



## Developing A 4C-Based English Supplementary Material: A Balinese Tourism Vocational School Context

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### Abstract

Currently, English teaching and learning in vocational high schools increasingly incorporates 4C skills—critical thinking, communication, collaboration, and creativity—into the teaching and learning process. The study aims to outline the development of English supplementary materials for eleventh-grade tourism service business students at a state vocational school in Bali, and assess the quality of these materials. Conducted as Design and Development (D&D) research, the study follows the ADDE (Analysis, Design, Development, and Evaluation) model. Utilizing various instruments such as observation sheets, interview guides, syllabus analysis matrices, supplementary material blueprints, resource sheets, and judgment rubrics, the research identified a seven-step development process: (1) material identification; (2) activity identification for 4C skills reinforcement; (3) element and picture sourcing; (4) Activity integration with Engaging Platforms; (5) combination of materials, activities, and elements into book content; (6) book cover design; and (7) layout finalization. The developed product was rated as "excellent" by two experts, and both teachers and students found the supplementary materials effective in enhancing 4C skills. The findings imply that well-structured supplementary materials can foster essential 21st-century skills among students. Moreover, this study shows that the incorporation of 4C skills into English supplementary materials potentially enhances not only students' language proficiency but also critical thinking abilities.

**Keywords:** ADDE design; supplementary material; tourism vocational school; 4C skills

### Introduction

Supplementary materials refer to additional learning resources that complement and enhance students' familiarity with the main course material (Marces, 2020). While their use is not mandatory, these materials significantly impact the quality and outcome of the classroom learning process, aiding teachers and students in achieving educational goals alongside the main materials. Main and supplementary materials serve as guides for learning, enriching the understanding of

both teachers and students. Therefore, the presence of supplementary materials is crucial in the classroom (Spirovska, 2015; Marces, 2020; Rohimajaya et al., 2021)

Teachers require supplementary materials when the main course books lack necessary content or are unavailable. These materials encompass books and resources used to support the learning process. Authentic sources such as newspapers, television, audio, video, and the internet serve as means to acquire supplementary materials. Typically, supplementary materials provide numerous exercises aimed at enhancing students' language skills, including grammar, vocabulary, and phonology, particularly in English. They also feature communicative activities and accessible online or offline materials. As a result, supplementary materials offer students the opportunity to engage in self-directed learning anytime and anywhere. Additionally, these materials serve as references for students to master English texts (Karn & Hattori, 2023.) and facilitate the development of teachers' instructional approaches (abbasi,et. Al., 2015; 2019; Giguashvili & Sanaia, 2023).

Main course books often contain general content for all majors that might confuse students in specific major. Consequently, teachers require well-developed supplementary materials to support the learning process and enhance students' skills, both in terms of productivity and proficiency. It is essential for supplementary materials to be diverse and tailored to students' abilities and proficiency levels, as each student possesses unique learning styles and capabilities (Marces, 2020). Therefore, teachers need to create materials, including supplementary resources, that align with students' needs, interests, and capabilities (Bugler, et al, 2017). Creativity in developing learning materials is crucial for teachers, as properly developed materials contribute to a more enjoyable, systematic, and meaningful learning process, ultimately helping students achieve their learning objectives.

In the context of the fourth industrial revolution, the education system demands more effective, innovative, and high-quality learning approaches. The aim is to equip students with 21st-century skills, commonly referred to as 4C skills: communication, collaboration, critical thinking, and creativity. These skills enable students to succeed in various aspects of life in the era of globalization (Radifan & Dewanti, 2020). Once students acquire these skills, they can think critically, solve problems creatively, effectively communicate with people from diverse

backgrounds, and collaborate with others to achieve shared goals (Pardede, 2020). Therefore, learning materials should not only consider students' needs, interests, and capabilities but also provide activities that enhance their 4C skills. By designing and developing learning activities that relate to the real world, teachers can encourage greater classroom participation, increase motivation, and foster creativity and innovation among students (Ratminingsih et al., 2021, Utami & Prestridge, 2023). The 2013 curriculum revision in the Indonesian education system incorporates these 4C skills alongside essential skills like character education, literacy, and higher-order thinking Skills (HOTS) Furthermore, the integration of 4C skills into teaching and learning is mandated by the new curriculum known as Merdeka Belajar curriculum. This policy, issued by the Ministry of Education, Culture, Research, and Technology of Indonesia, aims to develop a curriculum that addresses students' learning needs and goes beyond cognitive skills by incorporating personal and social skills (Erdogan, 2019; Kemendikbud RI, 2021).

