

Supplementary Material Development for Customer Service Course Based on Standard Campus Communication Phrases at Aviation Polytechnic of Surabaya

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ABSTRACT

The aviation industry requires human resources with professional service communication skills and English proficiency to support interactions with passengers. To standardize English communication in transportation higher education institutions, the Transportation Human Resources Development Agency (BPSDMP) introduced Standard Campus Communication Phrases (SCCP) in 2022. However, Customer Service learning at Aviation Polytechnic of Surabaya has not been supported by contextual supplementary learning materials integrating SCCP, while existing English learning materials generally emphasize language proficiency rather than standardized communication practices in aviation services. Addressing this gap, this study developed SCCP-based supplementary learning material designed for Customer Service course at Aviation Polytechnic of Surabaya. The study employed a Research and Development (R&D) approach using the 4D model, consisting of the Define, Design, Develop, and Disseminate stages. The product was designed using Figma and implemented through the institution's Learning Management System (LMS). Data were collected through needs analysis questionnaires, expert validation sheets, and interviews with cadets. The results showed that the developed supplementary learning material met the identified learning needs of cadets and achieved a 100% feasibility score based on expert validation of the material, media, and language aspects using predetermined assessment criteria, indicating that all evaluation indicators were fulfilled. Interview findings also revealed positive responses regarding the content, usability, and relevance of the material to aviation customer service communication. The developed supplementary learning material provides a contextual learning resource that facilitates the implementation of SCCP in the Customer Service course and supports the development of English

communication competence required in aviation vocational education.

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1. INTRODUCTION

The aviation industry requires human resources who possess not only technical competencies but also professional English communication skills. In the aviation sector, *customer service* personnel serve as frontline staff who interact directly with passengers in providing information, assistance, and complaint handling. Therefore, effective English communication is essential to ensure service quality and customer satisfaction (Satvinder Singh et al., 2021). The D-III Air Transportation Management Study Program at the Aviation Polytechnic of Surabaya offers the *Customer Service* course to prepare cadets for service-related duties in the aviation industry. However, preliminary observations indicated that learning activities are still dominated by theoretical concepts and lack supplementary materials containing practical and standardized examples of English service communication.

To support English communication standardization, the Transportation Human Resources Development Agency (BPSDMP) issued the *Standard Campus Communication Phrases* (SCCP) through Decree No. 09 of 2022. SCCP provides a collection of English communication phrases for transportation higher education institutions. Nevertheless, its application in the *Customer Service* course remains limited. A needs analysis involving 68 cadets revealed that 100% required examples of service communication phrases and conversations, while 95.59%–100% expected learning materials equipped with audio, visual elements, online access, and Indonesian translations.

Although previous studies have developed Aviation English learning materials to improve learners' professional communication competence (Nugraha et al., 2023), research integrating SCCP into *Customer Service* learning in aviation vocational education remains limited (Agisni et al., 2023). Therefore, this study aims to develop SCCP-based *supplementary learning material* for the *Customer Service* course using the 4D development model (*Define, Design, Develop, and Disseminate*) to support English service communication learning for cadets of the D-III Air Transportation Management Study Program at the Aviation Polytechnic of Surabaya.

2. METHODS

2.1 Research Design

This study employed the Research and Development (R&D) method to develop SCCP-based supplementary learning material for the *Customer Service* course in the D-III Air Transportation Management Study Program at the Aviation Polytechnic of Surabaya. The study adopted the 4D development model proposed by Thiagarajan, Semmel, and Semmel, consisting of four stages: *Define, Design, Develop, and Disseminate* (Thiagarajan, 1974). This model was selected because it provides systematic and structured procedures for developing instructional materials in vocational education (Fadlia et al., 2022). The *Define* stage focused on identifying learners' needs through a needs analysis questionnaire and literature review. The *Design* stage involved developing the initial product design using Figma. The *Develop* stage included expert validation and a limited trial involving cadets. The

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Disseminate stage involved publishing the finalized product through the Learning Management System (LMS) of the Aviation Polytechnic of Surabaya.

