

## Improving critical thinking skills in civic education based on project citizen building awareness of environmental issues

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### Article History

Submitted : 15-05-2024

Revised : 15-06-2024

Accepted : 21-09-2024

Published : 30-09-2024

### Article Link

<https://journal.uny.ac.id/index.php/civics/article/view/73198>

### Abstract

This research explains how the dimensions of critical thinking develop and are consistent in students by learning directly in a project-based contextual manner through small research that they choose. The research method used is descriptive analysis to analyse the dimensions of students' critical thinking abilities using a quasi-experimental design (a one-group post-test only design). Data was collected by involving active, even semester students taking general compulsory courses in Civic Education, totalling forty students with project model learning. Through small research-based learning or the project citizen model, critical thinking skills will be developed at four levels of critical thinking achievements. Four levels of critical thinking were made into fourteen questions. When the questionnaire has passed the validation process stage, which is prepared using a standard critical thinking ability scheme related to environmental awareness, the questionnaire is also adapted to respondents who have received project citizen model learning. The research findings on students' critical thinking ability towards awareness of environmental issues are included in the high category. Thus, this research shows the success of Civic Education courses in realising a sense of civic responsibility and civic awareness. Then, the results of this research give birth to citizens who can touch on environmental issues; this is the basis for the learning objectives of Civic Education, which is to educate citizens to understand their nation and country.

**Keywords:** critical thinking; civic education; environmental awareness.

### Introduction

Currently, technological developments have hit the way of thinking in preserving nature amid global warming, which can endanger the environment and society, threatening the nation's and state's stability (Haseeb & Azam, 2020). Such a situation should not be allowed



simply because it will result in a major disaster for nature and future generations that will cause environmental damage (an unsustainable global ecosystem).

The environmental crisis began with humans to maintain the integrity of the universe (Keraf, 2006). For that school and university, it is necessary to have initiatives to create an environmentally conscious community and to define policies to integrate science and education efforts in addressing the environment (Ardoin et al., 2017; Ardoin & Heimlich, 2015; Ballard & Belsky, 2010). It is also evident in some countries. One of the countries, Nigeria, is doing environmental sustainability through school cooperation with the community, improving the environment (Ana et al., 2009). Therefore, there needs to be a dialectical relationship between citizens of the environment and social relations (Gilbert & Phillips, 2003). On the other hand, it can also be confirmed that a citizen's low level of understanding will result in their lack of sensitivity to social and environmental issues. In contrast, today, social issues are issues that need to be discussed at the government, education and community levels.

One of the efforts to increase citizens' awareness is through education. Education is a forum to change the mindset and establish cooperation among citizens in social life who care about the environment. For this reason, as a citizen, he needs to have competence, especially civic knowledge, which needs to be fulfilled and improved. Thus, in complex critical thinking, helping citizens map and solve problems can be realised. Civic knowledge competence, if fulfilled, then in line with the time journey of citizen consciousness grows and remains growing. Especially if it is associated with the environment as a sphere of study, citizens' awareness grows and develops from all aspects, including attitude, knowledge, and psychomotor. These aspects will lead students to become citizens who are ready to answer challenges and become individuals who can solve problems alone and collaboratively (Ardoin et al., 2020; Gonzalez et al., 2020). In stages, this critical thinking begins by exploring assumptions, identifying assumptions, comparing the opinions of experts and taking conscious action based on the understanding that has been built (Brookfield, 2012). It can build awareness and citizen thinking skills to be aware and present in the problem of environmental problems.

