
THE STUDENT-CENTERED LEARNING APPROACH AND THE DEVELOPMENT OF 21ST-CENTURY SKILLS

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Abstract

This study aims to analyze the urgency of appropriate learning approaches, the relevance of the Student-Centered Learning (SCL) approach, and its advantages in developing 21st-century skills. The transformation of 21st-century education requires a shift from teacher-centered learning to student-centered learning, emphasizing the 4C skills (critical thinking, creativity, collaboration, and communication). This research employs a qualitative approach using a literature review method by examining 23 relevant scientific sources, including national journals, books, and proceedings. Data analysis was conducted through content analysis involving data reduction, categorization, synthesis, and conclusion drawing. The findings indicate that appropriate learning approaches play a fundamental role in improving the quality of learning processes and outcomes. The SCL approach demonstrates strong theoretical and practical alignment with the 21st-century skills framework by promoting active engagement, independence, and critical and collaborative thinking. Furthermore, SCL offers advantages in creating meaningful, contextual, and flexible learning while supporting authentic assessment practices. Therefore, SCL is an effective approach for developing adaptive competencies aligned with global demands.

Keywords: Student-Centered Learning (SCL), Keterampilan Abad ke-21, 4C skills

Abstrak

Penelitian ini bertujuan untuk menganalisis urgensi pendekatan pembelajaran yang tepat, relevansi pendekatan Student-Centered Learning (SCL), serta keunggulannya dalam mengembangkan keterampilan abad ke-21. Transformasi pendidikan abad ke-21 mengharuskan pergeseran dari pembelajaran berpusat pada guru ke pembelajaran berpusat pada siswa, dengan menekankan keterampilan 4C (berpikir kritis, kreativitas, kolaborasi, dan komunikasi). Penelitian ini menggunakan pendekatan kualitatif dengan metode literature review melalui pemeriksaan 23 sumber ilmiah relevan, termasuk jurnal nasional, buku, dan prosiding. Analisis data dilakukan melalui content analysis yang melibatkan reduksi data, kategorisasi, sintesis, dan penarikan kesimpulan. Temuan menunjukkan bahwa pendekatan pembelajaran yang tepat memainkan peran mendasar dalam meningkatkan kualitas proses dan hasil pembelajaran. Pendekatan SCL menunjukkan keterkaitan teori dan praktik yang kuat dengan kerangka keterampilan abad ke-21 melalui promosi keterlibatan aktif, kemandirian, serta berpikir kritis dan kolaboratif. Selain itu, SCL menawarkan keunggulan dalam menciptakan pembelajaran yang bermakna, kontekstual, dan fleksibel sambil mendukung praktik penilaian autentik.

Oleh karena itu, SCL merupakan pendekatan efektif untuk mengembangkan kompetensi adaptif yang selaras dengan tuntutan global.

Kata Kunci: *Student-Centered Learning (SCL), Keterampilan Abad ke-21, 4C skills*

INTRODUCTION

The transformation of education in the 21st century demands a paradigm shift in learning—from a mere process of knowledge transmission to the development of competencies relevant to complex global dynamics (Trilling & Fadel, 2009). The 21st-century skills framework, encompassing *critical thinking, creativity, collaboration, and communication* (4C), serves as the primary foundation for shaping adaptive and reflective learners (Mantau & Talango, 2023). From a theoretical perspective, these skills are closely linked to the concept of *higher-order thinking skills* developed in Benjamin S. Bloom's cognitive taxonomy, which emphasizes analytical, evaluative, and creative abilities as the pinnacle of the thinking process (Agung et al., 2023). Therefore, learning is no longer sufficient if it is merely focused on mastering subject matter; rather, it must systematically develop higher-order thinking skills.

