Designing Web-Based Application For English Tenses Learning

Tatan Tawami
tatan.tawami@email.unikom.ac.id

Retno Purwani Sari
retno.purwani.sari@email.unikom.ac.id

Vincent Limountha
limounthavincent@gmail.com

Universitas Komputer Indonesia

ABSTRACT

This paper aims to present the design and development of a web-based English tense learning application as a creative response to the educational challenges posed by the COVID-19 pandemic. The application focuses on enhancing the receptive and productive skills needed for English tenses, considering the preferences and needs of the e-generation. The research employs the SDLC Sommerville model for application development. It utilizes a qualitative descriptive research methodology to address various research issues, including content formulation and developing performance-based English tense materials. The article aims to contribute a valuable alternative learning method to facilitate English language learning and creative language projects, particularly those involving tenses and their uses.
Key words: Design; Web-based Application; English Tenses Learning

INTRODUCTION

Social and cultural factors have boosted the use of technology, especially in response to the COVID-19 pandemic. This trend has impacted many areas, including education. While education models shifted towards student-centered and project-based learning, computer-based education methods became crucial for effective learning. Teachers started using computers and the internet to deliver content in real-time and at students' own pace.

Asynchronous communication methods, such as video-based learning materials, concerns arose regarding learner engagement and potential boredom. Furthermore, the effectiveness of such practices was debated, mainly due to their teacher-centered approach. Modern educational trends favor student-centered learning (SCL) as the preferred approach for achieving educational objectives (Uzunboylu & Ozcan, 2019). Each student is viewed as unique, with diverse learning styles and capacities. For instance, students belonging to the e-generation, a group whose lives are intertwined with and reliant on technology, exhibit distinct learning and interaction patterns. Gonzalez-Vera's research (Gonzalez-Vera, 2016) suggests that these students seek quick access to information through technology, rely on it for

communication, and multitask, making them inclined to proactive learning methods; one is through technology-based education.

Recognizing that learning a language encompasses delving into its culture and values (Werner, 1990), the issue of English tenses embodies this phenomenon. Language reflects the culture of a community. The choices in language, the way one thinks, behaves, speaks, and even evaluates the truth of an event, are all reflected in the language or linguistic style of the speaker (Rabiah, 2018) (Sanjaya & Sari, 2022). English tenses, for instance, showcase how English speakers perceive and evaluate their world, imbue meaning into experiences, and convey them to fellow English speakers (Halliday & Matthiessen, 2004).

Learning English tenses can be seen as an intellectual challenge for learners to think logically about an event, determine their perspective, and believe in ways that may differ from those of native English speakers, for whom English is a second language. Therefore, cultural sensitivity becomes a secondary concern after grasping the forms of English tenses. In other words, tenses concern the transformation of verb forms and their functions in achieving communicative intent. Learning English tenses equates to understanding the culture of English speakers. Supported by the advancements in information and communication technology, this logical structure can be encoded as a computer-based artificial language (Prensky, 2001). Learning tenses have become more flexible with presenting situational illustrations, mainly through web-based applications.

In its role as a tool, language serves directive functions, indicating the speaker's actions through words. Every spoken language carries the speaker's attitude, reflecting their evaluation of the world (Austin, 1962). Furthermore, language serves rhetorical purposes (Leech, 1983). Thus, its speaker uses language as both a representation and a transaction. Through the system of tenses, English speakers reveal how they evaluate an event and decide on the perspective to share based on their communicative intent.

Therefore, this research centers on designing a web-based English tense learning application tailored for e-generation as the target audience. Specifying this target audience is crucial in enhancing persuasive technology's utility, such as web-based learning applications (Chittaro, 2016). In addition, the design focuses on (a) identifying effective methods for content delivery in the teaching and learning process, especially in English tense education, (b) determining suitable technologies to enhance learning outcomes, (c) profiling the characteristics of the target audience for the technology under development, and (d) defining the features to be incorporated into the English tenses learning application.

In this study, the web can be seen as a learning medium that bridges the gap for learners to access systematic information related to learning materials. Web-based applications represent a systematic approach to learning materials since they are designed to facilitate learners. One example of this is the development of web-based English tense learning applications. With its ubiquity in most people's daily lives, the web is believed to be an effective learning medium.

Through this application, learners can comprehend the entire concept of English tenses in terms of tense categories and their functions and practical use in English-speaking communities (Werner, 1990). The application offers a seamless learning experience on tense patterns through English irregular verbs. Additionally, the application includes evaluation tools to enhance user engagement. The interface features are designed to ease user navigation, making it a user-friendly web design.

