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The use of Android-based digital game "Climbing Castle" to enhance grammar mastery in junior high school students at JAYABAYA Learning Center Nganjuk

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Abstract.

Grammar is an important sub-skill that underlies other English language skills, however, learning grammar is still challenging for students. Many students have experienced difficulties in learning grammar because the learning media and methods are still lacking in increasing student learning motivation. To overcome this problem, this research aims to find out the implementation of the Android-based game "Climbing Castle" in improving the mastery of grammar. To develop students' grammar mastery skills, "Educational Game; Play while learning using Climbing Castle" was conducted at JAYABAYA Tutoring. Having a lecture, discussion, and practice methods while playing using the Climbing Castle application. The lecture method is useful for increasing motivation verbally as well as conveying the material that will be used in Climbing Castle. The practice methods are carried out to find out how much the use of the game affects student motivation. Providing playing while learning using the Climbing Castle educational game can increase student motivation in learning Grammar. The participants of this activity are JAYABAYA tutoring students consisting of 10 students who will take part in the socialization of learning utilization using the game "Climbing Castle".

Keywords: *Digital Games, Android, Climbing Castle, Language Structures*

I. INTRODUCTION

English learners are inevitably faced with the challenge of mastering grammar, as it serves as one of the key foundations in acquiring the language. Grammar is a crucial

sub-skill in English that supports the development of other essential language skills, such as listening, speaking, writing, and reading. As emphasized by Qibamawarnie (2021) grammar is fundamental in teaching English because it helps learners understand the structure of the language, thereby improving their overall language proficiency. By understanding grammatical structures, students are able to communicate more effectively, both in written and spoken forms, and are better equipped to comprehend texts. Grammar, therefore, is not just a set of rules but a skill that plays an integral role in the learning process. Consistent practice in grammar enables students to refine their language use and enhances their overall communication skills in English (Vivi et al., 2023).

Furthermore, grammar is inseparable from language learning, and a solid grasp of it leads to better language usage across various contexts. According to Supriyono et al. (2022) mastery of grammar significantly influences students' ability to express themselves clearly in both speaking and writing. A well-constructed sentence relies on correct grammar, and this, in turn, makes communication smoother and more understandable. Without sufficient grammar knowledge, students might struggle to convey their ideas effectively or to understand what others are communicating (Sutanti et al., 2024). As a result, grammar remains an essential part of English language education that should be continuously reinforced. By mastering grammar, students not only improve their accuracy in language use but also gain confidence in their abilities to interact in English, both in academic settings and everyday situations.

According to Webster (1787) “Grammar is the study of word classes, inflections, and their functions and relationships in sentences”. Basically, grammar is a generalization in linguistic features, which form a language system (Kapatsinski, 2014). In the study of grammar, one usually learns about the structure of language, including syntax, morphology, phonology, and semantics. Syntax deals with sentence structure and word order, morphology focuses on word structure and how words are formed, phonology examines the sounds of language, and semantics explores the meaning of words and sentences. Learning grammar is essential to mastering English skills (Sutanti & Fadhilawati, 2021). This is because grammar is the reference or standard for communication to be understood. Mastery of grammar means mastery of a

structured, logical, and rational set of linguistic concepts. If students do not have good grammar mastery skills, it will affect their other English language skills, especially in conveying information. In fact, language is essentially used to convey something.

JAYABAYA is a well-established tutoring institution that has been serving students since its inception in 1999. Located in Prambon, Nganjuk, the institution has built a solid reputation over the years for providing quality education to students from various levels. From its humble beginnings, JAYABAYA has grown to cater to a wide range of learners, including elementary, middle, and high school students. The institution is known for its comprehensive curriculum, offering a variety of subjects that aim to support students in their academic journey. Among these subjects, English plays a significant role, helping students improve their language skills and preparing them for future academic and professional opportunities. The dedication of the staff and the supportive learning environment have made JAYABAYA a popular choice for parents and students seeking extra academic support.