Table 1.  
*Stages of Critical Thinking and Internalization in Civic Life*

No	Critical Thinking Dimension	Problem and completion rate
Stage I		Internalization Thinking in the Concept of Concepts
1	Hunting Assumptions	<ol style="list-style-type: none"> <li>1. Many companies dispose of their waste</li> <li>2. Still many community people throw garbage out of place</li> <li>3. Sustainable development causes forest reforestation</li> <li>4. Lots of land clearing by burning forest</li> <li>5. Awareness of urban communities using low public vehicles is still</li> </ol>
Stage II		Internalization of Thinking Theoretically
2	Checking Assumptions	<ol style="list-style-type: none"> <li>1. Corporate behavior and individuals damaging the environment may affect climate change</li> <li>2. Deforestation and forest burning can reduce the availability of clean water</li> <li>3. Public transport awareness minimizes air pollution</li> </ol>
Stage III		Internalization Thinking on the Inventiveness, Sense and Intention
3	Seeing Thinks from Different View Point	<ol style="list-style-type: none"> <li>1. Deforestation is inevitable in the industrial era</li> <li>2. To get the convenience of everyone is entitled to use private vehicles</li> <li>3. Delays and differentiation can be tolerated when used for productive matters</li> </ol>
Stage IV		Internalization thinks the level of Civic Action

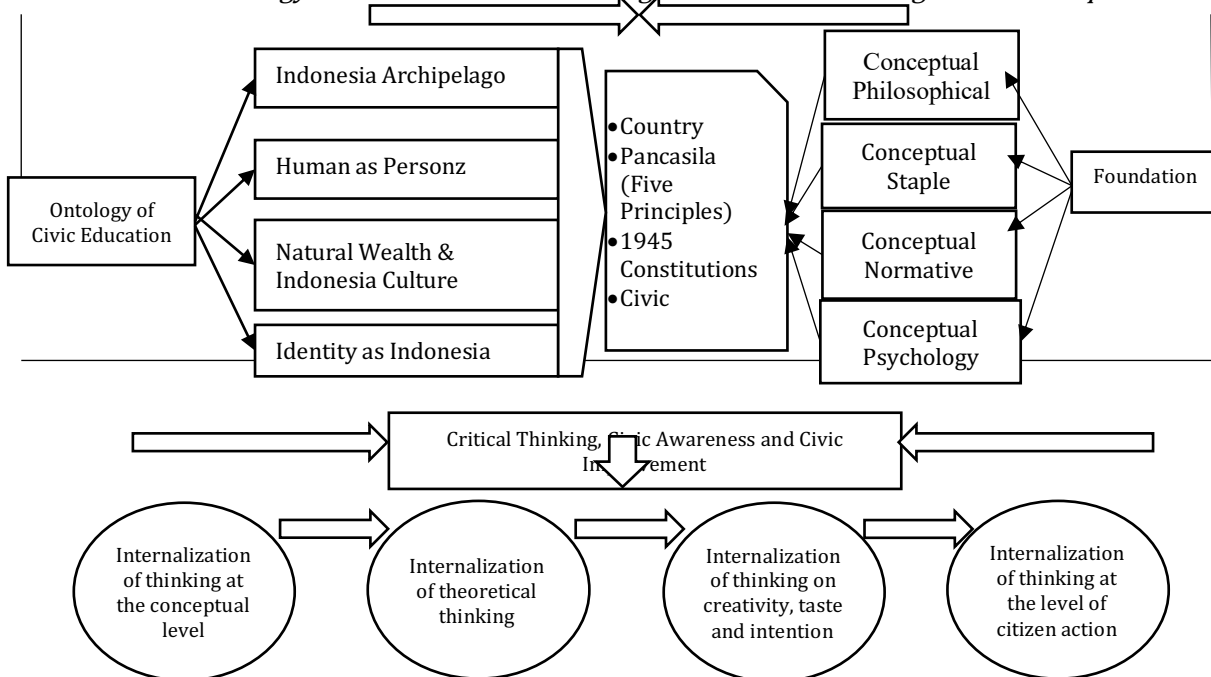
No	Critical Thinking Dimension	Problem and completion rate
4	Taking Informed Action	<ol style="list-style-type: none"> <li>1. I will throw the slightest garbage in place</li> <li>2. I will conduct action movements on the company and persons involved in environmental destruction</li> <li>3. I will be actively involved in maintaining and preserving the environment</li> </ol>

Source: Modified from Brookfield (Brookfield, 2012).

