From Bored to Excited: Primary Students' Preferences for Holographic English Learning Media

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Abstract
The rapid digital transformation of education demands innovative learning media that can enhance primary students' engagement in English learning. However, many classrooms still rely on conventional, teacher-centered approaches that often lead to boredom and low motivation. This study aims to investigate primary students' preferences for holographic English learning media and to examine whether these preferences differ across school contexts. Using a descriptive quantitative design, data were collected through a structured Likert-scale questionnaire measuring cognitive experience, affective engagement, and behavioral patterns. Participants were drawn from four schools (two public and two private/madrasah) at the upper primary level. Prior to analysis, normality and homogeneity tests confirmed that the data met parametric assumptions. A One-Way ANOVA revealed significant differences in students' preferences among the four schools ($p < .05$). Post-hoc Tukey's HSD analysis showed that the two private schools formed a homogeneous group with significantly higher mean scores than the two public schools, which also formed a homogeneous but lower-performing group. These findings indicate that holographic media can foster greater emotional engagement and learning motivation, particularly in contexts with better technological readiness. The study highlights the importance of school context in maximizing the potential of immersive digital media for 21st-century English learning
Key words: English learning, holographic media, primary students, student engagement

Introduction

The rapid digital transformation of society has significantly reshaped the skills required of future generations. In this context, English has become not only a global means of communication but also a gateway to accessing knowledge, technology, and cross-cultural interaction (Ahmed, 2025). At the same time, education systems are increasingly expected to prepare students with higher-order thinking, adaptability, and social competencies aligned with 21st-century demands (Andrean, 2025; Andriyani & Anam, 2022). This global shift places strong pressure on primary education to provide English learning experiences that are not only effective but also emotionally engaging from an early age (Alifia, 2021).

However, many elementary schools continue to rely on conventional instructional models that emphasize memorization, worksheets, and teacher-centered explanations (Mido & Asmita, 2023). Teachers often face limited access to innovative learning media, insufficient training in digital pedagogy, and constraints in classroom resources (Somakanna et al., 2023). As a result, technology integration is often superficial or absent, even though young learners grow up in highly visual, interactive digital environments (Mhlongo et al., 2023). This mismatch between students' digital realities and classroom practices contributes to declining motivation and disengagement in English learning (Mahdi & Dewi, 2025)

English proficiency is a core competence in the 21st century, supporting not only global communication but also the development of essential skills such as critical and

creative thinking, communication, collaboration, and character (5C) (Bulkis et al., 2025). At the elementary level, however, English learning is frequently characterized by low motivation, limited vocabulary acquisition (Sintadewi, 2020), and minimal student engagement (Hiver et al., 2024). Many young learners perceive English as difficult and uninteresting, which positions English learning as a boring activity rather than an enjoyable one (Myhre et al., 2023).

This disengagement is strongly associated with instructional practices that remain teacher-centered and text-based (Bergdahl, 2022). Repetitive exercises, limited interaction, and overreliance on conventional materials often fail to address children's cognitive and emotional needs. As a result, English classrooms rarely provide the stimulating and meaningful learning environments required to foster early engagement and foundational 21st-century skills (Menggo et al., 2022; Ye, 2024).

From a learner-centered perspective, engagement is a key determinant of learning success and is commonly conceptualized as a multidimensional construct involving behavioral, cognitive, and affective components (Zhao, L., & Wang, 2023). Research consistently demonstrates that emotional involvement plays a crucial role in sustaining attention, encouraging persistence, and supporting deeper cognitive processing. Without positive emotional experiences, students are unlikely to invest effort or actively participate in learning tasks (Gkintoni et al., 2023).

Recent developments in educational technology offer new opportunities to address this challenge (Hamid & Andriyani, 2022; Waziana & Andewi, 2024). Immersive digital environments, particularly holographic media, allow three-dimensional characters and objects to appear as if they are physically present in the classroom (Alsswey et al., 2025). These environments can enhance sensory stimulation, attention, and curiosity, thereby creating a learning experience that feels more "alive" and exciting for children. Nevertheless, prior studies report inconsistent findings regarding the impact of holographic media, indicating that technology alone does not automatically guarantee meaningful engagement (Rotar, 2025).