2.2 Population and Sample

The research population consisted of 68 cadets from the D-III Air Transportation Management Study Program, including 21 cadets from Class XI A, 24 cadets from Class XI B, and 23 cadets from Class XI C. All 68 cadets participated in the needs analysis stage. A limited product trial was conducted with 21 cadets from Class XI A, who were selected as the initial target users to evaluate the usability, content suitability, and practicality of the developed supplementary learning material during the development stage. This sample size is consistent with the purpose of a limited trial in Research and Development (R&D), which emphasizes evaluation and product refinement rather than statistical generalization. In addition, five cadets were purposively selected for interviews because they were considered capable of providing representative feedback regarding the usability, content suitability, benefits, and recommendations for product improvement. Therefore, the findings from the limited trial should be interpreted within the context of the study and may not be generalized to broader populations without further testing involving larger and more diverse samples.

2.3 Data Collection Techniques and Instrument Development

Data were collected through four techniques: literature review, questionnaires, expert validation, and interviews.

1. Literature Review was conducted to obtain theoretical foundations related to *customer service*, supplementary learning materials, instructional media, and *Standard Campus Communication Phrases* (SCCP).
2. Questionnaires were distributed to identify cadets' needs regarding content, presentation, language, and learning aspects of the supplementary learning material.
3. Expert Validation Sheets were used to assess the product from material, media, and language expert before implementation. The supplementary learning material was validated by three experts purposively selected based on their academic qualifications and professional expertise. The validators consisted of a Customer Service lecturer (material expert), an Information Technology lecturer (media expert), and the Head of the Language Unit (language expert) at Aviation Polytechnic of Surabaya. They evaluated the product in terms of content, media design, and language appropriateness prior to implementation.
4. Semi-Structured Interviews were conducted with 5 cadets after the limited trial to explore their experiences, perceptions, and suggestions regarding the developed product.

Before implementation, the needs analysis questionnaire was tested on 40 tenth-semester cadets who had completed the *Customer Service* course. Validity was measured using Pearson Product-Moment correlation, while reliability was measured using Cronbach's Alpha coefficient.

2.4 Data Analysis Techniques

Quantitative data obtained from the needs analysis questionnaire and expert validation sheets were analyzed using descriptive statistics in the form of percentages. The percentage score was calculated using the following formula:

$$P = f / N \times 100\%$$

The results are interpreted as excellent, good, fair, or poor in determining user needs and product feasibility. Qualitative data obtained from interviews were analyzed using an interactive analysis model consisting of data reduction, data display, and conclusion drawing (Sugiyono, 2023). This analysis was conducted to obtain a deeper understanding of users' experiences when using the developed supplementary learning material.

2.5 Research Location and Time

This research was conducted at the D-III Air Transportation Management Study Program, Aviation Polytechnic of Surabaya. The institution was selected because it offers the *Customer Service* course and implements SCCP as a communication standard within the transportation education environment. The study was carried out from January to June 2026, covering all stages of the 4D

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development model from needs analysis to product dissemination through the Learning Management System (LMS).

3. FINDINGS AND DISCUSSION

3.1 User Needs Analysis

The define stage began with a literature review and a needs analysis conducted through questionnaires distributed to 68 cadets of the D-III Air Transportation Management Study Program, consisting of 21 cadets from Class XI A, 24 cadets from Class XI B, and 23 cadets from Class XI C. The literature review revealed that studies on the development of *Customer Service* supplementary learning materials integrating *Standard Campus Communication Phrases* (SCCP) are still limited. This finding served as the foundation for developing learning materials that address the communication needs of aviation vocational education.

Prior to implementation, the questionnaire was tested on 40 tenth-batch cadets who had completed the *Customer Service* course. The validity test showed correlation coefficients ranging from 0.481 to 0.826, exceeding the minimum criterion of 0.30, indicating that all items were valid. The reliability test yielded a Cronbach's Alpha value of 0.910, demonstrating very high reliability (Purwanto, 2018).

