

THE EFFECT OF USING BLENDED LEARNING WITH PIJAR SEKOLAH APPLICATION ON STUDENTS' READING SKILLS

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Abstract

The central purpose of this study was to systematically explore the impact of integrating a blended learning framework with the localized Pijar Sekolah digital application on the reading comprehension abilities of tenth-grade learners at SMAN 1 Bojong. The investigation utilized a quantitative pre-experimental methodology, explicitly adopting a one-group pretest-posttest structure. Through a purposive sampling technique, 36 students originating from class X-3 were selected as the primary research subjects. The required data were gathered utilizing a highly reliable multiple-choice reading assessment that contained 25 validated questions focusing entirely on narrative texts. Following the evaluation phases, the collected numerical data were statistically processed using IBM SPSS software via the Paired Sample T-Test. The analytical findings exposed a highly significant enhancement in the students' reading capabilities. The classroom average experienced a substantial surge, escalating from 60.33 in the initial pre-test to 77.11 in the final post-test, which indicates an impressive mean cognitive improvement of 16.78 points. Moreover, the inferential statistical testing confirmed that the absolute t-counted value (28.534) vastly exceeded the critical t-table boundary (2.030) at a 5% significance threshold. This was further reinforced by a Sig. (2-tailed) probability value of 0.000, which falls strictly below the 0.05 alpha margin. As a direct consequence, the null hypothesis (H₀) was decisively rejected, leading to the acceptance of the alternative hypothesis (H₁). To summarize, the systematic combination of conventional face-to-face classroom instruction with autonomous digital exercises through the Pijar Sekolah platform exerts a highly positive influence on the development of students' English reading comprehension skills.

Keywords: Blended Learning; Pijar Sekolah Application; Reading Comprehension; Narrative Text;

1 INTRODUCTION

For individuals acquiring English as a Foreign Language (EFL), mastering reading serves as a fundamental pillar that facilitates comprehensive language development. The act of reading transcends the simple visual recognition of printed vocabulary. Instead, it involves an intricate cognitive procedure where students must actively decode written material, analyze structural grammar, and construct contextual meaning to capture the author's message accurately. Engaging with literature acts as the primary conduit for learning a new language, as it provides students with exposure to authentic vocabulary and sentence structures (Grabe & Stoller, 2019). If learners develop robust reading capabilities, it naturally accelerates their progress in other language domains, including speaking and writing. Furthermore, reading comprehension is academically recognized as the simultaneous cognitive activity of drawing out and building meaning by actively interacting with written texts (Snow, 2002). This highlights that reading requires a dynamic interaction where the reader's existing background knowledge, known as schema, continuously integrates with the fresh information delivered by the text.

High school students encounter distinctive academic hurdles upon entering the tenth grade within the Indonesian educational curriculum. At this particular educational juncture, the reading materials provided become noticeably lengthier and grammatically more intricate compared to their middle school experiences. The national curriculum mandates that students master various text genres, with narrative texts taking a prominent role. A narrative text functions as an imaginative story meticulously structured through an orientation, complication, and resolution, primarily designed to entertain while delivering moral values (Derewianka, 1990). Because these stories heavily rely on character development, imagination, and a sequence of chronological events, comprehending them demands a high level of active cognitive participation from the readers.

In addition to the inherent complexity of the reading materials, modern EFL classrooms are grappling with a profound shift in students' daily information consumption habits. Modern teenagers are digital natives whose daily lives revolve heavily around interactive digital screens. Continuing to supply them exclusively with conventional printed textbooks frequently creates a pedagogical disconnect, which inevitably leads to widespread academic boredom and reading fatigue. Empirical evidence underscores that learners process digital reading materials very differently from printed formats, a factor that directly impacts their overall cognitive comprehension and academic motivation (Pardede, 2019). The conventional teaching paradigm, where an educator reads aloud while students passively track the words in physical books, is no longer an adequate strategy for cultivating independent literacy skills. Therefore, educators are compelled to adopt highly interactive, technology-enhanced teaching methodologies.

