

Developing Gloves As Media Used To Improve Students' Grammar Mastery of Grade X at SMA Negeri Pecangaan Jepara

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ABSTRACT

This study presents grammar gloves, a useful tool that enables students to learn grammar, as manifested in better test results after their utilization in the experimental group. The aim is to develop this educational tool in four phases: definition, design, development, and deployment. Based on interviews, observations, and tests, data were gathered for the purpose of ensuring Grammar Gloves' suitability for students. Experts agreed that the tool is very suitable for being accurate and relevant. Media experts said it is easy for students to use and works well. Experts endorse the use of grammar gloves in schools. Additionally, during the media assessment, the control group exhibited an average score of 31. 31, while the experimental group recorded an average of 27. 17. In the post-test, the control group demonstrated an average score of 33. 83, whereas the experimental group achieved an average of 64. 42. The data indicates a notable improvement in grammar mastery among students who were instructed using the grammar gloves media. Consequently, it can be concluded that the development of grammar gloves media is both feasible and effective for teaching grammar.

KEYWORDS

Grammar mastery
Rumus MathEng
Wearable learning
media
Kinesthetic learning

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1. Introduction

English has emerged as the most widely spoken global language. Its instruction extends beyond elementary and secondary education; it is also incorporated into the curricula of universities in Indonesia (Gayatri et al., 2023). This emphasis on English proficiency is largely attributable to the increasing necessity for mastery of the language in contemporary society. In Indonesia, English has become a familiar language, being taught in both formal and non-formal educational settings. However, a significant number of students encounter challenges in achieving proficiency in English due to various factors, including limited vocabulary, inadequate grammar skills, pronunciation errors, and deficiencies in motivation and self-confidence (Khasawneh, 2022). Therefore, the attainment of English proficiency remains a substantial challenge for Indonesian students, particularly if foundational knowledge such as vocabulary and grammar is not adequately developed.

Grammar constitutes a fundamental principle of the English language. It aids in comprehending the regulations governing different linguistic components, facilitating their integration into coherent units (Toshpulatov, 2022). Many students opine that a good grasp of grammar is required to enhance their written and verbal communication. Learning grammar allows language learners to recognize sentence patterns and avoid mistakes. Students' writing and speaking skills may also improve as a result (Xu & Li, 2022).

In general, grammar instruction is frequently delivered through traditional methods that do not incorporate media. This approach often leads to students experiencing boredom and a lack of engagement, particularly when educators rely solely on verbal communication for their instruction and utilize textbooks as the sole supplementary learning material (Kruk et al., 2022).

Additionally, it is imperative that grammar teaching materials in the classroom are presented in a communicative manner to enhance student engagement and comprehension of various aspects without inducing boredom. Consequently, educators must possess the requisite skills to select appropriate learning materials that facilitate a smooth and effective educational process. According to Kilian et al., (2022), gloves serve as a valuable learning medium that is effective for memorization and streamlining the learning experience. Grammar gloves, in particular, represent an interactive and kinesthetic tool that employs the concept of labeling parts of speech on each finger and the palm, making them easily accessible for educators in the classroom setting. Through the use of grammar gloves, students' imagination can be stimulated, enabling them to develop ideas, reinforce memory, and enhance understanding, as noted by (Prottasha et al., 2022).

This study was conducted at SMA Negeri 1 Pecangaan Jepara, specifically among 10th grade students majoring in Social Sciences. Based on the results of the instrument validation conducted by the researcher, it was found that many students still did not fully understand the functions of the 16 tenses in English. Errors in sentence construction were also still common, both in terms of structure and completeness of sentence elements. Additionally, students also struggle to distinguish the proper use of articles. Incorrect use of preposition also contributes to low achievement in English language courses. These low learning outcomes are not unrelated to the teaching methods and media used by teachers. Many teachers have not optimally utilized teaching media and still rely on conventional methods that are less appealing to students. As a result, students quickly become bored and lose focus during the learning process. Therefore, innovation in teaching methods and media is needed to enhance the effectiveness of conveying material and students understanding of basic concepts in English.

