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# Mobile grammar application for computer students in higher vocational education: Self-learning tool to enhance student's autonomy

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ABSTRACT

The research aims to analyze and develop a mobile-based grammar learning application and the perceptions of computer vocational high school students regarding the use of the application in the learning process. The main focus of this research is developing a mobile-based grammar application for computer users, which enhances students' independence in the grammar teaching process, along with examining how the application was put into practice. This learning media was created using the ADDIE Model, which includes analysis, design, development, implementation, and evaluation. The waterfall method, dart programming language, and Flutter framework are used to create the application. After the implementation stage, this research used a mixed methods approach, combining quantitative and qualitative survey data collected through Google Forms with Likert Scale and paragraph question types. The findings from this research shed light on the needs, attitudes, preferences, and feedback from students for improvement regarding the utilization of mobile grammar apps for language learning. The analysis shows that students have a positive experience when learning grammar using this app, as it allows them to extend their learning beyond the classroom without time and place restrictions. The data analysis provides valuable insights into the effectiveness and potential drawbacks of integrating such apps into the curriculum. These insights contribute to the ongoing discourse on technology integration in education and offer practical implications for educators, curriculum designers, and educational policymakers who want to improve language teaching through digital devices in vocational high schools.



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## INTRODUCTION

The fast-paced and rigorous nature of the course forces computer education majors to prioritize technical proficiency and domain-specific knowledge, thus not providing sufficient exposure to the development of overall language fluency. The lack of autonomy in grammar learning is compounded by the formal academic environment's lack of attention to linguistic aspects that relate to the specific goals of English. The gap between generic English training and the specialized linguistic demands of computer science results in a learning environment where students may need

help to bridge the gap between their academic pursuits and the practical language requirements of their field.

According to Susana and Iswara (2019), grammar is one of the most difficult challenges students face when learning English, particularly for specific purposes. Despite the challenges and obstacles, grammar competence is one of the four communicative competencies that language users need to communicate (Almuhammadi, 2020). students already have realistic goals for learning grammar, and almost all students agree on the importance of learning grammar (Rejeki, 2023). To address these challenges, there is an urgent need for targeted interventions that empower computer students with autonomy to improve their grammar skills.

Innovative approaches, such as developing a grammar mobile application based on the ADDIE model, can serve as a self-learning tool. The app aims to complement formal teaching by providing students with flexible and accessible resources attuned to the intricacies of grammar relevant to computer science. By recognizing the time constraints and focusingfocusing on active language skills in formal meetings, this intervention seeks to empower students taking a concentration on computer science to proactively engage and improve their grammar skills in a way conducive to their demanding academic schedules.

Mobile learning applications have extensive learning opportunities that can be tailored to the needs of students, making teaching and learning easier. These apps can create an effective learning process by providing flexibility, accessibility, and support for learning and development (Mametkarim & Nurzhanova, 2023). As mentioned by Mundy et al. (2012) and Motteram (2013), technology is the most important component in language learning at various levels of education. Technology is used to help students visualize, simulate, solve problems, collaborate, research, and design solutions (Sonego et al., 2016). In other words, technology supports students' independent learning.

Teachers in such situations should help students by integrating technology into the English teaching classroom that can connect the classroom with the rest of the world, as teachers act as facilitators for their students in these situations. There are several findings from previous studies that, when taken collectively, show that using technology for learning, especially language learning, can improve students' proficiency in learning foreign languages, such as English learning (Kukulska-Hulme, 2018; Mohamad et al., 2014; Pazilah & Hashim, 2018).

Learning instruction procedures can be further investigated and personalized with the help of mobile-based learning media, improving overall performance. Mobile devices can be used as mobile-based educational resources to increase the flexibility of the learning process. As mentioned by Kukulska-Hulme (2018), mobile learning demonstrates its ability to meet the authentic needs of learners where they are needed and provides more flexible language learning methods. Moreover, incorporating mobile app instruction into the language learning process makes the learning experience more fun and interesting for students.

Therefore, it is expected that teachers can provide resources and infrastructure to help students learn more effectively by providing existing digital platforms such as Flip previously known as Flipgrid as previous research conducted by Sukerti et al. (2022) and Susana and Brahma (2021) or develop new language learning applications in the context of vocational education (Adijaya et al., 2023; Hadi & Marpanaji, 2019; Rumiyati & Oktyawati, 2020).

Utilizing mobile technology for language learning has several benefits, as learners can use mobile technology to learn and practice languages in their free time (Syathroh et al., 2020). Many researchers have examined the use of mobile technology in language learning, such as research conducted by Alsied (2022), Ekinci and Ekinci (2017), and Ahmadi (2018). However, the use of mobile applications has yet to be widely researched in the context of vocational education in Indonesia, especially in terms of developing grammar-specific applications for ESP.

