Development of Sociolinguistic Teaching Materials Using Gamma.App to Improve Student's Social Language Competence

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Abstract. This study aims to describe the process of developing sociolinguistic teaching materials assisted by Gamma.app using the Research and Development (R&D) method, which adapts the 4D development model: Define, Design, Develop, and Disseminate. The research results indicate that the developed teaching materials are suitable and effective for use in learning, and can enhance student participation and understanding of sociolinguistic material in their social language practices. The expert material validation rate was 87.87%, the expert media validation rate was 89.92%, and the product testing result was 88.6%. These findings indicate that the use of interactive digital media such as Gamma.app can be an innovative solution in the development of teaching materials in the digital age.

Keywords: development, teaching materials, sociolinguistics, gamma.app

1. Introduction

The development of digital technology has brought fundamental changes to the world of education, particularly in the development of interactive, adaptive, and easily accessible teaching materials. In the Society 5.0 era, education is required to be able to utilize the integration of information technology such as artificial intelligence, the Internet of Things, and big data so that the learning process becomes more dynamic, collaborative, and tailored to the needs and characteristics of learners (Mayasari & Indyastuti, 2023; Ubaidillah & Ulliyah, 2024). These innovations encourage educators to design digital instructional materials that not only present information but also create immersive learning experiences through text, visuals, audio, video, and interactive assessments (Fany et al., 2024; Hermawan & Wibawa, 2024). Furthermore, technology-based educational transformation also opens up opportunities for the realization of a more flexible, high-quality, and sustainable learning system in line with the direction of educational development in the Society 5.0 era (Sihombing et al., 2025; Mega, 2022).

In the context of sociolinguistic learning, one of the main challenges faced is the limited availability of teaching materials that can link theoretical concepts with the social reality of language in a contextual manner. However, sociolinguistics emphasizes the importance of understanding the relationship between language and society, including language variation, language choice, register, and communication norms (Mukhtar, 2018). Students often struggle to connect sociolinguistic theory with linguistic phenomena they encounter in their social

ICIESC 2025, September 16, Medan, Indonesia

DOI 10.4108/eai.16-9-2025.2361011

environment, leading to low social language competence. This condition indicates that sociolinguistic learning requires an innovative approach through teaching materials that are applicable, based on real phenomena, and able to integrate theory with linguistic practice (Holmes, 2013; Wardhaugh & Fuller, 2021). Thus, the development of contextual teaching materials not only strengthens students' conceptual understanding but also enhances their ability to critically analyze language practices in society.

Social language competence encompasses the ability to understand, analyze, and apply sociolinguistic concepts in real interactions according to norms and communication situations (Mukhtar, 2018). Mastering this competence is crucial for equipping students to communicate effectively in various social contexts. Therefore, innovative teaching materials are needed that can bridge theoretical understanding and practical application of sociolinguistic concepts.
Gamma.app, as an interactive digital platform, offers great potential in supporting the development of teaching materials. This platform allows for the creation of learning materials that are not only in text form but also include interactive multimedia elements that can be accessed online. The use of Gamma.app in education has demonstrated its ability to increase student engagement and facilitate concept understanding through attractive visual presentations and interactive quizzes.

Some previous studies relevant to this research include a study conducted by Wijaya, Vidianti, and Pebriantika (2022), which aimed to develop mobile learning-based teaching materials for the subject of learning and teaching strategies. The results of the study showed that the teaching materials developed had been implemented in the Educational Technology Study Program at Baturaja University and received a very good validation rating from experts. Furthermore, research by Landong et al. (2023) showed that the developed teaching materials were proven to be effective and valid, as evidenced by an increase in student learning outcomes with a completion rate of 96%. These findings indicate that the Realistic Mathematics Education (RME) approach used to develop teaching materials is suitable for fifth-grade elementary school students because it meets the criteria of validity, effectiveness, and practicality.

Furthermore, in study by Tansliova, Sari, and Wulandari (2024), it was stated that the development of teaching materials assisted by digital technology, namely Book Creator, has proven to be a good alternative in learning. The teaching materials created have met the validity criteria of experts, making them effective in enhancing students' understanding of instructional design for children with special needs. The expert validation results of 85.5% for content and 86% for design indicate that the teaching materials are suitable for use. Additionally, the effectiveness test of 86% shows that these teaching materials significantly contribute to the learning process and can be recommended for broader use.

These studies are relevant to this study because they also develop teaching materials assisted by digital media. However, there is a novelty in this study, namely the use of Gamma.app to develop sociolinguistic teaching materials. In previous studies, Gamma.app was not used as a tool, whereas this study adopts the application as the primary tool in developing teaching materials. This application allows students to access learning materials interactively, in-depth, and flexibly, focusing on understanding sociolinguistic concepts in real social contexts.

Based on this background, this study aims to develop Gamma.app-assisted sociolinguistic teaching materials to improve students' social language competence. These teaching materials are expected to integrate sociolinguistic theory with language practice in a social context in a more effective, interesting, and applicable manner.