The 4C skills (critical thinking, creativity, collaboration, and communication) are integral to this curriculum. Their integration challenges individuals to develop high-level reasoning abilities, think creatively. These skills are seen as essential for students to become critical thinkers, creators, collaborators, and effective communicators. The development of English supplementary materials in this study incorporates these 4C skills to enhance students' abilities. Critical thinking and problem-solving skills are fostered through quizzes and discussion activities, while creativity is promoted through various tasks such as mind-mapping and creating posters. Collaboration skills are developed through group work activities that encourage teamwork and finding the best solutions collectively. Communication skills are emphasized through group learning activities and presentations, allowing students to effectively convey their ideas and thoughts (Widiastuti et al., 2022). By integrating these 4C skills into the learning materials, students are equipped with the necessary competencies to thrive in the 21st-century and excel in their future careers (BOTA, 2005; Chiruguru, 2020; Pardede, 2020; Tamela & Dwi, 2021).

Based on the pre-observation and preliminary interview conducted with the English teacher of eleventh-grade students of tourism service business major or Usaha Layanan Pariwisata (ULP) at a state vocational school in Bali, it was discovered that the school has already implemented Merdeka Belajar curriculum in teaching and learning process. However, students across all majors only receive four

hours of English lessons per week. Furthermore, due to the absence of a comprehensive main course book that covers all the materials outlined in Merdeka Belajar curriculum syllabus and aligns with the requirements of the tourism service and business major, both teacher and students only rely on the internet as a learning resource. Unfortunately, the materials available on the internet accessed by the students are incomplete, prompting them to search for more additional sources online. Moreover, the activities conducted did not incorporate all of 4C skills emphasized in Merdeka Belajar curriculum; they mainly focus on enhancing specific English language skills such as speaking, writing, reading, and listening. Additionally, the main course book used by the students lacks a strong emphasis on integrating the 4C skills, only partially addressing some of them.

In recent years, researchers have studied the development of learning materials, particularly supplementary materials. Hačatrljana and Linde (2023) develop supplementary materials aimed at enhancing students' problem-solving and self-regulated learning skills. This study showed that appropriately designed supplementary materials are a valuable and useful tool to help teachers develop students' problem-solving and self-regulated learning skills. Abbasi et al. (2015) study the effect of supplementary materials on reading comprehension improvement, showing improved reading skills. Dewi and Syahputri (2020) focused on web-based teaching materials for drama subjects, enhancing digital literacy and English language skills. Dewi, Utami, and Santosa (2022) developed digital supplementary materials using Quizizz, leading to improved learning outcomes in an intensive English course.

In summary, the reviewed studies focused on the development of English materials and the supplementary materials using different research approaches and models. They employed various methods and tested the materials with different participants. The findings demonstrated the effectiveness of the developed materials in improving reading skills, digital literacy, English language proficiency, and character values. The materials were deemed feasible, valid, and practical for both online and offline use. However, those studies had limitations in exploring listening, speaking, writing, and the impact of 4C skills on critical thinking and creativity. Given the importance of 4C skills in the Merdeka Belajar Curriculum, it is crucial to develop supplementary materials that integrate all of 4C skills and utilize technology. It was also found that there were no studies that develop English

supplementary materials in tourism context. Thus, this study aims to address these gaps by developing English supplementary materials integrated to 4C skills by using Canva, for eleventh-grade students in tourism service business major. The materials will be in the form of an e-book to accommodate mobile learning, while printed versions are also possible. It consists of 500-1000 words, 10% of the entire paper.

### **Research Methodology**

This study focused on the development of English supplementary materials integrated with 4C skills. The research employed the Design and Development (D&D) method proposed by Richey and Klein (2007), to create high-quality materials that met specific criteria through a structured process. The materials were designed for eleventh-grade students in the tourism services business major (Unit Layanan Pariwisata or ULP) at a state vocational school in Bali, with the objective of enhancing their 4C skills.