Correlations

	p1	p2	p3	p4	p5	p6	p7	p8	p9	p10	p11	p12	p14	p14	p15	Total
p1 Pearson Correlation	1	.467**	.316*	.217	.483**	.211	.507**	.455**	.360*	.527**	.467**	.441**	.147	.258	.527**	.575**
Sig. (2-tailed)		.002	.007	.179	.002	.192	.001	.003	.023	.000	.002	.004	.366	.108	.000	.000
N	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40
p2 Pearson Correlation	.467**	1	.527**	.448**	.692**	.527**	.394*	.565**	.467**	.632**	.360*	.441**	.467**	.465**	.738**	.826**
Sig. (2-tailed)	.002		.000	.004	.000	.000	.012	.000	.002	.000	.023	.004	.002	.003	.000	.000
N	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40
p3 Pearson Correlation	.316*	.527**	1	.297	.537**	.479**	.356*	.523**	.422**	.375*	.527**	.390*	.527**	.306	.479**	.722**
Sig. (2-tailed)	.047	.000		.063	.000	.002	.001	.000	.007	.017	.000	.013	.000	.055	.002	.000
N	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40
p4 Pearson Correlation	.217	.448**	.297	1	.150	.183	.208	.290	.217	.526**	.101	.343*	.332*	.168	.297	.481**

	Sig. (2-tailed)	.179	.004	.063		.355	.259	.198	.070	.179	.000	.534	.030	.036	.300	.063	.002
	N	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40
p5	Pearson Correlation	.483**	.692**	.537**	.150	1	.330*	.430**	.375*	.483**	.434**	.379*	.341*	.483**	.354*	.640**	.711**
	Sig. (2-tailed)	.002	.000	.000	.355		.037	.006	.017	.002	.005	.016	.032	.002	.025	.000	.000
	N	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40
p6	Pearson Correlation	.211	.527**	.479**	.183	.330*	1	.245	.414**	.316*	.375*	.527**	.185	.211	.408**	.479**	.609**
	Sig. (2-tailed)	.192	.000	.002	.259	.037		.128	.008	.047	.017	.000	.254	.192	.009	.002	.000
	N	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40
p7	Pearson Correlation	.507**	.394*	.356*	.208	.430**	.245	1	.361*	.507**	.245	.620**	.285	.169	.327*	.468**	.597**
	Sig. (2-tailed)	.001	.012	.024	.198	.006	.128		.022	.001	.128	.000	.075	.297	.039	.002	.000
	N	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40
p8	Pearson Correlation	.455**	.565**	.523**	.290	.375*	.414**	.361*	1	.234	.414**	.565**	.553**	.234	.480**	.523**	.697**
	Sig. (2-tailed)	.003	.000	.001	.070	.017	.008	.022		.146	.008	.000	.000	.146	.002	.001	.000
	N	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40
p9	Pearson Correlation	.360*	.467**	.422**	.217	.483**	.316*	.507**	.234	1	.316*	.360*	.441**	.360*	.467**	.422**	.643**
	Sig. (2-tailed)	.023	.002	.007	.179	.002	.047	.001	.146		.047	.023	.004	.023	.003	.007	.000
	N	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40
p10	Pearson Correlation	.527**	.632**	.375*	.526**	.434**	.375*	.245	.414**	.316*	1	.316*	.492**	.527**	.306	.583**	.699**

	Sig. (2-tailed)	.000	.000	.017	.000	.005	.017	.128	.008	.047		.047	.001	.000	.055	.000	.000
	N	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40
p11	Pearson Correlation	.467**	.360*	.527**	.101	.379*	.527**	.620**	.565**	.360*	.316*	1	.234	.253	.361*	.422**	.643**
	Sig. (2-tailed)	.002	.023	.000	.534	.016	.000	.000	.000	.023	.047		.147	.115	.022	.007	.000
	N	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40
p12	Pearson Correlation	.441**	.441**	.390*	.343*	.341*	.185	.285	.553**	.441**	.492**	.234	1	.337*	.402*	.595**	.647**
	Sig. (2-tailed)	.004	.004	.013	.030	.032	.254	.075	.000	.004	.001	.147		.033	.010	.000	.000
	N	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40
p14	Pearson Correlation	.147	.467**	.527**	.332*	.483**	.211	.169	.234	.360*	.527**	.253	.337*	1	.361*	.422**	.609**
	Sig. (2-tailed)	.366	.002	.000	.036	.002	.192	.297	.146	.023	.000	.115	.033		.022	.007	.000
	N	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40
p14	Pearson Correlation	.258	.465**	.306	.168	.354*	.408**	.327*	.480**	.465**	.306	.361*	.402*	.361*	1	.612**	.646**
	Sig. (2-tailed)	.108	.003	.055	.300	.025	.009	.039	.002	.003	.055	.022	.010	.022		.000	.000
	N	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40
p15	Pearson Correlation	.527**	.738**	.479**	.297	.640**	.479**	.468**	.523**	.422**	.583**	.422**	.595**	.422**	.612**	1	.823**
	Sig. (2-tailed)	.000	.000	.002	.063	.000	.002	.002	.001	.007	.000	.007	.000	.007	.000		.000
	N	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40
Tot al	Pearson Correlation	.575**	.826**	.722**	.481**	.711**	.609**	.597**	.697**	.643**	.699**	.643**	.647**	.609**	.646**	.823**	1

Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	
N	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40

Figure 1. Validity Test Result**Reliability Statistics**

Cronbach's Alpha	N of Items
.910	15

Figure 2. Reliability Test Result

The needs analysis results indicated that all indicators were categorized as “Highly Needed”, with positive response percentages ranging from 95.59% to 100%. Cadets expressed a strong need for supplementary materials containing English service communication phrases, service conversation examples, audio-visual learning support, online accessibility, Indonesian translations, and self-directed learning features.

Table 1. Summary of User Needs Analysis

Needs Aspect	Percentage
Greeting phrases	100%
Offering help phrases	100%
Giving information phrases	100%
Handling complaints phrases	100%
Closing conversation phrases	100%
English service communication phrases	100%
Service conversation examples	100%
Audio and visual learning support	100%
Online accessibility	95.59%
Indonesian translations	95.59%
Easy-to-understand language	98.53%
Self-directed learning support	95.59%

These findings indicate that cadets require SCCP-based supplementary learning materials presented in a digital format that is accessible, practical, and supportive of independent learning.

3.2 Product Design Results

The design stage involved creating the initial design of the SCCP-based *Customer Service* supplementary learning material according to the results of the needs analysis. The product was developed using Figma and supported by English audio generated through Canva AI Voice Generator using an American English voice model.