This study involved students in providing assessments against the polls of the dimensions of critical thinking with the environment. This poll gives students a stage of thinking, from assuming to action. The poll distributed has three positive statements and one negative statement. The three-dimensional positive statement is hunting assumption, checking assumption, and taking informed actions. One dimension of a negative statement is seeing things from different viewpoints.

The dimension of critical thinking capability makes it easy for citizens to be sensitive to environmental issues, with general and complex assumptions regarding the issues to be examined (Rafzan et al., 2020). Civic education is needed to cultivate and build a sense of nationalism and patriotism, maintain harmony in nation and state, and educate the nationality that inspires Indonesia (Murdiono & Wuryandani, 2021; Nurdin, 2017). Civics courses also provide insight into the importance of understanding economic, political, legal, and environmental social issues (Cresshore, 1986). The study of civic education (CE) also gives different nuances in directing students to a study that can touch directly on field study (Budimansyah, 2008; Komalasari et al., 2008; Prasetyo et al., 2016).

Figure 1. *Ontology of Civic Education and Stages of Critical Thinking in Citizenship*



The citizen project learning model can objectively validate critical thinking in social affairs. This research reviews students' perspectives on the environment and critical thinking skills. Not only that, students must also be able to compare before and after their small research. This ability will not just emerge without being equipped with civic knowledge and critical thinking skills through the citizen project learning model. To more clearly illustrate the study cluster on civic education as a basis for expanding the dimension of critical thinking and a high sense of awareness

## Method

The research used descriptive methods by analysing the dimensions of critical thinking skills through one group post-test only design (Creswell, 2015, 2017). Data was collected using 40 randomly selected students and given Project Citizen learning. Measurements were made on four dimensions of critical thinking, including, first, tracing assumptions; second, identifying assumptions; third, comparing expert opinions; and fourth, taking conscious action based on the understanding that has been built. The four levels of critical thinking dimensions were made into fourteen questions. The questionnaire questions go through a validation process stage that is compiled with the standard scheme of critical thinking skills related to environmental awareness, and then the questionnaire is adjusted to respondents who have received citizen project model learning. The Data in the sport is descriptive, by narratively explaining the effectiveness of scores produced by SPSS. Through this study, the authors also described the steps of learning hunting assumptions in civic education (CE) learning.

The focus of this research aims to provide citizen awareness so that they are more active and more sensitive to the social and environmental conditions, more so as to increase the ability of critical thinking to participate in resolving problems. Research begins to face-to-front in the classroom, identifying problems, selecting problems, finding solutions and continuing the field stage provides an alternative troubleshooting based on predefined solutions.

## Result and Discussion

This research began when observing the critical thinking skills of citizens who essentially do not describe their critical thinking ability to explore having other alternative to address problems to be conveyed against those who violate the rules should be obeyed and followed. Thus the importance of the dimension of critical thinking skills in civic education in preserving the environment to foster citizen awareness to participate in the welfare of environmental conservation (Feriandi, 2018; Gusmadi, 2018). This can be improved and realized through the learning step of Project Citizen model (Kvieskiene et al., 2000; Vontz, Vontz, et al., 2000;). This can be proven their ability to create one hypothesis and perform actions in addressing the problem (Tiara et al., 2020).

There are four levels in critical thinking that can map out problems and resolutions. The first ability; Assuming general problems without being based on theoretical studies, secondly; Assumptions outlined in the statement have been based on scholarly theories and studies, third; Provide a different statement of assumptions that have existed as a logical comparator of statements, fourth; Internalize themselves in a manner that is based on awareness on the theoretical level. It can be said to be the dimensional stage of critical thinking that can grow and develop in establishing citizen consciousness so that it can be internalized in daily life.