The research followed the ADDE (Analysis, Design, Development, and Evaluation) model proposed by Richey and Klein (2007). In Analysis stage, the researcher conducted a needs analysis to determine the students' requirements through observations, interviews, and document analysis based on the Merdeka Belajar curriculum syllabus. In the design stage the researcher created the blueprint and layout of the English supplementary materials integrated with 4C skills for eleventh-grade students in the tourism service business major. This design was informed by the data collected during the analysis stage. The third stage is development. In this stage, the researcher developed the product through a series of steps, ensuring that it aligned with the design specifications. The final stage involved subjecting the product to expert and user judgment. Two experts evaluated the content, and the product was revised based on their suggestions. Subsequently, the product was evaluated by the teacher and students as the end-users. A judgement rubric consisting of 37 items related to the principles for developing materials from BOTA (2005) and the essentials of 21st-century skills from Chiruguru (2020). There were five rating scales which have to be filled by the experts and the teacher in assessing the product.

The product was then implemented with 11th grade ULP students to assess their judgment of the product through interviews. Several validated instruments were

used in this process: (1) observation sheets, (2) interview guides, (3) a matrix of syllabus analysis, (4) the blueprint, (5) resources sheets, and (6) a judgment rubric.

To analyze the expert and user judgments, the Ideal Mean ( $M_i$ ) and Ideal Standard Deviation ( $S_{Di}$ ) were utilized, as proposed by Nurkencana and Sunarta (1992). These metrics were used to determine the criteria based on the results of the product quality judgment and user reviews. The researcher employed the  $M_i$  and  $S_{Di}$  formulas to calculate the rating scale for each standard, reflecting the cumulative minimum and maximum scales. Table 1 presents the interval formula for criteria of product quality, which helps the researcher assess whether the product is excellent or not.

**Table 1:** Interval and Criteria of Product Quality

Mode Level (X)	Interval formula	Criteria
5	$X \geq M_i + 1.5 S_{Di}$	Excellent
4	$M_i + 0.5 S_{Di} \leq X < M_i + 1.5 S_{Di}$	Good
3	$M_i - 0.5 S_{Di} \leq X < M_i + 0.5 S_{Di}$	Average
2	$M_i - 1.5 S_{Di} \leq X < M_i - 0.5 S_{Di}$	Below Average
1	$X < M_i - 1.5 S_{Di}$	Poor

Notes:

X	: The scale given by the experts
$M_i$ (Ideal mean)	: $1/2$ (Scale Maximum + Scale Minimum)
$S_{Di}$ (Ideal Standard deviation)	: $1/3$ ( $M_i$ )

## Findings and Discussion

### Findings

Through observation and interviews, the researcher identified discrepancies between the English course book utilized in a state vocational school in Bali and the requirements of the Merdeka Belajar curriculum. The English teacher stressed the necessity for English supplementary materials that integrate 4C skills, aligning with the curriculum's demands. Interviews with both the teacher and students underscored the importance of effective English learning, integration of 4C skills, and engaging supplementary materials. Additionally, it was observed that students relied on PDF materials provided by the teacher and utilized online resources like Google and YouTube for supplementary learning.

Further observation and interviews highlighted the shared need among both teacher and students for English supplementary materials tailored to the specific needs of vocational high school students, integrating 4C skills, and focusing on

tourism-related content. Subsequently, the researcher conducted document analysis to identify essential topics for student learning. Based on these findings, the researcher designed a blueprint for supplementary materials that address both the language and 4C skill requirements of the students.

#### 4.1 The Development of 4C-Based English Supplementary Materials

After all the data needed were gathered, the researcher then developed the product based on the need analysis data and certain criteria. There were seven steps to develop 4C-based English supplementary materials as the following.

##### 1. Material Identification

The researcher identified the appropriate materials to be included in the product. Thus, the researcher conducted a thorough search both online and within an English course book designed for eleventh-grade students of vocational high schools, published by *Kemendikbudristek* (Ministry of Education, Culture, Research, and Technology). The selection of materials was guided by the specific learning objectives that needed to be achieved by the students. The researcher adopted discussion and analytical exposition texts from *Kemendikbudristek*, while also incorporating and adapting certain materials from the internet to fulfill the students' needs. Additionally, examples for each text were carefully created, by considering the students' proficiency level and their focus on tourism major.

