

## Case-Based Method in Teacher Education to Cultivate 21<sup>st</sup> Century Skills

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**Abstract:** Teachers have an important role in preparing their students to face global challenges and competition in the 21<sup>st</sup> century. In preparing quality teachers, student teachers need to be equipped with 21<sup>st</sup> century skills which are critical thinking, communication, creativity, and collaboration skills. This paper aims to investigate case-based teaching methods in fostering 21<sup>st</sup>-century skills among student teachers. The research method is literature review. The study will explore existing literature on case-based teaching methods, focusing on their application in teacher education programs and their impact on the acquisition of critical thinking, communication, creativity, and collaboration skills. By synthesizing findings from various scholarly sources, this paper seeks to provide insights into the potential benefits and challenges associated with implementing case-based methods in preparing student teachers for the complexities of modern classrooms. The finding from the literature review suggests that case-based learning can provide a social-constructivist pedagogical learning experience through cases and discussions, offering more social opportunities for students to build shared understanding. This will be beneficial for student teachers to develop their critical thinking, communication, creativity, and collaboration skills.

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**Keywords:** case-based learning, 21<sup>st</sup> century skills, teacher education.

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### A. INTRODUCTION

The development of technology, information, and progress in various fields in the 21<sup>st</sup> century is very rapid (Dakhi et al., 2020). There are lots of jobs that can now be completed easily and practically with the help of technology and Artificial Intelligence (Bappenas, 2019). Development in the 21<sup>st</sup> century requires human resources to cultivate their 21<sup>st</sup>-century skills. These skills are different from 20<sup>th</sup> century skills, primarily due to the emergence of highly sophisticated information and communications technologies (González-salamanca et al., 2020). These skills are vital for personal and professional success in today's dynamic and interconnected world, enabling individuals to thrive in an ever-changing environment. These skills are needed to thrive in this era.

Barber remarked that for the past four decades, there has been an emphasis on promoting "21<sup>st</sup> century skills" as essential for thriving in modern workplaces (Thornhill-Miller et al., 2023). The lack of 21<sup>st</sup>-century skills can hinder career advancement and professional success by limiting adaptability, critical thinking, and effective communication. Without these skills, individuals may struggle to navigate the modern workplace and face challenges in

collaborating with others and solving complex problems (Koenig, 2011). Overall, the absence of 21st-century skills can restrict opportunities for personal growth and success in today's dynamic world.

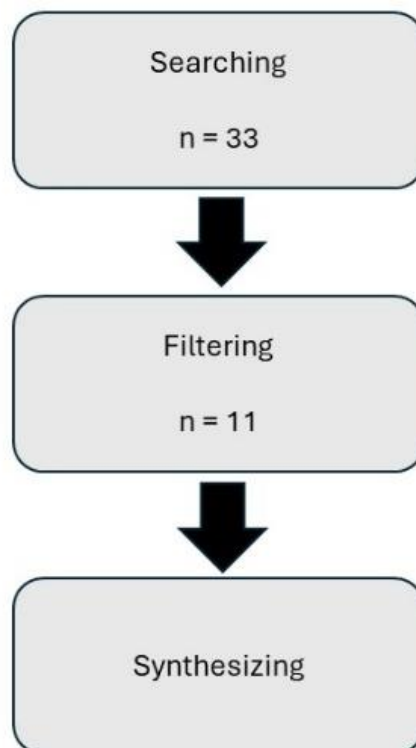
The result of the PISA (Programme for International Student Assessment) in 2022 shows that Indonesia's ranking has improved slightly, moving up from 5-6 (Kemendikbudristek, 2023), but it still remains low overall (Alam, 2023). This result is reflected in the quality of human resources in Indonesia. Education is the key to improving the quality of human resources. We need to equip teachers with 21st-century skills. Teachers are tasked with imparting any of these essential skills to children, they should offer diverse opportunities for teachers themselves to acquire, enhance, and apply these 21st-century skills (Thomas, 2020). Teachers play an important role in the educational system, tasked with the critical responsibility of preparing students to navigate the myriad global challenges and intense competition prevalent in the 21st century (Mahanal, 2014). In order to effectively fulfill this role, it is imperative to equip student teachers with a robust set of 21st-century skill such as critical thinking, communication, creativity, and collaboration skills (Thomas, 2020). These skills are essential for teachers because their profession involves not only imparting scientific and technological knowledge but also shaping attitudes and character traits necessary to thrive in an era of intense competition. Therefore, it is crucial to cultivate these skills in student teachers while they are in college.

