



Community Critical Thinking Skills Framework: A Literature Review Study

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Abstract: Indonesia must improve its World Human Development Index (HDI) ranking. According to the UNDP (United Nations Development Program), Indonesia has a Medium HDI Score and was ranked 113th in the world in 2015. Furthermore, several things need to be studied to improve people's critical thinking abilities, including: (1) What are the constructs and standards for critical thinking abilities? What should society control? (2) What is the critical thinking learning model for society? (3) What is the critical thinking learning evaluation model for society? This research aims to develop a framework of critical thinking skills that society must master. This research uses a literature review research method with an integrative approach. Critical thinking ability has two aspects: content and character. The content aspect is differentiating between what is possible and what is impossible. Can differentiate between good, bad, and deviant arguments from scientific thinking. Can differentiate between knowledge, beliefs, and events. They are distinguishing between something real and unreal based on personal experience. Distinguish between science and non-science. Can perform simple scientific method tests. Meanwhile, the character aspect states that someone who can think critically always seeks the truth, is open-minded, confident in reasoning, always curious, and thinks systematically and analytically.

Keywords: ability framework, community, critical thinking, literature review

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INTRODUCTION

Science, as one of the human knowledge passed down from one generation to the next, has a different character from other knowledge. Science provides a method for confirming the truth of knowledge based on data that everyone can accept. This is not done for non-scientific knowledge, so non-scientific knowledge will always be the same from generation to generation. It is different from science, where every era will experience a truth test by all scientists worldwide so that science proves to be very supportive of human civilization. To test the truth of knowledge requires the ability to think critically. For this reason, the ability to think critically is one of the main goals of higher education (Haghparast et al., 2014; McPeck, 2016; Santos, 2017). Critical thinking can train independent review and common sense. This is not only needed by scientists but also by all citizens to contribute efficiently to modern society. Even Butler (2012), through their research, shows that the ability to think critically has a more decisive influence than intelligence on a person's decision-making ability. Thus, critical thinking skills so necessary thinking skills become one of the four abilities everyone in the 21st century must possess besides communication, problem-solving, and creativity (Kivunja, 2014).

Likewise, citizens' critical thinking skills greatly influence their participation in democracy. Democratic life can run effectively if citizens have good critical thinking skills (Quantz, 2016). The quality of public health is also greatly influenced by the ability of the community to think critically. Several studies have shown a positive relationship between people's critical thinking skills and their level of health (Huang et al., 2015). The ability to think critically significantly contributes to developing one's creative abilities (Birgili, 2015; Wechsler et al., 2018). Many studies show that creativity greatly supports a person's ability to innovate (Anderson et al., 2014; Fischer et al., 2019; Hughes et al., 2018; Perry-Smith & Mannucci, 2017; Sarooghi et al., 2015). The ability to innovate dramatically influences one's productivity so that, in the end, it supports economic growth on a national scale (Audretsch & Belitski, 2020; Baumann & Kritikos, 2016; Fu et al., 2018; Pece et al., 2015). The innovation capability of a country is very influential and correlates 0.89 to the human development index (Yakunina & Bychkov, 2015). Experts believe that the ability to think critically can encourage human quality in a sustainable manner (Elder & Paul, 2020; Paul & Elder, 2019; Shiraev & Levy, 2020).

Indonesia must improve its world's Human Development Index (HDI) ranking. According to the UNDP (United Nations Development Program), Indonesia is included as a country with a Medium HDI Score and is ranked 113th in the world in 2015 (Arfiyansyah & Khusaini, 2018). This is quite worrying because Indonesia is a country with a reasonably large population and is part of the G20 (the country with the largest economy). Indonesia is ranked fifth in Southeast Asia, with an HDI index value of 0.689 below Singapore, Brunei Darussalam, Malaysia, and Thailand. HDI is an index that measures the main dimensions of human development. The three main dimensions are (1) Quality of Health as measured by life expectancy, (2) Quality of Education as measured by how old a person enters school and length of schooling, (3) Quality of Eligibility as measured by Gross National Income per capita adjusted to the country's price level (Elistia & Syahzuni, 2018; Lind, 2019; Roser, 2014).

From this study, it appears that there is a reasonably strong relationship between people's critical thinking skills and public health literacy, with democratic literacy, innovation capability, productivity, and economic growth, which ultimately leads to the quality of human resources on a national scale. Thus, the critical ability of society is the root of the problem for improving the quality of human resources. The relationship between literacy, innovation, productivity, and human development critical thinking skills can be explained as shown in [Figure 1](#).