According to Bruce Joyce, a learning approach is understood as a conceptual framework that guides pedagogical interactions in the learning process, making its selection a crucial factor in determining the quality of learning outcomes (Duraisy, 2017). Theoretically, effective learning occurs when learners are actively engaged in constructing their own knowledge, as explained in Jean Piaget's constructivist theory, which emphasizes that knowledge is formed through the interaction between the individual and their environment (Mariska & Khobir, 2024). This is reinforced by Lev Vygotsky's social-constructivist theory, which states that learning occurs optimally through social interaction and *scaffolding* within the zone of proximal development (Suparlan, 2019). Thus, a learning approach that does not allow for active student participation tends to hinder the development of 4C skills (*critical thinking, creativity, collaboration, and communication*) in learners.

The urgency of selecting the appropriate learning approach for developing 21st-century skills is further underscored by findings from Panggabean's (2021) research, which indicates that learning still oriented toward a *teacher-centered* approach tends to yield low levels of 21st-century skills that are also less contextual. Research by Pratama et al. (2025) indicates that the dominance of lecture-based methods leads to students being less engaged in critical thinking and problem-solving processes. Conversely, learning that provides space for exploration and active participation has proven more effective in enhancing students' 21st-century skills (Rachmawati et al., 2025). Therefore, the learning approach becomes a strategic element in bridging curriculum demands with the need for 21st-century competencies.

In this context, the *student-centered learning* (SCL) approach emerges as a learning paradigm relevant to these demands. Theoretically, this approach is rooted in the thought of Carl R. Rogers, who emphasizes the importance of learning experiences centered on the individual and the freedom to develop one's potential (Zamzami & Putri, 2024).

Additionally, John Dewey asserts that learning must be experience-based (*learning by doing*) to hold meaning for learners (Fantofik et al., 2025). From this perspective, learners are no longer positioned as objects of learning but as active subjects who play a role in constructing knowledge.

The relevance of the *student-centered learning* approach in developing 21st-century skills lies in its alignment with competency characteristics that demand active engagement, collaboration, and problem-solving. Theoretically, collaborative learning—a component of SCL—is supported by David W. Johnson’s theory of social interdependence, which emphasizes the importance of cooperation in achieving learning objectives (Abdurahman et al., 2024). Furthermore, Barry J. Zimmerman’s concept of *self-regulated learning* explains that student-centered learning enhances independence and self-control in learning (Ahmad, 2023). This demonstrates that SCL has a strong theoretical foundation in supporting the development of 21st-century skills.

The strength of the *student-centered learning* approach in skill development lies in its ability to create meaningful and contextual learning experiences. Theoretically, this aligns with David Ausubel’s concept of *meaningful learning*, which emphasizes the importance of linking new knowledge to students’ existing cognitive structures (Hayati et al., 2025). Furthermore, the motivation theory proposed by Edward L. Deci and Richard M. Ryan explains that active engagement in learning can enhance students’ intrinsic motivation (Tamrin & Masykuri, 2024). Thus, the SCL approach impacts not only cognitive aspects but also affective and motivational dimensions.

In reality, the implementation of *student-centered learning* still faces various challenges, particularly regarding teacher readiness and a learning culture that remains oriented toward *teacher-centered learning*. Limited facilities and pedagogical understanding pose barriers to the optimal application of SCL. Therefore, systematic efforts are needed to enhance teacher competencies, along with educational policies that support the implementation of this approach. Based on the above discussion, it can be understood that the *student-centered learning* approach has a strong theoretical foundation and relevant empirical support for the development of 21st-century skills. Therefore, this study focuses on an in-depth analysis of the urgency of this learning approach, the relevance of *student-centered learning*, and its advantages in teaching 21st-century skills as an effort to build an adaptive and future-oriented learning system.

METHOD

This study employs a qualitative approach using a literature review method to conduct an in-depth examination of the application of the student-centered learning (SCL) approach in the development of 21st-century skills. This method is aimed at examining, analyzing, and synthesizing various research findings and theoretical constructs related to the connection between the SCL approach and the strengthening of critical thinking, creativity, collaboration, and communication (4C) skills. The qualitative approach focuses on conceptual exploration regarding the philosophical foundations,

characteristics, and relevance of SCL in shaping students' competencies to be adaptive, reflective, and problem-solving oriented within the context of modern education.

