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Integrating the case method approach in 21st century teaching: Empowering the development of effective and innovative teaching instruments

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ABSTRACT

This study investigated how combining the case method approach andtechnology tools can be effective in 21st-century instructional methods. The case method approach in teaching instruments focuses on assisting students develop critical thinking, problem-solving, andcommunication skills. Its goal is to provide practical learning experiences that allow students to apply these skills in real-world situations. Teachers can successfully incorporate the case method approach into their instrument teaching by selecting appropriate case studies, establishing clear learning objectives, designing engaging activities, and incorporating technology tools such as digitalmedia, interactive simulations, and online platforms. The study findings indicate that integrating the case method approach in technology tools in instruction, course syllabus, and materials improved student engagement and access to information, encouraged student collaboration and communication, and improved critical thinking, problem-solving, and communication skills. As a result, incorporating the case method approach and technology tools into teaching instruments allows teachers to provide a hands-on learning experience that focuses on essential skills. This integration creates a dynamic and interactive learning environment, promoting skill development and optimizing students' overall learning experience.

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Since the Ministry of Education and Culture launched the Freedom to Learn Campus Merdeka (MBKM) program and the Main Work Indicators as outlined in the Decree of the Minister of Education and Culture Number 753/P/2020, it has encouraged various tertiary institutions to make adjustments to these policies. One of the Main Working Indicators of Higher

Education is improving the quality of curriculum and learning, namely study program partnerships and the case method or project-based group learning (team-based project).

The case method and team-based project are two of the many learning methods based on student-centred learning (SCL). Since the inauguration of the Indonesian National Qualifications Framework-based curriculum was introduced around 2014. This student-centred learning model is intended so that the learning outcomes of graduates are achieved through the learning process, prioritizing developing creativity, capacity, personality, student needs and developing independence in seeking and finding knowledge (Higher Education Curriculum, 2020: 63).

Thus, students play a significant role in acquiring knowledge and competence in learning in higher Education. The role of the lecturer in developing a student-centred learning model is to act as a facilitator whose job is to help students acquire knowledge and competence by the predetermined Graduate Learning Outcomes. Higher education institutions are obliged to facilitate in terms of providing facilities and infrastructure that support interaction between lecturers, students and learning resources, both in the form of physical infrastructure and software that supports the interaction process.

The case study learning method is highly effective in nurturing students' problem-solving capabilities. Case studies involve examining real-life or intentionally crafted scenarios, prompting students to make informed decisions to tackle the challenges posed by the instructor. By engaging with these stimuli, it is anticipated that students will attain a higher level of mastery and acquire knowledge and competence that are both practical and applicable to the students, as shown in the figure below:

Figure 1: Cone of Edgar Dale

Based on the figure displayed, effective memory retention and improved abilities in acquiring knowledge are achieved through engaging students in simulations or real-life activities. This demands active participation from students during the learning process. Therefore, a crucial factor in successful learning is the "mental" engagement of students through the opportunity to "experience" specific conditions or situations as they unfold in reality, also known as experiential learning.

The 21st-century Education is a compulsory English Education Study Program course at the Faculty of Languages and Arts, State University of Medan. It carries a weight of two-semester credit units (SKS). The expected competency for this course is for students to articulate the aim of 21st-century Education: to equip them to become versatile individuals capable of excelling in today's interconnected and dynamic world. This approach transcends traditional memorization techniques and emphasizes the essential skills and competencies needed for success in the contemporary era.

The lecture process needs to improve concerning inadequate learning outcomes in this course. The subpar grades obtained in the class align with the insufficient quality of the learning process over one semester. A notable issue in this learning process is the limited student engagement during class, including minimal participation in asking and answering questions and engaging in discussions. Out of approximately 50 active students, only 4 to 5 actively participate, while the majority remain passive, primarily focusing on collecting assignments and listening to the lecturer's presentations.

Another issue lies in the substandard quality of the learning process, evident in the following aspects: (1) Students appear unprepared at the beginning of lectures, indicated by their frequent failure to bring necessary materials for discussion, often presenting unreadable materials, and displaying reluctance and inability to express their opinions when asked to present assignments done at home; (2) There is a noticeable dependency on the lecturer during classes, with students showing a preference for passive listening to lectures. The quantity and quality of student questions are low. After each lecturer explains a topic, only 1 to 2 students at most provide feedback, and in some instances, no questions are asked at all; (3) Students' oral and written communication skills, particularly in explaining and arguing, are inadequate; and (4) Students lack motivation to respond to the lecturer's questions unless directly called upon.