The product developed in this study, on the other hand, focuses on the use of grammatical forms in the context of English for specific purposes, specifically in the field of computer science, whereas other existing apps generally focus on other English competencies such as vocabulary and the use of grammar in the context of English in general. Many discoveries have been made, particularly in the area of using technology to teach grammar, such as those made by (Pop & Berariu, 2015). Pop and Berariu (2015) research discussed how to teach grammar while utilizing the visual

component of communication through digital training exercises based on blogs, videos, Storybird, and Padlet for beginner and intermediate competency levels.

This research provides many illustrations of explicit and communicative grammar teaching, especially in written form, focusing on grammatical constructions that are difficult to master in oral communication (simple past vs present perfect, if clauses, desire constructions). Ariel et al. (2020) aim to create supporting media products for learning English grammar in the form of online comics that can be accessed on mobile devices using an application called Webtoon, and previous research conducted by Badroeni et al. (2020) designed a master tenses application based on a needs analysis consisting of functional needs and non-functional needs.

Another research conducted by Anggraini et al. (2020) used the Gall and Borg research and development approach to create an Android-based application called Basic English Grammar to master grammar at the basic level of English Language Instruction. An experimental study by Punongbayan (2019) was conducted to test the efficacy of a mobile application (e-book) designed by the researcher, titled The ABP English Grammar App. It revealed that the program successfully improved students' grammar skills. Although the material focus and design approach are generally comparable, this study differs from other studies regarding the coverage of educational materials based on the ADDIE model.

The ADDIE model is a systematic instructional design framework used to guide the development of effective learning experiences. The acronym ADDIE stands for Analysis, Design, Development, Implementation, and Evaluation, representing the five main phases of the instructional design process. This research created a grammar learning application focusing on ESP in computer science by utilizing the Waterfall method, the Dart programming language, and the Flutter framework.

In addition, this application is specifically designed to improve the grammar skills of vocational students, so the concepts of grammar theory, example sentences, and practice questions are provided in the context of their actual use in the field of information technology. The main objective is to create an easy-to-use self-learning tool and test students' perceptions of its impact on students' grammar proficiency and autonomy. By implementing this app, the expected outcomes are improved grammar proficiency, increased autonomy, and positive user engagement, which provide valuable insights for integrating mobile apps in higher vocational education.

## RESEARCH METHOD

The research methodology was structured based on ADDIE, which stands for analysis, design, development, implementation, and evaluation, a proven instructional design framework to systematically guide the development process of a mobile grammar application specifically designed for computer students in higher vocational education. By conducting a thorough analysis, design, development, implementation, and evaluation, this research aims to create an effective self-learning tool that improves students' grammar proficiency in the context of computer science, encouraging greater autonomy in their learning journey.

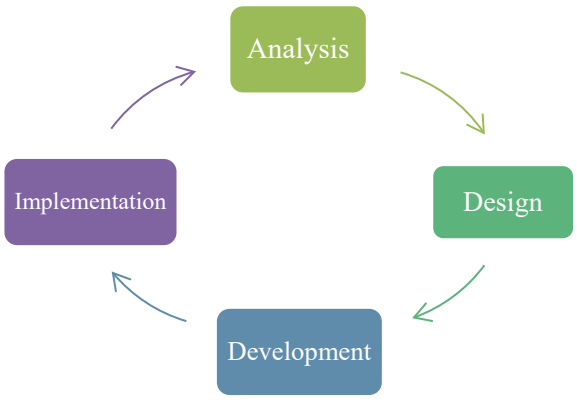


Figure 1. ADDIE Model Diagram

Figure 1 describes the instructional module design process based on the ADDIE Model by Forest in 2017, as mentioned in (Ramly et al., 2022). This shows that the ADDIE model outlines a comprehensive process of instructional design activities, which is an advantage of the ADDIE model over other models.

First, the analysis stage involved identifying the students' specific needs and requirements to increase their independence in learning grammar using a mobile application. This was done through an online survey using Google Forms to collect information about students' needs and observe students' current level of autonomy in grammar learning. Next, at the design stage, the researchers used the information gathered from the analysis to create a blueprint for the mobile app. This blueprint outlines the features and functions of the app that will support student autonomy.

In the development stage, the mobile app is built based on the design blueprint, ensuring that it aligns with students' needs and promotes autonomy in their learning process. The backend or web services design process is built using PHP programming language and SLIM framework, while the frontend or application interface is built using JavaScript programming language and Vue.js and Capacitorjs framework to create the application.

Software includes a database system using MySQL, a backend server using Apache, a text editor Visual Studio Code, and an Integrated Development Environment (IDE) using Android Studio. Hardware requirements used to develop this application include a backend server, using a Cloud VPS with 1 GB RAM, CPU Core, and 20 GB Disk Space, and a client, using a mobile phone with Android OS version 6. After the mobile application is developed, it is implemented in a controlled environment, namely in the classroom.

During the implementation phase, researchers introduced the mobile application to students and provided them with training and guidance on how to use it effectively to increase their independence in learning. Finally, at the evaluation stage, researchers collected data on students' level of independence before and after using the mobile application. At the evaluation stage, data collection uses Google Forms, where the instruments are prepared using a Likert Scale.