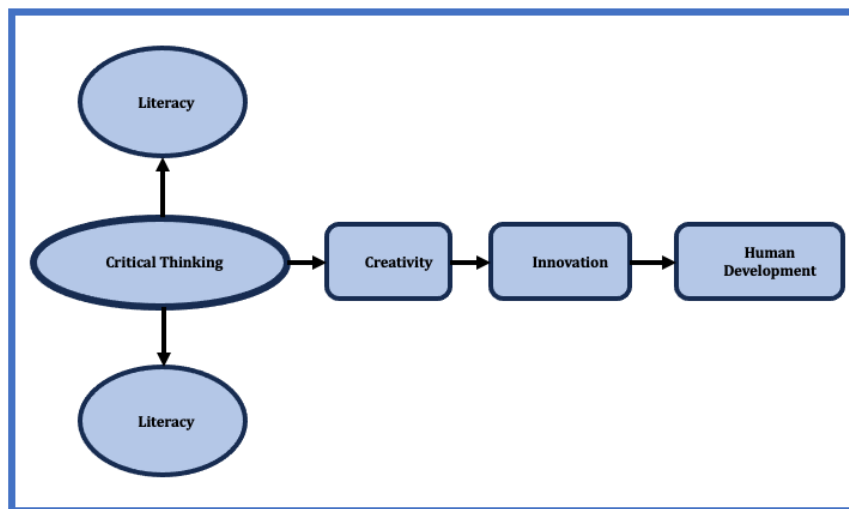


Figure 1. Conceptual Framework for the Relationship between Critical Thinking and Human Development

Critical thinking is one of the significant achievements in science education worldwide. School science education is expected to build students' critical thinking skills, preparing them as citizens who can participate in national development. This science education must always be enjoyed sustainably in schools and society. From this conceptual framework, increasing critical thinking skills is the key to improving the quality of human resources. Critical thinking is based on a person's literacy or reading material. Critical thinking influences a person's creativity and innovation so that it can improve human development and development. Furthermore, several things need to be studied to improve society's critical thinking skills, including: (1) What are the constructions and standards of critical thinking skills that society must master? (2) What is the critical thinking learning model for society? (3) What is the critical thinking learning evaluation model for society? This research aims to be used as literacy and standards in developing a framework of critical thinking skills that society must master. This framework can then be used as a standard for getting people's thinking skills that support the quality of human resources.

METHODS

The construction of people's critical thinking skills has yet to be formulated in various studies. This research use a literature review research method with an integrative approach ([Snyder, 2019](#)). Most integrative literature reviews are intended to address topics that have been studied for a long time or new topics that have emerged. In the case of mature topics, the purpose of using an integrative review method is to review the knowledge base, to critically review and potentially re-conceptualize, and to broaden the theoretical foundations of a specific topic as it develops. For emerging topics, the goal is to create initial conceptualizations and theoretical models rather than reviewing older models. This type of review requires more creative data collection, as the goal is usually not to cover all published articles on the topic but rather to incorporate perspectives and insights from different fields or research traditions ([Knopf, 2006](#)).

The data analysis part of an integrative or critical approach is not explicitly developed according to a certain standard ([Torraco, 2016](#)). However, although there are no strict standards, the general aim of data analysis in an integrative review is to analyze and critically examine the literature and the main ideas and relationships of a problem. This requires researchers to have advanced skills, such as superior conceptual thinking, while being transparent and documenting analytical processes ([Mercurio, 2015](#); [Schulenkorf et al., 2016](#)). The steps in this study can be seen in Table 1.

Table 1. Stages of Literature Review with an Integrative Approach

Phase	Activity
Design	- Is this review necessary, and what is the contribution of conducting this review? - Is there anyone who needs this review? - What specific objectives and research questions will be addressed in this review? - What is the proper method used for the specific purposes of this review? - What is the search strategy for this particular review? (including search terms, database, inclusion and exclusion criteria, etc.)
Procedure	- Does the search plan developed in phase one serve to generate a suitable sample, or does it need adjustments? - What is a practical plan for selecting articles? - How will the search and selection process be documented? - How will the quality of the search and selection process be assessed?
Analysis	- What types of information need to be extracted to fulfill the review objectives? - What types of information are needed to perform a specific analysis? - How will reviewers be trained to ensure the quality of this process? - How will this process be documented and reported?
Compile and write reviews	- Was the motivation and need for this review communicated? - What reporting standards are appropriate for this review? - What information needs to be included in the review? - Is the level of information provided sufficient and appropriate to allow transparency so that readers can judge the quality of the review? - Are the results presented clearly? - Are review contributions communicated?