The issues above stem from various factors. Observations indicate that the causes include insufficient initial abilities of students, further

supported by students' limited understanding of 21st-century education matters. This lack of comprehension is attributed to the scarcity of information accessible to students. Most of the information they receive comessolely from classroom settings (lecturers), and even that is not well-retained in their memory. Students need more motivation to seek information from various sources such as journals, scientific magazines, print, and electronic media. They still perceive lecturers as the sole source of learning. Another contributing factor to the problem is the prevailing instructional model, namely the conventional method involving lectures, summarizing, and group discussions.

Lectures predominantly follow a teacher-directed approach. The fourth contributing factor is theavailability of learning resources, such as textbooks and course materials, which mostly or entirelyremain theoretical. As a new addition to the MBKM curriculum, the 21st Century Education course lacks widely available majors related to the subject, lacking explanations and practical examples, including illustrations and real-life examples. Despite the various learning approaches, the results have been ineffective and have yet to make the subject enjoyable and engaging for students. Another factor is the learning culture among students, which leans towards memorizing the material without seeking a deeper understanding of its meaning.Consequently, this hinders the development of students' analytical skills when they are required to apply the knowledge in courses such as Micro Teaching and teaching practice in schools.

According to Anderson (1985), it was discovered that variations in learning outcomes were attributed to disparities in the instructional approach and assessment methods employed. It highlights the significant role of instructional approaches and assessment processes in achieving the desired learning outcomes. The previously mentioned issues alsoresult from an instructional approach that must be revised to foster students' competence in problem analysis and resolution. Traditional teaching methods focus on declarative knowledge, encapsulating facts, definitions, and vocabulary (Bonner & Walker, 1994). In contrast, instructional methods prioritizing intellectual skills involve concepts, rules, and procedures for problem-solving.

The evaluation of educational products primarily focuses on cultivating fundamental attitudes, including a critical and scientifically oriented academic mindset and a willingness to pursue the truth continuously (Yumarma, 2006). Consequently, Education extends beyond exams that solely measure knowledge transfer. It encompasses a broader spectrum, encompassing the development of essential skills and attitudes such as critical thinking, creativity,openness to innovation, and embracing various discoveries. These aspects are vital to equip students to adapt and

respond to ever-evolving challenges successfully. In thisscenario, educators are expected to go beyond being themselves conveyors of knowledge; they are also considered agents of enlightenment. In April 2003, the Directorate General of Higher Education issued mandates, including implementing Student-Centered Learning (SCL) principles in teaching (Mutmainah, 2011). SCL can be effectively employed when instructors integrate learning methods and course materials that encourage students to participate actively in the learning process. This approach allows students to explore concepts, principles,procedures, and problem-solving based on their understanding of the subject matter.

The prevalence of theoretical course materials inadvertently leads to an unintentional consequence: the prevalent use of lecture-based teaching methods by many instructors today. Students attending these lectures are limited to passive comprehension while taking notes. Lecturers play a central role in achieving learning outcomes, and students often view them as thesole source of knowledge. However, this pattern of active lecturers and passive students results in low learning effectiveness. Typically, the effectiveness of student learning is confined to examperformance at the end of the course. The current learning approach primarily focuses on grasping the material without giving students insight into its practical application in real teaching scenarios. As a result, existing course materials and current learning methods need to adequately nurturestudents' analytical abilities, problem-solving arguments, or holistic evaluation skills.

Considering the previously mentioned issues, the course materials devised for the 21st Century Education course are designed to be case-based. The intended learning model is also case-based learning by employing these case-based course materials. The primary motives behind developing these case-based course materials in this lecture are as follows: (1) The necessity for course materials to incorporate real-life case illustrations to demonstrate the practical applicationof knowledge; (2) The existing course materials predominantly rely on theoretical content; (3) The aim is to establish compelling rationales for students to grasp concepts, problem-solving techniques, and the application of material in actual teaching practices at schools.

The research objective of this study was to investigate how the combination of the case method approach and technology tools can be effective in 21st-century instructional methods. Following the research objective, this study's research question was: How can the combination of the case method approach andtechnology tools be effective in 21st-century instructional methods?

