258	.303
Academic year (N=4)		5.555	3	1.852	23.583	.056

## 4. Discussion

### 4.1 The Results of the Study of Factors Affecting Participation in the Environmental Conservation of Students

4.1.1 Personal attributes were high-level and positively correlated with participation in environmental conservation. The guideline for conservation of resources and the environment is sustainable use, meaning being used all the time when humans need it. In addition to the capacity building of the environment, the control of human activities must also be considered. And the normalization of the deteriorated environment, both structure and role, by using nature to help nature or technology to help (Chankaew, 2001). Public participation is active participation in activities, operations are commented on and reviewed. In which the people take the initiative to make decisions and carry out that activity by the people themselves. Sometimes it may be necessary to receive assistance from the government or relevant officials. Therefore, participation is in the form of thinking together, sharing opinions, sharing decisions, sharing actions, monitoring, and evaluating the activities that are established to meet the goals (Mallikamal, 2002). This is consistent with the research of Chooprasoot, S., & Choengthong, S. (2015) the people's participation was poor level. The compare of personal factors affecting participation were gender, educational level, settlement period, career, and income. And Tanatrinchat, K., & Akkawanitcha, Ch. (2022) the data analysis at the opinion level revealed that opinion of variables by problem awareness, awareness of consequences at a high level, then opinion of variables by ascription of responsibility, personal norm pro-environmental behavior, and pro-environmental behavior at the

highest level. And Maneethorn, E., Liamvarangkoon, S., & Nuengchamnong, K. (2016) the personal factors that affected the people's participation were income occupation marital status. However, the people were participation was not affected by sex age and education level.

4.1.2 Leadership factors were high level and correlated in a positive direction with participation in environmental conservation. The involvement of the public in decision-making at various levels determines the needs of their own community. It gives people the opportunity to make decisions and determine their own needs. It is empowering people to mobilize their capacity to manage resources, and control activities rather than being on the defensive side (Walaisathien, P., et al., 2000). Conserving the environment requires knowledge about the benefits and harms of conserving natural resources and must focus on the wasteful use of natural resources. Use necessary and scarce natural resources carefully with caution that using too many resources will throw the environment off balance and maintain renewable resources at least equal to or greater than required (Pukcharoen, 2008). This is consistent with the research of Chaisongkram, N., & Leelakitpaisarn, Y. (2017) the participation in environmental conservation of residents was moderate. Their highest participation was accepting operational mutual benefits, problem, and cause identification. And Sophonphanthanon, Th. (2011) the overall level of people's participation in environmental conservation along the Saen Saep Canal, aspect of empathy, collaborative thinking, the participation in action was at a moderate level and the aspect of ownership was at a low level. And Yuekyen, W. (2014) participation in the conservation of natural resources and the environment at the overall level is moderate. When considering each aspect, the priority is receiving benefits, followed by participation in activities evaluation and final decision.

4.1.3 Support factors (cooperation, public sector, government sector, and private sector) were at a high level and there was a positive relationship with participation in environmental conservation. In every sector of society, every person in society, every occupation, every level of education, and progress in various communications must be responsible and support the new way of life, culture, and values of living (Wongchantra, 2011). Natural resources and the environment contribute to the social well-being and prosperity of each nation country development. Therefore, all governments must find ways and means to have citizens and government agencies jointly responsible for environmental conservation (Para, R., 1995). This is consistent with the research of Tauenyi, Ch. (2015) people's participation factors were related to forest resource conservation. The overall level was at a high level, including participation in the implementation of the plan the average is at a high level. Followed by participation in helping and cooperating with officials in forest preservation participation in planning and participation in the evaluation was moderate. And Leepagorn, P. (2011) the second highest level includes collaboration with government agencies (score 2.59) and people empowerment (score 2.58). The level of consultation and involvement is found to be at the lowest level (score 2.53). And Wongpanisaksorn, N. (2015) people's participation level in environment management in the Petchpathum community, Muang district in Pathumthani provinces, including planning, decision making, management, benefits, and monitoring assessment were at the moderate level. Support factors consisting of people cooperation, government cooperation, and public cooperation have affected environment management in the Petchpathum community. And Intarathut, A., & Chomphan, J. (2015) support from government policies, laws, and regulations, monitoring, and auditing of government agencies, community leader engagement, partners' needs, market competition, environmental problems that arise, and complaints from the community. And Htaya, T., et al. (2022) findings indicated that 43.9% of respondents were engaged in PA conservation programs and their involvement was mainly determined by benefits gained from the PA.