To collect students' perceptions regarding the use of the mobile application being developed, an instrument was designed to collect respondents' answers in the form of descriptions. This approach allows for a comprehensive exploration of students' perceptions, especially students in higher vocational computer concentrations, regarding the use of mobile grammar applications in their learning process.

Participants in this research consisted of vocational higher education students who took concentrations or disciplines related to computers. A purposive sampling technique was used to select respondents, where the respondents selected were respondents who had experience using mobile grammar applications for language learning. There were 84 respondents in this research with various educational backgrounds and levels of proficiency.

Data collection involves two aspects, namely, a Likert Scale-type survey questionnaire and paragraph-type questions. Participants were given a structured survey questionnaire with closed questions to collect quantitative data. This questionnaire consisted of questions with a Likert Scale that assessed students' attitudes, preferences, benefits, and challenges felt regarding using the mobile grammar application that the researcher developed. The questionnaire was distributed electronically, ensuring it was easy for respondents to access.

Paragraph-type questions were used to collect students' experiences, opinions, and suggestions regarding using grammar mobile applications. Qualitative data from paragraph-type questions include explained open-ended thematic questions. Student responses were coded to identify recurring themes, patterns, and key insights about participants' perceptions and experiences with mobile grammar apps.

## FINDINGS AND DISCUSSION

This segment of the discussion is in-depth in two parts and highlights the main results of this study. The first section covers the products developed in this study based on the ADDIE model, especially features offered in grammar applications. The second part covers students' perceptions of

using a self-learning kit called Grammar Essential for Computer Students developed by the researchers.

**Analysis**

This stage seeks to analyze the needs required in the design and consider the requirements of higher vocational students for the desired content and any ancillary features that would be incorporated into the design. Students were given an online survey to collect the prerequisites needed to be fulfilled to construct the software. This component of the research and discussion focuses on students' viewpoints on many aspects of English learning, such as their perspective on English learning as computer students, vocabulary mastery and independent learning, and their perception or anticipation of utilizing a mobile accounting dictionary.

In addition to the 5-point likely-scale questions, students conveyed their expectations in brief comments. The analysis outcomes were utilized to analyze students' current learning obstacles and collect data for the needs analysis. Drawing from the concise statement responses, it can be inferred that students, as prospective users, anticipated the program to possess an eye-catching layout, be straightforward yet useful, and be easily comprehended.

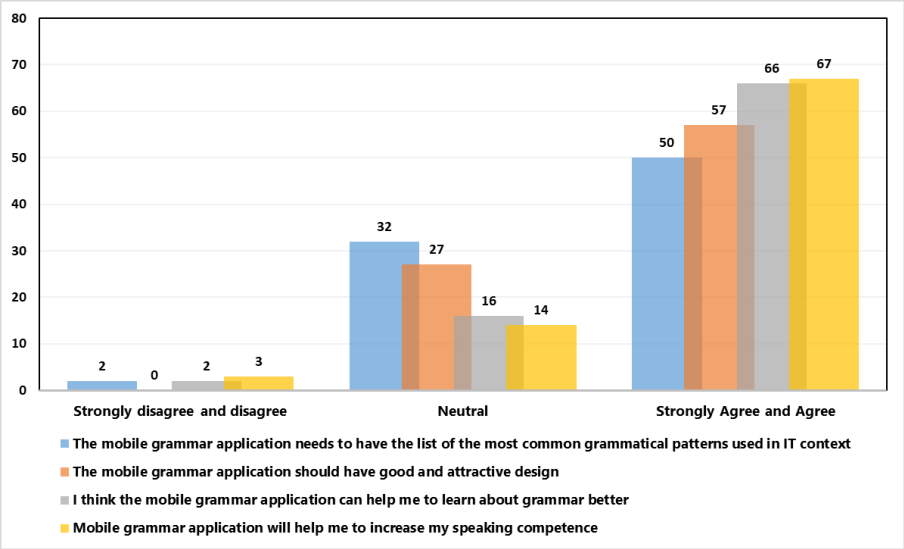


Figure 2. Need Analysis

Based on the data presented in Figure 2, most students responded positively to needs analysis statements. Out of 84 respondents, 50 students, or 60%, agreed and strongly agreed that mobile-based grammar applications should have a list of the most commonly used grammar patterns in the IT context. More than 60% of respondents chose scales 4 and 5 for the other three statements. In terms of future use, students agreed with the statement that mobile-based grammar applications can help them learn grammar better (66 students or 79%). Regarding design, respondents stated that mobile grammar apps should have a good and attractive design (57 students or 68%). Overall, students responded positively to the claim that mobile-based grammar programs can help improve their speech skills (67 students or 80%). In addition to the questionnaire results, observations show that users lack learning autonomy in mastering the grammar for ESP due to time constraints and a major focus on active language skills.