In this study, holographic English learning media are conceptualized not merely as technological tools, but as emotionally engaging learning environments that may transform students' perceptions of English learning (Hoon & Shaharuddin, 2019; Qazi, Thartari, 2023). Although the title highlights holographic English as the central medium, the present study emphasizes students' preferences as a critical lens to understand how and why such media can shift learning experiences from boredom to excitement (Dwivedi et al., 2022).

To explain this emotional shift, the study integrates joyful learning principles and the ventriloquist technique as pedagogical foundations underlying the design of the holographic storybook (Jenkins, 2024). Joyful learning emphasizes positive emotions, imagination, and intrinsic motivation, while the ventriloquist technique creates a sense of social presence through interactive "living" characters (Printer, 2023). Together, these features are expected to shape students' emotional responses and preferences toward holographic English learning media.

Engagement in this study is viewed as the integration of cognitive, affective, and behavioral participation. When students experience excitement and enjoyment, they are more likely to show a preference for the learning media, remain attentive, and participate actively. Thus, students' preferences serve as an important indicator of how emotional engagement may lead to deeper involvement and the development of 21st-century (5C) skills.

Despite the growing body of research on digital and immersive learning media, limited studies have explored primary students' preferences for holographic English learning environments, particularly those grounded in emotional–narrative pedagogy. Moreover, empirical evidence that connects students' emotional experiences, media preferences, and perceived learning value remains scarce.

Therefore, this study proposes and examines a Holographic English Story Book as an innovative learning medium and investigates primary students' preferences for this holographic English learning experience. By focusing on students' emotional responses and preferences, this study seeks to explain how holographic English learning media can move children from bored to excited, and why such media are perceived as engaging and meaningful in the context of 21st-century primary education

Research Methodology

This research investigates primary school students' preferences for holographic media as an innovative tool for English language learning. The study aims to explore whether holographic technology can shift students' learning experiences from boredom to excitement and enhance their engagement and motivation in language acquisition. The study employed a systematic, multi-step approach comprising data collection, hypothesis testing, and statistical analysis (Creswell, 2014). The following methodology details the steps taken during this research:

1. Data Collection

Data were collected using a survey, a common approach in quantitative research for gathering information from a sample population (Fowler, 2014). In this case, a structured questionnaire was administered to a sample of primary school students. The survey was designed to measure students' attitudes and preferences toward holographic media for English language learning. Responses were captured using a Likert scale, enabling the quantification of excitement, engagement, and perceived effectiveness of holographic learning compared to traditional methods (Beglar & Nemoto, 2014). The instrument consisted of three indicators, with items rated on a five-point Likert scale (1 = Strongly Disagree, 5 = Strongly Agree):

Table 1. Data Collection

Indicator	**Dimension**	**Item codes**	**Main focus of students' preferences**
Cognitive Experience	Understanding and knowledge retention	Q1–Q10	Preference for learning and remembering new words, using them in sentences, and understanding meaning in context.
Affective Engagement	Emotional involvement and motivation	Q11–Q20	Preference for fun, enjoyment, reduced boredom, and game-like elements (XP, leaderboards, challenges).
Behavioral Patterns	Usage frequency and consistency	Q21–Q30	Preference for how often they choose to use the module, completing daily challenges, setting goals, and selecting it over books.

2. Sampling

A random sampling technique was employed to select the participants, ensuring a diverse and representative sample of students from different school types (Creswell, 2013). Four schools were chosen for the study:

School Code	Type	Grade Levels
SD Negeri A	Public Primary School	4-6
SD Negeri B	Public Primary School	4-6
Madrasah A	Privat Primary School	4-6
Madrasah A	Privat Primary School	4-6

A set number of students from each school were included, ensuring adequate representation across different age groups and school types (public vs. private/madrasah).

3. Preliminary Data Tests (Assumption Testing)

Before performing the primary analysis, the normality and homogeneity of variance assumptions were tested to ensure that the data met the requirements for parametric testing like One-Way ANOVA (Field, 2013).

Normality Test: Normality was tested using the Kolmogorov-Smirnov test for samples larger than 50 and the Shapiro-Wilk test for smaller samples (Shapiro, 1965). These tests assess if the data follows a normal distribution, which is a key assumption for conducting parametric tests. Homogeneity of Variance: The Levene's Test was applied to check if the variances across groups were equal. Homogeneity of variance is necessary to ensure the reliability of the ANOVA results.

