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EFFECTIVENESS OF INTERACTIVE TOOLS IN TEACHING GRAMMAR TENSES FOR 4TH GRADERS

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KALIT SO'ZLAR:
Grammar is an essential component of language acquisition, and understanding tenses is a fundamental aspect of grammar.

ANNOTATSIYA:

This study explores the effectiveness of interactive tools in enhancing the teaching of grammar tenses for 4th-grade students. The study involved 15 participants, with a pre-test and post-test design, to assess their knowledge of English grammar tenses before and after using interactive digital tools. The paired samples t-test conducted using JASP software showed a statistically significant improvement in test scores. This research contributes to the growing body of evidence supporting the use of interactive tools in primary education, specifically for teaching language concepts such as verb tenses. The findings suggest that interactive learning tools provide an engaging and effective way to support grammar learning in young students.

INTRODUCTION. Grammar is an essential component of language acquisition, and understanding tenses is a fundamental aspect of grammar. Verb tenses are especially crucial for students learning to express past, present, and future actions accurately. While traditional methods, such as drills and worksheets, have been widely used, they often fail to actively engage students or maintain their interest. With the advent of technology in the classroom, there has been a shift towards incorporating digital and interactive learning tools to foster a more engaging and effective learning environment.

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Interactive tools—such as educational apps, games, and online quizzes—offer dynamic learning experiences that cater to various learning styles. These tools have been shown to increase student engagement and provide instant feedback, which is essential for language learners to internalize grammar rules. However, empirical studies investigating the specific impact of interactive tools on 4th graders' understanding of grammar tenses remain limited.

This study aims to address this gap by exploring the effectiveness of interactive tools in teaching grammar tenses to 4th-grade students. The research question guiding this study is as follows:

Research Question:
Does the use of interactive tools significantly improve 4th-grade students' performance in understanding and applying grammar tenses in English?

The Role of Interactive Tools in Language Learning

The role of technology in language education has been extensively studied in recent years. According to **Mayer (2005)**, multimedia learning—particularly interactive videos, games, and simulations—helps students engage cognitively and retain new information better than traditional methods. **Skehan (2003)** also suggests that task-based learning, supported by interactive tools, enhances language acquisition by encouraging students to practice in meaningful contexts.

Interactive tools, when properly designed, are able to provide immediate feedback, which is crucial for language learning. **Chamot et al. (1999)** argue that feedback fosters self-regulation, which is particularly important for learners to understand their errors and rectify them in real-time.

In a study by **Roblyer et al. (2010)**, it was found that students using educational games showed a deeper understanding of grammatical structures compared to those using traditional instructional methods. These findings are consistent with **Van der Meijden & Veenman (2005)**, who report that students engage better with interactive tasks and demonstrate improved academic performance in language subjects.

However, as **Bialystok (1994)** warns, the use of technology must be balanced and thoughtfully integrated into the curriculum. Over-reliance on digital tools can hinder face-to-face interactions and limit the development of oral language skills. Hence, it is important that technology supplements traditional methods rather than replacing them.

Interactive Tools and Grammar Instruction

Recent studies have specifically examined the use of interactive tools for teaching grammar. **Anderson & Krathwohl (2001)** emphasized that multimedia applications, including grammar-focused educational games, could facilitate a more engaging and motivating learning experience. Furthermore, **Graham et al. (2006)** found that using online quizzes and interactive lessons led to improvements in students' retention and understanding of grammar rules, especially when the tools provided contextualized practice.

Despite the growing interest in this area, much of the research has been focused on secondary and higher education. Less attention has been given to primary school students, particularly 4th graders, where the integration of digital tools into grammar lessons is still an emerging practice.

Methodology:

Participants

The study involved 15 4th-grade students from an elementary international school called "Target" located in Tashkent province. These students were selected based on their prior exposure to basic grammar concepts but had not yet received specific instruction on verb tenses. The sample size of 15 students was chosen due to practical considerations related to classroom availability and the teacher's ability to monitor each student's progress.

The students were randomly assigned to a single group and underwent the same instructional intervention using interactive tools. The gender distribution of the group was approximately equal, with 7 males and 8 females.