The emphasis on speech and writing is a grammatical basis, and mathematical rules or schedules that require the practice of a computer science curriculum (as the primary mathematics of respondents) result in limited time for language learning. The gap between general English instruction and specific linguistic requirements in computer science exacerbates this challenge. Addressing such problems requires targeted interventions, such as mobile grammar applications based on the ADDIE model, to empower students with flexible and easily accessible resources that

align with their field's linguistic complexity. These interventions aim to bridge gaps, enabling students to improve their grammar skills within their demanding academic schedule constraints.

Features or services available in this application include: (1) The application can display a list of grammar materials based on topics, as well as a term search service; (2) The application can display details of grammar material; (3) The application can display practice questions according to grammar material topics; (4) The application can provide evaluations and display explanations of practice questions; and (5) The application can display a list of trivia questions and answers. The relationship between user roles and functions in an application can be modeled using a use case diagram, as shown in Figure 3.

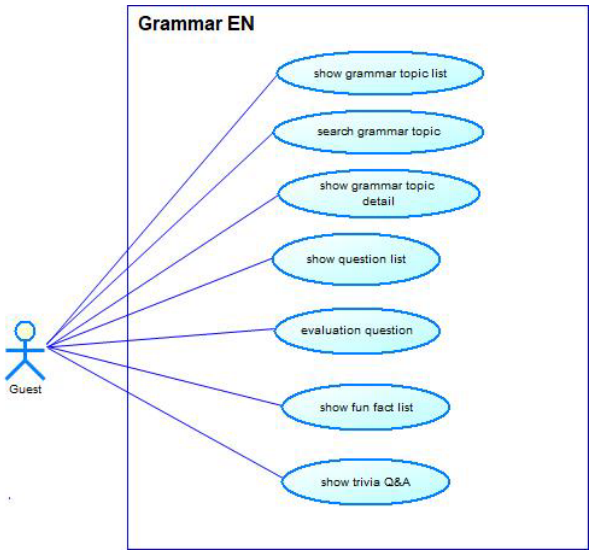


Figure 3. Use Case Diagram

**Design**

At this design stage, three different forms of design form the design phase of this application development: application interface design, application database, and application programming flow design. Database modeling and Entity Relationship Diagram (ERD) are used in the design phase of application development. The application content production process is also carried out at this stage based on conclusions from needs analysis and previous research. This application database is designed using the Entity Relationship Diagram (ERD) concept. Figure 4 illustrates the ERD findings from this application database design.

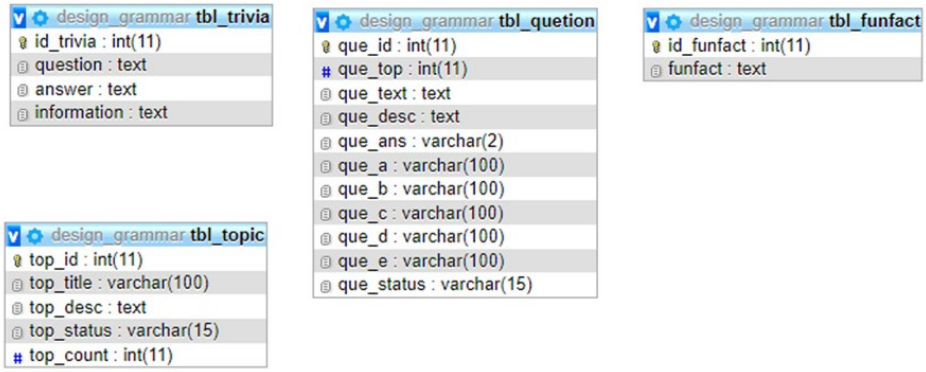


Figure 4. Entity Relationship Diagram (ERD) Concept

Application mockups are used to develop application interfaces. For each predefined functionality, a mockup is created. The main content of this program is a list of grammar materials.

Other forms of information have been included based on needs and reference checks to increase student exposure to IT-related technical phrases and texts. Some of the other content includes exercises, fun facts, and trivia questions and answers.

**Development**

At this stage of development, the design is put into practice and produces software code that the computer can understand. Slim Framework web services are coded using the PHP programming language. The Vue.js framework serves as a front end for the Javascript language. Capasitorjs is used as a mobile application development framework, while MySQL is used as a database. Each function is tested in parallel during development. This testing ensures that application functions run according to the specified design. In addition to evaluating the application's functionality, user acceptance tests are conducted in which the application is built, and users provide application feedback and suggestions.

**Implementation**

The implementation stage is carried out after each application function or feature runs according to design. The program data migration process, consisting of grammar content, data questions, interesting fact information, and QnA Trivia entries, has been completed in this deployment step. This step also completes the setup or installation of the web service application, after which the web service reaches the deployment stage on hosting and can be accessed via the internet network. Installing this application for Android-based smartphones is easy and can be accessed in .apk (Android Package) format.