METHOD

This study follows a research and development (R&D) approach, which aims to producecase-based course materials described in various components. The development method utilized in this research aligns with the model proposed by Borg & Gall (1983) and encompasses the following stages: (1) Research and information collection; (2) Planning; (3) Development of initial product drafts; (4) Preliminary field testing; (5) Revising based on trial results (primary product revision); (6) Field trials (main field testing), (7) Finalizing product results from field trials (operating product revision); (8) Field implementation testing (operating field testing); (9) Completion of the final product (final product revision); (10) Dissemination and implementation.

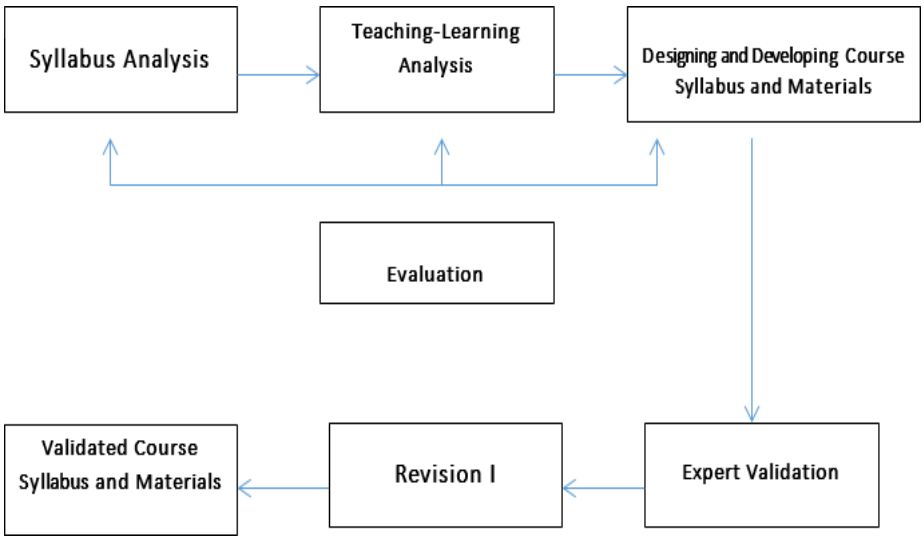

Figure 1: Stage I Course Syllabus and Material Development Procedure

The ultimate outcomes of phase I research are expert-validated case-based teaching materials,which will subsequently undergo testing in phase II of the study.

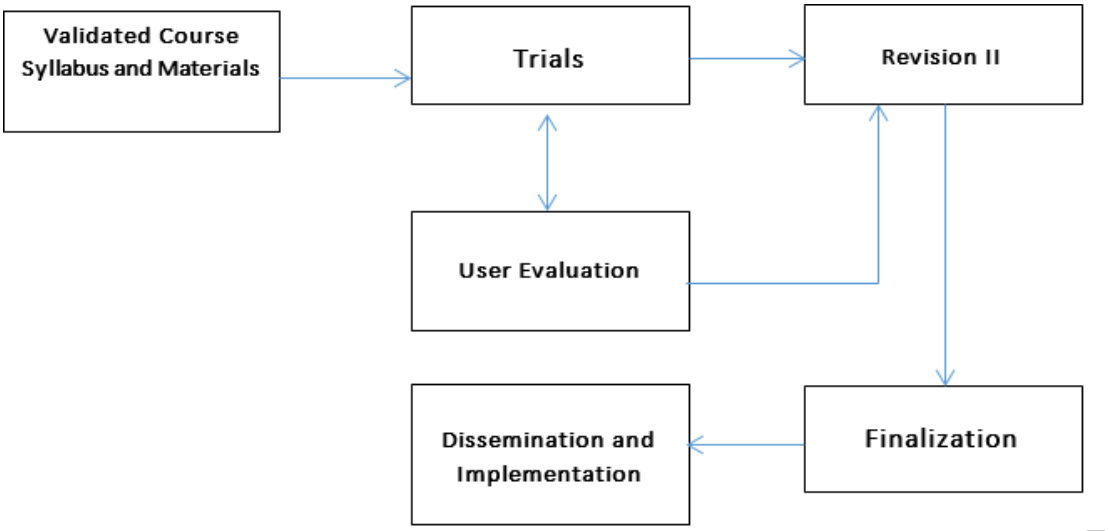

Figure 2. Stage II Course Syllabus and Material Development Procedure

The product specifications for this research are a course syllabus and course materials using a case study approach designed for 13 meetings, as listed in the following table.