2. Research Methods

This study uses the Research and Development (R&D) method by adapting the 4D development model (Define, Design, Develop, and Disseminate). This method was chosen because it is suitable for producing sociolinguistic teaching materials assisted by Gamma.app while testing its feasibility and effectiveness. The research stages began with the definition stage, which was carried out through classroom observations, interviews, and the distribution of questionnaires to lecturers and students of the Indonesian Language and Literature Education Study Program at the State University of Medan. This activity aimed to identify learning obstacles, material needs, and learning media preferences that were in line with student characteristics.

The next stage is the design phase, which involves setting learning objectives, designing the structure of sociolinguistic materials, and developing an initial design for teaching materials on the Gamma.app platform. At this stage, materials are designed with consideration for readability, relevance, and the integration of interactive elements such as infographics, videos, and quizzes to support student engagement.

The development stage involves creating a prototype of the teaching materials, which is then validated by subject matter experts and media experts. The validation process includes assessing the content, appearance, ease of use, and alignment with learning objectives. Revisions are made based on feedback from the experts, followed by a limited trial with one class of students taking the Sociolinguistics course. This trial aims to assess students' understanding of the material, level of participation, and learning experience.

The final stage is dissemination, which involves publishing the revised teaching materials to a wider audience through lectures and online access sharing. Data collection in this study was conducted through observation, questionnaires, and tests. Observation was used to obtain an initial overview of the learning conditions, questionnaires were used to collect data on needs and assess the suitability of the product, while tests were used to measure the effectiveness of the teaching materials in improving students' social language competencies. Data was analyzed using descriptive quantitative methods to determine the suitability and effectiveness of the developed teaching materials.

3. Result

3.1 Product Development

The development of teaching materials for the sociolinguistics course using Gamma.app was carried out to produce teaching materials that are relevant to the needs of students so that they can be used to improve students' social language competencies. The process of developing these teaching materials was carried out through several systematic stages, starting from needs analysis, content planning, content development using Gamma.app, to the evaluation stage. One of the most critical stages in this development process is expert validation. Validation was conducted by experts in the fields of sociolinguistics and language learning to ensure that the presented materials align with learning outcomes, pedagogical principles, and scientific accuracy.

Referring to Table 1 below, the results of expert validation of the sociolinguistics teaching materials assisted by Gamma.app can be seen. The validation results are assessed based on four criteria: content appropriateness, language appropriateness, presentation appropriateness, and contextual assessment.

Table 1. Material Expert Validation

No.	Aspect	Assessment Indicators	Score (%)
1	Content Suitability	Alignment of content with learning outcomes	91,6
		Accuracy of content	89,2
		Encouraging Curiosity	90
		Timeliness of Content	87,5
		Average Score	**89,57**
2	Language Suitability	Clarity	91,6
		Communicativeness	100
		Dialogic and Interactive	75
		Alignment with Learner Development	87,5
		Alignment with Language Rules	100
		Use of Terms, Symbols, or Icons	75
		Average Score	**88,18**
3	Presentation Suitability	Presentation Technique	87,5
		Presentation Support	80
		Learning Presentation	100
		Coherence and Sequence of Thought	87,5
		Average Score	**88,75**
4	Contextual Assessment	Contextual Nature	100
		Contextual Components	70
		Average Score	**85**
Total		**Average Score**	**87,87**
		Criteria	**Very Good**

Based on the data in Table 1, it is known that the results of expert validation in this study obtained an average score of 87.87% with a category of very good. These results indicate that the sociolinguistic teaching materials that have been developed are suitable for use. The results also show that the content suitability score was 89.57%, language suitability 88.18%, presentation suitability 88.75%, and contextual assessment 85%, all of which fall into the "very good" category.

After the material test was conducted, the Gamma.app-assisted sociolinguistic teaching materials were then validated by media experts. This validation was carried out to assess the effectiveness of the teaching materials in terms of material size, design, visual appearance, and content design. The results of the media experts' validation of the Gamma.app-assisted sociolinguistic teaching materials can be seen in Table 2.

Table 2. Media Expert Validation

No.	Aspect	Assessment Indicator	Score (%)
1	Teaching Material Size	File Size as Required	100
		Number of Pages	91,66

		Average Score	**95,83**
2	Design	Design Consistency	83,3
		User-Friendly Navigation	87,5
		Utilization of the Gamma.app Platform	100
		Average Score	**90,27**
3	Visual Appearance	Color and Typography Aesthetics	87,5
		Illustration and Image Quality	83,33
		Visual Appeal	87,5
		Average Score	**86,11**
4	Content Design	Clarity of Presentation Structure	87,5
		Alignment of Content with Learning Objectives	75
		Integration of Media and Content	100
		Average Score	**87,5**
Total		**Average Score**	**89,92**
		Criteria	**Very Good**

Based on the data in Table 2, it can be seen that the results of the subject matter expert validation in this study obtained an average score of 89.92%, which is very good. The results of the media expert validation show that the scores for teaching materials were 95.83%, design 90.27%, visual appearance 86.11%, and content design 87.5%.