Based on the critical thinking skills above through exploring assumptions, continuing with identifying assumptions, then comparing expert opinions and finally this ability is carried out consciously based on the understanding that has been built, where these stages can improve critical thinking comprehensively and generally (Brookfield, 2012). This matter can foster reflective thinking in establishing state and societal consciousness (Boud & Walker, 1998; Loughran, 2002). Thereby of citizens will be more directed, conscious to build, utilize, and preserve their environment.

This effort is done by providing a learning treatment *Project Citizen* with steps leading to the problem's urgency. Implementation *Project Citizen* deployments in the classroom make it easy for citizens to map issues and find alternative solutions together (Sulastri et al., 2016). Through dimensional critical thinking combining the learning model by entering the indicators to be examined. The thinking dimensions and learning are described in the Table 2.

Table 2.

*The Critical Thinking Dimension in Project Citizen Learning is as follows*

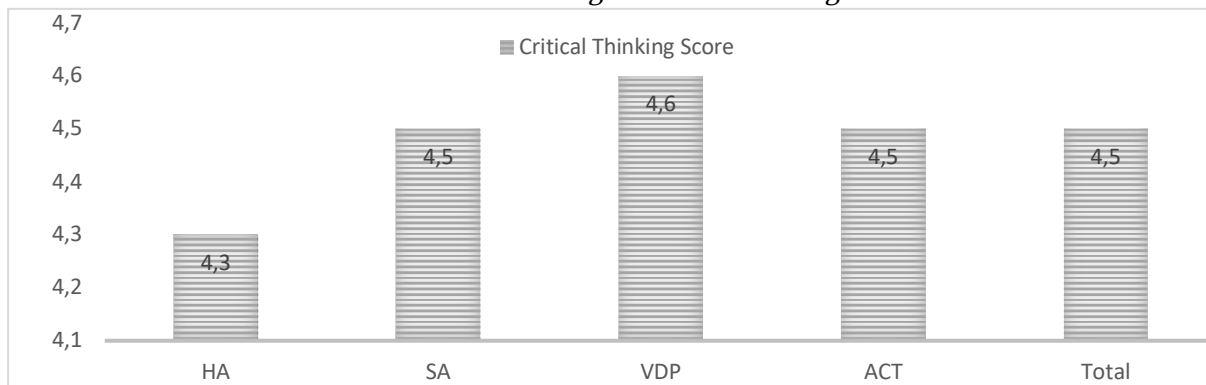
No	Critical Thinking Dimensions	Project Citizen	The dimension of critical thinking through Project citizen builds awareness of natural resources utilization
1	Hunting Assumptions	<ul style="list-style-type: none"> <li>Identifying problems</li> </ul>	<ul style="list-style-type: none"> <li>Motivate citizens to cooperate in identifying problems.</li> <li>Build citizen awareness in identifying urgent issues that need to be addressed.</li> <li>Inviting citizens to identify problems with the actions of others who do not care about the environment.</li> <li>Looking for general problems made by others against environmental pollution.</li> </ul>
2	Checking Assumptions	<ul style="list-style-type: none"> <li>Selecting a problem</li> </ul>	<ul style="list-style-type: none"> <li>Determine the problem as the object of study that needs to be resolved.</li> <li>Discussing problems as an object of study together by discussing.</li> <li>Choose the problem to be resolved in full awareness as a civic.</li> </ul>
3	Seeing Things from Different View Point	<ul style="list-style-type: none"> <li>Collecting information</li> </ul>	<ul style="list-style-type: none"> <li>Search for valid information related to the issue you've selected together.</li> <li>Looking for various sources of environmental problems that are urgent to be examined.</li> <li>Meet the experts and experts ask questions related to the solution and caused problems occur.</li> </ul>
4	Take Informed Action	<ul style="list-style-type: none"> <li>Portfolio documents, rebrand studies and offer alternatives to problem solutions</li> </ul>	<ul style="list-style-type: none"> <li>Provides an overview of problems and causes.</li> <li>Giving an alternative to completion.</li> <li>Offer alternative solutions to problems.</li> </ul>

The critical thinking dimension above, by incorporating research objects about the environment in the study, directs them to systematically investigate how citizens realise the environmental wealth is realised its presence for the benefit of mankind in the future. This research is designed to hone critical thinking skills to be internalised in daily life.

