DEVELOPING 21st CENTURY SKILLS:
Critical Thinking Skills in Case-Based Learning in Social Studies

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Abstract
The industrial revolution 4.0 that occurred in the 21st century has brought about the needs and challenges of life that are different from the previous century. Changes that occur so quickly and are full of disruption due to the development of information technology require mastery of skills relevant to the needs of the 21st century. One of the skills needed is critical thinking skills. An alternative that can be used in developing critical thinking skills is through case-based blended learning. Through case-based blended learning in social science learning, students can improve their critical thinking skills by seeking and finding knowledge through reality and dynamics in real life, social interaction and collaboration.

Keywords: *21st century skills, critical thinking, case-based learning, blended learning*

Introduction

The Industrial Revolution 4.0 has had an impact on all aspects of human life. In this era, humans are the center of technology-based change that produces innovation in various ways, so that it changes the entire order of human life, including the education aspect (Sharma, 2019). The industrial revolution 4.0 has encouraged a revolution in the field of education which is characterized by digital transformation in the field of education, which is commonly referred to as Education 4.0 (Anealka,2018). The development of internet-based information technology that has taken place massively has changed educational practices and caused a shift in the orientation of learning practices that are no longer oriented to cognitive aspects and mastery of learning materials (Divayana, et al., 2019).

The digital transformation of learning in the 21st century also brings life needs and challenges different from the previous century. This is because the changes that occur so fast and the disruptive consequences of the development of information technology make mastery of 21st century skills necessary (P21Skills, 2013). 21st century competencies emphasize collaboration, communication, ICT literacy, creativity, critical thinking, problem solving, and social and cultural competencies (Voogt, et al., 2013).

Understanding the era of the industrial revolution 4.0, which is the era of digital transformation, learning activities are expected to reduce the application of the lecture method to transfer knowledge and increase the proportion of knowledge construction activities by students using innovative learning media, one of which is Information and Communication Technology-based learning applications (Divayana, 2007, et al., 2019).

Technological developments have encouraged social science teachers to modernize pedagogy and practice by using technology in their learning (NCSS. 2013). The use of technology in social science learning will certainly have a positive impact and could promote social learning

(Crompton & Burke, 2018, Diacopoulos, 2017). Social Science, as a study consisting of a heterogeneous set of academic disciplines, can help provide answers and reflect on various dimensions of society and human behavior (Pickersgill, 2018). In the context of education, social science education prepares students to be good citizens and make decisions in real, everyday life; they must be able to play their roles correctly and holistically, and social science learning must be able to develop students' critical thinking skills.

One of the learning models that can be used is the case-based learning model. Through the case-based learning model, students can use authentic problems in everyday life that are open to solving and can develop various thinking skills, independent learning, analysis, sensitivity to problems, practice problem solving, and evaluate problems in analysis and critical thinking (Thistlethwaite, et al. 2012). The application of case-based learning in learning can increase scientific reasoning abilities. Scientific reasoning abilities are consistent. Another study on the use of case-based learning showed that case-based learning gave students the opportunity to apply prior knowledge while building their own deep learning. Students felt that case-based learning was effective in improving their information literacy and critical thinking skills, which simultaneously covered a wide range of topics. learning outcomes and competencies in junior level theory and method courses (Masko, MK, Thormodson, K., Borysewic, K., 2020).

Learning in the 4.0 industrial revolution era can be done through computer network learning in the 4.0 revolution era by using various learning models, namely the global method, lecture plus method, debate, mind mapping, problem solving methods, design methods, experimental methods, skills training methods, methods demonstration, lecture visit method, method discussion, recitation method, manuscript cooperative, discovery method, inquiry method, peer teaching method and team teaching method using the blended learning model (Wibawa, B., Muslim, S., Sallu, S., 2020). Blended learning is more effective when compared to traditional approaches to teaching (Sertic, M., 2019). Students' knowledge increases after attending classes that apply two teaching approaches. Blended learning allows students to learn independently and continue with higher-order thinking and learning during class, using technology that allows teachers to take their classrooms beyond physical boundaries and make materials available through virtual classroom modes (Krishnan, G & Dastakeer, W., 2019).

Critical thinking can be developed in a cycle: thinking-discussion-writing through an inquiry-based argumentation approach to learning (Kalimit, E., et.al. 2020). This approach has improved the critical thinking of students. Critical thinking can be developed through authentic learning, which includes higher order thinking, depth of knowledge, connection with the world outside the classroom, continuous conversion, and social support for student achievement (Dolapcioglu, S., & Doganay, A., 2021). Critical thinking is needed to understand the learning materials. Critical thinking can also be improved through blended learning (Hasanah, H & Malik, M.N., 2020). In addition to critical thinking, communication with students is also more effective through the blended learning model.