A highly practical mechanism to bridge the gap between traditional pedagogical practices and contemporary digital habits is the implementation of blended learning. This instructional strategy systematically amalgamates physical face-to-face classroom interactions with asynchronous online learning assignments. By applying this method, educators guarantee that students receive direct instructional scaffolding while simultaneously granting them the autonomy to practice digitally at their own pace (Horn & Staker, 2014). Utilizing a blended approach effectively resolves the time constraints typically experienced in the physical classroom (Yunianti, 2022). Recent academic literature strongly supports the integration of digital tools in language education. Investigations have consistently shown that when digital reading tasks are combined with in-person teacher guidance, students' reading comprehension escalates because they successfully build self-regulated learning habits (Benjamin-Ohwodede et al., 2024; Junedi & Rachman, 2020). Moreover, digital educational interventions have been proven to reinforce reading comprehension by significantly alleviating reading anxiety among learners (Shafiee Rad, 2025; Zhu et al., 2024).

For the specific context of this investigation, the blended learning intervention was facilitated by the Pijar Sekolah application. Pijar Sekolah operates as an all-encompassing Learning Management System (LMS) developed locally by PT Telkom Indonesia. This digital ecosystem was purposely engineered to centralize online educational management, streamline the distribution of learning materials, and automate academic evaluations for schools across the nation (Cahyani et al., 2024). The decision to select Pijar Sekolah over generic international alternatives was driven by fundamental administrative and pedagogical benefits. Administratively, the application is deeply synchronized with the school's academic management infrastructure. Curriculum coordinators can directly distribute standardized reading questions, and educators can automatically export student grades without the manual burden of writing them into physical grade books. This level of technical reliability provides uninterrupted, data-driven monitoring of the students' academic trajectory (Prastyo et al., 2025).

Pedagogically, the Pijar Sekolah platform possesses a visual superiority that is critically essential for teaching narrative reading comprehension. While generic digital platforms are often text-heavy and require external links for multimedia, Pijar Sekolah permits the direct insertion of high-quality visual aids right beside the reading texts. Supplying visually attractive content alongside English paragraphs profoundly assists students in visualizing the storyline. This strategic visual support minimizes cognitive overload and dramatically increases the students' intrinsic motivation to complete the reading assignments. The superior technical quality and intuitive navigation of the application directly influence student satisfaction, leading to a more consistent rate of academic engagement (Septiani et al., 2025).

Preliminary observations conducted at SMAN 1 Bojong prior to the execution of this research revealed that the reading comprehension achievement among tenth-grade learners remained at a critically low level. The students frequently struggled to grasp overarching main ideas, locate specific factual details, and identify complex vocabulary based on context. The instructional routine in the classroom relied heavily on teacher-centered explanations and printed textbooks, restricting the students' exposure to visually engaging digital materials. Furthermore, the learners fundamentally lacked the integrated digital tools required to practice their reading skills asynchronously outside of school hours. This absence of structured autonomous practice made it incredibly difficult for them to retain the metacognitive reading strategies taught during the brief face-to-face physical meetings.

To effectively address this educational discrepancy, this study was designed to scientifically examine the effect of using a blended learning method integrated with the Pijar Sekolah application on the reading comprehension skills of tenth-grade students. The research established two primary objectives. The first objective was to ascertain whether there was a statistically significant difference in the reading comprehension capabilities of the tenth-grade students after engaging with the integrated treatment. The second objective was to mathematically quantify the exact extent to which this methodological

implementation improved their objective reading scores. The subsequent findings are anticipated to provide robust empirical evidence regarding how localized Learning Management Systems can be utilized to elevate students' receptive cognitive skills within a highly structured blended learning environment.