Table 1 above shows the steps in conducting an Integrative Literature Review (ILR). Researchers carried out four phases: design, procedures, analysis, and compiling and writing reviews. Each step has an activity or problem formulation that explains and examines the process stages when carrying out ILR. The first stage, namely, design, focuses on the goals, objectives, and research model. In the second stage, the procedure focuses on the plan and data selection process for research. The third stage, namely the analysis stage, focuses on the information type and research analysis process. The final step, namely compiling and writing a review, focuses on standards for presenting data in research.

RESULT AND DISCUSSION

As explained in the introductory section, improving people's critical thinking skills is proven to increase literacy, creativity, innovation, and progress in the quality of human resources. For this reason, it is necessary to carry out programs to improve the ability of people to think critically. All of these programs require indicators of increasing the ability to think critically in society, so the theoretical construction of the ability to think critically in society needs to be prepared. Furthermore, these theoretical constructions can be developed into indicators of people's thinking skills assessment.

Researchers have widely studied critical thinking skills. However, most are related to developing students' critical abilities in classroom learning. These instruments are always made for specific purposes according to the material being studied by students and carried out in the form of classroom assessments (Cargas et al., 2017; Firdaus et al., 2015; Fuad et al., 2017; Hasnunidah et al., 2015; Kim et al., 2013; Kim et al., 2014; Perry et al., 2014; Phillips, 2019; Rosen & Tager, 2014; Shaarawy, 2014; Widana et al., 2018). Some researchers also develop authentic critical thinking skills for students. Students need to think critically in making better decisions, analyze information in the media carefully, do a better job, not get fooled by promising product promotions, and avoid many other negative things in everyday life (Butler, 2012; Susongko et al., 2022). Several researchers have developed large-scale critical thinking assessments that still depend on specific material and educational levels (Bie et al., 2015; Liu et al., 2016; Paul, 2014; Verburch et al., 2013). Until now, there are still very few researchers who study how to conduct an assessment of the ability to think critically in society. For this reason, it is necessary to study the theoretical ability to think critically for the community and construct constructs and indicators to measure the ability to think critically for the community.

Following the integrative approach, literature sources are not only scientific articles but also include books and research reports. Searching for research articles relevant to this research topic is done using the keywords critical thinking, civic, and assessment. The following databases were used to select articles: Scopus, Thomson Reuters, Emerald, Science Direct, Google Scholar, and DOAJ. Adjustments were made to the strategy used to search for articles and predetermined inclusion criteria to maintain consistency in finding articles and

avoid possible bias. The most relevant literature discusses the concept of critical thinking skills for society and its assessment, then is the basic concept of critical thinking skills in adults, and the last ranking is literature that discusses critical thinking skills in general. The source of the literature used avoids the theme of developing critical thinking, which is thematic by the learning material in class. For literature, articles are limited to the last 20 years, while books or research results are not limited to the time of publication.

Furthermore, the following can explain several definitions of critical thinking skills and indicators to measure them. There are many definitions related to critical thinking. According to Ennis ([Buckley et al., 2015](#)), critical thinking refers to thinking logically and reflectively focused on making decisions. "current decision-making" refers to critical thinking skills. However, the statement "future decision-making" refers to critical thinking characteristics. Based on the preceding, critical thinking skills are logical and reflective thinking skills focused on making reliable decisions. In simple terms, critical thinking skills involve identifying and analyzing sources of information for credibility, demonstrating prior knowledge, and making connections and deductions for a conclusion ([Thurman, 2009](#)). The characteristics of critical thinking can be seen from several indicators, namely: (1) Always use reasoning and alertness, (2) Seeing situations from various perspectives and sizes, (3) Open to change and innovation, (4) To see thoughts without prejudice, (5) Open minded, (6) Analytical thinking, (7) Paying attention to details. The benefits of people who think critically are the ability to think freely and independently and individuals who always think and can state the problem explicitly ([Demirel, 2012](#)).