The expert validation of both content and media conducted in this study demonstrates that the sociolinguistics instructional materials assisted by Gamma.app are valid for use or implementation in sociolinguistics education. This validity can be seen from the percentage values of the material expert and media expert validation, which indicate that the teaching materials have met the established quality standards, both in terms of content, structure, material integration, as well as technical and aesthetic aspects of the media.

The material expert validation results were 87.87%, which is classified as very good and valid. The materials compiled in the Gamma.app-assisted teaching materials meet the standards for material completeness required in learning. This can be seen in the content suitability score of 89.57%, which is the highest result. Next, the media expert validation result of 89.92% falls into the very good and valid category. The teaching material size category received the highest score of 95.83%. This means that the sociolinguistics teaching materials assisted by Gamma.app have a size that is appropriate for the needs, both in terms of file size and the number of pages inside. This indicates that the media used is attractive, the teaching material design is appropriate for the needs, and it is easy for students to use. The material validation and expert validation provide a strong basis that the teaching materials are suitable for implementation in learning activities.

3.2 Product Testing

In order to measure the effectiveness of teaching materials, a trial was conducted with students. The subjects involved in this study were students of the Indonesian Language and Literature Education Study Program at Unimed who were taking a course in Sociolinguistics. The analysis of student responses to the teaching materials was carried out by measuring indicators of

conceptual clarity, presentation, use of examples, use of language, and attractiveness. The clarity of concepts indicator shows the extent to which students are able to understand the material presented. The use of appropriate language and relevant examples helps students connect sociolinguistic material with real life. The results of the pilot test indicate that the teaching materials successfully helped students achieve the established learning objectives and improve their sociolinguistic competencies. The results of the pilot test on students can be seen in Table 3 below.

Table 3. Product Trial Results Based on Student Responses

No.	Aspect	Percentage	Criteria
1	Clarity of Concept	87	Very Good
2	Presentation	92	Very Good
3	Use of Examples	86	Very Good
4	Use of Language	88	Very Good
5	Interest	90	Very Good
Average Percentage		**88,6**	**Very Good**

The results of the trial have shown that the development of this teaching material has successfully achieved the research objective, which is to develop innovative teaching materials that are relevant to the social context of sociolinguistics courses. Based on the data in Table 3, the average student response rate reached 88.6%, which is categorized as very good. This result indicates that the teaching materials have met students' expectations in terms of conceptual clarity, presentation, use of examples, language use, and appeal.

Through the results of the product trial, it can be seen that there has been a significant improvement in students' social language competence. At the initial stage, many students experienced difficulties in selecting and using language varieties appropriate to diverse social communication contexts, such as differences in formal and informal situations, the social status of speakers and interlocutors, and cultural backgrounds. However, after participating in learning using Gamma.app-assisted teaching materials, students showed significant progress in their ability to adapt language use to appropriate communication situations. This reflects a substantial improvement in their understanding of sociolinguistic concepts, such as language varieties, bilingualism, interference and integration, code-mixing, code-switching, and other related topics.

This success is attributed to the interactive and visual features offered by Gamma.app, such as dynamic presentation displays, integration of visual and audio media, and user-friendly navigation. These features are able to increase students' attention and interest in learning, thereby encouraging their motivation and enthusiasm during learning activities. The active involvement of students in exploring the material and discussions supported by these teaching materials also contributes to improving their understanding and language skills in a social context.

4. Conclusion

This study successfully developed valid, practical, and effective teaching materials for the Sociolinguistics course using Gamma.app to improve students' social language competencies. The development process was carried out using the 4-D model (Define, Design, Develop,

Disseminate) involving validation by subject matter experts, media experts, and product testing with students.

The expert content validation results achieved an average of 87.87% in the “very good” category, while the expert media validation results reached 89.92% in the “very good” category. This indicates that the instructional materials meet quality standards in terms of content, language, presentation, and visual design. Furthermore, the product testing with students yielded positive responses with an average of 88.6% categorized as “very good.”

The implementation of teaching materials assisted by Gamma.app has proven to be able to improve students' understanding of sociolinguistic concepts while encouraging their skills in adapting language use to diverse social communication contexts. Interactive features, attractive visualizations, and easy-to-understand navigation are factors that contribute to the success of learning.

Thus, it can be concluded that Gamma.app-assisted sociolinguistic teaching materials are suitable for use in learning because they are able to integrate theory and practice in a more contextual, innovative, and applicable manner. This research also contributes to the development of digital technology-based teaching materials that support the achievement of students' social language competencies in the Society 5.0 era.

Acknowledgments.

The author expresses gratitude to the Rector of Medan State University and the Research and Community Service Institute of Medan State University for providing research funding that enables it to be carried out in 2025. Thanks are also extended to all parties involved in this research.

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