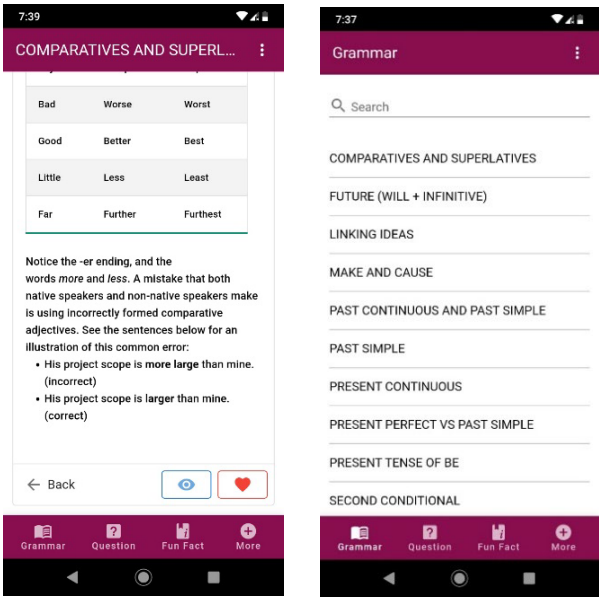


Figure 5. Grammar Material Page Display

Figure 5 shows the appearance of grammar material in the application that has been developed. The questions area at the top of the page contains extensive grammar texts and practice questions. Furthermore, the home page provides various segments of interesting information, trends, trivia, and responses and questions. Users can exit the program by clicking the 'more' icon in the top right corner and then selecting 'Close.' Users can also click the 'love' button in the bottom right corner.

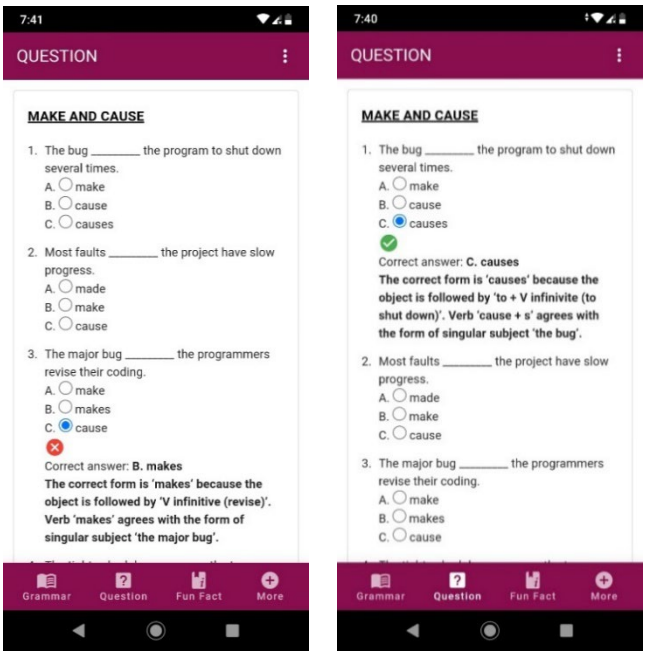


Figure 6. Practice Question Page Display

Figure 6 displays a practice question page that users can do independently. Questions with multiple answers are used for practice and are equipped with confirmation of the correct answer and explanation.