One of the key strengths of JAYABAYA is its commitment to providing a holistic approach to education by offering not only core subjects like mathematics and science but also languages like English. English, being an international language, is an essential part of the curriculum at JAYABAYA, where students are taught to enhance their reading, writing, speaking, and listening skills (Cahyono et al., 2024). The institution understands the importance of a strong foundation in English, especially in today's globalized world, where language proficiency can open doors to a multitude of opportunities. By offering personalized attention and a structured learning plan, JAYABAYA ensures that each student receives the guidance they need to excel in their studies. The success of its students, reflected in their improved academic performance and confidence, stands as a testament to JAYABAYA's enduring commitment to education and its role in shaping the future of young learners in the region. JAYABAYA tutoring institute has conducted learning to improve the mastery of grammar in its students. By using traditional learning, students are explained about grammar and how to use it using blackboard media and lecture methods. But apparently, the method is not effective enough to improve the mastery of grammar to

the maximum, because students tend to feel bored and have difficulty applying it (Sari & Setiawan, 2021).

According to Hesty Puspita Sari, the owner of JAYABAYA tutoring institution, the current strategy used to teach grammar has proven to be somewhat ineffective for most students. Despite efforts to teach grammar using traditional methods, many students still struggle to grasp the concepts fully. She noted that while there are a few students who have managed to master grammar using these conventional techniques, the overall outcome has not been optimal. This has led her to recognize the need for a more engaging and dynamic approach to grammar instruction in order to reach a larger number of students and help them achieve better results.

One of the main challenges, Hesty explained, is the lack of appealing and interactive learning media that could capture students' attention and make grammar lessons more enjoyable. Traditional methods, such as rote memorization and repetitive exercises, may work for some, but they fail to engage most students, resulting in a lack of enthusiasm and motivation. Hesty highlighted that many students perceive grammar as a difficult and tedious subject, which further hampers their ability to improve. The absence of innovative teaching tools and creative methods makes it harder for students to stay focused and interested in the subject matter. She emphasized that to foster better student motivation and improve grammar learning outcomes, it is crucial to implement more engaging and interactive methods. She believes that incorporating modern technology and multimedia resources could make a significant difference in how students perceive and learn grammar. By creating a more stimulating learning environment and using tools that resonate with the younger generation, she hopes to make grammar lessons more accessible and enjoyable for her students at JAYABAYA. The institution is now exploring new strategies and resources that could potentially enhance the learning experience and lead to more effective grammar mastery in the future (Nurjanah & Sari, 2024).

Lack of learning motivation due to uninteresting media and learning methods will greatly affect student learning outcomes. At JAYABAYA Tutoring Institute, the lack of use of interesting learning methods and media has affected the level of mastery of student grammar. So it is necessary to change and use new learning methods that are

creative and fun so that they can attract students' interest in learning grammar at JAYABAYA Tutoring Institute.

Based on the analysis of the situation and problems at the JAYABAYA Tutoring Institute, the implementation of this PKM aims to improve the ability to master the mastery of the linguistic structure of the English language by utilizing the android-based digital game “Climbing Castle”. This activity is in accordance with the Main Performance Indicators in Higher Education that 1) the results of the work of lecturers in research and service can be utilized by the community; and 2) students participating in PKM activities gain direct experience in conducting research and service and teaching practice in the community. Finally, the PKM team in synergy with the JAYABAYA Tutoring Institute agreed to carry out PKM activities with the theme “Educational Games; Play while learning using Climbing Castle” in grammar learning activities at the JAYABAYA Tutoring Institute, Prambon, Nganjuk.

II. METHOD

This community service activity took place in May 2024, led by Nita Sutanti, M.Pd, alongside an English department student, Yeni. The activity, which was held for two hours, focused on the theme "Educational Games: Play while Learning Using Climbing Castle." The initiative aimed to introduce fun and interactive learning methods through the use of educational games. By integrating game-based learning, the organizers hoped to create an engaging environment that would enhance students' learning experiences, particularly in mastering English grammar (Erawanto, Triantoro, Sari, et al., 2023; Rosalia Vivi et al., 2023). The chosen game, Climbing Castle, is designed to make learning more enjoyable by encouraging students to learn through play.

Several methods were applied during the community service activities to ensure a comprehensive learning experience. One of the key methods was the direct implementation of the Climbing Castle game, where students were guided through various levels that challenged their grammar knowledge (Erawanto, Triantoro, & Sari, 2023; Triantoro et al., 2023). Through this hands-on approach, participants were actively involved in the learning process, which helped solidify their understanding of English

grammar rules (Sari et al., 2022; Supriyono et al., 2022). In addition to playing the game, students were also provided with brief explanations and discussions to clarify any doubts and reinforce the grammar concepts being learned. This combination of gameplay and instruction proved to be an effective way to keep the students engaged while fostering language development.