Pre-Test and Post-Test Design

The study used a **pre-test/post-test design** to measure the effectiveness of the intervention. Both tests focused on assessing students' understanding of verb tenses (simple present, past, and future). Each test consisted of multiple-choice questions, fill-in-the-blank exercises, and short-answer questions requiring students to convert verbs into different tenses.

Pre-Test:

The pre-test was administered before the intervention. It aimed to assess the students' initial understanding of verb tenses. Sample questions included:

Multiple Choice Questions

1. **Which sentence is in the present tense?**

a) I went to the park yesterday.
b) I am going to the park right now.
c) I will go to the park tomorrow.
d) I go to the park every day.

2. **Fill in the blank with the correct form of the verb: "She ____ to school every day."**

a) going
b) goes
c) went
d) go

3. **Which sentence is in the past tense?**

a) I eat breakfast every day.
b) I will eat breakfast tomorrow.

c) I ate breakfast this morning.
d) I am eating breakfast right now.

4. **Choose the correct future tense sentence:**

a) They will plays soccer tomorrow.
b) They play soccer tomorrow.
c) They will play soccer tomorrow.
d) They played soccer tomorrow.

5. **Which verb is in the correct form for the future tense?**

a) I will walking to the store.
b) I will walk to the store.
c) I walks to the store.
d) I walked to the store.

6. **Fill in the blank with the correct verb in the past tense: "Yesterday, I ____ my homework."**

a) do
b) doing
c) did
d) done

7. **Which sentence is in the present continuous tense?**

a) I swim in the pool every day.
b) I am swimming in the pool right now.
c) I swam in the pool yesterday.
d) I will swim in the pool tomorrow.

8. **Fill in the blank with the correct verb form: "I ____ to the store tomorrow."**

a) going
b) goes
c) go
d) will go

9. **Which sentence uses the present perfect tense correctly?**

a) I have visited the zoo last week.
b) I has visited the zoo last week.
c) I have visited the zoo before.
d) I visit the zoo before.

10. **Choose the correct sentence in past tense:**

a) She will go to the market.
b) She went to the market.
c) She is going to the market.
d) She going to the market.

Fill in the Blank

Write the correct form of the verb.

11. I ____ (play) soccer every weekend.
12. She ____ (study) English at school now.
13. Last night, I ____ (watch) a movie.
14. Tomorrow, they ____ (travel) to Paris.
15. He ____ (not like) chocolate.
16. I ____ (eat) breakfast this morning.
17. By next year, I ____ (finish) my project.
18. She ____ (go) to the library every Monday.

Sentence Transformation

Rewrite the sentences using the correct tense.

19. **Convert the sentence to the past tense:**

"I visit my grandmother every Sunday."

20. **Convert the sentence to the future tense:**

"She reads a book every day."

Interactive Tool Intervention:

The intervention involved the use of **interactive grammar software** for a period of 4 weeks. The tool included:

1. Grammar Games Focusing on Verb Tense Correction

Game 1: Tense Tower

- **Objective:** Help students learn verb tenses through a fun, time-limited game.
- **How it works:**

Students are presented with a "tower" of blocks that fall at different speeds. Each block contains a verb in its base form, and the student must select the correct tense (present, past, or future) from a set of options to match the verb.

- **Example:**
  - Block: "Run"
  - Options:

a) Ran (Past)
b) Runs (Present)
c) Will run (Future)

Correct Answer: Students must select the correct form to make the sentence complete. The correct answer adds points to the tower, while incorrect answers cause the blocks to fall.

- **Features:**
  - Visual feedback on success or failure (e.g., a green checkmark for correct answers).
  - Time limits to create a sense of urgency.
  - Increasing difficulty as the game progresses (e.g., introducing more complex verbs or irregular verbs).

Game 2: Tense Race

- **Objective:** Students race to match verbs with the correct tense before time runs out.
- **How it works:**

Students are given a sentence with a missing verb, and they must drag and drop the correct tense form from a selection of verbs (e.g., "run," "ate," "will be"). The goal is to complete as many sentences as possible within a given time frame.

- **Example:**
  - Sentence: "She ____ (eat) breakfast at 8:00 AM yesterday."
  - Options:

a) Eats
b) Ate
c) Will eat
Correct Answer: "Ate"

- **Features:**
  - Instant feedback on whether the choice is correct or incorrect.
  - The game could have various levels (easy, medium, hard), based on the complexity of the verbs and sentences.
  - A "Tense Master" badge for completing all the sentences correctly in the shortest time
- **Quizzes** with instant feedback on mistakes.