Figure 3. Product Developing Process in Figma

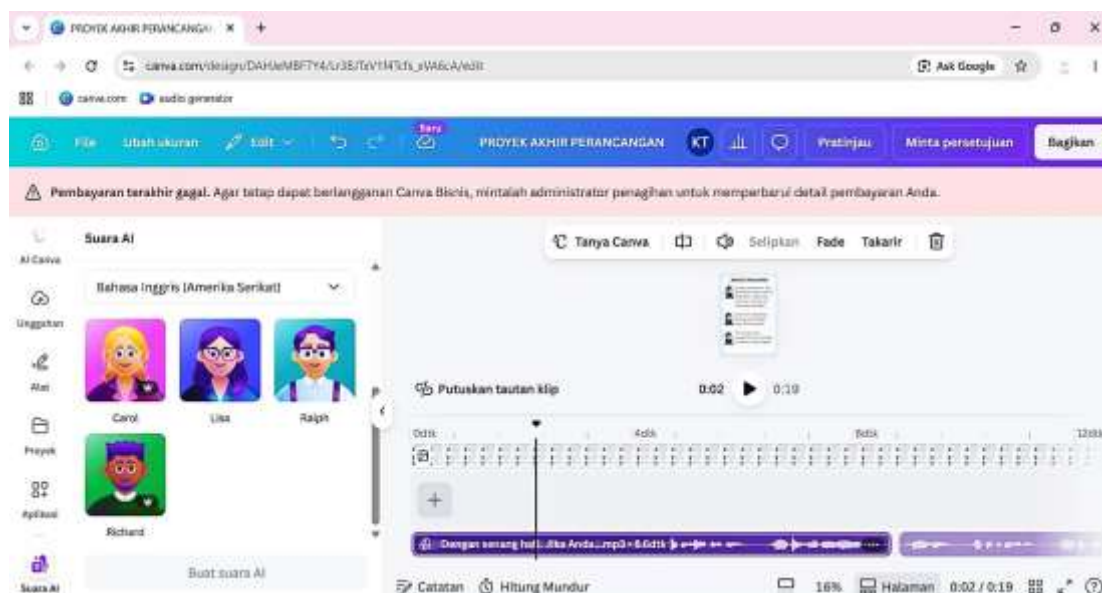


Figure 4. Product Developing Process in Canva

The learning material consists of three main sections: Introduction, Main Content, and Closing. The Introduction section contains a user guide and table of contents. The Main Content section includes five communication topics: *Greeting Passengers*, *Offering Help*, *Giving Information*, *Handling Complaints*, and *Closing Conversation*. Each topic contains service communication phrases, dialogue examples, pronunciation audio, visual illustrations, and Indonesian translations. The Closing section provides references used in developing the material.

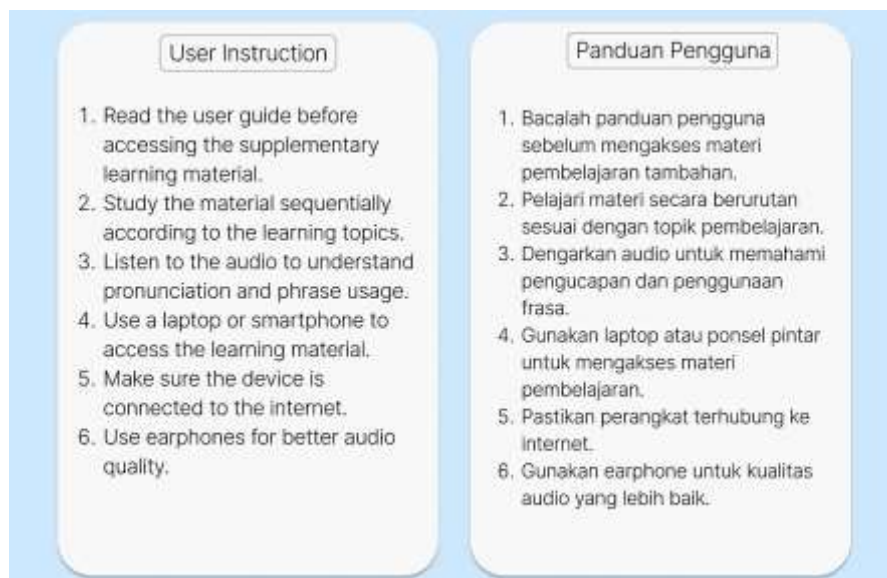


Figure 5. User Instruction



Figure 6. List of Content

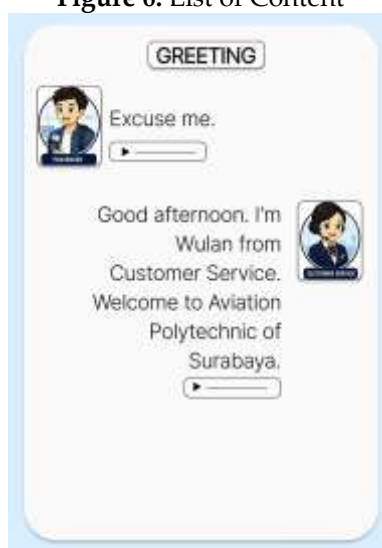


Figure 7. Greeting in Main Content



Figure 8. Indonesian Translation of Greeting in Main Content

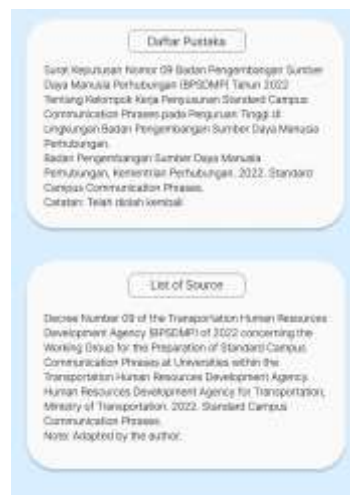


Figure 9. List of Source

3.3 Product Validation Results

The development phase begins with product validation by media experts, material experts, and linguists. Validation was conducted to assess the product's suitability in terms of appearance, content, and language use before it was implemented with users.

