

## **Reflective Critical Thinking Skills of Student Leaders in Higher Education Institutions for Development**

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*Abstract:* - The Higher Education plays an important role in the Financial Development, in Economic Growth and in the Environmental Science. The purpose of the study is to train student leaders to become reflective and critical thinkers in their environment. There is a need for an intervention by student leaders in higher education institutions on environmental education. Thus, a seminar-workshop that will improve student leadership and critical thinking capabilities is a smart approach. This research aimed to describe the strategies for the recognition and realistic implementation of reflective critical thinking skills to students in their studies, their families and the community or environment. It also aimed to bring out the general importance of environmental education in their life as students. This study uses a qualitative method using critical analysis and survey. Graphical, ranking, and tabular techniques were also used to present the results. This was attended by 40 student leaders who engaged in the intervention activity. The data obtained has been summarized and analyzed. As a result, the different methods were ranked accordingly when determining areas for development. In the end, the researchers have come up with a Reflective Critical Thinking Cycle in Environmental Education that can be used and extended to oneself, the family, and the society. The research findings based on the intervention should be consistently done to show students how to balance academic and extra-curricular activities and in dealing with their environment.

*Key-Words:* - Development, Environment, Critical Thinking, Leaders, Reflective Critical Thought, Environmental Education

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## 1 Introduction

Higher Education plays an important role in the Financial Development. In an environmental education framework, how will students become analytical critical thinkers? Students of higher education programs should be educated about this. Logical thinking skills are needed for perceiving, assessing, comparing, concluding, explaining, and self-regulating. Students who learn to comprehend data are more able to concentrate and draw on habits of good decision-making in their personal and academic lives [1]. According to one study, analytical critical thinking is a set of skills that can help someone acquire intelligence, evidence, collect data, and interpret it efficiently to reach a satisfying conclusion [2]. Teaching student leaders these skills will never be easy. The lack of tutor interventions during the training or action can result in a deficiency. As a result, a higher education institution in Cavite has organized a set of training sessions aimed at improving human leadership and environmental education skills. This leadership preparation, which aims to: (a) review the facilitators' techniques and procedures for applying the seminar workshop on reflective critical thinking in environmental education; (b) improve students' current skills through listening to the seminar-workshop series; and (c) introduce self, family, and community strategies for critical thinking skills, was completed by 40 student leaders. This study is crucial for student leaders because it will help them develop their analytical thinking skills by giving them new insights from their school. The School of Education professors believe that providing a leadership seminar-workshop to student leaders would fill up some of the gaps in their programs. Karimi [3] claims that his research into teaching clear thought skills to students has an impact on EFL learners' perceptions of literacy. The ability to communicate and lecture was discovered to be unnecessary. The authors of this study disagree with this claim since they discovered that by focusing on a collection of leadership seminar seminars named "Being Logical Thinkers," HEI students could further explore their own critical thinking abilities. Karimi [3] also claims that students aren't born with logical reasoning skills; nevertheless, Persky, et.al[4] claims that this was also asserted by Persky, et.al[4]. Teacher training, on the other side, is important in order to develop students' logical thinking skills. This can influence how students think about things like reasoning, logic, and problem solving [6].

Furthermore, student interests can vary greatly from one person to the next. As a result, facilitator approaches have an impact on enhancing students' logical thinking capacities by including them in a variety of interactions that they love. This paper addresses the importance of developing and reinforcing logical thinking abilities among student leaders at the college under consideration, which could be the basis for learning under the twenty-first century, in which students should be able to formulate the arguments for their views and assumptions [7]. This study completes the theoretical gap in the study of the significance of the reflective critical thinking skills in environmental education especially in Higher Education Institutions in the Philippines. The aim of education is to learn about life and the environment around us. The dissemination of information about the natural environment, natural resources, and the importance of ecosystems in everyone's existence is one of the components of education [8].