Ashman (2015) explains that there are two significant dimensions in the definition of critical thinking. First, critical thinking focuses on questioning beliefs, statements, assumptions, lines of reasoning, actions, and experiences. Suppose you read "facts" in a book or heard them from a friend or instructor. Critical thinking focuses on not taking these "facts" for granted. Instead, it requires evidence to evaluate its validity. Someone with critical abilities will ask questions, assess the facts and issues, and confirm their opinions. The second fact of the definition of critical thinking is the creative formulation of opinions or conclusions when presented with a question, problem, or issue. For example, you are asked for your opinion about a problem, assumption, or action. Examples are as follows: (1) If convicts who have committed violent crimes are not eligible for parole, should they serve the full sentence?, (2) What is the best way to eradicate poverty in this nation?

Stanford Encyclopedia of Philosophy ([Lacan, 2018](#)) explains critical thinking in three domains, namely, the realm of character, the realm of processes, and the realm of cognitive skills. In the realm of character, the ability to think critically is characterized by the ability to: (1) attention, (2) the habit of asking questions, (3) self-confidence, (4) courage, (5) open-mindedness, (6) willingness to suspend decisions, (7) believe in rational explanations (8) seek the truth. In the realm of process, the ability to think critically is demonstrated through processes carried out by a person, including: (1) observing, (2) feeling, (3) wondering, (4) imagining, (5) concluding, (6) knowing, (7) experimenting, (8) consulting, (9) identifying and analyzing arguments, (10) assessing, (11) deciding. In the realm of cognitive abilities, critical thinking can be seen from a person's ability to: (1) observation, (2) emotional, (3) ask questions, (4) conclude, (5) experiment, (6) consult, (7) imagine, (8) Argument analysis, (9) Judging and deciding. [Paul and Elder](#) (2019) define critical thinking as the art of analyzing and evaluating thinking processes to improve them. Critical thinking is self-directed, self-disciplined, self-monitored, and self-corrective thinking. It requires high standards of excellence and care for one to use. According to [Paul and Elder](#) (2019), the development of critical thinking skills consists of 6 levels: unreflective Thinkers, Challenged Thinkers, Beginning Thinkers, Practicing Thinkers, Advanced Thinkers, and Accomplished Thinkers.

[Facione](#) (2015) divides the definition of critical thinking skills into two aspects: cognitive ability and character. In the cognitive aspect, the ability to think critically includes the ability to: Interpretation, Analysis, Inference, Evaluation, Explanation, and Self-Regulation. In the aspect of the character, someone who can think critically will have the following characteristics: (1) inquisitiveness about a wide range of issues, (2) concern to become and remain well-informed, (3) alertness to opportunities to use critical thinking, (4) trust in the processes of reasoned inquiry, (5) self-confidence in one's abilities to reason, (6) open-mindedness regarding divergent world views, (7) flexibility in considering alternatives and opinions, (8) understanding of the opinions of other people, (9) fair-mindedness in appraising reasoning, (10) honesty in facing one's own biases, prejudices, (11) stereotypes, or egocentric tendencies, prudence in suspending, making or altering judgments, (12) willingness to reconsider and revise views where honest reflection suggests that change is warranted. [Schick and Vaughn](#) (2014) explained identifying community critical thinking skills by looking at the community's response through several themes. These themes are taken from an epistemological perspective, which includes the ability of the community in terms of (1) to distinguish what is possible and what is impossible, (2) distinguishing between good and bad arguments, (3) distinguishing knowledge, beliefs, and events, (4) Seeing the truth in personal experience, (5) Distinguishing science and not science, (6) Distinguishing relativism, truth, and reality. [Susongko et al.](#) (2022) developed an instrument to measure the ability to think critically in a society based on Buddhism. The test is called BCTA (Buddhist Critical Thinking Assessment). BCTA is based on Buddhist philosophy related to the criteria of someone considered to be able to think critically. These criteria explain that someone who can think critically does not readily accept the truth because it has been passed down from one

generation to the next. Many people agree. After all, the book justifies it. After all, it is in line with logic because it is by the hypothesis or logic of thought. It makes sense because it was considered accurate long ago and valid by teachers. According to Buddhist philosophy, the ability to think critically strongly encourages a person to experience it for himself and then call it authentic. Of the eight studies that discuss critical thinking skills for society, the concept of critical thinking skills is divided into three aspects: character, cognitive skill, and content. The concept of critical thinking explains aspects of character according to [Thurman \(2009\)](#), [Stanford Encyclopedia of Philosophy \(2018\)](#), [Paul and Elder \(2019\)](#), and [Facione \(2015\)](#). Aspects of cognitive skills are described by [Paul and Elder \(2019\)](#), [Stanford Encyclopedia of Philosophy](#), and [Facione \(2015\)](#). Aspects of the Content are explained in detail by [Schick and Vaughn \(2014\)](#) and [Susongko et al. \(2022\)](#).