4.1.4 Environmental factors (economic, social, environmental cultural aspects) were at a high level and had a positive correlation with participation in environmental conservation. The environment, which is a natural resource, is the source of a variety of public goods that society can use together. It is also important to the systems of food production and sustaining plant and animal life. The environment is a source of various benefits such as clean air, pure water source, and outdoor recreation making the environment that is a natural resource and an asset of society that should be conserved (Isvilanonda, 1995). Including supporting all forms of environmental conservation. It supports the organization of festivals, traditions, and cultural heritage of various localities to attract tourists to the local area. As well as encouraging local people to conserve local cultural heritage and environment (Jittangwatana, B., & Srikhampha, P., 2014). This is consistent with the research of Tarasuk, W., et al. (2013) status factors and utilization affect participation in mangrove forest management. statistically significant at .05. While the length of living in the community, the number of occupations affecting participation in mangrove forest management was at the level .01. And Bamrungasuk, R., & Kupimai, S. (2012) factors affecting overall environmental management were at high levels and pollution, environmental management awareness and utilization and maintenance were at a high level. And Ketsil, Th., & Rodsoodthi, S. (2018) factors affecting students' attitudes and behaviors toward environmental conservation were family factors, school factors, and community factors. And Authelet, M., et al.

(2021) the probability of participation increases with some pro-social factors, such as a deeper or older integration into social networks, and greater compliance with social norms of reciprocity. And Verónica Bunge-Vivier & Andrea Martínez-Ballesté. (2017) communities with a high level of conservation of communal areas and with the ability to continue conservation projects were those that had dedicated the areas to recreation and conservation, had stronger community organization, and were less marginalized. A recognition of the heterogeneity of the socioeconomic and cultural context of communities with common property is necessary to design governmental conservation programs that achieve long-term conservation.

4.1.5 Educational factors were at a high level and correlated in a positive direction with participation in environmental conservation. The educational process focuses on developing people to see the value of natural resources and the environment. As well as to understand the relationship between humans and the environment which is the basis that leads to the development of attitudes, awareness, and decision-making skills about the environment and creating good environmental ethics. To take part in caring for and maintaining the quality of the environment (Singsewo, 2011). The broadcaster must create a learning atmosphere by helping learners to be interested from the start. To reduce the gap between the broadcaster and the receiver is easy to create participation. Which will make difficult things become easy, relieve stress, and make the learners interested and follow impressively (Phaphan, 2008). This is consistent with the research of Tunarang, Ch., Chawsithiwong, B., & Pisansuksakul, K. (2015) the sample had moderate participation in community waste management. Factors affecting people's participation in waste management were household status, education level, occupation, monthly income, and number of years of stay. And Pongsakornrunsilp, S., & Pongsakornrunsilp, P. (2018) the level of education correlated with the environmental responsibility of tourists at the statistical significance level of .05. And Bawornkiattikul, D. et al. (2022) most personnel have never received information and the average score was moderately good. Knowledge about green university both having received information, knowledge, and awareness were all factors that together predicted the participation in the environmental management of personnel at Burapha University towards becoming a green university in a positive at the statistical significance level .05.