##### 2. Activity Identification for 4C skills reinforcement

Afterward, the researcher identified activities that would foster the students' 4C skills. The researcher began by clearly defining the learning objectives for eleventh-grade students of the target vocational school. These objectives served as a foundation for identifying and creating activities that would effectively reinforce the students' 4C skills. All of the activities created required students to solve various types of problems, analyze the relevance of the texts to the real world, and reflect their experiences in the learning process. Creativity was encouraged by prompting students to generate innovative ideas and respect diverse perspectives. Collaboration and shared responsibility were emphasized as most activities necessitated teamwork to accomplish shared goals. Additionally, the activities provided opportunities for students to effectively communicate their ideas in a meaningful and contextual manner. In summary, the supplementary materials aimed to not only support the achievement of specific learning objectives but also

foster critical thinking, creativity, collaboration, and communication skills among students.

### 3. Elements and Pictures Sourcing

The researcher utilized Canva's 'Design' and 'Element' features to find elements that aligned with the students' level and tourism major. Elements such as high school students, teachers, and additional objects like apples and palaces were selected. Additionally, for the "Arranging Pictures" activity in Unit 1, the researcher captured screenshots from a storytelling video entitled "Legenda Jayaprana dan Layonsari ~ Cerita Rakyat Bali" by Dongeng Kita YouTube channel. It is important to note that the rights of these elements and pictures belong to the creators of Canva and Dongeng Kita YouTube channel, respectively. The fourth step of developing the product is integrating the activities with other platforms. Integrating activities with various platforms enhances student engagement and interactivity in the learning process. The researcher explored multiple platforms that could be seamlessly integrated with the activities created. Considerations included ease of use, accessibility, features, capabilities, alignment with learning objectives, and integration of 4C skills. Suitable platforms identified were Canva, Google Drive, WordWall, Proprofs, Free Online Dice, and Youtube. These platforms were accessible, user-friendly, and familiar to the students.

### 4. Activity integration with Engaging Platforms

The researcher selected activities that could be integrated into the chosen engaging platforms. For Google Drive, activities such as arranging pictures and retelling stories, quizzes, chain writing, creating posters, snake and ladders games, arguments-facts-opinions exercises, and small talk and mind map tasks were incorporated. Files were uploaded and shared with students for easy access, including documents that couldn't be directly inserted into the supplementary materials. Answer sheets were also provided. Word scramble games were integrated using WordWall due to its supportive features, allowing students to arrange words into correct story titles by dragging them. Proprofs was used for the quiz activity in Unit 2, where students are required to answer the questions in the provided columns. Lastly, the activity "Tell the World 'This is Important'" in Unit 3 was integrated with Youtube, requiring students to create and upload videos to their Youtube class channel. Prior to designing of the material, it is known that all students have access to smartphone. Therefore, the materials selected are compatible with the common



smartphones used by students. This is including simple interface, minimal data usage, and adaptable formats (PDF, audio, interactive elements).

#### 5. Combination of materials, activities, and elements into book content

In this step, the researcher utilized Canva to combine the materials and activities with the chosen elements, following the layout design established in the previous design stage. The materials were placed at the forefront, followed by the corresponding activities. Additionally, relevant elements, such as cultures, were added throughout the contents to emphasize the explanation of the materials and make them more suitable with the Balinese context. For example, the dialogues, communication styles, the use of vocabulary, expression are selected so that they are aligned with Balinese hospitality values such as politeness, respect and guest service

#### 6. Book Covers Design

The researcher then proceeded to design the book covers using Canva after the book contents finished. Various elements needed to be included on the front and back covers of the developed English supplementary materials. The front cover should provide details such as the university, study program, academic year, book title, authors' names, and target users. On the other hand, the back cover should include the book title, target users, university, study program, authors, and academic year.

#### 7. Layout finalization

The last step was finalizing the layout which involved several steps. The researcher focused on creating visually appealing and well-organized covers that were relevant to the target users. A preface page and table of contents were included to provide introductory information and facilitate easy navigation. Clear learning objectives were stated for each unit to guide students and highlight the benefits of the lessons. The contents were structured logically, with relevant visuals and clear instructions for activities. References and credit acknowledgment ensured copyright compliance, and answer keys and assessment rubrics were provided for assessment purposes. Consistency in formatting and alignment throughout the book made it readable and user-friendly. Finally, the materials were shared in PDF format for easy access. Overall, the process resulted in engaging, well-organized, and impactful supplementary materials that integrated 4C skills.