The data sources in this study consist of primary and secondary data. Primary data consists of national scientific journal articles that specifically discuss the student-centered learning approach, 21st-century skills, and the implementation of student-centered learning. Secondary data includes academic books, conference proceedings, and theses relevant to the research topic. Overall, this study reviewed 23 scientific publications to ensure the timeliness and relevance of the analysis regarding the dynamics of 21st-century education. The literature search was conducted through electronic databases such as Google Scholar using the keywords "student-centered learning," "21st-century skills," "constructivist learning," and "active learning." Data collection was conducted through the stages of identification, selection, and classification of literature. The identification stage involved searching for literature aligned with the research focus. Subsequently, the selection stage applied inclusion and exclusion criteria that considered the relevance of content, publication quality, and direct relevance to the SCL approach and the development of 21st-century skills. The selected literature was then classified into main themes, such as the urgency of the learning approach, the theoretical foundations of SCL, implementation in learning, and its contribution to the development of 4C skills.

Data analysis employed content analysis, carried out through the stages of data reduction, coding, categorization, synthesis, and drawing conclusions. During the reduction stage, the researcher focused the analysis on concepts, theories, and empirical findings relevant to the SCL approach and 21st-century skills. The coding and categorization stages were carried out by grouping data into conceptual themes such as constructivism, collaborative learning, self-regulated learning, and meaningful learning. Conceptual synthesis was conducted by integrating various findings to build a comprehensive understanding of the role of SCL in developing 21st-century skills. Data validation was conducted through source triangulation to ensure the consistency and validity of the analysis. The research results are presented in a narrative-analytical manner in the form of concept mapping, theoretical integration, and practical implications for the development of student-centered learning in the 21st century.

RESULTS AND DISCUSSION

The Importance of the Right Learning Approach in Developing 21st-Century Skills

The importance of the right learning approach in developing 21st-century skills is closely tied to the need to create a learning process that is adaptive and relevant to the changing times. Theoretically, Abdul Majid explains that a learning approach serves as the foundation for determining the direction, strategies, and techniques to be employed in learning (Majid, 2024). An appropriate approach yields an effective and efficient learning process. Conversely, an inappropriate approach makes it difficult to achieve learning objectives. Therefore, the selection of an approach is a fundamental aspect of education. This is increasingly important in the context of the 21st century, which demands

flexibility and innovation. Thus, learning approaches play a strategic role in improving the quality of education.

From a modern learning perspective, students must be actively engaged in the learning process. This aligns with Nana Sudjana's view that effective learning is learning that activates students in the process of thinking and acting (Sudjana, 2009). The right learning approach will encourage students to participate actively. Conversely, a passive approach will make students merely recipients of information. Therefore, learning must be designed to be participatory. This is crucial for developing 21st-century skills. Thus, students' active engagement becomes a key indicator of learning success.

The appropriate learning approach also influences students' learning motivation. This aligns with Oemar Hamalik's view, who states that learning motivation is greatly influenced by the environment and the learning strategies employed (Hamalik & Thobroni, 2024). A varied and engaging approach will enhance students' learning motivation. Conversely, a monotonous approach will diminish interest in learning. Therefore, learning approaches must be able to create a pleasant learning atmosphere. This is crucial for learning success. Thus, learning motivation is closely linked to the approaches employed. Consequently, it can be concluded that appropriate learning approaches play a fundamental role in the development of 21st-century skills. The right learning approach not only influences learning outcomes but also the learning process and students' experiences. Therefore, the selection of an approach must be made carefully and contextually. This is key to creating effective learning. Thus, the learning approach is the primary foundation of 21st-century education

The Relevance of the Student-Centered Learning Approach in Developing 21st-Century Skills

Assessment and Teaching for 21st Century Skills (ATCS) concludes that ways of thinking, ways of working, tools for work, and life skills are the four key elements related to 21st-century skills. The ways of thinking referred to include creativity, critical and analytical thinking, problem-solving, and decision-making. The ways of working referred to are communication and collaboration. Tools for work encompass strong communication and collaboration skills. Life skills include personal and social responsibility, life and career management, and citizenship. The Partnership for 21st Century Skills identifies four competencies: communication, collaboration, critical thinking, and creativity. (Marwa et al., 2024).