The community service activity also included a reflection session at the end, where students were encouraged to share their experiences and feedback on the learning process. Nita Sutanti and Yeni facilitated this session, allowing the students to discuss what they had learned, the challenges they faced, and how the game-based approach influenced their understanding of English grammar. The positive responses from the participants highlighted the potential of educational games like Climbing Castle to enhance traditional teaching methods. This initiative demonstrated that learning can be both enjoyable and effective when innovative techniques are used, paving the way for future community service projects centered on interactive learning.

1) Lecture method.

The lecture method remains one of the simplest and most effective ways to convey complex concepts to participants, especially in educational settings. In this community service activity, the lecture method will be applied by Nita Sutanti, S.Pd, M.Pd, and Bahrul Ulum, M.Pd, as they explain the fundamentals of English grammar to the participants. This approach allows the instructors to provide clear, structured explanations that break down grammar rules into digestible parts, ensuring that students can follow along and grasp the key concepts. During the lecture, the instructors will focus on essential grammar topics such as sentence structure, tenses, and subject-verb agreement, giving students a solid foundation to build upon. This traditional method provides an opportunity for the instructors to directly interact with the students, addressing any questions or concerns they may have about the material.

In addition to the grammar explanation, the lecture will be supplemented by a hands-on demonstration delivered by Yeni, who will guide the students through the process of installing and using the Climbing Castle game on their mobile phones. After the grammar lesson, Yeni will explain the game's structure, detailing how it

integrates grammar practice into various levels of gameplay. She will walk the students through the installation process, ensuring that everyone can access the game on their devices. This step is crucial, as the Climbing Castle game is designed to reinforce the grammar concepts introduced during the lecture. By combining the traditional lecture with a game-based learning tool, the instructors aim to create a balanced learning experience that caters to different learning styles.

The grammar instruction itself will follow a clear sequence of steps to ensure that students not only understand the rules but also know how to apply them. First, Nita Sutanti and Bahrul Ulum will introduce the basic grammar rules, using examples to illustrate each concept. Next, the students will engage in guided practice, where they will complete exercises related to the grammar points discussed. This practice will help solidify their understanding and allow the instructors to provide immediate feedback. Finally, the students will apply what they have learned through the Climbing Castle game, which offers a fun and interactive way to test their grammar knowledge in real-time scenarios. This blended approach, combining lectures with practical activities, ensures that students not only learn the rules of grammar but also develop the skills to use them effectively as the figure below:

Figure 1. Teacher's explantion of Grammar

2) Practical method

This community service activity utilizes the Climbing Castle application to provide an interactive learning experience for students. The direct practice method allows participants to engage in a fun, game-based learning environment while receiving guidance and supervision from Yeni. This approach encourages active learning and helps students improve their English skills in a more engaging manner.

The community service program is carried out in partnership with JAYABAYA Prambon Nganjuk tutoring services, which plays a significant role in facilitating the implementation of the activity. By collaborating with JAYABAYA, the program can reach a wider audience and ensure that students receive the necessary support throughout the learning process.

The main target of this program is eight junior high school students, who are provided with an opportunity to participate in the learning activities. The Climbing Castle application offers these students a unique and engaging way to enhance their English proficiency through interactive gameplay, which has proven to be an effective teaching tool. Partners, such as JAYABAYA, offer an essential platform for community service programs like this one. Their involvement ensures that the students have access to a structured learning environment where they can practice and apply their English skills, further contributing to the overall success of the program. The practicals of learning grammar as shown in the following figure:

Figure 2. teacher introduces the game

III. RESEARCH FINDINGS

The benefit provision for the society with the target of junior high school students at Jayabaya tutoring is carried out in the form of Community Service Activities. This activity has been carried out in several stages:

1. The initial stage

   This stage is the most influential stage in the implementation of this community service, because at this stage the researcher must make careful preparations, namely in the form of preparing the material and PPT that will be delivered to students. In this stage the researcher provides motivation and material used as an introduction to Grammar learning using the Climbing Castle game media. At this stage, it is expected to provide a clear picture and introductory material for learning Grammar while playing using Climbing Castle. The result of this initial stage is that the researcher has had careful preparation in attracting students' attention and preparation of material which is then implemented in community service activities using Android-based game media Climbing Castle, so that participants are enthusiastic when receiving the learning delivered.