Table 1. Course Syllabus and Materials

Topic	Course Materials
1	Digital Literacy and Technology Integration
2	Critical Thinking and Problem – Solving
3	STEAM Education
4	Future-Ready Skills: adaptability, resilience, emotional intelligence, collaboration, and lifelong learning
5	Education for Sustainability
6	Equity and Inclusivity
7	Assessment and Evaluation in the Digital Era
8	Social – Emotional Learning (SEL)
9	Blended and Online Learning
10	Gamification and Game-based Learning
11	Artificial Intelligence and adaptive learning
12	TPACK
13	Augmented and Virtual Reality (AR/VR) in Education

Experts evaluate validated course materials using a quantitative descriptive analysis technique, employing percentage analysis derived from the instrument's grid. This analysis enables categorizing course materials as highly valid, valid, adequate, or less valid. During the trials, the effectiveness of the course materials was assessed using the t-test by comparing the results between the control and experimental classes. Feedback from students gathered through a questionnaire developed in this study was used to gauge the effectiveness of course materials. Hence, evaluating course materials involves assessment from experts and users, namely the students.

FINDINGS

The initial phase of course syllabus and course materials development entails conducting a needs analysis, which involves distributing questionnaires to students who have completed the 21st Century Education course. It needs analysis to identify learning challenges, their underlying causes, and the availability of relevant course syllabi and materials. The gathered information is a foundation for designing course materials that align with students' competencies and requirements. The outcomes of the needs analysis are presented in the following table:

Table 2. Illustrates the approach taken by students in studying 21st Century Education

Information	Frequency	Percentage	Valid Percentage	Cumulative Percent
Reading Models, Methods, Strategies, and 21st Century Learning Approaches	44	65.7	65.7	65.7
Reading Elementary and Secondary School Level Syllabus	11	16.4	16.4	82.1
Browsing the Implementation of 21st Century Learning Models, Methods, Strategies, Approaches	6	9.0	9.0	91.0
Analysis of Implementation and Development of Models, Strategies, 21st Century Learning Approaches in Journals	6	9.0	9.0	100.0
Total	67	100.0	100.0	

Table 2 shows that 65% of students refer to reading model books, methods, strategies, and 21st-century learning approaches. Approximately 16.4% of students read the Elementary and Secondary School Level Syllabus. Around 9% of students explore the implementation of 21st-century learning models, methods, strategies, and approaches. The remaining 9% of students analyze the implementation and development of 21st-century learning models, strategies, and approaches in journals.

Table 3: The challenges encountered by students while studying 21st Century Education

Information	Frequency	Percentage	Valid Percentage	Cumulative Percentage
Always	57	85,1	85,1	85,1
Sometimes	7	10,4	10,4	95,5
Seldom	2	3.0	3.0	98.5
Never	1	1.5	1.5	100.0
Total	67	100.0	100.0	

According to Table 3, 85.1% of students encounter significant challenges in learning 21st-century Education, while the remaining portion experiences only minordifficulties.

Table 4: Factors contributing to challenges in learning 21st Century Education

Information	Frequency	Percentage	Valid Percentage	Cumulative Percentage
Experience a sense of novelty with the 21st Century Education course	34	50.7	50.7	50.7
The material discussion in the book is lacking in comprehensiveness	7	10.4	10.4	61.2
The implementation of models, methods, strategies, and approaches lacks real-life case examples.	8	11.9	11.9	73.1
Insufficient practice questions available.	17	25.4	25.4	98.5
No response	1	1.5	1.5	100.0
Total	67	100.0	100.0	

From Table 4, it is evident that 50.7% of students perceived the 21st Century Education course as unfamiliar, 10.4% mentioned that the material discussion in the book was incomplete, 11.9% noted the absence of case examples in the implementation of models, methods, strategies, and approaches, and 25.4% of students pointed out that the lack of practice questions posed challenges in studying the 21st Century Education course.