This research employs a qualitative descriptive research methodology, utilizing the Waterfall model by Pressman, to develop a web-based English tense learning application as the research output. The innovation target of this research is a web-based English tense learning application planned for testing and implementation within the learning systems of the English Department at UNIKOM, the Faculty of Humanities, and two partner institutions. This innovation is technology designed and built based on user needs. User requirements were gathered through surveys of UNIKOM's English Department students, students from the collaborating partner institution, Universitas Aisyah, Global Linguist Consulting (GLC), and Built Better Communication (BBC) students. Additionally, discussions were conducted with the application's user institutions, GLC and BBC. These actions were taken to enhance the usability of the application.

In the form of scholarly articles, the research output serves as a dissemination medium and a platform for academic discourse among researchers and educational practitioners. Through academic discussions, it is hoped that the evaluation mechanism will operate optimally, allowing for continuous improvement and enhancement of the application's performance.

LITERATURE REVIEW

English Tenses, Function, and Behavior

Recognizing that learning a language encompasses delving into its culture and values (Werner, 1990), the issue of English tenses embodies this phenomenon. Language reflects the culture of a community. The choices in language, the way one thinks, behaves, speaks, and even evaluates the truth of an event, are all reflected in the language or linguistic style of the speaker (Rabiah, 2018) (Sanjaya & Sari, 2022). English tenses, for instance, showcase how English speakers perceive and evaluate their world, imbue meaning into experiences, and convey them to fellow English speakers (Halliday & Matthiessen, 2004).

Learning English tenses can be seen as an intellectual challenge for learners to think logically about an event, determine their perspective, and believe in ways that may differ from those of native English speakers, for whom English is a second language. Therefore, cultural sensitivity becomes a secondary concern after grasping the forms of English tenses. In other words, tenses concern the transformation of verb forms and their functions in achieving communicative intent. Learning English tenses equates to understanding the culture of English speakers. Supported by the advancements in information and communication technology, this logical structure can be encoded as a computer-based artificial language (Prensky,

2001). Learning tenses have become more flexible with presenting situational illustrations, mainly through web-based applications.

In its role as a tool, language serves directive functions, indicating the speaker's actions through words. Every spoken language carries the speaker's attitude, reflecting their evaluation of the world (Austin, 1962). Furthermore, language serves rhetorical purposes (Leech, 1983). Thus, its speaker uses language as both a representation and a transaction. Through the system of tenses, English speakers reveal how they evaluate an event and decide on the perspective to share based on their communicative intent.

Language Learning through Technology Utilization

The presence of technology has significantly influenced how students learn, particularly in terms of the media they use. Moreover, this media has slowly affected students' thought patterns, particularly regarding the speed of accessing learning materials. Websites have emerged as one of the best solutions for rapidly accessing information on various subjects, including learning materials. Websites as a learning medium can also be leveraged for language learning (Gonzalez-Vera, 2016), including English. One of the English learning topics considered challenging is tenses.

Tenses are often seen as "limiting" for learners due to the fear of making tense-related errors while speaking. The process of learning tenses, typically introduced during secondary education, does not always succeed, not because of a failure in knowledge transfer but due to the absence of English in daily life, which tends to make tenses challenging to grasp. With technological advancements, learning tenses can be facilitated through various websites and web-based or Android applications, each with advantages and disadvantages.

Designing technology-based applications that cater to user needs presents its own set of challenges. Meeting the demand for a comprehensive understanding of English tense concepts necessitates user interface features and usability that align with users' needs and comprehension of these concepts. The availability of a readily accessible application for the e-generation can transform learning English tenses into an experience that seamlessly integrates English into learners' daily lives.

Web-Based Learning Applications

The learning process involves communication and information transfer (interaction) between learners and their source (commonly understood as educators or instructors). While educators cannot be replaced in terms of their internal values for learners, the systematic thought patterns they possess can still be shared through a medium that can be accessed anytime and anywhere. Technology enables this, and one such medium is web-based application development.

In this study, the web can be seen as a learning medium that bridges the gap for learners to access systematic information related to learning materials. Web-based

applications represent a systematic approach to learning materials since they are designed to facilitate learners (Chittaro, 2016). One example of this is the development of web-based English tense learning applications. With its ubiquity in most people's daily lives, the web is believed to be an effective learning medium.