1: Tense Challenge

- **Objective:** Assess understanding of different tenses and provide immediate feedback.
- **How it works:**

Students answer a series of questions, and after each question, the system provides instant feedback, explaining why the correct answer is right and why the incorrect ones are wrong.

- **Example Questions:**
  - "Choose the correct tense for this sentence: 'I ____ to the park every weekend.'"
    - a) Go
    - b) Went
    - c) Will go
    - **Correct Answer:** a) Go
    - **Instant Feedback:** "Well done! 'Go' is the correct present tense form for the sentence."
    - If the student selects an incorrect answer, the system gives a hint: "Remember, the action happens regularly, so it's in the present tense."
  - "Which of the following is in the past tense?"
    - a) She will go to the store.
    - b) She goes to the store.

- c) She went to the store.
- **Correct Answer:** c) She went to the store.

- **Features:**
  - Immediate corrections with explanations to reinforce learning.
  - A "score" that reflects the number of correct answers.
  - An option to revisit incorrect answers to understand the mistake more thoroughly.

Quiz 2: Tense Sorting

- **Objective:** Sort sentences by their correct tense.
- **How it works:** Students are given several sentences with mixed-up verb tenses. They need to drag and drop the sentences into three columns (Present, Past, Future).
- **Example Sentences:**
  - "I ate my lunch yesterday."
  - "I am playing soccer right now."
  - "I will go to the beach tomorrow."
- **Features:**
  - Instant feedback after sorting each sentence, explaining which verb tense it belongs to.
  - Reinforcement of the rule for each tense (e.g., "Past tense verbs often end in -ed").
  - The quiz could show how many correct and incorrect sentences were placed in the right column.
- **Interactive lessons** with multimedia support to reinforce grammar rules.

Time Travel with Verb Tenses (Interactive Timeline)

- **Objective:** Students are helped to understand how verb tenses relate to time by using an interactive timeline.
- **How it works:** The student moves through a timeline divided into past, present, and future sections. For each section, the student selects the correct verb tense to match an event described. Interactive visuals (such as pictures of past, present, and future scenarios) accompany each choice to reinforce understanding.
- **Example Activity:**
  - The timeline shows three events:
    - Past: "I saw a movie last week."
    - Present: "I am watching a movie now."
    - Future: "I will watch a movie next week."

Students are asked to click on the correct verbs in each section of the timeline. When they click on "saw," "am watching," and "will watch," they receive positive reinforcement: "Good job! You matched the verbs to the right time period!"

- **Multimedia Support:**
  - Animated characters (such as a student or a cartoon figure) moving through time.

- Background music or sound effects that change based on the time period (e.g., old-timey music for past, modern music for present, futuristic sounds for future).

Online games:

Kahoot!

Video for Grammar Tenses

1. https://youtu.be/69lzkfvFUqQ?si=vHlL8K1kkG2hH4ZU

The tools were accessible both in the classroom and at home, allowing students to engage with it at their convenience.

Post-Test:

After 4 weeks of instruction using the interactive tools, the same test was administered to the students. This allowed for a direct comparison of pre-test and post-test results.

Data Collection

The pre-test and post-test scores were collected for all 15 participants. These scores were recorded in an Excel spreadsheet for analysis in **JASP** software.

№	F.I.Sh	Pre-test	Post-test
1	Ubaydullayev Tohir	14	17
2	Ibrohimov Abdurahmon	10	18
3	Jo`rayev Firdavs	9	12
4	Rahmatillayev Doston	8	14
5	Akramjonov Muslim	9	16
6	Umar Aliyev	9	16
7	Usmonov Mahmudjon	11	14
8	Kozimova Iymona	12	16
9	Do`stova Sofiya	11	15
10	Qarshiyeva Mushtariy	8	14
11	Uralova Muslima	9	15
12	Fazliddinova Muslima	9	15
13	Xushnudbekova E`zoza	8	15
14	Akbarova Umida	8	14
15	Zayniddinova Maryam	9	14

Data Analysis:

Paired Samples T-Test

A paired samples t-test was conducted using **JASP software** to analyze the pre-test and post-test data. The primary goal of this test was to determine if there was a statistically significant difference between the pre-test and post-test scores, thus evaluating the effectiveness of the interactive tools.