Teachers are not asking students what to do anymore. They show them how to act instead. According to Mogato [9], many curriculum experts emphasize one ability in particular as a means of 'future-proof' students-critical thinking. Critical thought is the empirical scientific method of conceptualizing, interpreting, applying, and assessing knowledge correctly and passionately obtained from or generated through experience, thought, conversation, or interpretation as a mentor for action and dependence [10]. Students use good critical thinking skills to read and write successfully in school and college. In addition, the positions require workers to think strategically in order to interpret results, choose the right course of action, and act on their decisions. The more professional they will be in making refined, thoughtful analysis of the problems they face, the earlier students spread critical thinking [11]. A dialogist curriculum process is advocated by the analytical pedagogical approach, where teachers and students read and instruct together and look for understanding together, rather than classical methods of education [12]. Complementary skills forged by a cause-and-effect partnership are reading and understanding. When two separate ideas have been considered, reading and understanding combine to form the reading comprehension idea [13]. A uniformly understood and generally acknowledged concept of the construct does not exist within the literature on critical thought. With several constructs, critical thought overlaps with reflective thinking,

imaginative thinking, problem-solving, higher-order thinking, and metacognition. The lack of consensus on a collective concept of critical thought stems from the synthesis of the construct's metaphysical and psychological ideas, but similar features are shared by separate definitions [14]. As the world transitions into a technology-based economy, facing global competition, there is a rising imperative for employees with critical thought capabilities that are able to combine input from a wide variety of sources and make fruitful decisions competently. Critical thought is an important instrument in a diverse and constantly developing environment in order to succeed effectively in a competitive life [15]. Critical thinking has a different sense in a technical or science context than thinking that existed in a classroom setting: the former relied on a disciplined framework for problem or situation interpretation and examination; the latter on acquiring skills that would become the foundation for critical thinking [16]. According to Rezak [17], there is a growing awareness that the old, pre-crisis knowledge. The "new normal" is in its place. Although some conventional leadership techniques and skills will continue to be effective, leaders will need to lead differently and think differently in this brave new world. If people do not think intelligently of the various challenges they face, so they are in danger of getting all the responses, but they also do not know what the responses mean. The dual skills of learning how to read and knowing how to think logically about the increasingly proliferating knowledge they will need to contend with will offer the best possible schooling for 21st century citizens [18]. Teachers are responsible for teaching students the practical skills of thought that facilitate the mechanisms of social, ethical, environmental and spiritual decision-making [19]. Munawaroh [20] noted that logic and scientific thinking are necessary for rational thinking. In order to write evidence-based findings in a structured way, students use logical thinking to synthesize relevant knowledge. The ability to interpret text requires learners to recognize the text's mathematical structure, the underlying symbols found in written work, and visual representations that occur in a meaning-forming entire concept. Boonjeam, et al. [21] urged novice teachers to learn from teachers with proven success in teaching critical thought and to explore innovative teaching possibilities to expand teaching approaches that go beyond conventional static strategies. Teachers lack sufficient training to teach instruction in critical thought, which requires the absence of teaching cultural consideration. In order to evaluate student skills, the lack of training leaves

untrained teachers to rely on personal prejudice and narrow world views [22]. The needs of our students and of the neighborhoods represented by our universities are continuously changing. The existing student leaders must also be re-trained and systematically prepared for new emerging positions in the changing world [23]. In order to positively affect their peers, student leaders are expected to show sufficient management competencies. In leadership roles, problem solving skills are required in environmental education. The ability to communicate actively and positively with the cognitive skills of critical thought has become the employability benchmark for many different sectors around the world and is considered critical for the creation of knowledgeable, decisive global citizenship. Despite this, curriculum programs have introduced policies and strategies in many countries that restrict the opportunities for students to engage authentically in the conversations, debates, and evaluative reasoning that help to build the skills set and mindset of critical thinkers [24]. It is easy to see that students can grow to be pioneers in areas that attract them, creating a positive influence on society, providing the right opportunities in environmental education.

## 2 Problem Formulation

Higher Education plays an important role in the Financial Development. Students should learn how to reflect and think critically on their surroundings in order to deal with difficult situations. A fundamental aspect of studying is to think critically about topics. Educators have always encouraged their learners to care about what is being learned, but there is a shift in the way they promote the method. Students who are reflective and critical thinkers could be effective in dealing with their environment. When defining the significance of the reflective critical thinking skills on environmental education, in general, the following questions were asked by the researchers:

1. What are the strategies the student leaders like most in the leadership skills seminar on reflective critical thinking skills on environmental education?
2. What do students want to improve after learning those strategies from the speakers?