In terms of character, someone who can think critically is someone who has the following characteristics: (1) always curious (inquisitive), (2) systematic, (3) analytical, (4) open-minded (independent), (5) Always seek the truth, (6) confident in reasoning, (7) wise. In the aspect of cognitive skills, the ability of a person to think critically includes the ability to: Interpretation, Analysis, Inference, Evaluation, Explain, and Self-Regulation ([Facione, 2015](#)). [Paul and Elder \(2019\)](#) classify six levels of cognitive skills: unreflective Thinkers, Challenged Thinkers, Beginning Thinkers, Practicing Thinkers, Advanced Thinkers, and Accomplished Thinkers. According to [Facione](#), critical thinking skills parallel with critical thinking skills according to [Paul and Elder](#). On the content aspect, [Susongko et al. \(2022\)](#) measure critical thinking skills only in terms of the extent to which a person accepts a truth. A person who thinks critically must experience it in accepting the truth according to the basic concepts of Buddhist philosophy. Whereas [Schick and Vaughn \(2014\)](#) tend to measure a person's critical thinking ability related to one's view of the epistemology of science, especially on scientific methodology.

The content standard [Schick and Vaughn \(2014\)](#) described in measuring people's ability to think is very interesting because it relates to a person's ability to understand the epistemology of science. Someone who already can think critically will be able to distinguish between science and non-science and be able to use scientific ways of thinking in solving problems in everyday life. The ability to solve life's problems will impact a person's ability to solve health problems, economic problems, educational aspirations, and other practical problems. This is by the author's paradigm, as shown in Figure 1, that the ability to think critically directly influences the scientific literacy ability of the community. The author views that the construct of community critical thinking skills, according to [Schick and Vaughn \(2014\)](#), which is based on content, is very appropriate and quite applicable as an indicator in measuring community critical abilities. Of the six standards of community critical thinking ability, according to [Schick and Vaughn \(2014\)](#), for each standard, seven critical thinking characters can be developed, and the achievements of this critical thinking ability can finally be categorized into six categories according to [Facione \(2015\)](#) and [Paul and Elder \(2019\)](#). The framework for critical thinking skills, after being constructed by the author, is described in Table 2.

Table 2. Framework for measuring people's critical thinking skills

Content Aspect	Character Aspect	Level
Can distinguish between what is possible and what is not	Always seek the truth, Open-minded	Unreflective Thinkers, Challenged Thinkers,
Can distinguish good, bad, and deviant arguments from scientific thinking	Always seek the truth, Open-minded	Beginning Thinkers, Practicing Thinkers,
Distinguish between knowledge, beliefs, and events	Always seek the truth, Open-minded	Advanced Thinkers, and Accomplished Thinkers
Can distinguish between real and unreal in personal experience	Confident in reasoning	
Can distinguish science and non-science	Always curious, always seeking the truth, Open-minded	
Can do simple testing of the scientific method	Systematic and Wise analytics	

CONCLUSION

The discussion above found that critical thinking ability refers to thinking logically and reflectively focused on the decisions to be made. The characteristics of critical thinking can be seen from several indicators, namely: (1) Always using reasoning and vigilance, (2) Seeing situations from various perspectives and sizes, (3) Being open to change and innovation, (4) To see thoughts without prejudice, (5) Open minded, (6) Analytical thinking, (7) Pay attention to details. The benefit of people who think critically is the ability to think freely and independently, individuals who always think and can state problems explicitly. Critical thinking abilities can also be measured using a framework for measuring people's essential thinking skills, which has two aspects: content and character. The content aspect states that someone thinking critically can differentiate between the possible and the impossible. The second one can distinguish between good, bad, and deviant arguments from scientific

thinking. The third can differentiate between knowledge, beliefs, and events. The fourth is distinguishing between something real and unreal in personal experience. The fifth can differentiate between science and non-science. The sixth can carry out simple tests of the scientific method. At the same time, the character aspect states that someone with critical thinking skills always seeks the truth, is open-minded, confident in reasoning, always curious, and systematic and analytically thoughtful.

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