4.1.6 Ideological/inspiration factors were at a high level and correlated in a positive direction with participation in environmental conservation. Which conserves resources and the environment to maintain perfect conditions for a long time. Should not cause pollution or things that have an impact on the environment, such as not releasing wastewater into rivers or seas, do not leave solid waste, not burning garbage, and leaving garbage left behind. A wastewater treatment system should be provided. Build or place the bins to blend in with the conditions of the attraction and remove garbage to be disposed of outside tourist attractions (Songsunthornwong, 2017). And cultivating awareness of resource and environmental conservation to remain beautiful and valuable forever. This can be done by educating all parties involved and cultivating an appreciation of that resource. To make love cherished and ready to help preserve resources and the environment to remain beautiful and sustainable value (Jittangwatana, B., & Srikhampha, P, 2014). This is consistent with the research of Khamyod, S. (2014) the environmental ideology was found is the main ideology produced by the rulers. By using both types of mechanisms, which are mainly ideological mechanisms and repression mechanisms. Emphasis on reproduction to inherit the ideology through recording using the Buddhist writing style. And Mettathamrong, J., et al. (2018) the variables in the proposed model accounted for 74.60% of the total factors of participation in activities friendly to the environment. Six factors having both direct and in-direct influences at the statistical significance level .05 were identified as follows: initiation, collaboration, information exchange, attitude, perception, and responsibility. And Kasemsawat, S. (2011) the level of community participation in water and waste environmental management was at a medium-level, operational, assessment. In terms of benefits, it was at a low level. The model of community participation in water and waste environmental management was related to participatory water and waste environmental management as follows: 1) participation in planning, joint planning schedule, set strategic goals, the decision-making and generation of young leaders by adults is a good role model. 2) Participation in operations is a step in performing activities and promoting and assisting in implementing activities according to the plan. And Sattayapanich, T., Janmaimool, P., & Chontanawat, J. (2022) these findings suggest that to promote community participation in each stage of environmental corporate social responsibility project development, it is important to enhance community members perceived ecological values and community members should be educated in ecology to enhance participation in the monitoring stage. And Azizan, M., Azmi, A., & Anuar, N. A. M. (2018) the paper include the types of factors that play a role in community behavior (altruism, consciousness, and civic virtue behavior) and what factor appears to be the most influential.

4.1.7 Media factors were at a high level and correlated in a positive direction with participation in environmental conservation. The communication for development is applied to create participation with the community for



environmental management. For development, focusing on conveying messages to change knowledge, attitudes, and behaviors. Including creating knowledge and understanding and leading to positive changes in terms of economy, society, environment, and quality of life (Sittbisutikul, Paiboonwatanakit, & Jaroenkul, 2019). Participation is a communication process in an open system which is a two-way communication between individuals, groups, communities, or organizations in carrying out activities in one or more activities, both official and unofficial. Participation involves the process of allowing people to be involved in joint development, joint decision-making, joint action, and sharing the benefits. The goal is to achieve the collective aims of the group and to strengthen unity and a sense of responsibility within the group (Rupngam, 2002). This is consistent with the research of Aumjiw, S. (2020) factors affecting people's participation in forest resource conservation with positive at the statistical significance level of .05 were: contact channels with forest officials and participation in forest resource conservation projects. And Cheatea, M. (2013) results showed that 75.5% of students receive environmental conservation information from television every day followed by the internet and manuals or books 25.5% and 25.2%, respectively. They have knowledge, understanding, and attitude on environmental conservation at a high level but have behavior on environmental conservation at a medium level. And Kumlangngam, K. (2022) most of the media usage behavior followed news information from the internet. Use mobile phones to keep up with the news the most. Mainly in contact with grandchildren. Communication tools are used every day for 30 minutes or more and most of them are interested in internet media such as Facebook and Line.

4.1.8 Legal factors were at a high level and correlated in a positive direction with participation in environmental conservation. The use of legal measures to protect resources is the use of laws to protect and maintain natural resources to remain sustainable. As well as imposing severe penalties for violators or violators (Jittangwatana, B., & Srikhampha, P., 2014). Conservation of natural resources and the environment using social and legal measures, group formation, community, club, and association for the conservation of natural resources and the environment. As well as providing cooperation in terms of physical strength, mental strength, and thought, with awareness of the value of the environment and resources towards us, such as the student groups, natural resource, and environmental conservation clubs, students in schools and educational institutes, etc (Aumjiw, 2020). This is consistent with the research of Dankaeuw, T. & Meema, T. (2013) the internal environmental factors around characteristics of the policy, physical environment, atmosphere of the organization and behavior of employees, and management process affected the working potential of the accountants working at NakhonRatchasima Subdistrict Administrative Organization at 69.30%. And Sangkuntee, W., Thiengkamol, N., & Thiengkamol, Ch. (2019) the level of knowledge of environmental law and environmental studies inspired the public mind. And the overall level of environmental conservation behavior according to the law of undergraduate students was at a high level. And Singmanee, J. (2017) the gaps in the law have arisen from the industry's non-compliance with the law. It also lacks good environmental management and some of it is caused by the government's lack of improvement and development of the law to be more modern. This affects the people living in the neighborhood and causes degradation of the environment. And Chaichana, V., Rangpan, V., & Maprasit, S. (2022) developing an appropriate form of environmental assistance for the Lawyer's Council of Thailand in the future is to publicize and educate about relevant laws including environmental management for the people. The Lawyers Council will create a mediation process to reduce conflicts and find a resolution. However, when there are environmental cases, there will be oversight by the three courts, namely the Court of Justice, the Administrative Court, and the Environment Court to create equality in a sustainable society.