Based on the performance specified in the Higher Education IKU, lecturers, researchers, and students must be able to present solutions to the problems faced by the government, society, and the world of work/industry, so that the life of the nation and state steps into a future that will bring Indonesia into a just and prosperous country. Learning experiences in higher education focus on the demands of life and work in the 21st century are needed (Hoidn & Kärkkäinen, 2014). Therefore, learning in higher education is encouraged to be problem-based, collaborative, and not solely rely on learning in the classroom. One of these methods, based on IKU number 7, is the case method, a criterion for learning that is carried out collaboratively and participatively (Direktorat Jenderal Pendidikan Tinggi, 2021).

Case based method is recommended as one way to cultivate 21st-century skills (Andayani et al., 2022). Case based method links theory to practice. This is in line with what was mentioned by Ching that case studies present students with real-life scenarios where they can apply and integrate knowledge, skills, theories, and experiences (2014). This study aims to investigate case-based teaching methods in fostering 21st-century skills among student teachers. By synthesizing findings from various scholarly sources, this paper seeks to provide insights into the potential benefits and challenges associated with implementing case-based methods in preparing student teachers for the complexities of modern classrooms.

## B. METHOD

The research methodology employed in this study encompasses a comprehensive literature review, a widely recognized approach aimed at exploring and analyzing existing literature on the subject matter. According to Onwuegbuzie and Frels (2016), conducting a literature review serves as a fundamental tool for synthesizing and evaluating the most pertinent and critical aspects of the current knowledge base related to the research topic. To ensure a thorough understanding of the subject, an extensive search was conducted using Google Scholar to identify relevant articles and books. This process involved multiple stages, including searching for, filtering, and synthesizing information from diverse sources. Initially, a total of 33 articles were collected, signifying the breadth of literature available on the topic. Subsequently, a meticulous filtering process was undertaken to meticulously select 11 articles that not only aligned with the research objectives but also provided valuable insights into the research topic. The filtering criteria primarily focused on the relevance of the articles' topics to the research content, ensuring that only the most pertinent and insightful sources were included in the review.



**Figure 1.** Research Stages

## **C. RESULTS AND DISCUSSION**

### **1. Case-Based Learning Drives Teacher Students Closer to Real World**

Case-based learning will provide unique opportunities to teacher students who are adult learners. They are to carefully examine cases derived from real experience. This case-based learning will provide an increasingly relevant and concrete context that makes learning more authentic and meaningful. Case-based learning requires a curriculum that integrates academics in the campus environment who are engaged in many theoretical fields with professionals engaged in real-life practical problems (Jaiswal-Dale et al., 2021; Twyford & Dean, 2021). The curriculum no longer compartmentalizes disciplines and does not separate theory from practice in order to achieve learning outcomes. This is necessary so that teacher students can learn as professionals in accordance with the field of science studied. Teacher education institutions can present professional practitioners who move in accordance with the field of science being studied. Thus, case-based learning will bring theory closer to practice. This is as expressed by Ozmon and Craver (2008) that educators need to have the ability to have in-depth knowledge and understanding of the current world reality context, as well as manage and direct the investigation of students according to their psychological development based on learning theory by providing a supportive environment that allows them to learn and gain complete understanding through the learning resources provided.

### **2. Case-Based Learning Activates Students**

Case-based learning involves learners to participate actively in solving a problem situation by reflecting the type of experience encountered in the discipline being studied (Stanley, 2021). This learning is oriented towards students where they are expected to be active in digging for information to find solutions to the cases provided. Research conducted by Raza et al., (2019) found that case-study-based learning increased student engagement. There is a significant and positive relationship between case-based learning and their behavioral, emotional, and cognitive engagement aspects. On the other hand, similarly, Herreid quotes James Erskine, Michiel Leenders, and Louise Mauffette-Leenders as saying that case-case learning allows learners through discussion to learn by doing by teaching others (2007). They will engage with each other in problem solving and decision-making based on the case at hand. Active learning strategies in case-based learning will focus on the learner as the center of the learning environment (Bi et al., 2019). The case-based approach encourages community-based, learner-centered and exploration-oriented exploration of the characters raised in the case as realistic and specific situations. Learners will focus on cases by engaging in independent learning, scientific inquiry and collaboration with peers, developing a range of thoughts and solutions, and integrating theory into practice. Both students and educators will be equally active in preparing themselves in advance before the discussion is carried out. In addition, guidelines for discussion need to be prepared so that important learning points can be covered to be actively obtained by learners.