Table 5. Attributes of 21st Century Education books possessed by students

Information	Frequency	Percentage	Valid Percentage	Cumulative Percentage
Utilizing traditional textbooks on Models, Methods, Strategies, and Approaches	11	16.4	16.4	16.4
Explains the overarching concept of 21st Century Education	29	43.3	43.3	59.7
There are no instances of case examples in the application of the 21st Century Education model, method, strategy, and approach	20	29.9	29.9	89.6
No practice questions	6	9.0	9.0	98.5
No response	1	1.5	1.5	100.0
Total	67	100.0	100.0	

Table 5 shows that 43.3% of the books owned by students solely covered the general concept of 21st Century Education. Around 29.9% of students

mentioned that their books needed more case examples in implementing models, methods, strategies, and the 21st Century Educationapproach. The remaining students stated that the existing books only adopted conventional models, methods, strategies, and approaches and did not include practice questions.

Table 6: Number of students accessing case study materials

Information	Frequency	Percentage	Valid Percentage	Cumulative Percentage
Never	55	82.1	82.1	82.1
Ever	10	14.9	14.9	97.0
No response	2	3.0	3.0	100.0
Total	67	100.0	100.0	

According to the findings from the needs analysis, there is an apparent demand for course syllabi and course materials that can address the challenges faced by students studying 21st Century Education. The lack of diverse and practical learning resources, particularly caseexamples, hinders students' ability to fully comprehend and apply the concepts and methods of 21st-century learning. To cater to students' needs, the development, of course, of materials should prioritize the inclusion of case examples that align with real-life scenarios. By doing so, students can better relate theoretical concepts to practical situations, fostering a deeper understanding of the subject matter.

The aim is to equip students with the skills to critically analyze, evaluate, andadapt various models, methods, strategies, and approaches in their teaching practices. Since students' average study time is relatively limited, optimizing their learning experiences by providing relevant and engaging materials is essential. Incorporating case examples in the course syllabus can enhance student engagement and motivation, leading to more effective learning outcomes. Overall, the focus should be on creating a comprehensive and dynamic learning environment that empowers students to become competent and adaptable educators capable of navigating the complexities of 21st-century Education. A comprehensive mapping of general and special competencies was generated during the syllabus review process, encompassing 13 main topics. The primary objective of this review was to define the material's scope, depth, and breadth. Subsequently, the learning analysis activity focused on establishing the sequence of specific competencies to facilitate the attainment of general competencies. The course syllabus and course materials developed through

this researchactivity were crafted using a case study approach, specifically designed for the 13 chapters listedin Table 8 below:

EDUCATIONAL DEVELOPMENT AND QUALITY ASSURANCE INSTITUTIONS

UNIVERSITAS NEGERI MEDAN

COURSE SYLLABUS

Course Code	Course	Courses Cluster	Credit	Semester	Compilation Date
3ING49047	**21 st Century Education**		**2**	**4**	**June, 2023**

Description	This course aims to educate and train students in understanding how 21st Century Education works, starting from the comprehension of basic concepts, planning stages, implementation, and evaluation. Students are expected to comprehend and develop appropriate models, strategies, methods, or approaches for implementing 21st-century learning in education and teaching
Course Materials	1. Digital Literacy and Technology Integration 2. Critical Thinking and Problem Solving 3. STEAM Education 4. Future-Ready Skills: adaptability, resilience, emotional intelligence, collaboration, and lifelong learning Implementation of TPACK in learning process 5. Education for Sustainability 6. Equity and Inclusivity 7. Assessment and Evaluation in the Digital Era 8. Social – Emotional Learning (SEL) 9. Blended and Online Learning 10. Gamification and Game-based Learning 11. Artificial Intelligence and adaptive learning 12. TPACK 13. Augmented and Virtual Reality (AR/VR) in Education

