# Constructing Student`s Critical Thinking Skill Through Discovery Learning Model and Contextual Teaching and Learning Model as Solution of Problems in Learning History

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## Abstract

One of the problems in learning history is that the students could only understand the contents of learning material without understanding it in depth. Such circumstance makes the students less able to think critically in interpreting historical events. This article examines how discovery learning model and CTL learning model become a solution to develop students' critical thinking skills in historical learning. This descriptive qualitative approach was used in this research. The data was conducted by interviews and literature review of previous studies, research journals, books and other reliable sources. From our analysis, the discovery learning and Contextual Teaching and Learning (CTL) are learning models that provide a systematical learning process to improving student`s critical thinking skill. Discovery learning and CTL help teachers to make a connection between learning materials and student`s real-world situations and encourage students to connect their knowledge and praxis in their lives as a family or the member of society. The concept of learning models is not exclusive, but it can be combined with other learning models, such as process skills learning, experiment learning, demonstrations, discussions, and so on. The implementation of students` activities, which tend to construct their knowledge, educate the student to think critically through inquiry process or find their own problems, freedom of questioning, and applying learning community.

**Keywords:** Discovery Learning Model; Contextual Teaching Learning; Critical Thinking Skill; Learning History;

## Introduction

In the present day, the purview of Indonesia education faces many traumatic problems. Various issues concerning the future of Indonesia education, such as policy, regulation, and any aspect of the praxis education, are continuously debated. These problems systematically affect the quality of education and as if it burdens a pressure to the students that decrease the learning passion of student. The most irritating is when the society unaware of these problems, thus, it is continuously exacerbating the reputation of education among the lower society. Even though, the society knows that education plays an important role in improving human dignity and skill in a competitive era of globalization. Ideally, the

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objective of education is to educate the nation, thus, it needs a shared commitment to elevating self-reliance and empowerment to support the progress of our education in future.

On the other side, the decline of education quality is essentially an acute problem in Indonesia education. This is underpinned by the fact the educational institutions do not have a clear direction regarding the ideal curriculum and the outcomes of education. Consequently, the graduates, who are produced by this education, cannot be relied on the efforts to create the welfare of society. Moreover, the graduates do not have life skill and creativity for their future. If that happens, it can hamper the development of thought or careers of graduates, as well as the decrease of efforts to build established life independence. This kind of orientation would cause quite complex issues.

Education is a vehicle to build and improve the national dignity. A good education will create intelligent human beings, quality society, and excellent nation with diverse skills. In line with the objective of education, it is necessary to develop constructive learning that is based on the understanding and its implication of science and technology in teaching and learning activities for teachers in schools. This is, in addition, has purposed to achieve educational objectives as well as to measure the success of the learning process in school.

Now, education is focused on an attempt to teach thinking skills rather than just teach the content of the subject matter. The objective is that the students would have the ability to think critically in responding any information that received due to the swift flow of globalization.

Critical thinking could be categorized as a higher-order thinking skill, in which critical thinking is a clear and directed thinking process, which is used in mental activities such as problem-solving, decision making, analyzing assumptions (Johnson., 2011). With the critical thinking skills, of course, the students can be easier to think deeply the problems, particularly on the fundamental life issues in the era of Globalization.

The contents of learning history are the events or facts that are actualized in form of a narration of the past. The objective of learning history is to understand a causal relationship between the human event in the past. By the understanding of historical events, the students gain a reflection to act in the present and future. The understanding of historical events requires a critical thinking skill.

Historical learning is an activity to develop student`s intellectual ability and skills to understand the process of change and continuity. These serve as a tool to instill student`s awareness of the changes or continuity in people's lives in temporal dimension (Djoko Suryo., 2005). In line with this argument, Boyce, who is cited by Kochar (2008), stated, "Historical teachers must have the ability to actualize the past events in the present time. Teachers must have high imagination and positive kinds of knowledge. History is a very difficult subject to teach. In the hands of a qualified teacher, like all other subjects, history can be really educational."

Learning is complex internal processes that involve the whole student`s learning domain from cognitive, affective and psychomotor (Dimyati., 2013). Learning is an activity conducted by teachers and students that essentially a process of interaction with all the social situations that exist around students. In the learning process, teachers and students are in the equal position, in which teachers act as facilitator and student act as the subject of learning. This learning principle interrelates to the design and implementation of learning models.

Based on those problems, this article examines how discovery learning model and CTL learning model become a solution to develop students' critical thinking skills in historical learning. This descriptive qualitative approach was used in this research. The data was conducted by interviews and literature review of previous studies, research journals, books and other reliable sources. In further

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discussion, this article elucidates some essential aspect encompassing contextual teaching and learning model, discovery-learning model, and the concept of critical thinking.