Based on the aforementioned explanation, researchers are focused on the development of pedagogical materials for grammar that incorporate linking words, with the aim of enhancing students' mastery of grammatical structures. Grammar gloves serve as instructional media that encompass various parts of speech topics, including articles, prepositions, and sixteen randomly selected tense names. These components are designed to be affixed to the sides or fingers of the glove, in accordance with the specific type of grammatical material being addressed.

2. Method

This study is a Research and Development (R&D) initiative aimed at developing and proving the effectiveness of grammar gloves as a learning tool for English language education. Guerrero-Ulloa et al., (2023) have defined development research as research conducted with the aim of developing a product and evaluating its effectiveness. This study specifically focuses on the development of educational products designed for learning purposes, using the 4D model, which includes four stages: 1) Definition, 2) Design, 3) Development, and 4) Dissemination (Zulhelmi et al., 2023). Various methodological tools were used in this study to collect data on the usefulness and effectiveness of the media being developed. The tools used included interviews, observations, and assessments. Data collection was carried out using quantitative and qualitative methods. Quantitative data were obtained from media testing results, while qualitative data were obtained from comments and feedback provided by validators. The validation process involved two validators who contributed to the validation sheet. To ensure the effectiveness of the media, this study used an experimental design involving a comparison analysis between the pre-test and post-test scores of the control group (class X11) and the experimental group (class X9), following the Quasi-Experimental Design framework. Both groups were given identical pre-test questions before the intervention. Next, both groups underwent different instructional approaches: the control group (X11) received traditional teaching methods, while the experimental group (X11) used the Grammar Glove media. At the end of the

study, a post-test was conducted for both groups to evaluate the effectiveness of the media in improving the grammar proficiency levels of students in classes X9 and X11 at SMA Negeri 1 Pecangaan Jepara.

3. Results and Discussion

3.1 Results

The outcome of this research is the development of learning media in the form of grammar gloves, which have been produced utilizing the Research and Development (R&D) methodology. The findings resulting from the application of this developmental research are as follows :

3.1.1 *Defining Stage (Define)*

During the process of defining the problem, researchers conducted observations and interviews to gather information regarding the media to be developed, specifically grammar gloves. This particular mode of instruction tends to render learners passive in the classroom environment, resulting in a lack of motivation towards the subject matter being taught. Consequently, many students appeared disengaged and inattentive during the teacher's explanations. Additionally, a significant number of learners exhibited apprehension when it comes to asking questions and displayed a lack of motivation to engage with the tasks assigned by the teacher. These factors collectively diminished the overall effectiveness of the learning process.

In order to gather data on the students' needs analysis, the researcher then distributed questionnaires to the research sample, which comprised 36 students from class X9 and an additional 36 students from class X11 of SMA Negeri 1 Pecangaan Jepara. The questions focused on several key topics: students' interest and engagement in language acquisition, the challenges they face in learning the language, their comprehension of English lessons, the instructional media employed by teachers, students' preferences for learning through tangible media, and their perspectives on the utilization of card-based media in English education. Based on the responses to these inquiries, the researcher concluded that students require stimulating educational resources that foster active participation in the learning process.

The researcher spoke with English subject teachers in additional interviews to corroborate the data she had collected. According to the interview results, grade X students struggled to comprehend English-language materials, including grammar. Students' proficiency with other English language skills, like writing, is impacted by this. It is anticipated that the creation of grammar glove media will enhance students' command of the English language and add excitement and activity to the classroom learning process.