#### *4.2 The Results of the Study and Comparison of the Factors Affecting the Participation in Environmental Conservation of the Students of Different Genders and Academic Years*

4.2.1 The results of the study of factors affecting participation in the environmental conservation of students of different gender found that students of different gender had no difference in the level of factors affecting participation in environmental conservation. As a result of students having different genders participating, there are environmental conservation and environmental development activities at the same level. As a result, students of different genders do not affect their participation in environmental conservation. Which restores the deteriorated environment it is the repair of resources that could be in perfect condition for further use in the future. However, knowing how to use resources wisely must bring the greatest benefit to the public, for the longest time. And waste resources with minimal waste, in addition, there must be a distribution of utilization evenly (Rueangpanich, N., 1994). Environmental conservation behavior encourages all parties to conserve the environment by creating understanding and awareness among government agencies. Local government organizations and people have roles and responsibilities in protecting, protecting, and restoring the use of resources worthily and for maximum benefit (Susat, Ch., 2019). This is consistent with the research of Chaisuriyasak, W. (2012) the personal factors of the project

participants found that gender did not differ in project implementation effectiveness. And Praneetham, Ch., & Monpanthong, P. (2019) gender factors were not related significantly to the environmental conservation behavior in the households and hotels, while the hotel type factors were not related to environmental conservation behaviors in hotels. And Chaibin, K., Aiyakornand, S., & Romyen, L. (2020) people's participation in the promotion of OTOP Nawatwithi community tourism in Na Thom district overall, when classified by personal characteristics in terms of gender, was no difference.

4.2.2 The results of the study of factors affecting the participation in environmental conservation of students with different academic years found that there was no difference in students with different academic years. There were factors that affected participation in environmental conservation. Due to students having different academic years people of similar ages will engage in similar environmental conservation and collective action in similar environmental activities. Which provides education, and public relations to make people aware of their roles and responsibilities in the environment to enable them to change their behavior in the direction of promoting environmental quality (Department of Environmental Quality Promotion (DEQP), 2008). Environmental conservation behavior means environmental conservation and management of natural resources and the environment. With the importance of knowing how to use it wisely for maximum benefit considering the duration of use for a long time and causing minimal damage to the environment (Boonthos, T., 2020). This is consistent with the research of Choojan, N. (2010) the level of participation in environmental conservation and problems and obstacles in environmental conservation of farmers categorized by level of education, was no difference. And Nuntasomboon, K., & Wongchantra, P. (2022) the level of participation before the training and after the training variables in terms of education level, overall, and in each aspect, all aspects are not different. And Praneetham, Ch. (2021) the level of education was not correlated with participation in environmental conservation.

### Acknowledgements

This research project was financially supported by Faculty of Environment and Resource Studies, Mahasarakham University (Grand year 2022), Center of Environmental Education Research and Training, Faculty of Fine-Applied Arts and Cultural Science, Mahasarakham University Demonstration School (Secondary), Mahasarakham University, Srimahasarakham Nursing College, Faculty of Water Resources, National University of Laos, Laos PDR and Foundation of Environmental Education.