Table 2. Product Validation Results

Validator	Percentage	Category
Media Expert	100%	Highly Appropriate
Material Expert	100%	Highly Appropriate
Language Expert	100%	Highly Appropriate

The supplementary learning material was evaluated by media, material, and language experts using validation sheets based on predetermined assessment criteria. Although all experts rated the product as Highly Appropriate with a feasibility score of 100%, the validation process also generated constructive suggestions for product refinement. In particular, the media expert recommended adding explanatory text to accompany the multimedia content uploaded to the institution's Learning Management System (LMS) to improve user guidance and learning clarity. This recommendation was incorporated into the final version of the product before implementation. The revision did not alter the

overall feasibility score because the product had already fulfilled all evaluation criteria, but it enhanced the clarity and usability of the learning material. The media expert validation results indicated that the product met all evaluation criteria related to layout, readability, color composition, illustrations, and usability. Likewise, the material expert confirmed that the developed material was consistent with the learning outcomes, course objectives, and the competencies required in the Customer Service course. The language expert also concluded that the language used in the product was grammatically accurate, clear, readable, and appropriate for cadets in the D-III Air Transportation Management Study Program. Overall, the expert validation results demonstrate that the developed supplementary learning material is suitable for implementation while also benefiting from minor refinements suggested during the validation process.

3.4 User Trial Results

A limited trial was conducted with 21 cadets from Class XI A of the D-III Air Transportation Management Study Program. To obtain more detailed feedback, interviews were conducted with five purposively selected cadets. Before implementation, the interview instrument was validated by two expert validators and achieved a score of 100%, indicating that it was suitable for collecting user feedback. Interview results showed that the supplementary learning material was easy to use due to its simple interface, clear navigation, and user-friendly instructions. Participants stated that the content was relevant to aviation service communication, particularly in the areas of *greeting, offering help, giving information, handling complaints, and closing conversations*. The integration of audio, images, text, and dialogue examples was considered helpful in improving understanding of English service communication. Participants also reported benefits in enhancing speaking and listening skills, expanding vocabulary, and understanding service expressions in authentic contexts.

Overall, the supplementary learning material was considered engaging, relevant to learning needs, and appropriate for use as a supporting learning resource. Nevertheless, several suggestions for improvement were provided, including the addition of more varied audio materials and service communication dialogues to enrich the learning experience.

3.5 Dissemination Results

The disseminate stage was carried out by publishing the supplementary learning material on the Learning Management System (LMS) of Aviation Polytechnic of Surabaya (<https://courses.poltekbangsby.ac.id/course/view.php?id=564>). The material was organized into Introduction, Main Content, and Closing sections to facilitate systematic learning. Through the LMS, cadets can access the material anytime and anywhere, supporting flexible and independent learning. The implementation also supports the integration of SCCP as a standard English communication guideline within transportation vocational education.



Figure 10. Product Uploaded on LMS

Overall, the results indicate that the SCCP-based *Customer Service* supplementary learning material successfully met user needs, obtained excellent validation results from experts, and received positive feedback from users. Therefore, the product is considered suitable as a supplementary learning resource to support English service communication competence among cadets of the D-III Air Transportation Management Study Program at Aviation Polytechnic of Surabaya.

3.6 Discussion

Relevance of User Needs Analysis

The needs analysis revealed that cadets required supplementary learning materials containing English service communication phrases, conversation examples, audio-visual support, online accessibility, and Indonesian translations. The high percentage of positive responses (95.59%–100%) indicates that existing learning resources have not fully accommodated the practical communication needs of cadets in the *Customer Service* course. These findings support Dewantara et al. (2024), who stated that supplementary learning materials can enrich learning experiences and provide more contextual learning opportunities. The results also confirm that aviation vocational students require learning resources that bridge theoretical knowledge and real-world service communication practices.

Appropriateness of the SCCP-Based Supplementary Learning Material Design

The developed product integrated Standard Campus Communication Phrases (SCCP) with customer service communication topics, including greeting passengers, offering help, giving information, handling complaints, and closing conversations. The integration of standardized communication phrases, audio pronunciation, visual illustrations, and bilingual explanations was designed to facilitate independent learning and contextual understanding. The product design aligns with the principles of learner-centered learning, which emphasize accessibility, flexibility, and active learner engagement. The use of Figma and digital learning resources also supports the integration of technology in vocational education, allowing cadets to access learning materials anytime and anywhere through the Learning Management System (LMS) (Muhiddah et al., 2025).