### Contextual Teaching and Learning (CTL) Model

Contextual Teaching and Learning (CTL) model is a holistic learning process that aims to help students to understand the meaning of learning materials, and at the same moment, connecting the student`s knowledge to the context of their daily lives, such as in personal experiences, social problems, or cultural contexts. Therefore, this learning model provides a space for the students to elevate a dynamic and flexible constructive knowledge or skills according to their own understanding.

CTL is a learning system that does more than just guide learners in learning. By using CTL, the learning process would include a process of searching a meaning through the context of the individual itself. The searching process to extract a meaning make the learning process comes alive. A lively learning process, certainly, will attract learners to be active in learning. This is the specialty of CTL in the learning process.

According to Johnson (2011), CTL is an educational process that aims to help students extract a meaning from learning material, in which the students learn by connecting academic subjects to the context of the personal, social, and cultural circumstances of students. Referring to the process of meaning-seeking in CTL, the teacher has a role as a facilitator who helps students discover their knowledge. The desire to find a meaning is very basic in human life. For that reason, the main task of educators is to empower the student`s potency such as develop their ability to think critically, thus, students become more trained in extracting the meaning of the learning material that had been taught in the classroom.

In line with those argumentations, according to Trianto (2008), CTL is a learning concept that helps teachers link between the learning material and the real-world situations of students and encourages students to make connections between their knowledge and its praxis in their daily life as family or community members.

Seven aspects that should be considered in the CTL model can be described as follows (MoNE: 2005):

### a. Constructivism

Develop the idea that students will learn more meaningfully by working independently, finding their own interests, and constructing their own new knowledge and skills.

### b. Inquiry

The inquiry activity suggests a problem-based learning process. In the Inquiry learning, the knowledge gained from learners is expected not merely come from the result of remembering information, but it also covers the findings of students.

### c. Questioning

Develop student`s curiosity by asking analytical questions.

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### d. Learning Community

Create a learning community in form of a group discussion. The findings of students are correct according to their own perspectives. However, through the process of discussion, in which various arguments from the process of reasoning and conclusion are debated and discussed, their findings are continuously tested throughout others argumentation.

### e. Modeling

Modeling is a decisive component in CTL that presents a model of learning. Modeling means that students feel close to the reality so that the creation of an active and contextual learning atmosphere, which has a potency to stimulate the brain to develop a certain pattern or to understand information, could embark in during the learning process.

### f. Reflection

By reflecting the learning materials, the students' learning experience is situated in contemplating mode that incorporated the cognitive structure of the students so it will ultimately form new knowledge for the students.

### g. Authentic Assessment

Authentic assessment invites students to use academic knowledge in real-world contexts for meaningful purposes and sharpen higher-order thinking skills as learners analyze, integrate, identify problems, create solutions, and follow causal relationships (Johnson., 2011).

If those seven components are included in the learning process, then each presented material could have a quality meaning. A quality meaning refers to a contextual meaning that is derived by connecting teaching materials with student`s personal experience and social environment. As Johnson (2011) stated contextual has a means an experience of learners. Thus, the implementation of the CTL model will create an interesting learning atmosphere and improve students' critical thinking skills.

By linking the instructional content with the context of student`s life and needs, the learning process will increase student`s learning motivation. In addition, along with this outcome, it will make the learning process more efficient and effective. According to Nurhadi, which is cited by Mundilarto (2004), the CTL is a teaching-learning concept that helps teachers connect between the learning materials in the classroom and their real-world situations. CTL encourages students to make connections between their knowledge and application in life as individuals, family members, and community.

According to Nurhadi, the contextual approach essentially roots in a constructivist approach. Constructivist approach states that a person or student engages who engage in learning activities is constructing their knowledge through interaction and interpretation social environment. Knowledge, which comes from the experience or the contextual contemplation, is built by students rather than by teachers.

Based on those descriptions, the authors conclude that CTL is an educational process that aims to help students to extract a meaning from learning material. CTL also promotes students to learn by

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connecting academic subjects to the context of the personal, social, and cultural circumstances of students.

### *Discovery Learning Model*

Discovery learning model is a learning model that develops based on constructivism approach. This model emphasizes the importance of the structure of understanding or important ideas to a discipline through active involvement of students in the learning process (Hosnan., 2014).

Discovery learning refers to finding the concept through a series of data and information analyzed, which is obtained through observation or experimentation (Sani., 2014). The discovery-learning model leads students to understand the concepts, meanings, and relationships, through an intuitive process, and then finally conclude some finding. The discovery activities could promote in the learning process if the concept is not presented in the final form, but with the use of discovery learning models the students are encouraged to identify what they want to know; followed by searching for their own information, then organizing or forming constructively what they know and understand in a final form.