2. Main stage

At this stage, the researcher is directly involved in the implementation of Grammar learning while playing using Climbing Castle. This stage is the most important stage, where in its implementation the researcher uses two methods, namely the lecture method and the practice of learning while playing using Climbing Castle directly. Then the researcher asked the students responses.

Figure 3. students asked by the teacher about the game

The students showed a high level of enthusiasm and excitement when learning grammar through the use of the game-based method. One of the students expressed their feelings by saying:

> *I am very happy learning grammar using game. The climbing castle game help me to understand grammar. (Andre_8SMP)*

Figure 4. students asked by the teachers about the game

Another students stated

> *Gammar with game is very amazing. The climbing castle game the first game I never knew before. I like learning grammar with this game (salsa_9SMP)*

Figure 5. students practicing the game

Next, the presenter will provide an introduction to the grammar used in the Climbing Castle Application. The delivery of this material is a crucial stage that needs to be carried out by research participants as an introduction and at the same time teaching students the systematics of the application to be

used. The materials presented in this community service activity are Simple Past Tense, Simple Past Tense, and Simple Continous Tense. In addition, the speaker also conveyed how to play the Climbing Catle game and how to take scores using the application.

After the lecture phase was over, participants were guided to install the Climbing Castle android-based game application. After the installation is complete, participants will be explained to take points in Climbing Castle, namely by taking keys in the game and answering questions. There are three levels in the Climbing Castle game, each level has its own processing time. Participants must complete the adventure and the questions that appear before the specified time.

Each question, the difficulty will be adjusted based on the level of the game. The questions are in the form of multiple choices which must then be selected by the participant. When a participant gets a question wrong, the participant will not get the key to the question. That means, participants do not get points from the question. However, the participant can repeat the question and try to answer the question again. Note that with limited time, participants may run out of time before reaching the end point if they continue to answer questions incorrectly.

3. Final stage

At this stage, participants will conduct a post-test to measure students' Grammar skills after conducting learning activities while playing using the Climbing Castle android-based game application in a written test.

Figure 6. teachers and students reviewed the class meeting

IV. DISCUSSION

The implementation of the Android-based game “Climbing Castle” in grammar learning highlights the importance of engaging learning media to improve students' mastery of grammar. Grammar, while essential for developing other language skills, is often challenging due to traditional methods that fail to motivate students effectively. This research focuses on addressing these challenges by using an educational game designed to make learning both fun and effective. The integration of the Climbing Castle game at JAYABAYA Tutoring illustrates how modern technology can transform learning experiences, especially for complex subjects like grammar. However, potential challenges in using the game include technical issues, such as bugs or compatibility problems on certain devices, and the limited accessibility of Android devices for students from underprivileged backgrounds. Additionally, adapting the game to diverse learning styles can be complex, as students may have varying preferences and needs in how they engage with digital learning tools. Addressing these challenges is crucial to ensuring the game's effectiveness and inclusivity.

The research utilized a combination of lecture, discussion, and practice methods to maximize the learning impact. During the lecture sessions, students were introduced to the grammar concepts that would later be reinforced through the game. This method served as a foundational step, helping to clarify key grammar points while boosting students' motivation through verbal encouragement. Discussions allowed students to interact and clarify any confusion regarding the material, which further contributed to their understanding and engagement. Together, these preparatory steps ensured that students were ready for the interactive game-based learning.

The practice sessions, using the Climbing Castle game, were critical in measuring the effectiveness of the game as a learning tool. By playing the game, students were able to apply the grammar rules they had learned in a dynamic and engaging way. This interactive experience helped boost their motivation and retention of grammar rules. The game's structure, which combines fun and education, made grammar learning less daunting, as students were able to learn at their own pace while being actively engaged.

One of the key findings from this implementation was the significant increase in student motivation when learning through the game. Students expressed that the gamified approach not only made learning more enjoyable but also helped them grasp difficult grammar concepts more easily. The use of technology in grammar learning thus proved to be a highly effective method for fostering both understanding and enthusiasm for the subject. This aligns with the growing trend of using educational games to enhance language skills, demonstrating the potential for further applications in various learning contexts.