Product Feasibility Based on Expert Validation

The validation results demonstrated that the supplementary learning material achieved a feasibility score of 100% from material, media, and language experts. These findings indicate that the developed product meets the required standards in terms of content relevance, instructional design, visual presentation, and language accuracy. The positive validation results support previous studies that highlighted the importance of expert review in ensuring the quality and effectiveness of

instructional materials. Furthermore, the experts' suggestions regarding the addition of explanatory text for multimedia content contributed to improving the overall usability and clarity of the product.

User Responses Toward the Developed Product

The limited trial results showed that cadets responded positively to the developed supplementary learning material. Participants reported that the material was easy to use, visually appealing, and relevant to aviation service communication needs. The inclusion of audio, dialogue examples, and Indonesian translations helped improve comprehension and facilitated independent learning. The findings also indicate that the product has the potential to support the development of English communication skills, particularly speaking and listening abilities. This result is consistent with previous research suggesting that digital learning materials incorporating multimedia elements can enhance learner motivation, engagement, and language acquisition.

Contribution to Customer Service Learning in Aviation Vocational Education

This study contributes to aviation vocational education by developing supplementary learning material that integrates SCCP with customer service communication competencies. Unlike previous studies that focused primarily on general English learning media, this product specifically addresses service communication needs within the aviation context. The integration of SCCP provides standardized communication practices while ensuring that learning materials remain relevant to real-world customer service situations. Therefore, the developed product can serve as an alternative learning resource that supports both English language development and professional communication competence among aviation cadets.

Research Limitations

Several limitations should be acknowledged. First, the product trial was conducted only with 21 cadets from one class, limiting the generalizability of the findings. Second, the study focused on product development and feasibility evaluation rather than measuring learning effectiveness. Third, the supplementary learning material does not yet include interactive assessments, automatic feedback, or progress-tracking features. Future studies are recommended to evaluate the effectiveness of the product through experimental research and to enhance the learning material by incorporating interactive exercises, self-assessment tools, and additional service communication scenarios.

4. CONCLUSION

This study developed supplementary learning material based on the *Standard Campus Communication Phrases* (SCCP) for the Customer Service course in the D-III Air Transportation Management Study Program at Aviation Polytechnic of Surabaya using the 4D development model (*Define, Design, Develop, and Disseminate*). The needs analysis revealed a strong demand for contextual learning materials that support English service communication through standardized communication phrases, dialogue examples, audio-visual resources, online accessibility, simple language, and Indonesian translations. In response to these needs, the developed product integrates five core customer service communication topics into a digital supplementary learning resource designed to support both classroom instruction and independent learning.

The product was confirmed through expert validation to be highly appropriate for instructional use and received positive responses from cadets regarding its relevance, usability, and usefulness in supporting English service communication learning. These findings indicate that the developed supplementary learning material provides a contextual and practical learning resource that facilitates the implementation of SCCP within Customer Service learning in aviation vocational education.

Theoretically, this study contributes to the implementation of SCCP by demonstrating its application as a foundation for developing contextual supplementary learning materials in aviation vocational education. The findings extend the role of SCCP beyond a communication guideline into an instructional resource that supports English service communication learning. Practically, the developed

product provides lecturers with an additional instructional resource while enabling cadets to engage in more contextual and independent learning. Furthermore, the findings suggest that SCCP-based supplementary learning materials can support the development of the aviation English curriculum by integrating standardized service communication into Customer Service learning and serving as a reference for developing instructional materials for other aviation-related courses.

This study was limited to a product development process and a limited trial involving one class of cadets. Therefore, future research should involve larger and more diverse participant groups to examine the effectiveness of the developed supplementary learning material in improving English service communication competence through experimental or quasi-experimental research designs. In addition, future studies are encouraged to expand the scope of service communication topics and incorporate more interactive learning and assessment features to further enhance the instructional value of the product.

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