By the discovery-learning model, students are faced with a situation where it is free to investigate and draw conclusions. Thus, exposure, intuition, and trial and error should be encouraged in the learning process (Sani., 2014). In more detail, Sani stated discovery learning is a method of cognitive learning that requires teachers to flourish creative situations, in which student has space to learning to construct their cognitive as well as affective knowledge actively and independently.

Discovery learning is a model to develop student`s learning activeness by discovering self-investigating. The results of the learning process will be remembered long lasting in their long-term memory. Thus, students will not easily forget the learning materials (Hosnan., 2014). In the implementation of discovery learning model, the learning process not only requires students to be more active. The discovery-learning model also requires students to develop their ability, such as the ability of observation, analysis, prediction, and determination. Bell (1978) argues that discovery learning is learning model that occurs because of students manipulate the structure and transform information in such a way to finds new information. In learning discovery, students can make estimates, formulate a hypothesis, and find the truth by using inductive processes or deductive processes, observing and extrapolating.

From some of the above opinions, it is understood that discovery learning is an active learning model by inculcating attitudes in the learning process. Therefore, the students are able to develop themselves in accordance with their ability in implementing this learning model. By the implementation of discovery learning model, students will understand that the learning material is not only limited to the theory but also its praxis in the daily life. In the expectation that student would be able to solve problems in their daily life.

The implementation of discovery learning model needs systematical steps in order to achieve the objectives of the learning model. Shah (2004) formulates several procedures that should be done to implement the discovery-learning model in the class:

1. Stimulation

2. Problem statement and problem identification

3. Data collection and data processing

4. Verification

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5. Drawing conclusions and generalizations

Westwood, who was cited by Sani (2014), stated that discovery-learning model would affect the effective domain of students in following cases: (a) the learning process is carefully structured; (b) students have an initial knowledge and skills to learn, and (c) teacher provide a support to make an inquiry.

Based on the above opinion, it can be concluded that a discovery-learning model is a form of learning used by teachers in the classroom by involving students to be active in every process of learning activities. The discovery learning could be implemented by following learning stages from stimulation or provision of stimuli, problem identification, data collection, data processing, and draw conclusions.

### Concept of Critical Thinking

According to Purwanto (2004), thinking is a human personal activity that leads to directed discovery to achieve the objectives. Thinking is manipulating, managing and transforming information in memory. This is often done to form concepts, reasoning, and critical thinking, decision making, creative thinking, and problem-solving (Santrock., 2001). In recent years, the concept of critical thinking has become a popular term in the education field. For many reasons, educators are becoming more interested in teaching thinking skills in different styles, rather than only teaching information and content.

Glaser, who developed Dewey`s ideas, defines critical thinking as: 1) an attitude of deep thinking concerning the problems and the things within someone's experience; 2) knowledge of logical methods of examination and reasoning; and 3) a kind of skill to apply those methods. Critical thinking demands an endeavor to examine any assumptions or assumptive knowledge based on its supporting evidence and subsequent conclusions (Fisher., 2008). This argumentation is in line with Santrock (2001) statement that critical thinking is reflective and productive thinking, and involves evaluation of evidence.

One of the most notable contributor thinkers to the development of critical thinking is Robert Ennis. Ennis`s definition, which has been widely circulated in the field of critical thinking is, stated that critical thinking is a reasonable and reflective thinking that focuses on completing what must be trusted or done (Fisher., 2008).

Furthermore, according to Richard Paul (2002), critical thinking is a mode of thinking about any matter, subsistence or problem. The thinker enhances the quality of his thinking by handling skillfully the structures inherent in thought and applying intellectual standards to him. This definition is actually interesting, because it directs attention to the privileges of critical thinking, where teachers and researchers in this field seem to agree in principle that the only way to develop a student's critical thinking ability is through 'thinking about self-thinking' or often called ' metacognition', and consciously attempts to correct it by referring to some good thinking models in the field.

Regarding critical thinking skills, Walker (2005) stated that critical thinking skills are a thinking process that allows students to acquire new knowledge through problem-solving and collaboration processes. Critical thinking skills focus on the learning process rather than just acquiring knowledge. Critical thinking skills involve learning activities, such as analyzing, synthesizing, judging, creating, and applying new knowledge to real-world situations. Critical thinking skills are important in the learning process because these skills provide opportunities for students to discover new knowledge.