### References

- Aumjiw, S. (2020). *Factors affecting participation in forest resource conservation of the people in the area Ban Sahakon 4 sub-district, Chiang Mai province*. Thesis Master of Science in Resources Development and Agricultural Extension, Maejo University.
- Authalet, M., et al. (2021). Economic, pro-social, and pro-environmental factors influencing participation in an incentive-based conservation program in Bolivia. *World Development*, 145, 1-42. <https://doi.org/10.1016/j.worlddev.2021.105487>
- Azizan, M., Azmi, A., & Anuar, N. A. M. (2018). The Influence of Community Participation Factors on Environmental Behavior in Island Tourism. *International Journal of Academic Research in Business and Social Sciences*, 8(16), 287-303. <https://doi.org/10.6007/IJARBS/v8-i16/5133>
- Bamrungasuk, R., & Kupimai, S. (2012). *Factors Affecting Environmental Management: A Case Study of Mae Klong River Basin Muang District, Samut Songkhram Province*. Thesis Master of Business Administration, Department of General Management, Faculty of Business Administration, Rajamangala University of Technology Thanyaburi.
- Bawornkiattikul, D. et al. (2022). Participation of Population for Environmental Management in Burapha University to Become Green University. *BU Academic Review*, 12(1), 131-145.
- Boonthos, T. (2020). *Attitude normative influence and situational factors affecting behavior in choosing reusable glass among Gen Y consumers, Bangkok*. Bangkok: Mahidol University.
- Chaibin, K., Aiyakornand, S., & Romyen, L. (2020). Factors Affecting Public Participation in Promoting Nawatwithi OTOP Tourism Community in Na Thom District, Nakhon Phanom Province. *Journal of Graduate School*, 17(79), 158-170.

- Chaichana, V., Rangpan, V., & Maprasit, S. (2022). The Development of a Model to Help the People in the Environment of the Lawyer Council Under the Royal Patronage in the Future. *Law Journal, Thaksin University, 10*(12), 222-255.
- Chaisongkram, N., & Leelakitpaisarn, Y. (2017). Citizen participation in environmental conservation of Sampran Town Municipality, Nakhon Pathom Province. *Romphruek Journal, 35*(2), 82-98.
- Chaisuriyasak, W. (2012). *The participation factors related to the effectiveness of the crystal brain camp*. Thesis Master of Business Administration, Department of Entrepreneurship, Silpakorn University.
- Chankaew, K. (1997). *Management of natural resources and the environment*. Bangkok: Interdisciplinary project.
- Chankaew, K. (2001). *Environmental Science*. Bangkok: Kasetsart University.
- Cheatea, M. (2013). *Affecting Factors on Environmental Conservation in School: A Case Study of Students in Secondary School of Thamvitya Foundation School Yala*. Thesis Master of Science (Environmental Management), National Institute of Development Administration.
- Choojan, N. (2010). *Participation in Environmental Conservation: Case Study the Samutprakarn Bank for Agriculture and Agricultural Co-operatives's Farmer Customers* [Thesis Master of Arts, Department of Social Sciences for Development, Dhonburi Rajabhat University].
- Chooprasoot, S., & Choengthong, S. (2015). People's Participation in Forest Resource Conservation: A Case Study of Khao Phra Theaw Non-Hunting Area, Phuket Province. *6<sup>th</sup> Hat Yai National Academic Conference on 26 June 2015, Hat Yai University*. pp. 420-434.
- Dankaew, T., & Meema, T. (2013). The Environmental Factors Affecting Working Potential of the Accountants at Subdistrict Administrative Organization in Nakhon Ratchasima Province. *Journal of Management Science, Ubon Ratchathani University, 2*(3), 49-64.
- Department of Environmental Quality Promotion (DEQP). (2008). *Environmental Science*. Bangkok: Publishing House of the Ministry of Science, Technology, and the Environment.
- Htaya, T., et al. (2022). Factors Influencing Communities' Attitudes and Participation in Protected Area Conservation: A Case Study from Northern Myanmar. *Society & Natural Resources, 35*(3), 301-319. <https://doi.org/10.1080/08941920.2022.2032515>
- Institute of Good Governance for Social and Environmental Development. (2012). *Catch the Rio+20 trend in Thai society*. Bangkok: Institute of Good Governance for Social and Environmental Development.
- Intarathut, A., & Chomphan, J. (2015). Factors affecting the implementation of the environmental management system (ISO 14001) of Petrochemical industry: a case study of IRPC Public Company Limited. *Ph.D. in Social Sciences Journal, 5*(2), 14-29.
- Isvilanonda, S. (1995). *Natural Resource Economics and the Environment: Principles and Theories*. Nonthaburi: Faculty of Economics, Kasetsart University.
- Jittangwatana, B., & Srikhampha, P. (2014). *Sustainable tourism development*. Nonthaburi: Thammasarn.
- Kachayuthdej, B. (2008). *The role of the media in the environmental crisis. The 10th King Prajadhipok's Institute Academic Conference 2008*. Nonthaburi, King Prajadhipok's Institute.
- Kasemsawat, S. (2011). *Participation in Environmental Management focusing on Water and Garbage of Amphawa Municipality, Amphawa District, Samut Songkram Province*. Faculty of Science and Technology Suan Sunandha Rajabhat University.
- Ketsil, Th., & Rodsoodthi, S. (2018). Factors Affecting Attitude and Behavior on Environmental Conservation Behaviors of High School Students Near Public Canal: A Case Study of Dipangkornwittayapat (Taweewattana) Under Royal Patronage School. *Panyapiwat Journal, 10*(3), 283-296.
- Khamyod, S. (2014). The Environmental Ideology in Ancient Lanna Documents. *Journal of Humanities and Social University of Phayao, 2*(3), 57-68.
- Kumlangngam, K. (2022). *Media use behavior and environmental communication for the elderly* [Thesis Master of Science (Environmental Management), National Institute of Development Administration].
- Leepagorn, P. (2011). *Factors Influencing Community Participation in Environmental Management in Pollution Control Zone: A Case Study of Mapchalute Community, Amphor Muang, Rayong* [Thesis Master of Science