In addition, Project Citizen-based learning in the Civic Education course can be directed to build a higher awareness of social sensitivity and a sense of responsibility as a citizen (Romlah & Syobar, 2021; Tanszil et al., 2023), besides that the awareness that has been fostered through learning will have an impact on commitment as a citizen, this commitment is very in line with a sense of responsibility which will actually change your mindset, actions, feelings and intentions as a citizen.

Based on the choice of a questionnaire about environmental issues, hunting assumptions, checking assumptions, seeing things from different viewpoints and taking informed action can be said to be the ability of critical thinking of citizens to the environment. There is a significant increase of all dimensions of critical thinking ability. These 4 critical thinking skills can be seen on the Figure 2.

Figure 2.  
*Critical Thinking Dimension Average Score*



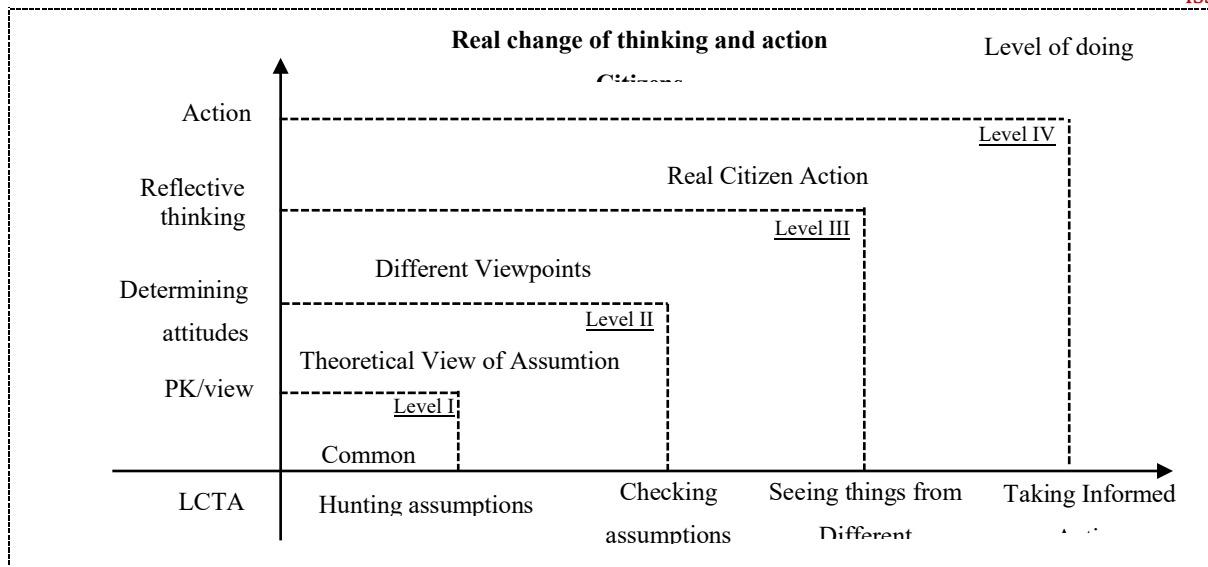
Calculation results obtained a score of 4.5 from a maximum score of 5 (ideal=5). The above calculated results can be described as follows; First, hunting assumptions gained a score of 4.3 from (ideal=5); This is because the student at the First meeting is still in the difficulty of understanding the general problems environmental issues, so that even the result of the score 4.3 has fulfilled the ideal critical thinking ability; second, checking assumptions gained a score of 4.5 from (ideal=5); at this stage students can already be categorized as having exercised the process of critical thinking on the concept and theoretical level so that they more clearly understand the environmental problems around them; Third, seeing thinks from different view point earns a score of 4.6 from (ideal=5); This matter is because the level of understanding of students has achieved an ideal level of ability because they have combined the concept theoretically and practically to the overall environmental impact, despite being faced with negative statements; Fourth, taking informed action earns a score of 4.5 from (ideal=5); this score represents the overall of the four dimensions of critical thinking, because to perform an action certainly does not take off from the foundation of their mature ability, but thus from the acquisition of scores gained demonstrated the critical thinking ability is significant improvement. Although the acquisition of value is not equal to the third dimension of the obtained score 4.6. This is because students' participation level has limited relationships, so the impact on acting and doing.