Through this application, learners can comprehend the entire concept of English tenses in terms of tense categories and their functions and practical use in English-speaking communities (Gonzalez-Vera, 2016) and (Werner, 1990). The application offers a seamless learning experience on tense patterns through English irregular verbs. Additionally, the application includes evaluation tools to enhance user engagement. The interface features are designed to ease user navigation, making it a user-friendly web design.

METHOD

Research Method and System Development Method

The method in this research can be understood as a representation or systematic approach used to examine the research object and implement it into a web-based application system. The research object in this web-based application design is English Tenses through a traditional approach, consisting of 16 tenses. The method used to examine the research object is qualitative through literature review and case studies to establish a systematic pattern that can later be implemented into the system.

Furthermore, the software development model used in this research is the Sommerville SDLC prototype model (Setiawan, n.d.), also known as the classic life cycle, which implies a continuous flow process, much like the flow of a waterfall (Gonzalez-Vera, 2016) (Werner, 1990), where the specification of user requirements initiates the process. This development cycle then moves from analyzing the needs of the software to designing the software and system, implementing and testing units, integrating and checking the system, and concluding with operation and maintenance. Software development (Trisakti & Pratama, 2020) is systematically based on the Software Development Life Cycle (SDLC).

In practice, the research related to the design of the English tenses learning application is conducted gradually; the research steps are divided into five (3) main processes: (1) the user needs survey and required development patterns (usability) process, (2) the formulation of the 16 (sixteen) English tenses using irregular verbs, and (3) the design process of the web-based application system.
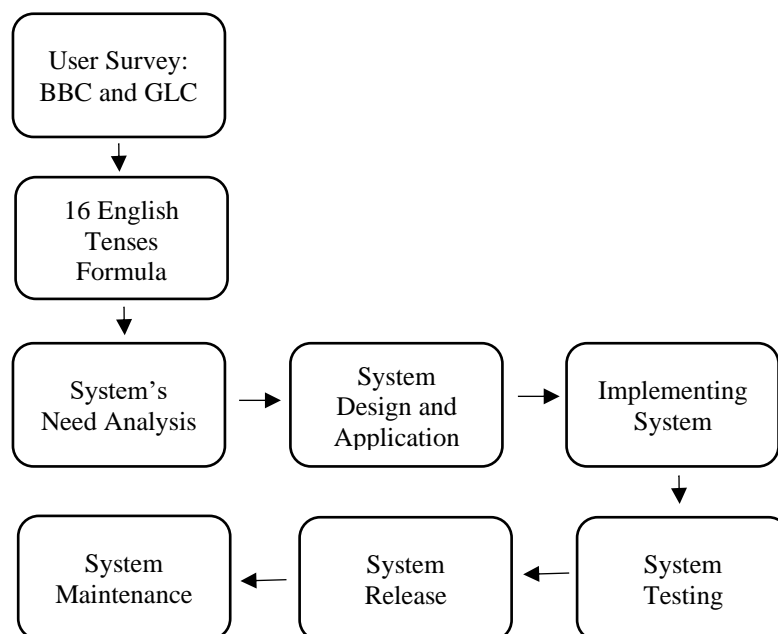
Figure 1. Research Design Flowchart

Formulation Process of the 16 English Tenses

This process can also be referred to as the data collection process. In other words, the formulation process involves learning tenses provided to students and the cases during the learning process. In this process, it is observed that tense patterns are relatively easy to recognize but are not deeply understood over an extended period by students. This is often because they frequently get trapped in the concept of time/tense. Therefore, the process of formulating tenses is designed based on irregular verb changes to illustrate the changing patterns and associated aspects within each tense.

The formulation process primarily focuses on irregular verbs in English to provide a comprehensive overview of the change process because, in regular verbs, the process is relatively straightforward, such as adding -ing for continuous or -ed for past and perfect aspects. Formulating tense patterns refers to various literature sources and cases in learning. The precision of this formula is essential to maximize its implementation in the application system.

User Partners

The web-based English tenses learning application system is implemented through a partnership between the research team and the following organizations: Build Better Communication (BBC-ETS), located at Jl. Indramayu No. 22 Antapani, Bandung City. Its primary business area is English language teaching and Global Language Consultant (GLC), located at Point Lab. Graha Pos Banda Lt. 6, Jl. Banda No.30, Citarum, Kec. Bandung Wetan, Bandung, West Java 40115. Its core business is language consulting and knowledge management.