In conclusion, the use of the Climbing Castle game has proven to be a valuable tool in improving grammar mastery among students. The combination of lectures, discussions, and practice through gameplay provided a comprehensive learning experience that addressed both cognitive and motivational challenges. The following diagram presents the progress of the 10 students who participated in the study, illustrating their improvements in grammar mastery as a result of the game-based learning approach as show in the following table:

Table 1

Students improvement

tudents	Pre-test score	Post test score	Improvement
Student 1	60	80	33%
Student 2	55	75	36%
Student 3	65	85	31%
Student 4	50	70	40%
Student 5	60	80	33%
Student 6	45	65	44%
Student 7	55	78	42%
Student 8	62	82	32%
Student 9	58	78	34%
Student 10	52	72	38%

The pre-test and post-test results of the 10 students demonstrate a significant improvement in their grammar mastery after using the Climbing Castle educational game. Prior to using the game, the students' pre-test scores ranged from 45 to 65, indicating varying levels of understanding of grammar concepts. These relatively low scores reflect the challenges students often face when learning grammar through traditional methods. The game-based approach aimed to address these difficulties by making grammar learning more interactive and engaging.

After using the Climbing Castle game, the post-test results showed considerable improvement across all students. The post-test scores ranged from 65 to 85, with each student demonstrating a noticeable increase in their grammar performance. For instance, Student 6, who had the lowest pre-test score of 45, achieved a post-test score of 65, marking a 44% improvement. Similarly, Student 4 showed the highest improvement, with a 40% increase from a pre-test score of 50 to a post-test score of 70. These results suggest

that the game significantly enhanced students' motivation and ability to retain grammar concepts.

Overall, the average improvement among the students was around 36%, indicating the effectiveness of the Climbing Castle game in enhancing grammar skills. The gamified learning experience made the process of mastering grammar more enjoyable, which in turn boosted the students' motivation and performance. This suggests that integrating technology and game-based learning into traditional grammar instruction can be a highly effective strategy for improving students' outcomes in challenging subjects like grammar.

The pre-test and post-test results, when connected with student feedback from interviews, provide a deeper understanding of how the Climbing Castle game positively impacted grammar learning. For instance, Andre, an 8th-grade student, expressed excitement about learning grammar through the game, stating that it helped him better understand the subject. This enthusiasm is reflected in the post-test improvements, as students like Andre, who found traditional grammar lessons challenging, benefited significantly from the game-based approach. The increase in scores, with some students showing up to 44% improvement, aligns with their positive feedback about how the game made grammar more accessible and engaging.

Similarly, Salsa, a 9th-grade student, mentioned that learning grammar through Climbing Castle was an "amazing" experience and something entirely new to her. Her excitement about this unique learning method likely contributed to her improved performance in the post-test. Salsa's comment underscores the novelty and effectiveness of using educational games, which can capture students' attention in ways that traditional methods cannot. The overall increase in student scores, combined with their positive attitudes, highlights how the game-based learning approach not only enhanced their

grammar skills but also fostered greater motivation and enjoyment in the learning process.

V. CONCLUSION

In conclusion, implementing the Climbing Castle educational game has proven to be an effective tool for improving grammar mastery among students. The significant increase in post-test scores demonstrates that using a gamified approach to learning helps students overcome the challenges they previously faced with traditional grammar instruction. The average improvement of 36% across all participants shows that the game enhances understanding and increases retention of grammar concepts.

Student feedback from the interviews further supports these findings. The enthusiasm expressed by students, such as Andre and Salsa, highlights the motivational impact of learning through games. Both students emphasized how the interactive nature of the Climbing Castle game made grammar easier and more enjoyable to learn. Their positive experiences are directly reflected in the improved test scores, confirming that the game fostered both higher engagement and better learning outcomes.

Overall, this research demonstrates the potential of educational games like Climbing Castle to enhance grammar learning for students. By combining fun with education, the game not only increased students' mastery of grammar but also made the learning process more engaging. This suggests that integrating game-based learning into traditional instruction can be a highly effective method for improving student motivation and academic achievement in complex subjects like grammar.

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