3. How could students apply the reflective critical thinking skills to themselves, family, community, or their environment?

## 2.1 Materials and Methods

The study was composed of four (4) stages which include the intervention in the form of series of seminar-workshop, preparation of the research, its conduct, preparation of results, and their descriptions. This study was undertaken in one higher education institution in Cavite- Philippines entitled "Reflective Critical Thinking Skills in Environmental Education." This was attended by 40 student leaders of the institution. The study used the qualitative method using tabular, ranking, and graphical techniques for presenting its results.

As for their ethical concern, the Data Protection Form was signed by these 40 student leaders as one condition for engaging in the seminar-workshop and undertaking this study.

## 3 Problem Solution

Question No. 1: What are the strategies the students like most in the Leadership Skills Seminar

“Reflective Critical Thinking Skills in environmental education?”

The student responses vary from each other as gleaned on the table .

**Table 1.** Strategies that students like most in the Critical Thinking Skills Intervention

Strategy	N	Students' Feedback
Delivery	5	Fun, interactive, informative, actual, real-life experiences
Student Engagement	11	Interesting, interactive, creative, highly engaged, well-
Type of Activities	7	Interesting, fun, useful
Content	9	Meaningful, exemplary, well-thought of
Student Insights	8	Learned to be confident, creative, critical-minded, learned to ask questions and answer questions correctly and wisely

The greater involvement of students was one of the main techniques that students enjoyed best during the seminar session. Most of them stated that interactive, fascinating, important, highly involved, and well-participating tasks were the activities. At this juncture, the facilitator administered a ball game quiz to introduce the subject. The facilitator asked questions and the ball was moved from one person to another. When the ball stops on a person, the one handling the ball should answer the question. The incident left the students excited about other similar events. This study indicates that the critical reasoning capacities of students can be improved in environmental education that will encourage teaching and learning practices. In short, their success will be intensified by learners who can solve problems. Therefore, it enhances their capacity to objectively think. Their camaraderie, leadership, and unity were clear. There was input from the students during the debate. Much of them felt that they were skeptical of ball sports. Any of the input from the students is as follows: "I enjoyed a lot." (Student 1) "This interactive and practical seminar-workshop made me more critical and confident as a student. (Student 2)

"It is not easy to convince other people to believe you. It takes confidence and skill to be critically-minded. But because of the facilitator's strategy, I felt so engaged. (Student 3)

"The seminar-workshop brings my own sense into being. I realized the true value of being human." (Student 4)

In the seminar-workshop, the material was ranked second as the facilitator's best technique. Material is the entire activity's material. "The facilitator defined Critical Thinking during the said intervention as "a self-directed mechanism through which conscious steps can be taken at the highest quality stage. These measures included logical thinking skills: (1) logic (2) judging (3) problem-solving (4) decision- making and (5) evaluating. The student participants studied how these logical thinking steps can be distinguished and given explanations to apply to them. As addressed in this intervention, the purpose of critical thinking is to encourage independent thinking and learning, good

judgement in thought and behavior. Students understand hypotheses by the content of the subjects discussed, test claims and draw conclusions. This was the consequence of the third student insight technique. The method has been successful because the facilitator's interaction with the participants was intimate and engaging. The insight of students acted as their input to strengthen their vital ability to learn. The fourth solution used to be the kind of events that motivated the students and made them participate well. Finally, the last solution used was the execution that made it pleasant for the students to deal with the facilitators and have fun. There is no learning if a facilitator is not heard by training students critical thinking skills. Hu [25] claims that, since teachers may build these skills for their pupils, the concept of applying critical thinking in teaching can be accomplished. The researchers affirm that the facilitator used multiple methods in addressing the substance of the subject in this report. Students were posing questions and providing concrete examples. There is compelling evidence that student leaders have been able to show through this activity that a target can be accomplished through implementing positive organizational strategies by critical thought and collective efforts [26]. On the other hand, among the techniques listed in this seminar-workshop, distribution was ranked the least. This includes the movements and the way the facilitator offers his audience examples. By clearly asking them to compose their ideas and observations and have these presented in the room, he stimulates the critical thought of students. The style in which the material was presented thus played an important role in helping the critical reasoning ability of the students. This could allow them to readily perceive, evaluate, judge, and focus on their work quickly. Some scholars find that such actions such as interpretation, analysis, dilemma assessment can effectively be carried out by a logical thinker with the use of facts, principles, processes, and guidelines that may be used to make possible decisions [27]. The problems range from the most complicated to the simplest. When debating their answers to their team, each of them thinks of the best response. A