### 4.2 The Quality of the Developed 4C-Based English Supplementary Materials

To evaluate the product quality, it was assessed by experts and users during the evaluation stage. Two English Language Education experts reviewed the content of the product. Additionally, the eleventh-grade English teacher at the observed state vocational school, serving as the user, also participated in the assessment. Both the experts and the teacher used a judgment rubric to evaluate the supplementary materials. Furthermore, the researcher implemented the materials with the students and conducted interviews with the teacher and several students to gather their perspectives on the product.

The data obtained from the judgement rubric of the two experts and the teacher were analyzed quantitatively using formula from Nurkancana and Sunarta (1992). A total of 37 items of judgement rubric were used to evaluate the quality of the product, and a rating scale ranging from 1 to 5 was utilized. This scale indicated that the lowest possible rating was 1, while the highest possible rating was 5. To determine the rating scale for each criterion, the researcher analyzed the values of  $M_i$  and  $S_{di}$  using a formula that took into account the cumulative minimum and maximum scale. The measurement process involved finding the specific values of  $M_i$  and  $S_{di}$  from the possible lowest and highest scale. Then, the researcher inserted the  $M_i$  and  $S_{Di}$  into the formula from Nurkancana and Sunarta (1992). Once the scales for each criterion had been determined, the researcher proceeded to accumulate the scores accordingly. The product received an "excellent" rating from both Expert 1 and Expert 2, with a mode value of 5. The evaluation through likert scale questionnaire from both experts can be a quantitative measure to assess the material effectiveness.

**Table 2:** The Accumulated Scale of Each Criterion

Mode Level (X)	Formula	Interval	Criteria
5	$X \geq M_i + 1.5 S_{di}$	$X \geq 4.5$	Excellent
4	$M_i + 0.5 S_{di} \leq X < M_i + 1.5 S_{di}$	$3.5 \leq X < 4.5$	Good
3	$M_i - 0.5 S_{di} \leq X < M_i + 0.5 S_{di}$	$2.5 \leq X \leq 3.5$	Average
2	$M_i - 1.5 S_{di} \leq X < M_i - 0.5 S_{di}$	$1.5 \leq X < 2.5$	Below Average
1	$X < M_i - 1.5 S_{di}$	$X < 1.5$	Poor

However, several aspects of the experts' feedback warrant consideration. Expert 1 recommended incorporating time allocation information into the product. Expert 2 suggested multiple enhancements: (1) including references and acknowledgments, (2) providing examples of text relevant to each unit, (3)

identifying generic structures and language features, (4) correcting grammar and vocabulary errors, (5) ensuring proper use of question marks, and (6) using vibrant colors to help students recognize and differentiate language features. These recommendations offer valuable insights for improving the developed English supplementary materials. The researcher subsequently revised the materials based on the experts' suggestions.

During the evaluation stage, the researcher conducted a small group tryout with eleventh-grade students at a state vocational school in Bali to assess the product's usability. The students actively engaged with the materials during the learning process and were encouraged to continue using the materials at home on their devices

The teacher's evaluation was analyzed using a formula adopted from Nurkancana and Sunarta (1992). The mode value of the overall judgement in the rubric was laid in the value of 5, indicated that the materials tended to be excellent, with specific aspects such as foundation, scope, structure and design, flexible delivery, content, critical thinking, creativity, collaboration, and communication being evaluated positively. This statement was strengthened by the result of the interview in the following excerpts.

Excerpt 1:

*"...In terms of design, I think it's really well done. The book has a lot of great elements, and the texts are justified nicely. I believe it covers the basic competencies well. Plus, it includes other important skills too. Overall, it's quite good!."*

Through the interview, the teacher also highlighted the strengths of the materials, such as their relevance to students' needs, clarity of explanations, engaging activities, alignment with the tourism service business major and 4C skills.

Excerpt 2:

*"...The content is engaging with lots of illustrations that really help explain things. It's great that it's focused on tourism. The activities are enjoyable and make you think, plus the book feels modern. Overall, I think this book does a good job of enhancing students' 4C skills."*

Moreover, the teacher also expressed her expectation toward the 4C-based English supplementary materials that has been developed and implemented. It is strengthened by the following excerpt.