This partnership provides opportunities for product utilization and offers initial insights into needs, testing locations, and feedback on the system's performance for continuous evaluation and development. In addition to these two partners, the web-based application system can be used by students of the English Department, Faculty of Humanities, UNIKOM in various course projects that undoubtedly require an understanding and proficiency in tenses and tense shifts.

RESULT AND DISCUSSION

In this research, a web-based English tense learning application with practical features and components has been successfully developed. In addition to providing all types of English tenses, this web application also offers a quality for correcting English writing. The application is designed to provide users with easy access, practical learning, and enhanced English language skills. The following are the results obtained from this research:

Development of the Web-Based Application

The research team has successfully developed a web-based English tense learning application with an intuitive and user-friendly user interface (Pressman, 2010); the application can be accessed at **https://www.learntenses.com**. This application is designed using cutting-edge technology and relevant development methods (Tambuwun et al., 2017) through the following stages:

a. Requirement Analysis
   In this stage, an analysis of the system requirements needed to build the system is conducted. The study covers input data, process steps, software, and hardware requirements.

b. Prototype Design
   This stage elaborates on the previous process, determining what the system to be built will look like and the methods used in information extraction.

c. Prototype Implementation
   After completing the system design phase, the next step is implementing the system into a programming language according to the previously made system design.

d. Construction
   Once the program is completed, the next step is the evaluation or testing of the prototype system that has been created. In this stage, any errors or deficiencies in the prototype are identified. If errors or defects are found, they are documented, and the process returns to step 1 for improvements. The process ends when no more errors or deficiencies are in the evaluation.

e. Development
   The development of this application system is also implemented using the following technologies and tools: PHP version 7.4.29, MySQL version 5.7.24, Composer version 2.4.1, Node Package Manager version 8.15.0, Laragon version 6.0, Laravel version 8.83.27, Vue version 3.2.31, and Reverso-API version 2.22.4 This system is intended to accommodate user needs, enabling easy navigation of features or menus aligned with the effectiveness of tense learning recommended in this research. The prototype

model of the web-based application development can be illustrated in the following diagram:
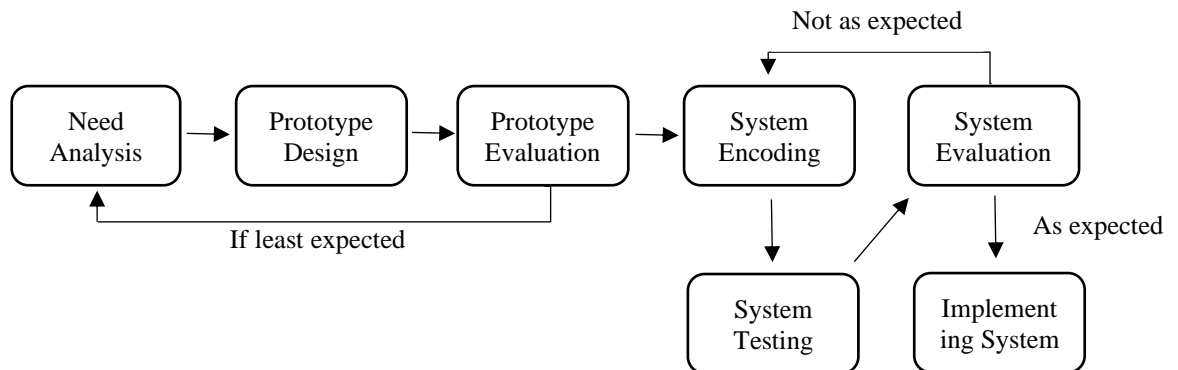
Figure 2. Prototype Model and Development for Web-based Application for English Tenses Learning

This research represents a significant stride in advancing web-based English tense learning applications. The study underscores that this application offers substantial advantages, including seamless accessibility, practical learning experiences, and enhanced English language proficiency for its users. The application provides users seamless and intuitive access to comprehensive English tense learning resources. Its user-friendly interface and responsive design guarantee an optimal learning experience across various devices and platforms. This application fosters practical and immersive learning experiences through a well-structured curriculum and engaging content. Users can delve into various tense categories, grasp their functions, and apply them within English-speaking contexts.