leader is selected after a while to justify their job. The delivery of the facilitator allows students to participate, whilst the delivery of the students during their presentation enables them to feel optimistic and exercise freedom to speak. In comparison to the research of [25], it uses writing as an intervention to improve the critical thinking ability of the English

major students. By interpreting, examining, describing, inferring, assessing, and self-calibrating the query, these can be strengthened.

Question No. 2: What do students want to improve after learning those strategies from the speakers?

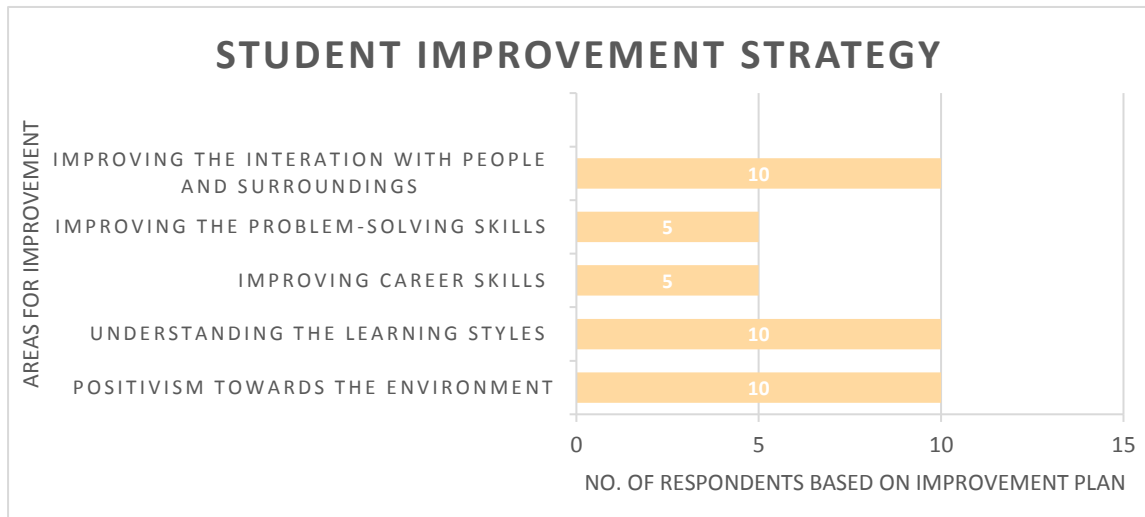


Figure 1. Areas for improvement for students after learning the critical thinking strategies

Ten students wished to boost their interaction with the people and their surroundings. They think that being confident will change their personality and develop their trust in themselves. Similarly, ten participants believed that problem-solving, understanding the individual learning styles, and positive attitude towards the environment are important aspects to develop themselves, while others believed that it is realistic to improve their career skills. There are the same number of students who agree that these sectors can also be strengthened by developing learning habits and job skills. They accept on the second issue posted above that they need to develop their life perspective, social engagement, decision-making, and job skills. There is also the potential of changing the way of thinking of students by developing such criteria, improving communication and problem-solving skills [28]. An individual has logical thinking ability when he/she:

- Is more positive to situations that arise;
- ✓ Interact more with people of different walks of life;
- ✓ Can understand the various learning styles of other people;
- ✓ Can solve problems using various methods of solving them;
- ✓ Understand the process of improving his career through professional development, and;

- ✓ Avoids negative thoughts and tries to live with self, family, and community in a wholesome way.