P21 (Partnership for 21st Century Learning) has developed a learning framework for 21st-century students, emphasizing that students must possess skills, knowledge, and competencies in technology, media, and information; learning and innovation skills; as well as life and career skills. These are the knowledge and skills students must master to succeed in their lives and careers. The Ministry of Education and Culture explains that the 21st-century learning paradigm prioritizes students' ability to seek knowledge from various sources, understand and solve problems, think critically, and collaborate when

solving problems. The explanation regarding the 21st-century learning framework is as follows: (Arnyana, 2019).

1. Life and career skills. Life and career skills include adaptability and flexibility, self-management and initiative, social and cultural interaction, productivity, leadership, and responsibility.

2. Learning and innovation skills. The ability to think critically and solve problems (Critical-Thinking and Problem -Solving Skills), the ability to think critically and systematically in problem-solving, the ability to communicate and collaborate (Communication and Collaboration Skills), the ability to communicate and collaborate effectively with various parties, and the ability to create and innovate (Creativity and Innovation Skills), developing creativity to produce innovative works.

3. Information, Media, and Technology. Information and Communication Technology (ICT) Literacy, the ability to use information technology to facilitate daily tasks; Information and Media Literacy, the ability to use various communication media to convey ideas, engage in group activities, and interact with multiple parties.

The development of meaningful learning processes within the context of 21st-century learning brings a wave of change to implementation. This is reflected in the conceptual learning framework as developed within the Partnership for 21st Century Skills framework. Based on this 21st-century skills framework, the implementation of Student-Centered Learning (SCL) holds strong relevance as a pedagogical approach capable of bridging the gap between global competency demands and classroom learning practices. Conceptually, SCL positions students as active agents who construct knowledge through authentic learning experiences, thereby aligning with the “Learning and Innovation Skills” dimension of the P21 framework, which emphasizes critical, creative, and collaborative thinking. This aligns with the constructivist theory proposed by Jean Piaget and Jerome Bruner, which asserts that knowledge is actively constructed through interaction with the environment and meaningful learning experiences.

From the perspective of life and career skills, the SCL approach provides space for students to develop independence, responsibility, and adaptability through a flexible learning process centered on individual needs. Students are not merely recipients of information but also act as designers of their own learning processes, from identifying needs to evaluating learning outcomes. This directly supports the development of the lifelong learner character, which is one of the key indicators of 21st-century competencies. Regarding information, media, and technology skills, SCL encourages students to actively seek out, manage, and utilize various information sources, including digital technologies, as part of the learning process. These activities not only enhance technological literacy but also strengthen communication and collaboration skills within a broader context, as emphasized in the ATCS and P21 frameworks. Thus, the use of technology in SCL is not merely a tool but a strategic medium for building knowledge collaboratively and contextually.

Operationally, the implementation of SCL through active, interactive, collaborative, cooperative, contextual, and independent learning is a tangible manifestation of the integration of the 4C skills into the learning process. Interactions among students in group discussions, project-based problem-solving, and independent exploration of learning resources enable the simultaneous internalization of the values of critical thinking, creativity, communication, and collaboration (Andriyani, 2018). In other words, SCL is not merely a method but also a learning ecosystem that facilitates the holistic development of 21st-century competencies. From a psychological perspective, the SCL approach minimizes students' learning anxiety because the learning process occurs gradually and is experience-oriented. As Purwandari (2018) noted, learning that provides space for interaction and active participation can reduce learning pressure, thereby enabling students to build their competencies more naturally. This reinforces that SCL is not only conceptually relevant to the 21st-century framework but also empirically effective in enhancing the quality of both the learning process and outcomes.