- (Environmental Management), National Institute of Development Administration].
- Mallikamal, S. (2002). *Rathamanut and people's participation in protecting natural resources and the environment*. Bangkok: Chulalongkorn University Press.
- Maneethorn, E., Liamvarangkoon, S., & Nuengchamnon, K. (2016). People's Participation in Environmental Management in Transition to ASEAN Community: A Case Study of Eastern Seaboard Development Program (ESB). *Journal of politics, administration, and law*, 8(2), 61-94.
- Mettathamrong, J., et al. (2018). Factors Affecting Participation of Students at the Rajamangala University of Technology Isan Sakonnakhon Campus in Activities Friendly to Environment. *Sripatum Review of Humanities and Social Sciences*, 18(2), 7-17.
- Nuntasomboon, K., & Wongchantra, P. (2022). The Development of Environmental Education Learning on Sustainable Participation of Lamphun Sub-district, Muang District, Kalasin Province, Thailand. *International Journal of Higher Education*, 11(6), 60-72. <https://doi.org/10.5430/ijhe.v11n6p60>
- Para, R. (1995). *Natural resources and the environment*. Bangkok: Thip Wisut Printing House.
- Phaphan, P. (2008). *The art of transferring knowledge of professional teachers*. [Online]. From URL: [http://www.myfirain.com/teacher\\_view.aspx?id=75550](http://www.myfirain.com/teacher_view.aspx?id=75550). [Retrieved March 28, 2022].
- Poboan, Ch. (2012). Community participation in managing natural resources and the environment. *Journal of Environmental Management*, 3(1), 1-34.
- Pongsakornrunsilp, S., & Pongsakornrunsilp, P. (2018). Tourists' Behavior and Environmental Responsibility in Marine and Beach Tourism: The Case of Koh Samui, Suratthane. *Veridian E-Journal, Silpakorn University*. 11(2), 2801-2817.
- Praneetham, Ch. (2021). Awareness and Participation of Thai Tourists in Environmental Conservation of Natural Attractions in Koh Samui, Surat Thani Province. *Suratthani Rajabhat Journal*, 8(2), 73-94.
- Praneetham, Ch., & Monpanthong, P. (2019). Factors Relating Environmental Conservation Behavior in Household and Hotels of Thai Tourists in Koh Samui. *Sripatum Review of Humanities and Social Sciences*, 19(2), 63-76.
- Pukcharoen, S. (2008). *Environment and resource management*. [Online]. Retrieved March 15, 2022 from [http://rmupt-environment.blogspot.com/2009/08/blogpost\\_2466html](http://rmupt-environment.blogspot.com/2009/08/blogpost_2466html)
- Rueanganpanich, N. (1994). *Conservation of natural resources and the environment*. Bangkok: Ruakhieo.
- Rupngam, Y. (2002). *Participation of budget bureaucrats in reforming the bureaucratic system*. Bangkok: National Institute of Development Administration.
- Sangkuntee, W., Thiengkamol, N., & Thiengkamol, Ch. (2019). Toward a Model of Legal Environmental Conservation Behavior. *Kasem Bundit Journal*, 20(Special Edition), 46-55.
- Sattayapanich, T., Janmaimool, P., & Chontanawat, J. (2022). Factors Affecting Community Participation in Environmental Corporate Social Responsibility Projects: Evidence from Mangrove Forest Management Project. *J. Open Innov. Technol. Mark. Complex*, 8(4), 1-28. <https://doi.org/10.3390/joitmc8040209>.
- Singmanee, J. (2017). *Analysis of laws and law enforcement concerning air pollution emission control in the petrochemical industry* [Thesis M.Sc. (Environmental Management), National Institute of Development Administration].
- Singseewo, A. (2011). *Development of an environmental education curriculum*. Maha Sarakham: Mahasarakham University.
- Sittbisuntikul, K., Paiboonwatanakit, P., & Jaroenkul, K. (2019). Communication for Participatory Environmental Development in Chiang Mai City: The Project of Spark U, the Actions for Urban Change in Chiang Mai, the North of Thailand. *RMUTSV Research Journal*, 11(2), 290-301.
- Songsunthornwong, Ch. (2017). *Conservation and development of tourism resources* [Online]. Retrieved March 31, 2022 from <http://lib.dtc.ac.th/article/tourism/0017.pdf>
- Sophonphanthanon, Th. (2011). *The Factors Affecting People Participation Model I Environmental Conservation on Saen Saep Canal, Bangkok Metropolitan*. [Thesis Master of Arts Degree Program, Department of Public and Private Management, Silpakorn University].
- Susat, Ch. (2019). *Rural Sociology*. Bangkok: Thammasat University Press.