Question No. 3: How could students apply the reflective critical thinking skills to themselves, family, and the community or environment?

During the leadership seminar on Reflective Critical Thinking Skills in Environmental Education, students were given the chance to express their opinions about the application of reflective critical thinking in their lives, in their families, and community or environment. Some of the results of their insights are as follows:

“It helps me solve my own problems and my problems at home and in the environment.” (Student 1) “It adds experiences in my life as I am young and ready to learn more.” (Student 2) “It helps me deal with my community with virtue and passion.” (Student 3)

“My perception about life has been changed. I think I can do better.” (Student 4)

“I can apply this in my Social Studies major since we always deal with Question and Answer with our professors.” (Student 5)

“I will become more engaged in learning because I know how to answer critical questions.” (Student 6)

“I will learn how to apply this in English specifically in Reading Comprehension. Being critical in reading helps me understand the passage carefully.” (Student 7)

“I learned how to critically analyze the works of other authors.” (Student 8)

“I learned how to understand my siblings whenever my parents asked them to do household chores at home, they usually refuse and get angry.” (Student 9)

“My perception about the community becomes bigger and I would like to involve myself by mingling with them and by understanding their situation. By doing so, I would be able to help them with their needs.” (Student 10)

In the study of Karimi [3], critical thinking provides positive effect on the reading comprehension of his/her students in EFL. Although he/she found out that even if the students were taught the critical thinking skills, this was not significant in their own learning. In the end, the study points out that the strategies used in this intervention had improved the reading abilities of students. This is in relation to the point of view raised by one student in this study that learning critical thinking strategies could help him/her apply in English or in Reading Comprehension to understand the passage carefully. As Karimi [4] claims that the application of various topics in language classrooms implies the significance of learning critical thinking skills. Pierce as cited in Karimi [4] that he/she uses debate to improve the four skills of students in the areas of Listening, Speaking, In Karimi's study [4], critical thought has a positive influence on the reading comprehension of EFL students. While he/she realized that even though logical thinking abilities were taught to the students, this was not necessary in their own learning. In the end, the research pointed out that the methods used in this experiment strengthened students' reading skills.

This is in relation to the point of view posed by one student in this study that learning techniques for

critical thinking might allow him/her to apply the passage extensively in English or in Reading Comprehension. As Karimi [4] says, the value of acquiring critical thinking skills is indicated by the implementation of different subjects in language classrooms. As described in Karimi [4], Pierce uses dialogue to strengthen the four abilities of students in the areas of listening, communicating, reading, and writing. On the other hand, Ricci [28] argues that students can improve their abilities on online courses beyond teaching the material. This online exercise could improve the strategies of students in evaluating the process, understanding the goals, and using the information to enhance the talents, expertise, or awareness of students in order to make successful decisions for both professional and personal achievements or achievements. This Ricci concept [14] made the researchers believe that critical thinking should include the ability to develop problem-solving and decision-making skills in our students. It is therefore important for the Commission on Higher Education (CHED) to recognize the importance of critical thinking skills within the specified curriculum in order to preserve the principle of constructivism, that is, 'students build [29]. Awareness and transfer of this in their everyday lives (The intervention is an eye-opener for the students because their higher-order reasoning and problem-solving abilities are enhanced through problem-based tasks. It also improves analysis and high-level thought skills [30]. The concept of forecasting, analyzing and demonstrating may be used to generate ideas by “Predicting results and explaining”.

“Nowadays, in all levels and aspects of the teaching and learning process, colleges and universities assert the use of critical thinking. Critical thinking is the highest order skill in Bloom's Taxonomy, which is similar to application and analysis. Bloom believes that” creating a program is a means to discover the level of cognitive thinking abilities that students want to display in order to acquire particular skills. In his analysis, using cognitive self-regulation, he incorporated these three talents so that they can distinguish argument from rhetoric and remain and also explore new evidence that contradicts their current views or assumptions. Using Bloom's Taxonomy, the same research was also carried out, finding that workers had been high-performing thinkers and doers [31]