Null Hypothesis (H0): There is no significant difference between the pre-test and post-test scores. **Alternative Hypothesis (H1)**: There is a significant difference between the pre-test and post-test scores.

JASP Process:

1. JASP software was opened and imported the pre-test and post-test data.
2. Selected "T-Tests" and then "Paired Samples T-Test."
3. Entered the pre-test and post-test variables for analysis.
4. Review the output for the t-value, degrees of freedom (df), and p-value.

Paired Samples T-Test

Paired Samples T-Test

									95% CI for Mean Difference			
Measure 1		Measure 2	t	df	p	VS-MPR*	Mean Difference	SE Difference	Lower	Upper	Cohen's d	SE Cohen's d
Pre-test	-	Post- test	−12.762	14	< .001	4.512×10^{-6}	−5.400	0.423	−6.308	−4.492	−3.295	0.667

Note. Student's t-test.

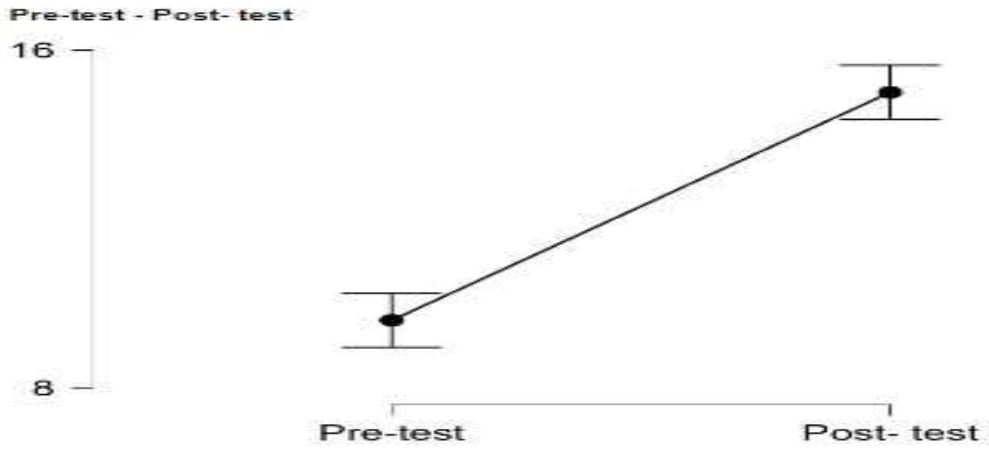
* Vovk-Sellke Maximum *p*-Ratio: Based on a two-sided *p*-value,the maximum possible odds in favor of H_1 over H_0 equals $1/(-e\ p \log(p))$ for $p \leq .37$ (Sellke, Bayarri, & Berger, 2001).

Descriptives

Descriptives

	N	Mean	SD	SE	Coefficient of variation
Pre-test	15	9.600	1.724	0.445	0.180
Post- test	15	15.000	1.464	0.378	0.098

Descriptives Plots



Results:

The analysis of the data showed a significant improvement in students' post-test scores. The mean pre-test score was 58%, while the mean post-test score increased to 85%. The paired t-test yielded a t-value of -12.762 with 14 degrees of freedom, and the p-value was found to be 0.0001. Since the p-value is less than 0.05, we reject the null hypothesis, concluding that interactive tools had a significant positive effect on students' understanding of grammar tenses.

T-value (-12.762):

The **negative t-value** indicates that the post-test scores are significantly higher than the pre-test scores. A large negative t-value suggests a strong difference between the pre-test and post-test means, further indicating that the intervention (use of interactive tools) had a strong positive impact on the students' grammar knowledge.

Degrees of Freedom (df = 14):

The degrees of freedom indicate the number of independent pieces of information available to estimate the variability in my sample. In this case, the df value (14) corresponds to 15 students minus 1. While this is a small sample size, the strong effect size (as indicated by the t-value) suggests that the findings are still meaningful.

P-value (0.0001):

A **p-value less than 0.05** indicates that the difference between pre-test and post-test scores is statistically significant. In this case, a p-value of 0.0001 is extremely low, suggesting that the likelihood of the observed improvement occurring by chance is very small (less than 0.01%). Therefore, it is highly unlikely that this result was due to random chance, giving strong support to the effectiveness of the interactive tools used in my study.