### **3. Case-Based Learning Cultivates Communication and Collaboration Skills**

In case-based learning, learners will share their understanding and knowledge with other group members or other participants. This will deepen their own understanding and help build meaningful communication skills. Problems or cases that need to be solved together will encourage the creation of cooperation among students. Jaiswal-Dale et al. remind that educators should realize that the critical success factor of teamwork is how well the team shares common goals (2021). Educators need to encourage learners to share tasks so that they work together to analyze cases, share ideas, and create comprehensive solutions. A current research conducted by Handayani, Marbun, dan Novitri (2023) revealed that Case-based learning can improve student teachers' communication and collaboration skills. The improvement in these skills was categorized as very good in that research.

### **4. Case-Based Learning Cultivates Critical and Creative Thinking Skills**

The constructivism that occurs in case-based learning is social constructivism. This constructivism emphasizes the social environment as a facilitator of development and learning, where the form of learning will be carried out not only independently but also in groups and classes. Team collaboration encourages social interaction, with each team member contributing his or her expertise to the construction of shared solution or product ideas. In order to encourage meaningful social constructivism, at the level of individual work, learners need to seek and construct new meaning through active research and evaluating new information, then at the level of teamwork they can contribute and respond to discussions from other team members who will then select some relevant topics to build a shared solution product. Tawfik and Kolodner (2016) states that cases taught in case-based learning help learners build a rich and accessible mental library of theories. These relevant theories will be integrated into case analysis and solution. It helps learners construct interrelationships between theoretical concepts and practical situations. Ultimately, case-based learning provides more social opportunities for student teachers to build mutual understanding (Şen Akbulut & Hill, 2020).

Research conducted by by Handayani, Marbun, dan Novitri (2023) revealed that Case-based learning can improve student teachers' critical thinking and creativity skills. The improvement in these skills was categorized as good in that research. Another study, conducted by Sujarwo (2022) shows that the implementation of case-based learning can serve as one of the 21st-century learning models by fostering the development of essential skills, particularly critical thinking skills.

### **5. Case-Based Learning Involves Digital Technology Sophistication**

Learners will be provided with contextual cases that occur that need to be given solutions by them. Educators will act as advisors, guides and even fellow explorers in finding the right solution. Classroom conditions are built to foster a cooperative and collaborative attitude. In all of this, students and educators can use technology that allows them to connect to communicate and collaborate to build knowledge in a networked community. They will benefit once they contribute to the community. This theory holds that knowledge does not

only reside in the individual mind but can also be found in a single location or device. Dynamic information requires learners' ability to evaluate the validity and accuracy of information presented or obtained in an interdisciplinary manner from a variety of sources including the internet. However, in research conducted by Koehler et al. (2020) in the implementation of case-based learning online discussions, teachers and students sometimes have different understandings of the purpose of case discussions and students need more guidance on how best to direct case discussions as a shared social experience.

#### **D. CONCLUSIONS AND SUGGESTIONS**

Case studies not only bridge the gap between theoretical concepts and practical applications, enabling learners to connect academic knowledge with real-world scenarios. They offer up-to-date and pertinent material, immersing teacher students in authentic situations for enhanced learning experiences. Moreover, case studies encourage deep structure learning, nurturing the growth of critical thinking abilities. Embedded in hands-on learning, case-based learning prioritizes student engagement, granting them increased autonomy and involvement in their learning journey, in contrast to conventional classroom approaches. Case-based learning will create a deep, challenging, and meaningful learning environment. It enables student teachers as learners to develop critical, analytical, collaborative, and communicative thinking skills which are 21st century skills to prepare them for real-world situations especially in providing meaningful learning in educating their students in the future.

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