Obtaining the critical thinking ability score above shows that learning activities have had a good impact or experienced significant improvement; this cannot be separated from the project citizen model as the learning basis used. Project Citizen model learning can also develop students' awareness of protecting the environment, which needs to be cared for and maintained. Then, through the project model, students sharpen their perspective to compare the data they have obtained and use it to find the best way to solve problems in their small research. The usefulness of the research results not only grows students' intelligence and sense of responsibility but also sharpens their skills. -their social life as a nation and state (Hidayah et al., 2020; Romlah & Syobar, 2021).

The critical thinking dimension brings important changes in practice as a material to overcome environmental problems (Budimansyah, 2008; CCE, 1998; Sulastri et al., 2016). This thinking is very useful in learning because it provides information and performs good actions and efforts as a citizen. Critical thinking efforts are important to practice in learning because they obtain accurate assumptions. The relationship between time, experience, and learning expectations is an important element of reflection, and teaching about reflection requires a contextual anchor in creating meaningful learning episodes (Loughran, 2002). The Level of Critical Thinking Ability (LCTA) in the graph in Figure 3.

Figure 3.

*The chart is derived from the results of citizenship critical thinking, level of consciousness and action*



From the chart above can be explained that the level of critical thinking ability has increased from the general assuming ability to do so at a real level. So, the dimensions of critical thinking give a positive impact in improving from the concept of the draft to the acting ability. This dimension of critical thinking is also a reflection of critical thinking about the environment but does not deny dynamic thinking in economic, political, social and legal terms. The assumption of critical thinking increases the capacity of an ethically justified manipulative. The assumption of thinking to trace his true truth by conducting a thematic content analysis of the event to be examined. This also applies to citizens who have a social and environmental field. To do so in the study of teachers or lecturers must be a companion so that the learning process can be directed to the thing to be studied. While in the study of civic education (CE) that many have alluded to social issues in the realm of its studies, the dimension is indispensable to as an important point in directing their ability to solve the problems they examine and research.

Students who participate in this learning show activity in each learning process session; they don't just wait or receive information from their lecturers; they explore the studies they are reviewing themselves to obtain data. This approach can develop students' critical thinking and awareness in increasing their commitment to knowledge, attitudes and behavior. Especially also regarding the values and principles of democratic citizenship as the main goal of the government which we need to support and develop packaged through civic education materials at all levels of education units. In this way, the project citizen model needs to be prioritized in learning to educate students and help them live as citizens.

### Conclusion

The ability of critical thinking through hunting assumptions, checking assumptions, seeing thinks from different view point, and taking informed action through the learning of *Project Citizen* has some implications for students as good citizens, (1) can build awareness of citizens in critical thinking to understand the environment with assuming in general and complex environmental issues, (2) the ability of critical thinking of citizens through *Project Citizen* has been based on a theoretical way of seeing environmental problems, (3) citizens are committed and consistent with the way of thinking when faced with different views, and (4) through the *Project Citizen* model based on critical thinking dimensions bring citizens to the stage of consciousness to act in the handling of natural resources. The results showed the success of the civic education (CE) glasses to realise citizen responsibility, awareness of citizen who gave birth to citizen welfare which is the estuary the objective of civic education (CE) learning in environmental conservation, to create environmental awareness among citizens.

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