Thus, it can be affirmed that SCL is a learning approach that aligns epistemologically and practically with the 21st-century skills framework. Through the reinforcement of students' active roles, the flexibility of the learning process, and the integration of technology and collaboration, SCL becomes an effective strategy for realizing learning that is not only focused on mastering subject matter but also on developing competencies that are adaptive to global dynamics.

The Advantages of the Student-Centered Learning Approach in 21st-Century Learning

According to Setiadji, the advantages of the Student-Centered Learning (SCL) model in the learning process are closely linked to the 21st-century skills framework. Upon in-depth analysis, each of these advantages conceptually contributes directly to the development of the 4C competencies (critical thinking, creativity, collaboration, communication) as well as the dimensions of life and career skills and technological literacy. The following is a detailed explanation along with correlations and contextual examples: (Susanti & Izzah, 2023)

1. Engaging students in critical and analytical thinking throughout the learning process

In SCL, students do not merely receive information but are required to analyze, evaluate, and reflect on knowledge. Activities such as discussions, problem-based learning, and case studies compel students to develop higher-order thinking skills (HOTS). This aligns with the critical thinking and problem-solving competencies in the 21st-century framework.

2. Motivating students to become experts through exploration and investigation

SCL provides space for students to engage in inquiry-based learning, where they independently explore knowledge through learning resources. This process fosters curiosity and intrinsic motivation, which serve as essential foundations for lifelong learning.

3. Students can determine their learning style based on their characteristics

SCL acknowledges that every individual has a different learning style (visual, auditory, kinesthetic). By providing the freedom to choose learning methods, students can optimize their potential. This reinforces the concept of personalized learning, a hallmark of 21st-century education.

4. Taking into account students' needs and circumstances

SCL is flexible and contextual, adapting to students' backgrounds, abilities, and needs. This approach enables learning to be more inclusive and meaningful.

Allowing time to develop diverse assessment methods In SCL, assessment is not limited to written tests but also includes authentic assessments such as portfolios, projects, presentations, and self-reflection. This enables a more comprehensive evaluation of competencies.

CONCLUSION

The right learning approach is the cornerstone of developing 21st-century skills, as it determines the direction, quality, and success of the learning process. An appropriate approach can engage students, boost motivation, and create learning experiences that are relevant to the demands of the times. Conversely, an inappropriate approach will hinder the achievement of expected competencies. Therefore, the selection of a learning approach must be made carefully, contextually, and adaptively to ensure effective learning and support the development of critical, collaborative, and innovative thinking skills. The Student-Centered Learning (SCL) approach is highly relevant to the 21st-century skills framework because it places students at the center of learning as active, independent, and reflective learners. SCL supports the development of 4C skills, life and career skills, and technological literacy through interactive, collaborative, and experience-based learning processes. Thus, SCL is not only theoretically aligned with the demands of the 21st century but is also practically effective in shaping students who are adaptable, creative, and capable of facing global challenges. The strength of SCL lies in its ability to develop students' potential holistically, encompassing cognitive, affective, and skill-based aspects. SCL fosters critical thinking, enhances learning motivation, respects diverse learning styles, and adapts instruction to students' needs. Additionally, SCL enables the use of more authentic and comprehensive assessment. Overall, these strengths demonstrate that SCL is an effective approach for integrating and optimizing 21st-century skills within the learning process.

For Educators. Educators are advised to be more selective and innovative in choosing and implementing student-centered learning approaches. Teachers need to design active, contextual, and collaborative learning experiences to optimally develop the 4C skills. Additionally, educators must enhance their competence in utilizing technology as an integral part of the learning process. **For Students.** Students are expected to be more active, independent, and responsible in the learning process. Students need to develop

critical thinking, creativity, and collaboration skills to adapt to the demands of 21st-century learning. For Schools Schools need to provide a learning environment that supports the implementation of SCL, in terms of facilities, technology, and academic policies. Institutional support is crucial for creating flexible, innovative, and competency-oriented learning.

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