The development of the 21st century and the industrial revolution 4.0 and the COVID-19 pandemic have made traditional classrooms no longer meet the requirements and student learning outcomes, so case-based blended learning can be a solution to adjusting student learning styles and developing critical thinking skills.

Edukasi IPS

Methods

The purpose of this article is to introduce the use of a case-based blended learning model in developing students' critical thinking as part of 21st century skills. The technique used is to conduct a literature review by means of data reduction, data presentation and drawing conclusions from various literatures, both from journal articles and in textbooks. The questions in this study are:

1) How is case-based blended learning in 21st century learning?
2) How does the implementation of case-based blended learning develop critical thinking skills?

Result and Discussion

1. Case Based Learning as 21st Century Learning

The very rapid development of innovation and technology in the 21st century encourages the education sector to analyze and look for types of learning that are in accordance with the demands of the 21st century. The concept of 21st century education includes three concepts, namely: 21st century skills (Trilling & Fadel, C., 2009), scientific approach (Dyers, 2011), and authentic assessment (Wiggins & McTighe, J., 2011).

There are a number of definitions of 21st century skills, but they all share the same premise. According to the Meteriti Group and North Central Regional Educational Laboratory, 21st century skills are classified into four categories: digital-age literacy, inventive thinking, effective communication, and high productivity (Lemke, 2003).

The 21st century skills revealed by Trilling & Fadel, C. (2009) include: (1) life and career skills, (2) learning and innovation skills, and (3) information media and technology skills. In dealing with the skill needs of the 21st century, it is necessary to change the learning paradigm as shown in Table 1.

Table 1. The 21st Century Learning Paradigm

Old Paradigm	New Paradigm
Teacher centered	Student centered
Isolation	Network environment
Abstract	Real word context
Individual	Collaboration
One way	Interactive
Factuan thingking	Critical thingking
Knowladge transfer	Knowladge exchange
Single learning media	Multimedia learning

Teachers need to realize the importance of capable learning in responding to global needs by equipping students with the skills needed in the 21st century so that they are able to survive and succeed in increasingly fierce competition in the era of globalization.

The next question is whether case-based learning can teach 21st century skills. Case-based learning is one way that can be used by teachers in an effort to help students become competent at solving problems and facing future challenges. Researchers recognize that case-based learning can develop 21st century skills for students, because case-based

learning is able to connect theory and practice and develop competencies such as problem

solving, communication, and collaboration skills (Graham, 2012).

Table 2. Case-Based Learning in 21st Century Skills

Learning model	21st Century Skills			
	Digital literacy	**Inventive thinking**	**Communication**	**Productivity**
Case-Based Learning	Use of ICT	Case-based authentic thinking	Communication between study groups	Generate problem solving

2. Critical Thinking Skills in Case-Based Blended Learning

Case-based learning is formed based on very innovative learning theories (constructivism and experiential learning). Therefore, it is necessary to set up problems involving various disciplines to get more meaningful learning to develop the students' thinking skills.

Thinking skills are interactive systems, not separate sets of skills. Thinking skills combine three basic components of integrated thinking: complex thinking, critical thinking and creative thinking (Morrison, 2001).
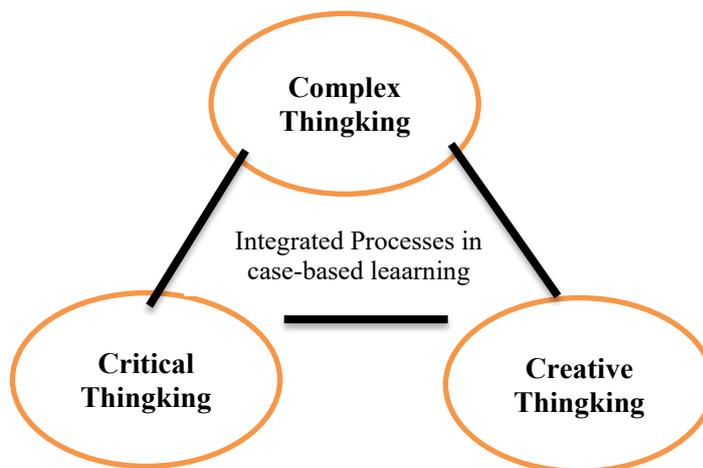

Figure 1. Integrated Thinking Processes in Case Based Learning

The application of the case-based learning model can be used classically in the classroom, but the case-based model can also be used by adopting mixed learning. The application of case-based blended learning in social science learning can be done by adopting case-based learning steps that are integrated with e-learning, as shown in table 3 below:

Table 3. Stages Case-Based Blended Learning

Stages	Activities	Delivery system
1. Case orientation	• Determine the main theme and look for potential problems	E-Learning synchronously with virtual learning
2. Organizing students	• Form groups, collaborate and communicate, each group gets a case to be discussed and alternative solutions are sought	E-Learning synchronously with virtual learning
3. Implementation and Guidance	• Students discuss and divide tasks to find data/materials/tools needed to solve problems. • Assemble, discussion, communicate, and collaborate to solve specific cases • Solve the problem and look for alternative solutions to the chosen case.	• E-Learning synchronously with virtual learning • E-Learning unsynchronous with virtual learning
4. Presentation	• Students present the outcomes of problem solving from cases/work completed • The group presentation and questions and answers.	Face to face in a traditional classroom
5. Evaluation	• Reflect and draw conclusions based on feedback from teachers and friends.	Face to face in a traditional classroom

To see critical thinking skills in case-based blended learning, one must see the stages of learning carried out with critical thinking components.

Table 4. Thinking Skills in Case-Based

Thinking Skills	Activities
1. Conecting	Connect and compare data, facts, and events being analyzed.
2. Elaborating	Collect various ideas and data as an effort to resolve cases
3. Analyzing	Classify and select data and facts that can be used as alternative solutions
4. Evaluating	Assess information, data, facts, validity. Distinguish between relevant and irrelevant information
5. Synthezing	Bringing together ideas, how to complete a task, or solve a problem

| 6. | Designing | Designing new discoveries, assessing new ideas and revising new ideas for cases/problems to be solved |
| 7. | Problem solving | Finding and suggesting alternative solutions to problems that involve moving the current state, a certain situation, towards an ideal state or goals |

This study shows that the implementation of case-based learning can be used as one of the 21st century learning models by developing the skills needed, namely critical thinking skills. These findings are consistent with the results obtained in the literature on case-based integrated learning. Case-based learning is considered a learner-centered teaching method (Wright, 2011). This happens because knowledge consists of similar contexts of experiences in addition to theoretical information (Srivasta, 2015). The application of case-based learning in learning can also improve scientific reasoning abilities and is consistent (Wati, D.A & Sunarti, T., 2020).

One of the objectives of case-based learning is to develop students' integrative thinking skills. In addition to critical thinking skills, case-based learning is also related to problem solving and decision making and even discovery (Joice, 2005). Case-based learning and learning is effective in improving students' information literacy and critical thinking skills (Masko, M.K., Thormodson, K., Borysewic, K., 2020). Case-based learning is also effective in increasing students' argumentation power in discussions (Ponimin, et.al. 2018).

This skill does not automatically arise from the fact that a case is presented or discussed. Critical thinking skills can be stimulated by case design and inform instructional techniques and learning processes developed as a support structure for case-based learning (Morrison, 2001). Critical thinking must also be designed in such a way in learning because it is a required competency in 21st century life (Nawawi, S., Nizkon., Azhari, AT, 2020). Thus, well-designed and motivating cases are essential for effective case-based learning.

The implementation of case-based learning that is integrated with e-learning is carried out in a blended manner. Blended learning is more effective when compared to traditional approaches to teaching (Sertic, M., 2019). Students' knowledge increases after attending classes that apply two teaching approaches. Blended learning allows students to learn independently and continue with higher-order thinking and learning during class, using technology that allows teachers to take their classrooms beyond physical boundaries and make materials available through virtual classroom modes (Krishnan, G & Dastakeer, W., 2019). Students are required to complete the tasks given in their own time, changing the role of the teacher to become a facilitator in the learning process, so that they can attract and motivate them to learn independently by using available technology. Blended learning causes individual student success to greatly increase compared to online learning meetings or fully face-to-face (Al Murshidi, G., 2020). Blended learning has been seen to optimize teaching methods and access to online learning materials.

Blended learning in case-based learning can be done in a supplemental model, in a supplemental model structure and class face-to-face classical courses and meeting time is maintained and activities outside the classroom are introduced to improve student learning (Twigg, 2003). Learning is carried out in a mixed manner online and face-to-face with a substantial proportion of delivery of learning materials and learning processes, with a proportion of 30% versus 70% which is carried out systematically with orientation to learning outcomes (Allen, et al., 2007). Blended learning is effective for critical thinking communication (Hasanah, H & Malik M.N., 2020). Case-based blended learning is effective for improving learning, especially in knowledge transfer (Turk, B., et.al., 2019).

Conclusion

The case-based learning model can be used as one of the 21st century learning models that can develop students' thinking skills. Case-based learning models can be used traditionally or mixed. The case-based blended learning model can be used in social

science learning by considering the proportion of meetings between challenges and offline. In developing case-based learning, it is necessary to select cases that are in accordance with the realities of everyday life in accordance with existing social problems while still paying attention to the key components in instructional and learning activities that support the case learning process.

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