- Tanatrinchat, K., & Akkawanitcha, Ch. (2022). Factors Influencing Environmental Conservation Behavior of Employees in an Electronic Component Manufacturing Company. *Journal of Multidisciplinary in Humanities and Social Sciences*, 5(3), 1238-1251.
- Tarasuk, W., et al. (2013). The Participation of Ban Tangsai Community in mangrove management in Tambon Lipang, Amphoe Palian, Trang Province. *Hatyai Academic Conference No. 4, 10 May 2013 (412) on "Research for Thai Social Development"*. pp, 30-42.
- Tauenyi, Ch. (2015). Factors Influencing the Participation of People in the Conservation of Forest Resources A Case Study of Ban Pu Nam Ron Moo 12 Tambon Ban Kao Kanchanaburi Province. *Journal of Kanchanaburi Rajabhat University*, 4(1), 76-81.
- Tunarang, Ch., Chawsithiwong, B., & Pisansuksakul, K. (2015). Factors Influencing Public Participation and Guidelines for Development of Solid Waste Management in Samutprakan Municipality. *Journal of Environmental Management*, 7(2), 35-48.
- Veeravatnanond, V. (1998). *Environmental Education*. Nakhon Pathom: Institute of Public Health Development ASEAN.
- Verónica Bunge-Vivier & Andrea Martínez-Ballesté. (2017). Factors that influence the success of conservation programs in communal property areas in Mexico. *International Journal of the Commons*, 11(1), 487-507. <https://doi.org/10.18352/ijc.718>
- Walaisathien, P., et al. (2000). *Developer work processes and techniques*. Bangkok: Research Fund Office.
- Wongchantra, P. (2011). *Environmental science*. Maha Sarakham: Mahasarakham University.
- Wongpanisaksorn, N. (2015). Factors Affecting the Participation in Environment Management in Community, Petchpathum Community, Pathumthani Province. *Journal of Nakhonratchasima College*, 9(2), 129-135.
- Yuekyen, W. (2014). People's Participation in Natural Resources and Environment Conservation in Hua Hin Municipal, Hua Hin District, Prachuap Khiri Khan Province. *Sripatum Chonburi Journal*, 10(4), 32-38.

### **Acknowledgments**

Not applicable.

### **Authors contributions**

Not applicable.

### **Funding**

Not applicable.

### **Competing interests**

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

### **Informed consent**

Obtained.

### **Ethics approval**

The Publication Ethics Committee of the Sciedu Press.

The journal's policies adhere to the Core Practices established by the Committee on Publication Ethics (COPE).

### **Provenance and peer review**

Not commissioned; externally double-blind peer reviewed.

### **Data availability statement**

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

### **Data sharing statement**

No additional data are available.

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