The application is meticulously crafted to elevate users' English language skills. It facilitates comprehensive comprehension of English tenses, including patterns and irregular verbs. Interactive evaluation tools and immersive exercises promote active learning and proficiency. Recognizing the diverse learning styles of users, the application offers flexibility and efficiency in English tense learning. Users can navigate the content at their preferred pace, enhancing efficiency in their learning journey. Moreover, the findings of this research not only serve as a milestone but lay a foundation for future endeavors in a similar domain. The diverse features and components thoughtfully integrated into this application can be an exemplary model for developing other English language learning applications. Thus, this research harbors the potential to positively influence the evolution of English language learning technology, fostering innovative and effective learning solutions.

Nevertheless, it is crucial to acknowledge the constraints inherent in this research. Primarily, its scope is confined to the development of English tense learning applications, leaving other facets of English language learning untouched. Additionally, the testing phase of this application involved a limited sample size, necessitating further research with a more extensive and diverse participant pool to validate and corroborate the research findings. In essence, this research triumphantly introduces a web-based English tense learning application that not only enhances accessibility and practicality but also elevates the English language skills of its users. The results and discussions presented herein constitute a noteworthy contribution to the burgeoning field of English language learning technology, marking a substantial step forward in the quest for innovative and effective educational tools.

CONCLUSION

In this research, we have successfully developed a web-based English tense learning application that offers valuable benefits in terms of accessibility, practical learning, and enhancement of users' English language proficiency. This application is an effective solution for individuals seeking a more flexible and efficient approach to learning English tenses. The research findings consistently demonstrate that this application significantly improves users' English language skills, particularly in tenses. Furthermore, this research contributes significantly to advancing English language learning technology. The various features and components successfully implemented in this application can be a model for developing other English language learning applications. Leveraging web technology as the foundation for these tenses learning applications greatly enhances user access, enabling them to study English tenses conveniently, anytime, and anywhere. In conclusion, this research underscores the significance of technology-enhanced language learning and provides a practical tool that empowers individuals to enhance their English language skills. It offers an adaptable and efficient means of mastering English tenses and is a testament to the potential of web-based learning applications in language education.

REFERENCES

Austin, J. L. (1962). *How to do things with words*. Clarendon Press.

Chittaro, L. (2016). Tailoring Web Pages for Persuasion on Prevention Topics: Message Framing, Color Priming, and Gender. *Persuasive Technology: 11th International Conference, Persuasive 2016*, pp. 3–14.

Gonzalez-Vera, P. (2016). The e-generation: the use of technology for foreign language learning. In *New Perspectives on Teaching and Working with Languages in the Digital Era* (pp. 51–61). Research-publishing.net.

Halliday, M. A. K., & Matthiessen, C. M. I. M. (2004). *An Introduction to Functional Grammar*. Arnold, A Member of the Hooder Headline Group.

Leech, G. (1983). *Principles of Pragmatics*. Longman.

Prensky, M. (2001). Digital Natives, Digital Immigrants Part 1. *On the Horizon*, *9*(5), 1–6. https://doi.org/10.1108/10748120110424816

Pressman, R. S. (2010). *Rekayasa Perangkat Lunak Pendekatan Praktis* (7th ed.).

Rabiah, S. (2018). *Language as a tool for communication and cultural reality disclosure*. Universitas Muslim Makassar.

Ratna, N. K. (2010). *Metodologi Penelitian: Kajian Budaya dan Ilmu Sosial Humaniora pada Umumnya*. Pustaka Pelajar.

Senjaya, R. M., & Sari, R. P. (2022). Metafora pada Website The Mark Hotel. *Mahadaya*, *2*(2).

Setiawan, R. (n.d.). *https://www.dicoding.com/blog/metode-sdlc/*.

Tambuwun, T. F., Sengkey, Rizal, R., & Yaulie Deo Y. (2017). Perancangan Aplikasi Web Berbasis Usability. *Jurnal Teknik Informatika*, *12*(1).

Trisakti, B., & Pratama, F. I. (2020). Perancangan Aplikasi Penjualan Berbasis Web pada CV. Jawi. *Jurnal Informatika Dan Rekayasa Perangkat Lunak*, *2*(1), 57–61.

Uzunboylu, H., & Ozcan, D. (2019). Teaching Methods Used in Special Education: A Content Analysis Study. *International Journal of Cognitive Research in Science, Engineering and Education*, *7*(2), 99–107. https://www.researchgate.net/publication/335515606_Teaching_methods_used_in_special_education_A_content_analysis_study

Werner, P. K. (1990). *Mosaic 1: A Content-Based Grammar* (2nd ed.). McGraw-Hill Inc.