3.1.2 *Design Stage*

Following a comprehensive needs analysis conducted during the defining stage, it is imperative that the learning media is meticulously designed with particular emphasis on English language acquisition. In this phase, the design of the matching card box media is categorized into two distinct areas: the outer design and the inner design of the glove. The subsequent stages of the design process are outlined as follows :

Designing the outer and inner grammar gloves

The first step in designing a grammar gloves was to determine the topic of English learning. The topic of this media is adapted to grade X English subjects, namely tenses and parts of speech. After determining the topic, the names of the tenses and parts of speech—such as prepositions and articles—were mapped to fit the design of the gloves. These elements were then organized according to their usage layout and color-coded based on font selection.

Tabel 1. Grammar Gloves Material

No	Grammar	
1	Tenses	Simple Present Present Continuous Present Perfect Present Perfect Continuous Simple Past Past Continuous Past Perfect Past Perfect Continuous Simple Future Future Continuous Future Perfect Future Perfect Continuous Simple Past Future Past Future Continuous Past Future Perfect Past Future Perfect Continuous
2	Preposition	On, In, At
3	Articles	A, An, The

Using the Canva app to design the gloves was the second step. Each section is made up of the right and left outer sides, as well as the right and left inner sides. The tenses formula, time information, prepositions, and the time indicator function were all found on the right outer side. The formula for tenses, the time statement, and the preposition function to indicate the location were then included on the left outer side. The function of articles and the prefix of the tenses name are then located on the right inner side. The continuation of the tenses name and articles was found on the left inner side.



Figure 1. Design of Grammar Gloves



Figure 2. The Procedure of Grammar Gloves

3.1.3 Development Stage (Develop)

Validation of Material Experts and Media Experts

At this stage, two specialists evaluated the media that had been produced: a material expert and a media expert. The researchers employed a questionnaire directed at both experts to assess the validity of the media. The findings from the experts indicated that the matching card box media achieved a high percentage of 90% from the material expert, meaning the materials were considered very good for use. Nevertheless, there were still components that needed improvement. The subject matter expert provided guidance by proposing a few verb tense changes in the content about the gloves. This was intended to facilitate ease of comprehension for tenth-grade students when they used it.

Subsequently, based on the validation results provided by the material expert, the grammar glove media was awarded a score of 90%. This score indicated that the grammar glove media fell within the "good" category of learning resources, making it highly suitable for use, as it resided within the scoring range of 81% to 100%. However, the material expert also provided several amendments and recommendations. The second revision incorporated a guidebook, which comprised detailed, step-by-step instructions for utilizing the grammar gloves, outlined the advantages of the media, and presented a concise overview of grammatical content.

Media revision

After experts' verification of the media, researchers revised after criticism and suggestion from experts. This was done in a bid to improved media that was produced due to shortcomings. The result of the revision could be seen in the following figure:

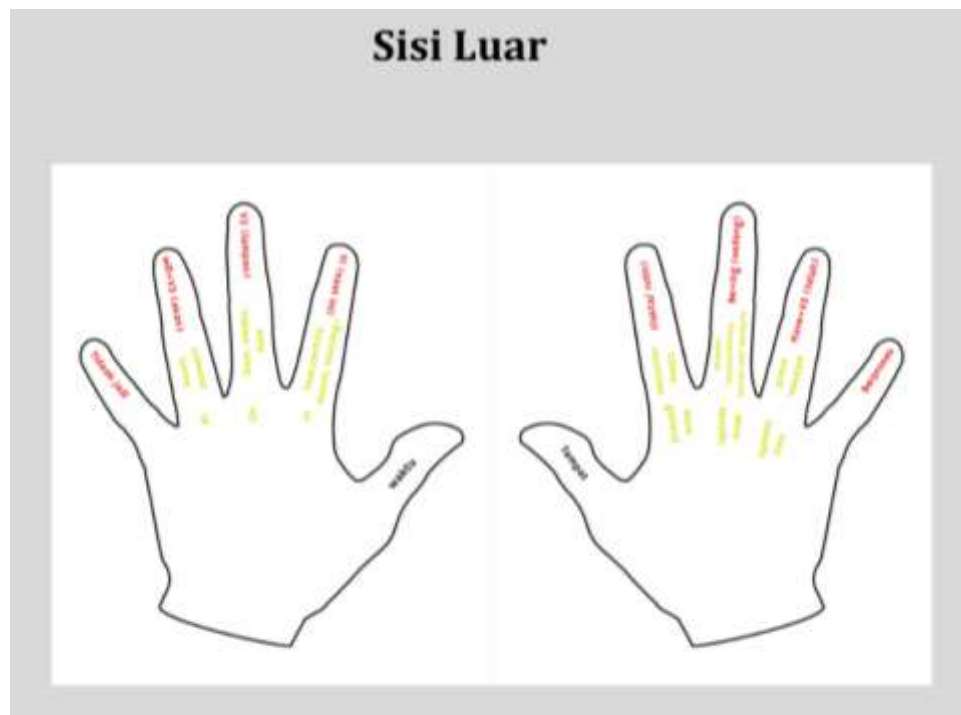


Figure 2. Design of Grammar Gloves

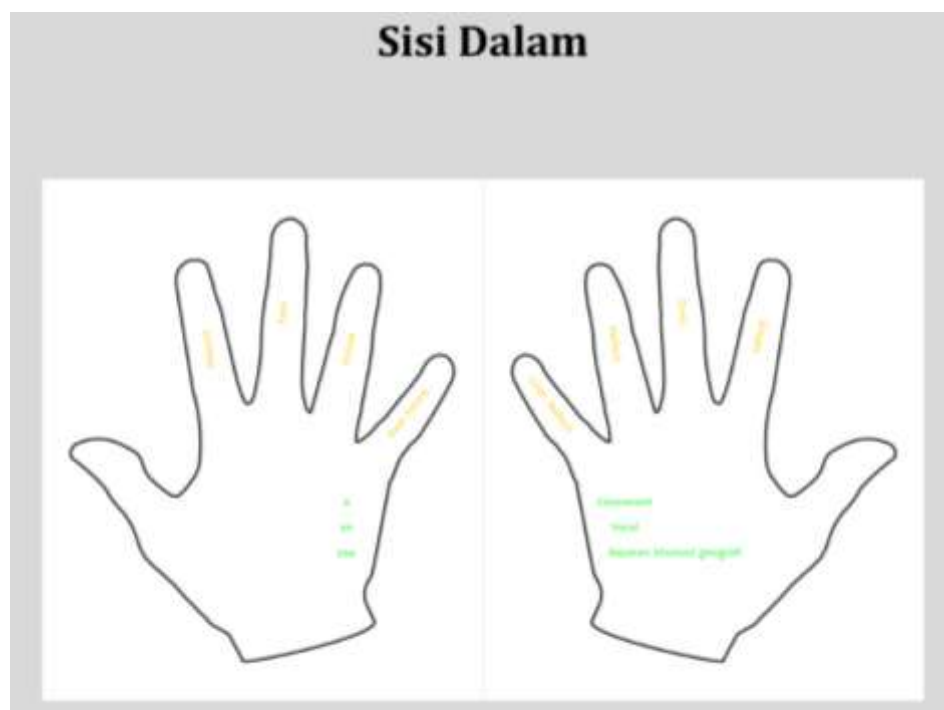


Figure 3. Design of Grammar Gloves

There were some changes to the design of the gloves. Researchers altered some of the places, font, and color of words on the gloves to make them clearer and easier to remember. In addition, the researcher also revised by adding a guidebook that complements the grammar glove media. The guidebook design can be seen from the following figure:

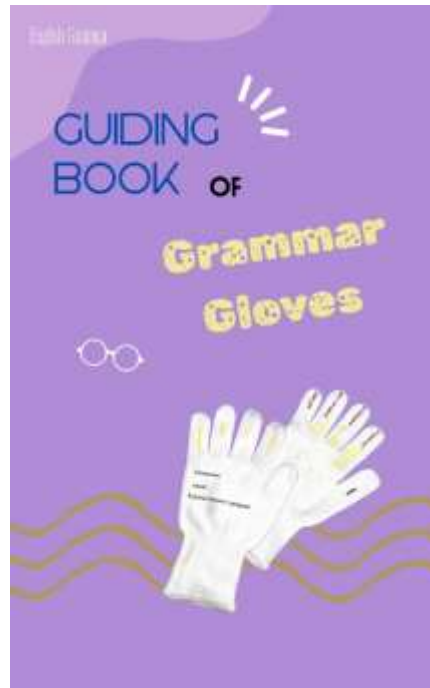


Figure 4. Grammar Gloves Guiding Book

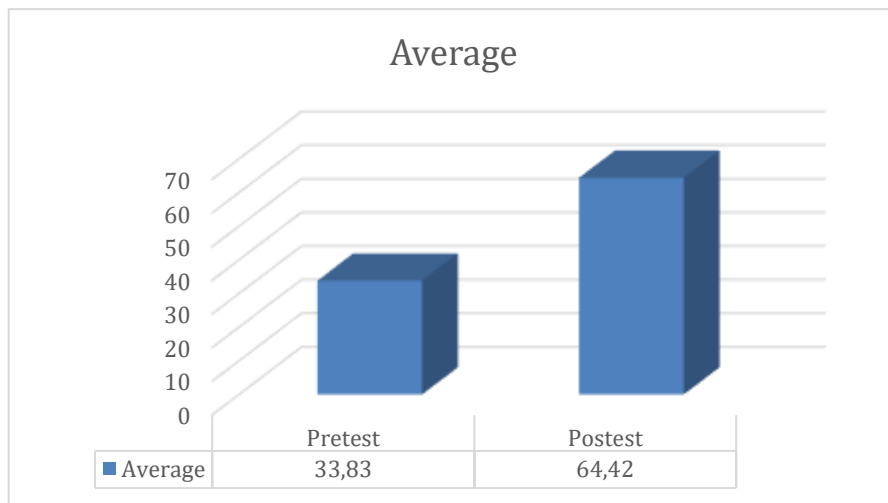
This glove guide is a compact book filled with quite a few pages that explain how to deal with the media, recognize its benefits, and provide a simple outline of what the components of the speech content are. Created with the Canva application, this guide attempts to be simple and engaging, ensuring students remain engaged and can comprehend whatever it shows effortlessly.

Dissemination Stage

This study administered questionnaires to grade 10 students in Jepara who have utilized grammar tagan gloves as educational tools. The results of the data analysis, conducted using a T-Test to compare pretest and post-test instrument outcomes, are presented in Table 1 below :

Table 2. Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Pretest eksperimen	36	13	50	27,17	8,327
Posttest eksperimen	36	20	93	64,42	22,643
Pretest kontrol	36	20	43	31,31	6,391
Posttest kontrol	36	20	50	33,83	7,847
Valid N (listwise)	36				

Figure 5. Average Pretest and Posttest results**Table 3.** Paired T-Test Result

	Groups	N	Mean	Std. Deviation	Std. Error Mean
Hasil	Pretest	36	33,83	7,847	1,308
	Posttest	36	64,42	22,643	3,774

Tabel 4. Uji T-Test

	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
ResultsEqual variances assumed	34,442	,000	-7,657	70	,000	-30,583	3,994	-38,549	-22,618
Equal variances not assumed			-7,657	43,287	,000	-30,583	3,994	-38,636	-22,530

Based on the results of the T-Test that had been conducted by researchers, it was evident that there was a very significant difference in the experimental group before and after the treatment using grammar glove learning media. This could be seen from the data analysis results, which shows a significance level of $P\ 0.000 < 0.001$. These findings indicated a clear difference between the pre-test and post-test scores in the experimental class. The examination of these results supported the assertion that educational activities were more likely to be successful when appropriate learning

media were employed, compared to instruction conducted without such media or with less engaging instructional models.