4. One-Way ANOVA

Once the data were verified for normality and homogeneity of variance, a One-Way ANOVA was performed to determine if there were any significant differences in students' preferences for holographic media across the four schools. Null Hypothesis (H_0): All four groups (schools) have the same mean preference scores. Alternative Hypothesis (H_1): At least one group (school) has a different mean preference score. ANOVA was chosen for this study as it is effective for comparing the means of more than two groups (Field, 2013).

5. Post-Hoc Analysis

If the One-Way ANOVA reveals a significant difference, post-hoc tests, such as Tukey's HSD (Honestly Significant Difference), were conducted to determine which specific groups (schools) showed significant differences in their mean preference scores (Tukey, 2012). This step helps identify which pairs of schools have significantly different test scores.

This study utilized a descriptive quantitative research method, employing surveys and statistical analysis to evaluate primary students' preferences for holographic media in English learning. One-Way ANOVA was used to assess whether significant differences existed between school groups, and Tukey's HSD was applied for post-hoc analysis to identify specific group differences. The methodology follows well-established practices for quantitative educational research (Creswell, 2014; Field, 2013).

Findings and Discussion

The primary aim of this study, titled "From Bored to Excited: Primary Students' Preferences for Holographic English Learning Media," was to investigate whether primary students exhibit different preferences for learning English when using holographic media compared to traditional methods. Specifically, this research sought to determine whether these preferences varied across four different schools.

To assess the data, several preliminary statistical tests were conducted. First, the normality of the test scores was tested using the Kolmogorov-Smirnov and Shapiro-Wilk tests, ensuring that the data followed a normal distribution.

Tests of Normality

		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Sekolah	Statistic	df	Sig.	Statistic	df	Sig.
Nilai Test	SD Negeri A	.115	22	.200*	.923	22	.089
	SD Negeri B	.142	22	.200*	.903	22	.034
	Madrasah Ibtidaiyah C	.152	22	.200*	.945	22	.251
	Madrasah Ibtidaiyah D	.155	22	.180	.948	22	.291

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

Figure 1. Test of Normality

The research hypothesis for the normality test was set as follows: H_0 posited that the sample data follows a normal distribution, while H_1 suggested that the sample data does not follow a normal distribution. The criteria for accepting or rejecting the null hypothesis were based on the Asymptotic Significance (2-tailed) value. If the p-value was greater than 0.05, H_0 would be accepted, indicating that the data follows a normal distribution. Conversely, if the p-value was less than 0.05, H_0 would be rejected, implying that the data does not follow a normal distribution. The results from the Kolmogorov-Smirnov test for all four schools—SD A ($p = 0.200$), SD B ($p = 0.200$), MI 2 ($p = 0.200$), and MI A ($p = 0.180$)—were all greater than 0.05. Therefore, H_0 was accepted, leading to the conclusion that the data from all four schools follows a normal distribution. These findings indicate that the test scores from all four schools are normally distributed, as the Asymp. Sig (2-tailed) values are greater than or equal to 0.05.

Second, the process using the homogeneity of variance test. It also known as Levene's Test, was conducted to assess whether the variances between the groups (the four schools in this case) are equal. This is an essential assumption for conducting parametric tests such as One-Way ANOVA.

Test of Homogeneity of Variance

		Levene Statistic	df1	df2	Sig.
Nilai Test	Based on Mean	.680	3	84	.567
	Based on Median	.703	3	84	.553
	Based on Median and with adjusted df	.703	3	75.080	.553
	Based on trimmed mean	.716	3	84	.545

Figure 2. Test of Homogenity

The research hypothesis for the homogeneity of variance test was as follows: H_0 proposed that the variances between the groups are equal (homogeneous), while H_1 suggested that the variances between the groups are unequal (heterogeneous). The criteria for accepting or rejecting the null hypothesis were based

on the Significance Value (Sig.). If the Sig. value was greater than the chosen alpha level of 0.05, H_0 would be accepted, indicating that the variances are homogeneous. If the Sig. value was less than 0.05, H_0 would be rejected, implying unequal variances. The result from the test showed a Sig. value of 0.567, which is greater than the significance threshold of 0.05. Therefore, H_0 was accepted, meaning the variances in the test scores between the four schools were equal (homogeneous). This finding allowed for the continuation of the analysis using parametric tests.

After confirming that the assumptions of normality and homogeneity of variance were met, the next step was to conduct a One-Way ANOVA to analyse whether there is a significant difference in the average test scores among the four schools.