The researchers of this study found that, based on the expectations presented by the teacher or facilitator in teaching students rational thinking skills or techniques, all these strategies can be used. In addition, depending on the subject or courses to be taught, the strategy could be different for every individual. The methods are based on opinions and general synthesis made by

interested students and facilitators if analytical thinking skills are taught separately, such as the leadership skills worked out in the college under review. For this reason, as shown below, a Reflective Critical Thinking Cycle in Environmental Education was created:



**Figure 2.** Reflective Critical Thinking Cycle

### 3.1. Discussion

#### Reflection In-Action of Student Leaders

In order to adapt this effectively to yourself, family, and culture, especially to the environment, it is important to study the common steps about how to become vital in a thoughtful way. Students also discovered certain ideas to become critical thinkers, as discussed earlier. In this way, areas could easily be identified for improvement. Students are given thought-provoking questions that they need to analyze with any topic or lesson. Students should understand how to follow the teacher's approach and how the questions are asked. They ought to pause and think about the situation in this way. Then analyze the answer to the question, critically. Does critical thinking really require this question? While everybody loves being a logical thinker, they can learn how to analyze as well. Reflect on the situation or the possible answers the teacher posts to the question. Students could improve their logical thinking ability further in this manner. What's gone well? What's gone wrong? Why did it go well? Why has this gone wrong? In order to improve, what else could be done? These are the issues in the context of a scenario. This reflection

will lead to action that produces another reflection as the action is being implemented by students. Thus, in critical thinking, each step should require reflection. The last move is to once again observe what has been done and the loop of analytical critical analysis continues and continues.

In any situation or scenario that the learner is conscious of, logical thought is thinking of how to arrive at the right solution. In short, it is a way of thinking about whatever is currently occupying a person's mind to think about the possible conclusion. A person exercises critical thinking by asking the following questions by doing a simple exercise, as shown below [32].

- ✓ Who said it?
- ✓ What did they say?
- ✓ Where did they say it?
- ✓ When did they say it?
- ✓ Why did they say it?
- ✓ How did they say it?

What is critical about this exercise is that, by going through the specifics and eventually reaching a decision, it allows us to improve in-depth critical thinking ability. First of all, it is very important to understand whether the theory is a fact or just an



opinion. There is also a need to figure out whether the principle is publicly announced or only relayed to a few groups of individuals or citizens. When the proposal happened, a logical thinker would say that something may have happened in the past and the questions have since been fixed. Finally, whether the person who said it was sad or furious, a logical thinker should decide, and if it happens, the knowledge may be a false statement. To become sensible, logical, creative, and empathetic, people should be analytical [33]. Without logical thinking capacity, people can just dream every day to survive. This author inspires students to be better citizens of their country and to consider how other people's lives could be influenced by their thoughts and behaviors.

There is a need to ponder and think about the best ways to strengthen it with any thought a person does. It is easier to explain by addressing the question of what was positive and negative in it; what more should be changed and how to change one's thought after the experience.

The student activities conducted was an intervention to understand the significance of the environmental education, in general. In the study conducted by Bila, et al [34], it should be noted that within the last decade, several studies have been conducted to assess the likelihood of organizations benefiting from social events. After performing a large-scale study in this field, Harvard Business School scientists discovered that businesses that use social services in their operations outperform businesses that do not use these programs on all key indicators.

#### 4. Conclusion

The Higher Education plays an important role in the Financial Development, in Economic Growth and in the Environmental Science. While discussed theoretically, the strategies developed by the facilitator in the Leadership Skills Seminar on environmental education for reflective critical thinking skills have had a good impact on the lives of students. A Reflective Critical Thinking Skills Cycle has been developed by researchers to help student leaders strengthen their basic reflective critical thinking skills and relating it to the significance of environmental education. These realistic measures will improve and strengthen the critical reasoning ability of the students, as well as they can readily apply this to themselves, families, and their own society and the environment. Effective application of these interventions will depend on how people implement what they have learned. It is strongly recommended that related

tasks in HEIs should be undertaken to develop the critical thinking skills of students and to come up with similar trainings relating to environmental education. The authors would like to conduct an in-depth study on the leadership skills of non-leaders in the institution under study to compare the results of this current study.

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