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Fee (2010) stated that critical thinking is an intellectual process that uses information and process of observation, experience, reflection, or reasoning, by employing the following strategies: conceptualizing information, applying information, analyzing information, Synthesizing information, and evaluating information. In the same spirit, according to Browne and Keenley, who was cited by Johnson (2011), the ability to think clearly and imaginatively, judging evidence, playing logic and seeking alternatives to conventional ideas, will give a young people a clear route in the midst of technological thinking.

The implementation of critical thinking is complex as well as procedural. This procedure includes formulating the problem, determining the decision to be taken, and identifying the estimates. Furthermore, Ennis (1989), identified five critical thinking indicators, grouped into the following five activities. *First,* provide a simple explanation, which contains some requirements such as focusing statements, analyzing and asking questions, and answering questions about an explanation or question. *Second,* establishing basic skills, which consist of considering trustworthy sources or observing and considering a report on observations. *Third,* summing up, this consists of deducting activities or considers the results of deduction, induce or consider the results of the induction, and make and determine the value of consideration. *Fourth,* provide further explanation consisting of identifying terms and definitions of any considerations and dimensions, as well as identifying assumptions. *Fifth,* setting strategies and techniques consist of determining actions and interacting with others.

In the practice, those can be unified to form one learning activity, or it can be separated only a few indicators. The discovery of critical thinking skills indicators can be expressed through the aspects of behavior expressed in the definition of critical thinking. According to some of the definitions expressed earlier, several activities or behaviors indicate the behaviors or activities of critical thinking skill.

Critical thinking is a necessary aspect of human mentality that should be absolutely mastered by every citizen because only with critical thinking skill the welfare of the nation that is just and civilized can be realized. Healthy and intelligent citizens are able to criticize their environment. Thus, they will not be easily influenced by a wave of uncertainty or provocation from parties fighting of other's interests. Meanwhile, in the perspectives of self-management, critical thinking skill supports the process of transformation in society. Critical thinking skill is one of a decisive element that constructs the human altruistic mentality. Critical thinking skill is the part of transformative aspect of the humans, in which it relates to the aspect of human knowledge (Abidin., Joebagio., Sariyatun., 2017).

The reality in Indonesia today indicates the tendency for conflict between individuals, groups, or groups, tribes, races, or even religions to be ignited simply because of trivial problems. Currently, within the framework of national reform, including education, critical thinking skills become very substantial aspect. If the society has strong desire to address the root of the problems, consequently, the society is facing and seeking to develop alternative solutions for the problem.

Further, whom Barry and Scantlebury (2010) cited, stated that critical thinking entails effective communication and problem-solving abilities as well as a commitment to overcome our native egocentrism. Critical thinking requires effective communication and problem-solving skills and a commitment to overcome egocentrism that humans have. In critical thinking, the individual as a critical thinker carefully examines the students 'thinking process of what information the student receives to gain a deep and good understanding.

The importance of developing students' critical thinking skills has become the objective of education these days. This is in line with the purpose of historical education at the high school level that historical education has developed in the deep understanding of historical events that are considered important for building critical thinking skills, learning abilities, curiosity, social awareness, and nationalism (Hasan., 2010).

Based on the above explanation, the authors drew a conclusion that critical thinking skill is a systematic and organized process of thinking in order to achieve a deep understanding by expressing the ideas behind a historical event. Critical thinking skill can be drawn in some indicators in order to build critical thinking skills that can be in the thorough that are: 1) able to understand information; 2) able to analyze information, and 3) able to deduce various information.

By looking at those parts that become indicators in critical thinking, of course, the form of student`s ability to think critically is a construction of achievement of learning outcomes in accordance with what is the goal in constructivism theory. Constructing student's cognitive knowledge is one of the results of a critical thinking skill. By the ability to think into a higher level, of course, student`s critical thinking skill will simultaneously improve. It also constructs the student's knowledge, which of course, towards the thinking that has many points of view.

## Conclusion

Learning approach through the implementation of learning models is an appropriate tool for teachers to empower the student`s potency in accordance with the needs of student`s daily life and environment. The use of learning method from behaviorism to constructivism can change teacher paradigm about the learning process in the classroom. Teachers are no longer the sole resource in the learning process. The shifting paradigm posits students as centers of learning activities and the role of teachers as motivators and facilitators. Thus, students' morale can improve in terms of critical thinking skills by using various methods, materials, and media. The implementations of the learning process, which provide a construction process, make students trained in reasoning and think critically by focusing on active learning. Moreover, it decreases the lack of curiosity of student, so that will increase the attention and seriousness of student to understand and interpret the learning material in the classroom. In constructing students' critical thinking skills, the reward is also required to praise, applause and displaying the work of students. It has a function to improve the spirit and the teachers and other students appreciate the responsibility for the students because of their work.

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