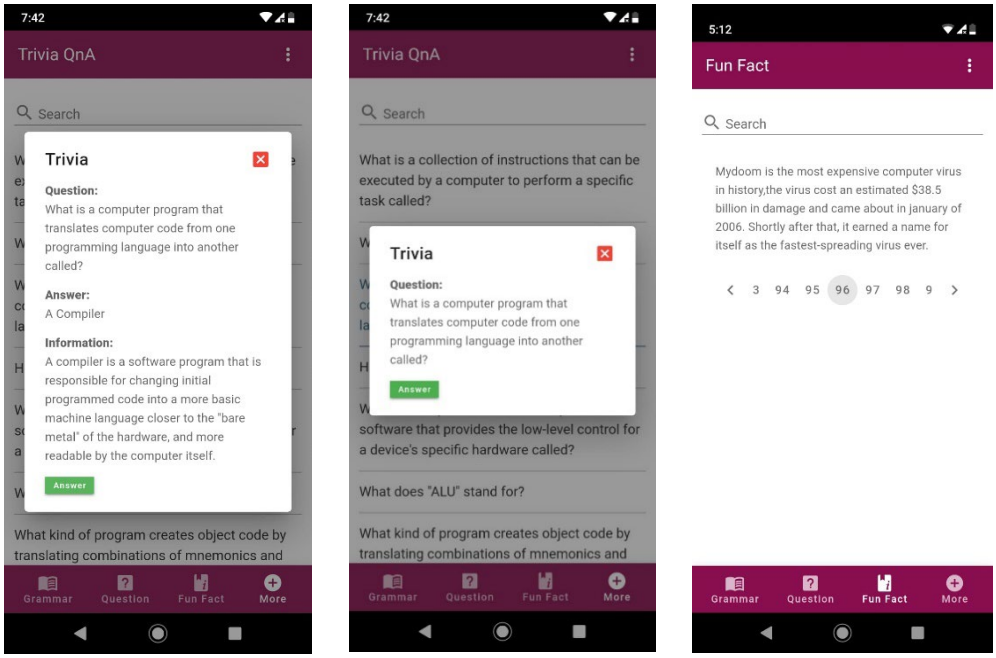


Figure 7. Question and Answer Trivia and Interesting Facts Feature

Figure 7 shows the question-and-answer trivia feature page, which consists of 50 frequently asked questions about computers and information technology. This feature aims to increase students' curiosity and desire to solve problems independently before revealing the correct answer. Users are directed to perform several actions and some of the main objectives of this feature. When users click on one of the questions listed, they will get a pop-up box to display the question again. This phase allows users to reconsider their answer, after which they can click the green answer button to get the

answer and further information. The fun facts feature contains 160 data entries. This feature is intended to expand students' background knowledge in the field of computers and information technology in a lighter context within the scope of unique facts.

## Evaluation

This section focuses on students' thoughts about several areas of English learning and their experiences using grammar programs to help them learn. Findings regarding compatibility, content, functionality, and usability are provided based on student feedback after using the grammar program.

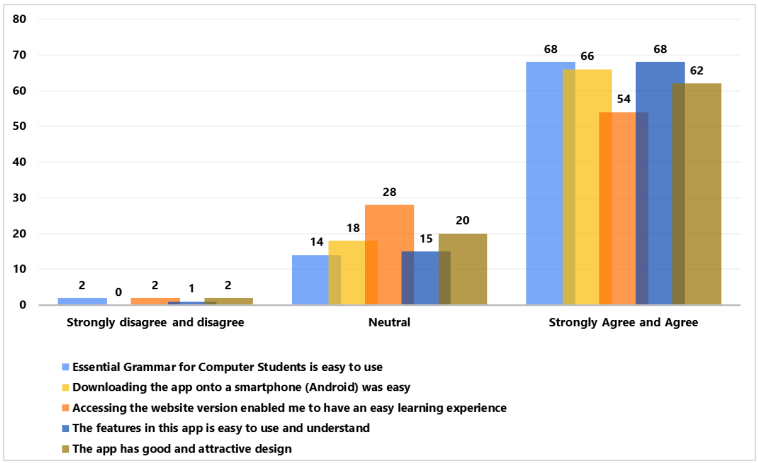


Figure 8. Perception of Compatibility and Features

Figure 8 highlights students' impressions of the compatibility and features provided by mobile-based grammar apps. Most respondents gave positive feedback on the application's compatibility and features, particularly the technical aspects and features users can investigate when using this digital platform. Of 84 replies, 68 students, or 81%, agree or strongly agree that the program is simple.

Furthermore, 66 students, or 79%, believe downloading the program was simple, and 54 students, or 64%, think that accessing the application via a web browser provides a comfortable or easy learning experience. Sixty-eight students (81%) chose a positive scale for the following statement. Regarding the following statement, 68 students, or 81%, selected "agree" or "strongly agree" on a positive scale, indicating that they found the application'sapplication's features user-friendly and intuitive. Regarding the design, most students (62, or 74%) chose a scale of 4 and 5 as a positive reaction.

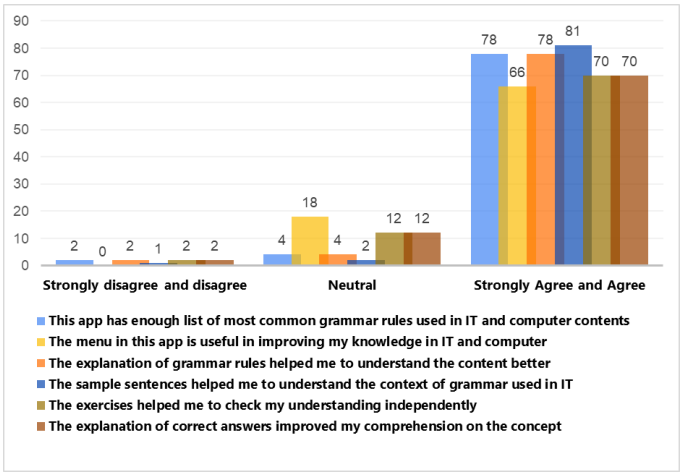


Figure 9. Perception of Compatibility and Features

According to the findings in Figure 9, students responded positively to the six propositions stated in the questionnaire. A significant number of respondents selected a scale of 4 and 5 (agree and strongly agree) for the six different assertions addressing the content of the grammar application. This demonstrates that students value the variety of content available in the application. In response to the first statement, 78 students, or 93%, agree or strongly agree that the program contains a list of the most widely used regulations in the IT field. The same number of respondents also stated that explaining the grammar material helped them understand the content better.