Descriptives

Nilai Test

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
SD Negeri A	22	121.23	2.759	.588	120.00	122.45	117	125
SD Negeri B	22	121.23	2.910	.620	119.94	122.52	117	125
Madrasah Ibtidaiyah C	22	124.27	3.641	.776	122.66	125.89	118	130
Madrasah Ibtidaiyah D	22	125.86	2.850	.608	124.60	127.13	119	130
Total	88	123.15	3.618	.386	122.38	123.91	117	130

Figure 3. Differences in the Mean Test Scores Among the Four Schools

The research hypothesis for the One-Way ANOVA test was set as follows: H_0 posited that the mean test scores of all four schools are equal, while H_1 suggested that at least one school has a different mean test score. The criteria for accepting or rejecting the null hypothesis were based on the Sig. value (2-tailed) from the ANOVA test. If the Sig. value was less than 0.05, H_0 would be rejected, indicating a significant difference in the mean test scores between the schools. Conversely, if the Sig. If the value was greater than 0.05, H_0 would be accepted, indicating no significant difference. The result from the One-Way ANOVA test showed a Sig. value of 0.000, which is less than 0.05. Therefore, we rejected H_0, concluding that there are significant differences in the average test scores between the four schools.

The research hypothesis for testing the homogeneity of variance was formulated as follows: H_0 stated that the variances between the two groups are equal (homogeneous), while H_1 suggested that the variances between the groups are unequal (heterogeneous). The criteria for accepting or rejecting the null hypothesis were based on the significance value (Sig.). If the Sig. value was greater than the chosen alpha level of 0.05 (α), H_0 would be accepted, indicating that the variances are homogeneous. If the Sig. value was less than 0.05, H_0 would be rejected, indicating unequal variances.

Based on the analysis, the Sig. value obtained was 0.567, which is greater than 0.05, meaning that the variances of the test scores between the four schools are equal, or in other words, the variances across the groups are homogeneous. This result confirms that the assumption of homogeneity of variance holds, allowing the continuation of the parametric tests.

Next, the research hypothesis for testing the mean test scores was formulated as follows: H_0 stated that the mean test scores of all four schools are equal, while H_1 proposed that at least one school has a different mean test score. The criteria for accepting or rejecting the null hypothesis were based on the Sig. value (2-tailed) from the One-Way ANOVA test. If the Sig. value was greater than 0.05, H_0 would be accepted, indicating that there are no significant differences in the mean test scores between the schools. If the Sig. value was less than 0.05, H_0 would be rejected,

indicating that there are significant differences in the mean test scores. The Sig. value from the One-Way ANOVA test was 0.000, which is less than 0.05. Therefore, H_0 was rejected, and it was concluded that there are significant differences in the mean test scores between the four schools.

ANOVA

Nilai Test

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	352.398	3	117.466	12.543	.000
Within Groups	786.682	84	9.365		
Total	1139.080	87			

Figure 4. One Way ANOVA Test

To further explore which specific pairs of schools had significant differences in their mean test scores, a Tukey's HSD (Honestly Significant Difference) post-hoc test was performed. This test compares all possible pairs of schools to determine which groups are significantly different from each other. The research hypothesis for each pair of schools was as follows: H_0 stated that the two groups have the same mean test score, while H_1 proposed that the two groups have different mean test scores. The criteria for accepting or rejecting the null hypothesis for each comparison were based on the Sig. value (2-tailed). If the Sig. value was less than 0.05, H_0 was rejected, indicating a significant difference between the groups.

Multiple Comparisons

Dependent Variable: Nilai Test

Tukey HSD

(I) Sekolah	(J) Sekolah	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
SD Negeri A	SD Negeri B	.000	.923	1.000	-2.42	2.42
	Madrasah Ibtidaiyah C	-3.045*	.923	.008	-5.46	-.63
	Madrasah Ibtidaiyah D	-4.636*	.923	.000	-7.05	-2.22
SD Negeri B	SD Negeri A	.000	.923	1.000	-2.42	2.42
	Madrasah Ibtidaiyah C	-3.045*	.923	.008	-5.46	-.63
	Madrasah Ibtidaiyah D	-4.636*	.923	.000	-7.05	-2.22
Madrasah Ibtidaiyah C	SD Negeri A	3.045*	.923	.008	.63	5.46
	SD Negeri B	3.045*	.923	.008	.63	5.46
	Madrasah Ibtidaiyah D	-1.591	.923	.318	-4.01	.83
Madrasah Ibtidaiyah D	SD Negeri A	4.636*	.923	.000	2.22	7.05
	SD Negeri B	4.636*	.923	.000	2.22	7.05
	Madrasah Ibtidaiyah C	1.591	.923	.318	-.83	4.01

*. The mean difference is significant at the 0.05 level.