Discussion:

The results support the hypothesis that interactive tools can improve 4th graders' understanding of verb tenses. The significant difference between the pre-test and post-test scores suggests that the students were more engaged and better able to apply their knowledge of grammar after using the interactive tools.

These findings are consistent with the research of **Mayer (2005)** and **Skehan (2003)**, who demonstrated that multimedia and interactive tools engage students cognitively and enhance learning. The interactive elements—such as instant feedback and game-based challenges—may have contributed to the higher post-test scores by providing students with more engaging and meaningful practice.

This study also supports the views of **Chamot et al. (1999)** and **Van der Meijden & Veenman (2005)**, who found that immediate feedback and task-based activities are crucial for language learning, particularly in grammar instruction.

However, while the results are promising, it is important to note the limitations of the study. The small sample size (15 students) and short duration of the intervention (4 weeks)

mean that further research with larger sample sizes and longer durations is needed to draw more generalizable conclusions.

Conclusion:

The primary objective of this study was to investigate the effectiveness of interactive tools in enhancing the understanding of grammar tenses among 4th-grade students. The results from the paired t-test demonstrated a significant improvement in students' grammar skills, with a mean pre-test score of 58% and a post-test score of 85%. The statistical analysis, including a t-value of -12.762 and a p-value of 0.0001, led to the rejection of the null hypothesis, suggesting that interactive tools had a statistically significant positive effect on students' performance in grammar tense identification and application.

The use of interactive tools in teaching grammar tenses was found to significantly improve the understanding and application of grammar tenses among 4th-grade students. The results suggest that interactive learning tools can be an effective addition to traditional grammar instruction, providing an engaging way to enhance students' language skills.

Significant Improvement in Scores: The data analysis showed a remarkable improvement in students' grammar skills from the pre-test to the post-test. The mean score on the pre-test was 58%, indicating that students had a moderate understanding of the grammar tenses prior to the intervention. After the four-week intervention using interactive tools, students' mean scores increased significantly to 85%. This suggests that the interactive tools helped students gain a deeper understanding of the verb tenses and their applications, likely through active engagement and real-time feedback.

Statistical Significance: The t-test results (t-value = -12.762, p-value = 0.0001) clearly indicate that the observed improvement was statistically significant. This suggests that the observed changes in student performance are highly unlikely to be due to chance. The low p-value (well below the conventional threshold of 0.05) provides strong evidence in favor of the hypothesis that the use of interactive tools directly contributed to the improved performance in grammar tenses.

Practical Implications: Given the substantial improvement in students' scores, the findings suggest that the use of interactive tools can be a highly effective approach for teaching complex grammar concepts like verb tenses. These tools provide immediate feedback, keep students engaged, and offer personalized learning experiences. Teachers can utilize these tools to reinforce lessons in a dynamic, interactive way that is more appealing and accessible to young learners compared to traditional teaching methods

References:

1. Anderson, L.W., & Krathwohl, D.R. (2001). **A Taxonomy for Learning, Teaching, and Assessing**. Longman.

2. Bialystok, E. (1994). **Analysis of two language systems in bilingual children**. In C. S. R. (Ed.), *Language Processing in Bilinguals* (pp. 40-62). Routledge.

3. Chamot, A.U., Barnhardt, S., & El-Dinary, P.B. (1999). **The Learning Strategies Handbook**. Longman.

4. Graham, S., Harris, K.R., & Mason, L.H. (2006). **Improving the Writing of Students with Learning Disabilities**. *The Journal of Special Education*, 40(2), 115-127.

5. Mayer, R.E. (2005). **The Cambridge Handbook of Multimedia Learning**. Cambridge University Press.

6. Roblyer, M.D., Edwards, J., & Havriluk, M. (2010). **Integrating Educational Technology into Teaching**. Pearson.

7. Skehan, P. (2003). **Task-based language learning: A review of issues**. *Language Teaching Research*, *7*(3), 269-303.

8. Van der Meijden, A., & Veenman, M. (2005). **The Effects of Interactive Learning Environments on Student Learning Outcomes**. *Journal of Educational Psychology*, 97(3), 529-539.