Furthermore, a total of 70 students, or 83%, also agreed that the practice questions helped them to evaluate their understanding independently, and the explanation of the correct answers also helped improve their understanding of the concept. Most of the students (66 in total or 79%) admitted that the menu in this application was useful in increasing their knowledge of computers and information technology. In response to the statement that example sentences assist students in understanding the context of employing grammar in their area of learning, most respondents (81 individuals or 96%) opted for (81 individuals or 96%) opted an affirmative scale of 4 and 5.

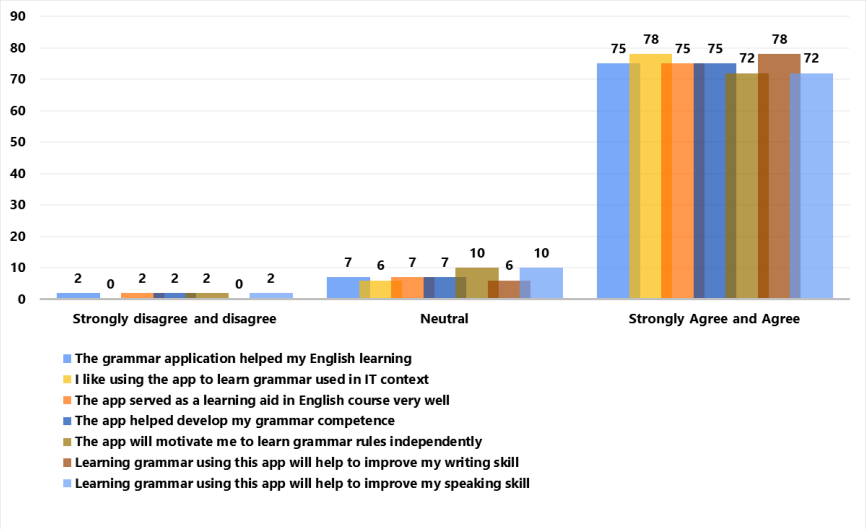


Figure 10. Perception on Usability

Figure 10 shows students' perceptions of the usefulness of the grammar app in the learning process. Based on Figure 10, more than half of the respondents agreed or strongly agreed with the statements in the questionnaire. For the two statements that this program will encourage them to learn grammar independently and that this program will be able to help them become more proficient, the same number of respondents (72 students, or 86%) chose levels 4 and 5. Based on student preferences in responding to statements about the application's usefulness, 75 students, or 89%, expressed agreement that the application can help the English learning process, support it as a learning medium, and improve grammatical competence in particular.

Regarding the other two statements, as many as 78 students, or 93%, stated that they liked the learning process using the application and that the application would help them improve their writing competence. Thus, students like using this mobile application to learn about grammar independently. The menus presented include materials, practice questions, fun facts, trivia questions, and answers, which are useful in helping students expand their knowledge of grammar and general knowledge in the IT field. In addition, students agreed that the self-study tool developed in this study helps students develop active competencies in speaking and writing and improves the learning process.

Students also gave a positive perspective in answering paragraph type questions, namely: (1) I think learning grammar using the app is very convenient to use, from the material and questions presented; (2) In my opinion, learning through grammar apps makes it easier for millennial teenagers because nowadays they can't get away from their cellphones, they can learn easily through apps rather than books; (3) I think using this application is good, especially since it has interesting features such

as providing practice questions along with explanations of correct answers; and (4) In my opinion, after opening and using the Essential Grammar application, it is very interesting, and very complete with the contents of each grammar that has been discussed previously during the lesson. With this application, it makes it easier for me not to look for other websites if I want to do questions, not confused about having to follow the correct answer key, with this application it will make it easier for a student to see examples of questions that have been provided in each icon, without having to repeatedly search Google if you want to learn it again.

These statements highlight the students' smooth experience when using this app. In addition, students also provided constructive feedback for the future development of this application, namely: (1) The appearance needs to be improved, especially on the background display, which could be more attractive; (2) Provide icons or animations, more explanations, and examples of illustrative images in the fun fact section; (3) Adding color contact to each formula, and for the question feature, there can be more examples of questions so that you can get maximum practice; (4) Given additional features to correct grammar errors and English pronunciation; and (5) There is a need for improvement and the addition of question-and-answer features when filling out questions.

The constructive feedback mentioned by students covers the areas of content, design, and features. Students suggest adding more questions, improving the design by adding images and color variations, and more advanced features such as pronunciation or a submit button in the question section. Based on the students' perceptions, they had a positive experience and enjoyed the practical nature of the mobile application. Given that the learners belong to a generation raised with technology, they could also use it more effectively and find it convenient. This nature of technology-enhanced language learning was confirmed by previous research (Ningrum & Arrasyid, 2021), which reported that studying using mobile applications is more enjoyable, fascinating, and convenient. Another study found that students believe using mobile apps to aid their learning is easier since they use them frequently (Darsih & Asikin, 2020).

Regarding the ADDIE model used in developing the application in this study, researchers could promote a systematic and thorough approach to developing a mobile application that promotes student autonomy. The analysis stage done in this study also helped to ensure careful planning, as confirmed by Adijaya et al. (2023), that thorough preparation and analysis of learning objectives and student needs are necessary when adopting mobile-assisted language learning to ensure that the resulting model is appropriate for use in education. Choosing the suitable application will result in a more exciting and successful learning experience.