Excerpt 3:

*"The content is really interesting and relevant to tourism, so it should definitely be published and made available to the public. However, if you're planning to publish it, I recommend adding answer sheets for the students directly in the book. It would be better because government main course books usually have answer sheets, so having them in the English supplementary materials book would be more convenient for everyone..."*

Suggestions for improvement included adding answer sheets and making revisions to the design and assessment activities. The teacher acknowledged the materials' potential to enhance students' 4C skills and expressed optimism about their publication and commercialization, particularly emphasizing the need for answer sheets to align with the main course book.

Subsequently, the researcher interviewed a group of randomly selected students from XI ULP B to gather their feedback on the product. Although multiple students took part, only data from five were analyzed since the information had reached saturation. The students were given an interview guide with questions adapted from (Brewster et al., 1992; Tomlinson, 2003; Widiastuti et al., 2022) to evaluate the quality of the supplementary materials from their perspective. The interview began with questions about their opinions on the English supplementary materials used during the small group tryout. The students' responses are detailed in the following excerpts (Sn represents each student).

Excerpt 4:

*"I think the book is fascinating because I can learn English by using the book." (S1)*

Excerpt 5:

*"The book is understandable and readable. The design is also fascinating. It is user-friendly maybe because the book is in the form of PDF." (S3)*

Based on the responses, the students found the English supplementary materials to be interesting, comprehensible, readable, and accessible. They expressed that the materials were engaging and appreciated the user-friendly

design of the PDF or e-book format. These positive reactions indicate that the supplementary materials effectively support language learning.

The students also noted that the activities were intellectually stimulating and required critical thinking skills. Some questions in the book lacked explicit answers, prompting additional research or reliance on personal experience to answer effectively. These insights suggest that integrating such materials into language learning can enhance students' linguistic proficiency and critical thinking abilities. These observations are supported by the students' responses, detailed in the following excerpts (Sn represents each student).

Excerpt 6:

*"I found the activities really challenging; some questions didn't have answers in the book, like the one about Pura Teluk Terima. I had to look it up online because I didn't know the place. It made me do research to answer the question in my own words. There were also questions that required using personal experience, which made me think even harder."*

(S1)

The students' feedback indicated that the activities in the English supplementary materials book were intellectually stimulating and required critical thinking skills. Some questions lacked direct answers, prompting students to conduct additional research or draw from personal experiences to respond effectively. This suggests that integrating such materials into language learning can improve students' language proficiency and develop their critical thinking abilities.

Furthermore, the students recognized that the 4C-based English supplementary materials effectively fostered their creativity. The task of creating posters, in particular, was highlighted as an engaging activity that encouraged them to unleash their creativity and make their posters captivating. These insights were provided by the students during interviews, as detailed in excerpts 7 and 8.

Excerpt 7:

*"There's this activity where we have to make a poster in the book. It really pushes us to be creative and make the poster captivating."* (S5)

Excerpt 8:

*"I feel like the activity that really boosts my creativity is making a poster. You have to include pictures and everything else a poster needs, so you've got to get super creative with it.."* (S3)

The activities included in the developed 4C-based English supplementary materials also played a role in improving students' collaborative skills according to the students' review through the interview. The incorporation of group-based activities facilitated teamwork among students, fostering an environment where they could collaborate, exchange ideas, offer suggestions, and accomplish tasks more efficiently. The students expressed favorable views towards the activities in the book and acknowledged their positive impact on enhancing their collaboration skills.

Excerpt 9:

*"...There are group activities in the book, which require us to collaborate with friends." (S4)*

Student 3 added the response from Student 4 in excerpt 10.

Excerpt 10:

*"I think the activities in the book really help develop my collaboration skills. There are group activities such as creating sentences, making posters, and arranging pictures that require working together with friends to finish them faster." (S3)*

The learning activities provided in the product also viewed able to improve the students' communication skills. The inclusion of interactive tasks, such as creating posters and responding to questions based on personal experiences, provided a conducive environment for students to express their thoughts and ideas with ease. These activities appeared to have a particularly positive influence on students who may have previously lacked confidence in effectively communicating their ideas. These statements were strengthened by excerpts 11 and 12 which were the students' response in the interview.