Meeting	Final Proficiency (Sub-CPMK)	Evaluation		Learning Mode, Teaching Method, Students Assignment, [Time Est]		Course Materials [Learning Source]	Grade (%)
		Indicator	Criteria & Technic	*offline*	*online* /Hybrid		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1	Explaining Course Syllabus, Lecture Contracts, Assessment Criteria and Position and Urgency of Courses in achieving Course Performance Learning.	Accuracy in explaining Course Syllabus/Lesson Plan, Lecture Contracts, Assessment Criteria and Position and Urgency of Courses in achievement of Course Performance Learning.	PAP = 85 Writing Test		Learning Mode = Lecture. (100' Face to face, 120' Structured Task dan 120' Face to face) Presentation Method and Question and Answer	a. Course Syllabus b. Assessment Instrument c. Learning Contract	5%
2	Analyzing the relationship between 21st Century Learning and Digital Literacy and Technology Integration	Accuracy in analyzing the relationship between 21st Century Learning and Digital Literacy and Technology Integration	PAP = 85 Product Test / Assessment Skill Test / Assessment Observation (Behavior)		Learning Mode = Lecture. (100' Face to face, 120' Structured Task, 120' Face to face) Case Method: Pre-existing material Analysis of Cases in groups Classical Case Analysis Assignment: Mastering concepts/theories/research results that have been provided by lecturers before lectures.	1. 1. Basic principles of 21st Century Learning 2. 2. 21st Century Education and Learning Skills	10%
3	Give arguments for the need to develop Critical Thinking and Problem Solving in learning	Accuracy in giving arguments about the need to develop Critical Thinking and Problem Solving in Learning	PAP = 85 Product Test / Assessment Skill Test / Assessment Observation (Behavior)		Learning Mode = Lecture. (100' Face to face, 120' Structured Task, 120' Face to face) Case Method: Pre-existing material Analysis of Cases in groups Classical Case Analysis Assignment: Mastering concepts/theories/research	1. 21st Century Learning Skills 2. Theory of 21st Century Learning Models and Strategies	10%

Figure 4. Course Syllabus and Materials

Specific competencies or learning objectives define each subject. From the 13 topics, course materials were developed using a case study approach with mandatory components, including titles, apperceptions, study guides,

tables of contents, learning objectives, case studies, materials, practice questions, and reference lists. Based on these components, the developed products align with the unique characteristics required for course materials, such as apperception, study instructions, and learning objectives. However, as a research outcome, these course materials still need to be validated, particularly by experts, as outlined in the research design and procedures. Therefore, an instrument must be created to assess the course syllabus and materials.

The assessment tool employed in this study is a Likert scale, allowing validators/evaluators to conduct a flexible and comprehensive evaluation of course materials. The evaluation lattice of the teaching material includes content suitability, structure (language and layout), attribute (objective case), and process (learning process). The subsequent section presents the validation results of course materials by two validators. With a scientific approach to building the curiosity and responsibility character, the course syllabus is feasibly applicable for trials after several revisions based on the validator's comments and improvement suggestions. The product assessment is excellent, meaning the course syllabus is valid. In addition, the results of course syllabus instrument validation showed that the aspects of its format, language and content with the validity percentage of 100%, 98.33%, and 97.47% were included in excellent qualifications as shown below:

Table 7. Course Syllabus Validity

Aspect of Lesson Plan	*Percentage (%)*	*Qualification*
Format	100	Very Good
Language	98,33	Very Good
Content	97,46	Very Good
Overall Validity	98,60	Very Good
Reliability	98,05	Very Good

The calculation of course syllabus validation results shows that the assessment aspects, including format, language, and content, are included in excellent qualifications with an overall validity percentage of 98.60%. Therefore, the course syllabus is feasible to use. However, the results and suggestions provided by the validator become a reference in making revisions. It was stated that an additional reference book should be provided to support the study material. Moreover, the learning media may use the school environment to provide student project assignments. The findings are consistent with the results on implementing a scientific approach, character building, and conservation in growth material, which positively influences cognitive, affective, and psychomotor learning outcomes and in achieving specified classical completeness.