Figure 5. Multiple Comparisons

The Tukey's Honestly Significant Difference (HSD) post-hoc test was conducted to compare the mean test scores of the four schools and determine whether there were significant differences between them. In Subset 1, the analysis revealed that there was no significant difference between the mean test scores of *SD Negeri A*

and *SD Negeri B*. This suggests that the two public schools had similar academic performance, forming a homogeneous group. Both schools had lower mean test scores compared to the private schools, which indicates that their performance was generally lower.

Similarly, in Subset 2, the test showed that there was no significant difference between the mean test scores of *MI C* and *MI D*, indicating that the two private schools also formed a homogeneous group. Their mean test scores were significantly higher than those of the public schools, but within this private school group, there was no marked difference in performance, suggesting similar levels of achievement.

The post-hoc analysis also revealed a significant difference in the mean test scores between the public schools and the private schools. This means that the private schools, namely *MI C* and *MI D*, performed better overall than the public schools. However, there was no significant variation in the performance within each group—public or private. This finding underscores a clear performance gap between the two school types, while showing that the schools within each group were relatively similar in terms of their academic outcomes.

Nilai Test

Tukey HSD[a]

		Subset for alpha = 0.05	
Sekolah	N	1	2
SD Negeri A	22	121.23	
SD Negeri B	22	121.23	
Madrasah Ibtidaiyah C	22		124.27
Madrasah Ibtidaiyah D	22		125.86
Sig.		1.000	.318

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 22.000.

Figure 6. Multiple Comparisons of Mean Test Scores Between the Four Schools (Tukey's HSD Test Results).

Discussion

The results of this study reveal significant insights into primary students' preferences for holographic media in English learning and how these preferences are influenced by the school context. This research showed that private schools outperformed public schools in terms of mean test scores when utilizing holographic media for language learning. These findings prompt several discussions regarding the role of technological integration in education, the potential benefits of innovative learning tools, and the challenges faced by different types of schools in implementing these tools effectively.

The study's findings that private schools (MI Adan MI B) showed higher test scores compared to public schools are consistent with previous studies that highlight the positive impact of technology-enhanced learning environments on student motivation and engagement. Holographic media, with its immersive and interactive nature, offers a novel approach to learning that can increase students' affective engagement (emotional involvement) and cognitive experience (understanding and knowledge retention). Studies by (Jay, 1998) and (Prensky, 2011) have shown that the integration of digital tools, such as multimedia and interactive technologies, leads to increased student enthusiasm and involvement in learning activities. This aligns with the findings of the current study, where students from

private schools, who may have better access to technological tools, experienced higher levels of excitement and engagement in English learning through holographic media.

The affective engagement component of the survey, which focused on the students' enjoyment, reduced boredom, and game-like elements, demonstrated that students who used holographic tools were more likely to express positive attitudes towards learning. This result supports Gee's (2003) argument that game-based learning environments and immersive technologies foster higher levels of engagement by tapping into students' intrinsic motivation. As holographic media presents a unique, game-like experience that is more interactive than traditional textbooks, students are more likely to be motivated, retain information, and develop a deeper understanding of the material.

The disparity between the performance of public and private schools is an interesting finding and aligns with Cuban's (2001) argument that technology integration in public schools often faces barriers, such as limited resources, inadequate infrastructure, and resistance to change. While private schools may have more access to the latest educational technologies, public schools often face challenges such as overcrowded classrooms, outdated equipment, and insufficient teacher training in technology use. Liu & Lu (2021) highlighted that schools with more resources tend to adopt educational technologies more successfully, leading to better learning outcomes. In contrast, public schools, especially in underfunded areas, may struggle to implement and fully utilize such innovations.