3.1. Discussion

Mastery of grammar is a fundamental aspect of learning English, yet most students find it hard to grasp and use rules of grammar correctly, particularly the 16 tenses. This issue explains why students perform poorly in writing and oral skills. From their early inception in schools, it can be observed that learning grammar in schools is typically grounded on traditional, theoretical approaches that do not incorporate engaging or meaningful activities for students. Therefore, this research was done to evaluate the effectiveness of kinesthetic-based learning tools, such as the grammar glove, in enhancing the grammar ability of students. The research applied an experimental design with a quantitative strategy to establish the difference in grammar achievement among students who learned using kinesthetic devices and students taught under traditional methods. English writing skill was built upon a number of aspects like grammar, vocabulary, and spelling mastery, and reading and writing habit (Kadwa & Alshenqeeti, 2020).

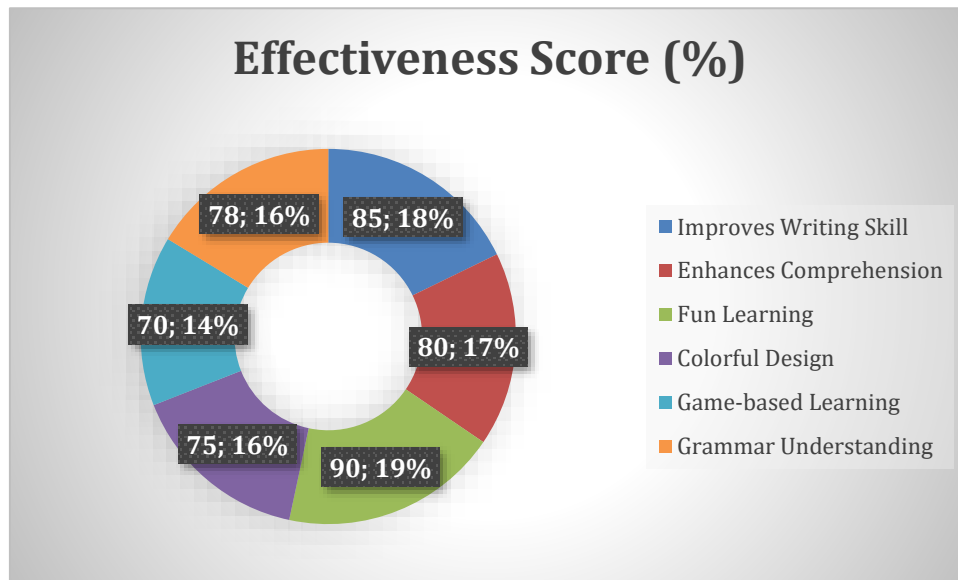
Every student has his or her own way of learning. One of them is kinesthetic students who need direct contact with the material they are learning. Kinesthetic students will not usually understand material that is only presented without using media directly (Ajaykumar et al., 2023). Due to this disorder, kinesthetic learners experience challenges related to language, reading, writing, and memory. Use of learning media with a kinesthetic focus is very effective in addressing the issue of low student learning outcomes, especially in understanding complex subjects such as the 16 tenses in English. The majority of students have difficulty distinguishing between the forms and uses of tenses because learning is only theoretical and not assisted by experience in real life. In media based on kinesthetic activities, such as instructional aids or physical workouts involving movement, students can visualize as well as directly practice transformations of sentences. These activities work to reinforce conceptual understanding through embodied learning that has proven to be more effective for students with kinesthetic learning styles. Physical engagement in learning also increases the student's level of motivation and focus, enabling them to learn material that was once considered challenging. Therefore, kinesthetic media can be one of the new solutions to improve the learning achievement of students in mastering the 16 tenses in a more enjoyable, interactive, and meaningful way. This issue forms the basis for the need to conduct this effectiveness study. This study represents a significant advancement in the exploration of glove media as a means to enhance the writing skills of tenth-grade students. Media serves as one of the essential tools for conveying and elucidating information.