Excerpt 11:

*"...I've noticed that I can express my ideas through posters and by answering questions based on my experiences. This has made me more comfortable sharing my thoughts with my friends." (S5)*

Excerpt 12:

*"Initially, I thought I could only share my ideas through presentations, which require a lot of confidence to present in front of the class. Now, I've realized that I can also share my ideas through posters, which makes me feel more comfortable expressing myself." (S1)*

In conclusion, the evaluation of the 4C-based English supplementary materials book obtained positive feedback from both the teacher and the students. The teacher's evaluation indicated that the materials were excellent, with specific aspects such as design, content, and the integration of 21st-century skills receiving positive evaluations. The students' feedback revealed that the materials were interesting, comprehensible, readable, and accessible, and they appreciated the user-friendly design. The activities in the book were found to be intellectually stimulating, requiring critical thinking skills and prompting students to conduct additional research or draw from personal experiences. This integration of such materials was seen to enhance students' language proficiency and critical thinking abilities. Furthermore, the activities in the book fostered students' creativity, collaboration, and communication skills. The creation of posters and the inclusion of group activities provided opportunities for students to showcase their creativity, collaborate with peers, and improve their communication skills. Overall, the developed English supplementary materials book demonstrated its potential to enhance students' language learning and 21st-century skills. The feedback provided valuable insights for further improvement, including the addition of answer sheets and revisions to the design and assessment activities.

## **Discussion**

This study builds on the work of Abbasi et al. (2015), (Widiastuti et al., 2022) and (Tomlinson, 2012), who emphasize the critical role of teachers in developing supplementary materials to enhance students' productive and receptive skills. The integration of 21st-century skills, known as the 4C skills—critical thinking, creativity, collaboration, and communication—is crucial for students to succeed in the modern educational landscape, aligning with the Merdeka Belajar curriculum (Kemendikbud RI, 2021; Radifan & Dewanti, 2020). Despite previous research focusing primarily on the development of learning materials, the integration of 4C skills has often been overlooked. This study addresses this gap by employing a Design and Development (D&D) approach, using the ADDE (Analysis, Design, Development, and Evaluation) model to systematically create and evaluate English supplementary materials for eleventh-grade vocational students in tourism service business. The D&D research design provides a systematic framework that allows for an iterative and flexible

process, facilitating modifications based on expert and user feedback (Richey & Klein, 2007).

The research began with an analysis stage to collect data for designing and developing the supplementary materials. This phase highlighted the need for materials that provide comprehensive content relevant to students' majors, with activities designed to enhance language proficiency and 4C skills. The findings underline the importance of creating materials that are engaging and tailored to students' levels, learning styles, and abilities, addressing potential issues of boredom and distraction in the classroom. During the design stage, blueprints and layouts were created to align with the learning objectives, students' needs, and the integration of 4C skills. The layout design considers students' levels, learning styles, abilities, and course content, ensuring engagement and addressing the potential boredom and distraction of high school students during the learning process. The development process included seven steps, starting with identifying existing materials and designing activities that reinforce 4C skills. These activities were practical and applicable to real-world scenarios, specifically tailored to the tourism major. The materials were designed to be flexible, accessible, and free from stereotypes, encouraging self-assessment and feedback among students (BOTA, 2005). Furthermore, the activities are specifically designed to integrate each of the 4C skills. Critical thinking skills are developed through activities that promote analysis and problem-solving. Collaboration skills are fostered through group work, while creativity skills are stimulated through tasks that encourage students to create original works related to tourism. Lastly, communication skills are enhanced through activities that provide opportunities for students to express their ideas and build confidence in effective communication. Erdogan (2019) and Chiruguru (2020) support the inclusion of 4C skills in learning materials, as these skills are essential for students to become critical thinkers, creators, collaborators, and proficient communicators.

The materials underwent evaluation by both experts and teachers, who rated them as excellent in terms of relevance, originality, challenge, and suitability for school learning time. Visual designs and motivating activities received high praise, though some suggestions for language use improvements were noted. Flexible delivery of materials was also rated highly, with some recommendations for providing exercises in various learning contexts. The teacher's evaluation confirmed



the experts' assessments, emphasizing that the materials met students' needs and aligned with their interests and career paths.

To promote successful implementation of the material, teachers were trained for 2 weeks. Teachers participated in a series of workshops on integrating the materials into their teaching. The training included how to apply the mobile-based supplementary materials effectively, strategies for incorporating the 4Cs (Critical Thinking, Creativity, Collaboration, Communication) into lesson planning and peer support to understand step-by-step lesson plans, assessment rubrics, and troubleshooting guides.