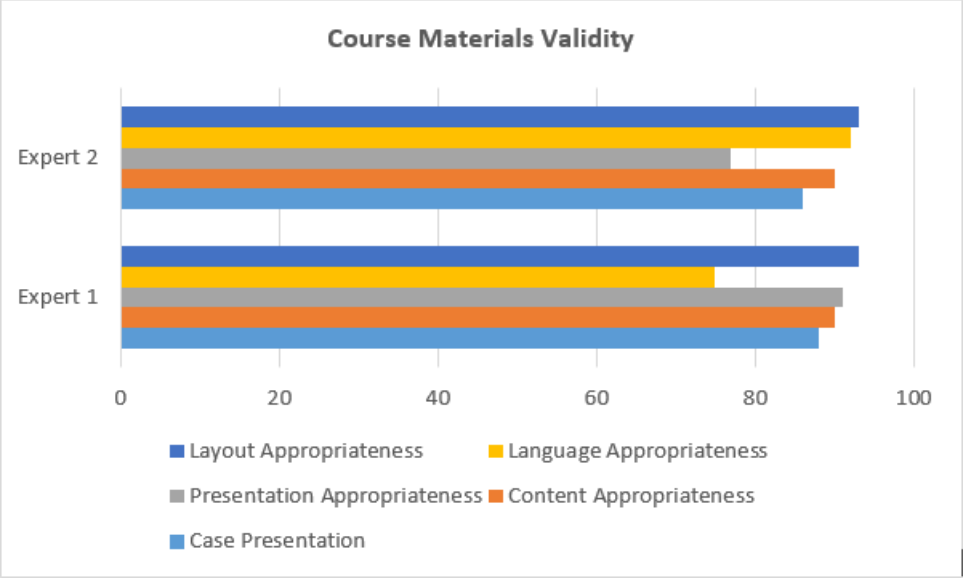

Figure 5: Course Materials Validity

The above chart displays the evaluation of the case presentation component, consisting of 12 items.The validator's assessment of the course materials falls within the very high to high range. The validation results from the two validators are 88 and 86, with an average of 87, placing it in the "valid"category according to the intervals in Table 2. Regarding the content appropriateness component of the teaching material, there are ten items, and the assessment by the validator falls within the very high to high range. The validation results from the two validators are both 90, resulting in an average.

Of 90, which categorizes it as "very valid" based on the intervals in Table 2. The presentation appropriateness component has 12 items, and the validator's assessment ranges from very high to high. The validation results from the two validators are 91 and 77, with an average of 84. Additionally, in another language appropriateness component consisting of 8 items, the validator's assessment ranges from very high to high. The validation results from the two validators are 75 and 92, with an average of 83. These components fall under the "valid" category according to the intervals in Table 2.

Lastly, in the layout appropriateness component containing 3 items, the validator's assessment falls very high and high. The validation results from the 2 validators are 93 for both, with an average of 93, which places it in the "very valid" category based on the intervals in Table 2. Overall, it can be concluded that the case-based course materials for the 21st-century Education course are considered valid.

Upon completing the design of the course syllabus and materials, the researcher proceeded with the trial, implementing the topics among the students using the case-based method. During this study, the students conducted self-assessment and peer assessment on 21st-century or 4C skills. The average scores were then calculated, resulting in several data groups, namely critical thinking skills,creativity, collaboration, and communication skills, as shown below:

Table 8: Self-Assessment and Peer Assessment on Critical Thinking

No	Aspect of Creativity	Average Self-Assessment Score	Average Peer-Assessment Score	Average
1	Creative Thinking	84.5	83.9	84.2
2	Work creatively with others	88.3	84.8	86.6
Average Student Creativity of 21st Century Education Students				85.4

Table 9: Self-Assessment and Peer Assessment on Students' Creativity

No	Aspects of Critical Thinking Ability	Average Self-Assessment Score	Average Peer-Assessment Score	Average
1	Perform reasoning effectively	84.6	82.8	83.7
2	Making Judgments and Decisions	84.4	83.6	84
3	Solve the problem	83.4	83.6	83.5
Average Critical Thinking Ability of 21st Century Education Students				83.7

Table 10: Self-Assessment and Peer Assessment on Students' Communication

No	Aspects of Communication	Average Self-Assessment Score	Average Peer-Assessment Score	Average
1	Communicate clearly	87.2	85.9	86.6
2	Listen well	88.6	87.2	87.9
3	Utilizing Media and technology	90	86.5	88.3
Average Students' Communication				87.6

Table 11: Self-Assessment and Peer Assessment on Students' Collaboration

No	Aspects of Collaboration	Average Self-Assessment Score	Average Peer-Assessment Score	Average
1	Work effectively with a team	89.7	87.5	86.8
2	Helping the team achieve goals	88.4	85.2	88.6
3	Responsibilities in the team	93.8	88.7	91.3
4.	Appreciate individual contributions	94.6	89.1	91.9
Average of Students' Collaboration				89,7

DISCUSSION

Utilizing the case method in 21st Century Education lectures aids in fostering students' critical thinking abilities, creativity, communication, and collaboration. The case method involves interactive discussions to address cases or problems, offering students opportunities to enhance their problem-solving skills, communication abilities, collaboration, and creativity. According to Sari (2022), adopting the case method in learning facilitates students in acquiring meaningful knowledge and enhances their learning outcomes. Similarly, research by Nursulistyo et al. (2021)indicates that team-based learning improves students' critical thinking skills. Additionally, Bani-Hamad and Abdullah (2019) discovered that project-based learning playsa significant role in developing students' critical thinking skills, creativity, communication, and collaboration