Media in instructional activities implies real learning media (Wulandari et al., 2023). Gloves are among the learning media that children can utilize to enhance their writing skill. (Xu et al., 2023) explain that the gloves can be adapted to all ages and levels of study, such as elementary, junior high, or high school, depending on the needs of the child. The utilization of gloves as an educational tool enables instructors to deliver learning materials that are suitably aligned with the abilities or intellectual levels of children. This approach facilitates kinesthetic learners in more effectively attaining their educational objectives. The other statement from (Ulbricht, 2023) is that glove media provides concise colored keywords that help children learn and memorize grammar more efficiently. Kinesthetic is one of the physical movement, touch, and first-hand experience-based learning styles to learn and remember information. Kinesthetic learners need a hands-on, concrete experience to build their knowledge and writing.

Gloves are a good learning method for children with kinesthetic learning styles (Sierotowicz et al., 2022). Some research exists that verifies the effectiveness of glove usage in improving comprehension skills and academic achievement for dyslexic children. Based on the prior research, (Kilian et al., 2022) It has been clarified that gloves are effective tools for enhancing children's comprehension abilities. This effectiveness arises from the fact that gloves serve as educational media featuring concise vocabulary and vividly colored letters, which align well with the cognitive development stage of high school students, thereby making the learning experience enjoyable. Additionally, at a young age, kinesthetic learners often encounter challenges in comprehension, which may manifest as a slow thought process, a high error rate, and flawed reasoning. The brains of kinesthetic children therefore need extra learning media for easy comprehension and to make

learning fun. Through the use of glove learning media, the names of shortened tenses and some articles will be familiar and allow kinesthetic children to recognize them without having to struggle to remember. This study found that the use of glove media can evoke enthusiasm for learning activities. (Terrile et al., 2021) stated that glove media is a medium that has a positive effect on the learning capacity of kinesthetic students.

Figure 5. Effectiveness Score



The findings of this study indicate that glove media has the potential to stimulate interest in learning among kinesthetic learners. This effect can be attributed to the media's vibrant colors and engaging imagery. Furthermore, it may be utilized as a resource for interactive guessing games with students, thereby enhancing the enjoyment of the learning experience. This aligns with the perspective of (Caeiro-Rodríguez et al., 2021) that the color of the tense names on the gloves can draw the interest of children in learning to read. (Haristiani & Rifai, 2021) describes that learning grammar through glove media is a method carried out by teachers with the help of gloves to enhance learning understanding in kids. The findings of this study have significant implications for the development of academic interventions aimed at students or children who experience challenges in understanding the nomenclature and functions of tenses, as well as the appropriate use of articles and prepositions (specifically, "in," "on," and "at"). The implementation of "grammar gloves" may serve as an effective instructional strategy to assist students or children with kinesthetic learning preferences.

4. Conclusion

Based on the research findings previously discussed, the following conclusions have been formulated. The results of this study indicate that, according to the validation outcomes, the developed media meets the established validity criteria. Specifically, the validation performed by two experts—namely, a material expert and a media expert—determined that the grammar glove media is appropriate for student use. Additionally, the results from the product trials conducted with students demonstrate a notable improvement in grammar mastery among those who utilized the grammar gloves as a learning tool. Therefore, it can be concluded that the development of the grammar glove media is both effective and suitable for implementation in grammar instruction. However, it is important to acknowledge the limitation of this study, which was conducted in a single school, thereby limiting the generalizability of the results concerning the feasibility and effectiveness of grammar glove media in teaching grammar as a whole..

Therefore, it is anticipated that future researchers may conduct similar studies with a larger sample size. Based on the findings of the present research, it is recommended that educators develop their own instructional media to enhance the learning process. The outcomes of this study may serve as a valuable reference for teachers, enabling them to create glove media and apply it to various subject matter themes.

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