Furthermore, the evaluation phase of the ADDIE model allowed for the collection of data that could be analyzed to analyze the effectiveness of the mobile application in enhancing student autonomy. Therefore, using mobile applications developed using the ADDIE model can be valuable in promoting students' autonomy and enhancing their learning experience. In short, using the ADDIE model in developing mobile applications can provide a systematic and effective approach to boosting students' autonomy in their education (Kim & Mun, 2021).

According to the students' perceptions, using a mobile learning platform, i.e., Essential Grammar of Computer Students, can provide students with more opportunities to apply their curiosity-filled and expanded learning than traditional classroom lectures. This is in line with the result of previous research stating that students are more inclined to access mobile applications if they perceive mobile learning as convenient and simple to use, according to several studies (Maldin, 2022; Mutiaraningrum & Nugroho, 2021; Rojabi, 2020; Ta'amneh, 2021). Students can develop their knowledge by providing appropriate and timely resources, and using mobile devices can improve their educational success, efficacy, and involvement. With the increasing popularity and widespread use of smartphones among students, there is a growing interest in utilizing mobile applications to enhance their autonomy in various aspects of their education.

Several sources emphasize the importance of allowing end-users, including students and teachers, to install and build their mobile applications. This can empower students to take ownership of their learning process and customize their educational experience to meet their needs and preferences. This is in line with the study conducted by (Mason & Wenxin, 2017), which focused on using mobile apps in language learning. They discovered that 94% of learners in their study used

apps independently and recognized the benefits of apps in assisting their language learning through their research.

Furthermore, another research found that many respondents used mobile devices for language learning, underscoring the value of applications in providing learning opportunities outside of official school settings (Kadwa & Alshenqeeti, 2020). These results are consistent with the claims made by other earlier research regarding the beneficial effects of mobile applications on students' educational autonomy (Hui et al., 2023; Mahendra et al., 2023). In addition to increasing learners' motivation and autonomy, mobile apps offer chances for ongoing exposure to course materials, tailored feedback, and adaptable learning schedules (Rakhmawati, 2020; Salhab & Daher, 2023).

Overall, the findings in this research suggest that mobile applications can boost students' autonomy in their learning journey. In light of this information, educators must recognize the importance of integrating mobile apps into the educational environment and encouraging students to utilize them independently to enhance their autonomy and take control of their learning. By providing students with access to learning materials and resources anytime and anywhere, mobile apps allow them to learn at their own pace and on their own terms.

Furthermore, mobile educational apps allow students to tailor their learning experience to their needs and preferences. This can lead to increased motivation, engagement, and self-directed learning. Other studies also confirm these statements, as the use of mobile applications has been found to contribute to the improvement of students' cognitive capacity, motivation, autonomy, and confidence in both formal and informal learning settings (Metruk, 2021) and play a crucial role in enhancing students' autonomy in education (Lu et al., 2022).

The mobile application developed in this present study can empower students to take charge of their learning journey by offering access to learning materials and resources outside of the traditional classroom setting, as supported by the findings in other research stating that in the context of higher education, college students believe that employing technology as a learning aid can help them reach their learning goals (Habibie, 2021). Mobile applications allow students to learn at their own pace, receive personalized feedback, and continually be exposed to learning materials.

## CONCLUSION

This research article explored students' development and perception of a mobile application, Essential Grammar for Computer Students, which was developed using the ADDIE model to boost students' autonomy to learn grammar in the context of English for Specific Purposes. The ADDIE model served as a systematic framework for developing, implementing, and evaluating the application. The ADDIE model provided a structured approach to the development process, ensuring that factors such as analysis, design, development, implementation, and evaluation were considered. In the context of mobile application development for enhancing student autonomy in learning grammar, the ADDIE model allowed for a thorough analysis of the learning content and learner characteristics in the initial stages. This analysis helped in designing the mobile application in a way that was tailored to students' individual needs and preferences, thus promoting their autonomy. Based on the result of implementation and evaluation, it was evident from the sources that the use of mobile applications developed using the ADDIE model can significantly contribute to boosting students' autonomy in their learning journey and enhancing their learning experience. Students had a favorable opinion of the grammar application developed in this study regarding compatibility and features, content, and usefulness. Furthermore, the iterative nature of the ADDIE model allowed for continuous improvement and refinement of the mobile application based on feedback and evaluation data. While evaluation is the last phase of the ADDIE approach, it should not be viewed as the end of a drawn-out process but rather as the beginning of the next iteration of the ADDIE cycle. Educators will be able to review and improve the educational program due to continuous evaluation. Iterative design is an iterative process, and evaluation should be done frequently. Additionally, it is advised to continuously assess the course's quality during development rather than only at the end following the ADDIE framework to get the greatest outcomes.

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