Choosing the appropriate learning model is essential to develop 21st-century skills like critical thinking, creativity, communication, and

collaboration. Prioritizing student-centred learning that activates students' engagement is preferable. In the 21st century, learning should focus on honing students' critical thinking skills by utilizing various media, methods, and strategies that revolve around real-life cases (Lestari et al., 2016; Marchellina & Qomariyah, 2022; Zain & Jumadi, 2018;Zhang et al., 2020). Engaging in learning activities that involve discussions and critical thinking will foster students' creative thinking, cooperation, and collaboration (Marchellina & Qomariyah, 2022; Situmeang et al., 2022).

Presenting students with problem-solving tasks in the learning process contributes to developing their critical and creative thinking skills as they are motivated to acquire knowledge and concepts relevant to these challenges (Qalbi & Putera, 2022). Addressing real-life problems in their environment enhances students' critical thinking abilities and equips them with valuablelife skills (Nurzaman, 2017; Rajagukguk et al., 2022). In essence, 21st-century learning emphasizes student-centred approaches where students possess critical thinking skills, problem-solvingabilities, effective communication, innovation, creativity, metacognition, information literacy, andthe capacity to collaborate effectively (Rahmawati & Salehudin, 2021).The findings from this study reveal that critical thinking is the least developed aspect of

21st-century skills in the 21st Century Education class, although it still falls within the excellent category. Students are given opportunities and challenges to solve problems, reason effectively, and make assessments and decisions through case-based learning methods. Some lecturers assign tasks that require students to identify problems, conduct direct observations in natural environments, analyze the situations, and then make decisions to determine the best solutions. In some instances, lecturers present specific scenarios, and students are tasked with analyzing the problems based on existing concepts and real-life conditions in their surroundings, culminating inidentifying the best solutions. However, students need help analyzing, reasoning, and generating optimal solutions, resulting in critical thinking skills being the least developed aspect compared to other aspects.

On the other hand, students demonstrate excellent proficiency in creativity, communication and cooperation. These three aspects of 21st-century skills are frequently stimulated across various subjects. Elements of clear communication, active listening, and professional use of media and technology have become integral to students' lives. Among the 21st-century skills, cooperation is the aspect that stands out the most in this class.The strong influence of Eastern culture, which emphasizes cooperation, plays a significantrole in fostering students' collaboration skills.

They are developing 21st-century skills, which encompass critical thinking, creativity, communication, and collaboration, requiring dedicated

time and effort (Aslamiah et al., 2021; Bani-Hamad & Abdullah, 2019; Hadkaew & Liewkongshaporn, 2016; Idris, 2018; Kusuma et al.,2018; Partono et al., 2021; M. D. R. Simanjuntak, 2019). The ability to think creatively is not innate but instead cultivated (Handayani, 2017). According to Ng (2001), cited in (Changwong et al., 2018), critical and creative thinking skills among Asians are still relatively low, partly due to cultural norms prioritizing conformity and adherence to group expectations, with individuals feeling ashamed if they deviate from the norm.

Nevertheless, learning in the 21st century has transcended these boundaries. It actively fosters the development of critical thinking and creativity among students, from early childhood education to higher Education, through various methods, approaches and strategies. According to the research findings, students' collaboration and communication skills are rated excellent. These skills hold significant importance in navigating the challenges of the 21st century,as effective collaboration and communication facilitate establishing partnerships and productive working relationships. These essential skills also play a crucial role in shaping children's learning outcomes (Simanjuntak, 2022).

CONCLUSION

In English Study Program courses, using case methods aims to foster students' 21st-century skills. The study's results demonstrate that critical thinking, creativity, communication, andcooperation fall within the good to very good categories. Among these skills, critical thinking receives the lowest average score, 83.7. This finding highlights the need for study program lecturers to encourage critical thinking skills further in 21st-century educationclasses. On the other hand, cooperation, one of the 21st-century skills, exhibits the highest average score of 89.7. This valuable discovery suggests that Study Program lecturers can capitalize on students' potential for meaningful activities within the English Education Study Program.

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