The implementation at a state vocational school in Bali, following Richey and Klein (2007) approach, included collecting feedback from students through interviews. The students found the materials comprehensible, engaging, and effective in enhancing English learning and fostering 4C skills. These findings align with Abbasi et al. (2015), who demonstrated that creatively designed supplementary materials can boost students' motivation to learn English. Additionally, based on the students' feedback, the e-book format of the developed materials, presented in understandable language, facilitated easier English learning, even in autonomous settings. This finding corresponds with the results of a study conducted by Berlin et al., (2022) which highlighted the beneficial impact of e-supplementary materials with simplified language on students' English learning in online or offline contexts.

The long-term impacts of using the supplementary materials can be in terms of language fluency, accuracy, and confidence in English communication as students are given regular exposure to real-world tourism scenarios. Moreover, the developed materials effectively promoted 4C skills, as evidenced by student feedback. Activities were intellectually stimulating and required critical thinking, prompting students to conduct additional research or draw from personal experiences. The materials also enhanced creativity through tasks like creating posters and arranging pictures, and collaboration through group work activities. Communication skills were improved through activities such as creating posters, videos, and participating in debates, allowing students to express their ideas both verbally and non-verbally (BOTA 2005; Chiruguru 2020; Pardede 2020; Tamela and Dwi 2021). Additionally, students may develop a deeper understanding of Balinese tourism-specific language use, making them more effective in professional settings. Also, students may develop self-regulated learning skills, as the mobile based

supplementary material may fosters self-directed learning habits, encouraging students to practice beyond the classroom (Berlin, et all, 2022).

To evaluate the effectiveness of the material over time, teacher may conduct periodic language proficiency tests (e.g., speaking, listening, and vocabulary) to see their progress. Furthermore, teacher may compare the performance of students using these materials with those using traditional resources to assess effectiveness (Tammela and Dwi, 2021).

This study highlights that incorporating 4C skills into English supplementary materials improves students' language proficiency and critical thinking. However, the assessment of the materials' effectiveness could have been more representative of the broader student population if a larger sample had been included. Expanding the participant pool would enhance the applicability of the findings and provide a more comprehensive understanding of the materials' impact. Additionally, a more diverse range of perspectives could uncover trends and insights that may not emerge in a smaller group. Therefore, future research should consider involving a larger and more varied group of students to ensure a more thorough evaluation.

The systematic development and iterative evaluation of these materials ensure they meet the educational demands of the Merdeka Belajar curriculum and the Fourth Industrial Revolution, providing a valuable resource for vocational high school education. The findings highlight the potential of well-designed supplementary materials to foster essential 21st-century skills, preparing students for future academic and professional success.

## **Conclusion and Suggestion**

The development of English supplementary materials based on the 4C skills—critical thinking, creativity, collaboration, and communication—is essential for enhancing these skills within the 21st-century learning environment and the Merdeka Belajar curriculum. Previous research has underscored the importance of integrating 4C skills into learning materials, and this study fills that gap by utilizing a Design and Development approach along with the ADDE model. The materials were meticulously designed to align with learning objectives, meet students' needs, and incorporate 4C skills. They were deemed relevant, original, and challenging, effectively accommodating school schedules and promoting engagement and the development of critical thinking, creativity, collaboration, and communication.

The materials received positive evaluations from experts, teachers, and students, who found them comprehensible, user-friendly, and effective in enhancing English learning and fostering 4C skills. These findings affirm the value of well-designed supplementary materials in boosting students' motivation and facilitating English learning, especially when presented creatively and accessibly. Moreover, the materials successfully promoted the students' 4C skills, as evidenced by their improved critical thinking, creativity, collaboration, and communication abilities. Overall, the development and implementation of these supplementary materials offer valuable insights into effective teaching strategies for fostering 4C skills and meeting the demands of the Merdeka Belajar curriculum

This study has several limitations. First, the effectiveness of the developed supplementary material in enhancing 4C skills is based solely on qualitative feedback from students and an individual teacher. There was no statistical analysis conducted to provide more precise and generalizable results. Additionally, the limited number of participants in the study may affect the reliability and validity of the findings.

Future research should include a larger sample size and employ statistical methods to assess the impact of supplementary materials on learning quality more accurately. Such research could provide more robust conclusions about how these materials can help students develop critical thinking, creativity, communication, and collaboration skills in a more effective manner.

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