This research underscores the need for addressing these disparities. In public schools, the lack of access to technological tools can be a significant obstacle to enhancing student engagement and improving learning outcomes (Nyongesa, 2025). Ertmer (1999), Adler et al., (2025), and Ferreira (2024) have argued that effective technology integration requires not only the availability of resources but also professional development for teachers, as well as a supportive institutional culture that embraces technology. The fact that public schools in this study performed similarly, with lower test scores than the private schools, suggests that simply introducing new technologies may not be sufficient without addressing these broader challenges (Miller, 2022; See et al., 2022)

Another aspect worth discussing is the teaching strategies employed in public versus private schools. The difference in performance may reflect not only the availability of technology but also the pedagogical approaches and the extent to which schools integrate interactive learning methods into their classrooms. Research by Milrad (2010) and Sunartiningsih et al., (2025) emphasizes that teachers' readiness to adopt technology is crucial for its successful integration. Teachers in private schools may be more familiar with or more motivated to integrate innovative tools, such as holographic media, into their lessons, whereas teachers in public schools may face higher workloads and more challenges, leading to less frequent use of such tools (Abd et al., 2025).

Moreover, private schools tend to have smaller class sizes, which can facilitate more personalized teaching and the effective integration of new technologies. Okyay & Kandir (2021) found that smaller class sizes often lead to better student outcomes, as teachers can provide more individualized attention and support. In contrast, public schools often have larger class sizes, which can hinder the implementation of individualized, technology-driven instruction.

The study also suggests that holographic media can serve as a powerful tool for engaging students and fostering a deeper understanding of the subject matter. However, it also highlights the need to carefully consider the context in which these tools are being implemented. In particular, the study suggests that public schools, which may not have the same access to resources and infrastructure as private

schools, may require additional support to fully capitalize on the benefits of holographic media (Alaidaros, 2025).

Research by Alsswey et al., (2025) further supports the idea that while immersive technologies such as holographic media have the potential to revolutionize education, their impact can vary significantly depending on factors such as funding, teacher training, and school leadership. The study suggests that public schools, particularly in lower-income areas, need substantial investment in both technology and teacher professional development to create an environment where such technologies can thrive.

Additionally, Seufert et al., (2021) emphasize that the effectiveness of technology in learning is not just about the tool itself, but how it is used within the classroom. Teachers must be equipped with the knowledge and skills to integrate such tools into their teaching practices in ways that foster collaboration, critical thinking, and problem-solving (Kamran, 2023). This suggests that the lower performance observed in public schools in this study could be addressed through professional development that focuses on the effective use of holographic media to complement existing teaching strategies.

Conclusion

This study, titled "From Bored to Excited: Primary Students' Preferences for Holographic English Learning Media," aimed to investigate whether primary school students showed different preferences and levels of engagement when using holographic media for learning English compared to traditional methods. The findings from the data analysis revealed several important insights. Firstly, the normality test confirmed that the data from all four schools followed a normal distribution, satisfying one of the key assumptions for conducting parametric tests. This was followed by the homogeneity of variance test, which indicated that the variances in test scores across the four schools were equal, allowing the use of a One-Way ANOVA to compare the schools' mean test scores. The ANOVA results demonstrated a significant difference in the mean test scores among the four schools, indicating that students' preferences for holographic media did indeed vary across schools. The post-hoc Tukey's HSD test provided further clarity on where these significant differences lay. It showed that while the two public schools (SD A and SD B) had similar test scores and formed a homogeneous group with lower scores, the two private schools (MI 2 and MI A) had higher and comparable test scores, indicating that the private schools outperformed the public schools in terms of academic achievement. However, there were no significant differences in performance within each school type, indicating that public schools were similar to each other and that private schools were similar to each other.

These findings suggest that holographic media may have a positive impact on student engagement and motivation in private schools, leading to better performance in English learning. However, the public schools, which performed at a lower level overall, did not show any significant difference in test scores, pointing to a need for further exploration into how public schools can better utilize innovative learning methods like holographic media. The results highlight a clear performance gap between public and private schools, with private schools benefiting more from the introduction of technology-enhanced learning tools. The study's findings imply that school type (public vs. private) plays a crucial role in the effectiveness of new educational technologies. It also raises questions about the broader adoption of holographic media across educational settings, particularly in public schools, where such technologies may require additional support and infrastructure. Overall, this study contributes to the growing body of literature on the role of innovative media in enhancing educational outcomes and provides valuable insights into the preferences

of primary school students for digital learning tools. Further research is recommended to explore the underlying reasons for the performance differences between public and private schools, as well as to assess the long-term impact of using holographic technology in language learning.

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