2 METHODOLOGY

This research adopted a quantitative methodology to systematically collect numerical data and objectively measure the transformations in student performance. According to Creswell (2003), a quantitative approach relies on predetermined instruments to generate measurable statistical data, a process that significantly minimizes researcher subjectivity and permits precise mathematical comparisons of the examined variables. Specifically, the study executed a pre-experimental design recognized as the one-group pretest-posttest design. Under this specific framework, a single intact classroom of students was continuously observed from the beginning to the end of the intervention. No separate control group was created, as the primary objective was to evaluate the internal academic progression of a specific class facing reading difficulties without causing any disruption to the school's natural administrative scheduling. The statistical variance between the initial pre-test scores and the concluding post-test scores served as the definitive measure of the educational intervention's effect.

The target demographic for this investigation consisted of every tenth-grade learner officially registered at SMAN 1 Bojong for the 2025/2026 academic year. Given that the tenth grade represents a crucial transitional phase where students encounter more sophisticated academic English texts, focusing on this population yielded highly relevant insights into early high school literacy obstacles. To isolate the exact participants for the experiment, the researcher employed a purposive sampling technique. Purposive sampling authorizes the intentional selection of subjects who possess specific characteristics that are highly pertinent to the goals of the research. Guided by this technique, one intact classroom was chosen to function as the experimental group. The finalized sample involved Class X-3, containing exactly 36 students. The inclusion criteria were strictly established. First, all 36 selected learners possessed individual access to functional digital devices coupled with stable internet connectivity. Second, the academic profile of the class demonstrated a documented pedagogical requirement for immediate improvement in English reading comprehension.

The primary research instrument deployed to harvest objective data was a standardized Reading Comprehension Test structured entirely as Multiple-Choice Questions (MCQ). The textual content of the assessment exclusively featured narrative texts to perfectly align with the tenth-grade English academic syllabus. An objective, multiple-choice layout was specifically selected because it thoroughly eliminated any potential subjective grading bias from the evaluator. The assessment utilized 25 carefully crafted questions designed to target four core cognitive reading indicators adapted from the theories of Brown (2004). The precise distribution of the test items is comprehensively outlined in Table 1 below.

Table 1. Reading Comprehension Test Blueprint.

No	Reading Indicators	Comprehension	Question Numbers	Total Items	Percentage
1	Identifying the Main Idea		1, 6, 11, 16, 21	5	20%
2	Locating Specific Information (Details)		2, 3, 7, 8, 12, 13, 17, 18, 22, 23	10	40%
3	Making Textual Inferences		4, 9, 14, 19, 24	5	20%
4	Deducing Vocabulary from Context		5, 10, 15, 20, 25	5	20%
Total				25 Items	100%

Prior to deploying the instrument to the main experimental group, it was absolutely mandatory to verify its psychometric integrity. Consequently, a try-out evaluation was conducted involving a separate sample of 36 students from Class X-4. The raw numerical data acquired from this try-out session were rigorously analyzed utilizing IBM SPSS Statistics software. The empirical validity of the instrument was calculated employing the Bivariate Pearson Correlation method. The resulting statistical computation verified that all

25 multiple-choice questions possessed an r -counted value that was strictly higher than the critical r -table limit of 0.329, alongside a significance value falling below 0.05. Therefore, 100% of the formulated instrument items were confirmed as empirically valid.

The primary data collection process was systematically orchestrated through a highly controlled three-step sequence. First, prior to the formal introduction of the blended learning methodology, a diagnostic pre-test was administered to the students within the physical classroom under strict supervised conditions. The students accessed the evaluation directly through the Pijar Sekolah application installed on their personal devices. This initial diagnostic test operated as a vital tool to objectively document their original reading capabilities.

Second, the researcher executed the treatment phase, which functioned through a repeated cyclical procedure that integrated traditional and modern teaching paradigms across six formal instructional meetings. During the offline phase representing direct instruction, the researcher facilitated face-to-face sessions in the physical classroom to explicitly teach the generic structure of narrative texts and model indispensable metacognitive reading strategies. These modeled strategies encompassed skimming for main ideas, scanning for detailed facts, making logical textual inferences, and predicting the meaning of unfamiliar vocabulary. Conversely, during the online phase representing digital practice, the researcher distributed narrative reading texts via the Pijar Sekolah platform. Students logged into the digital application independently to read visually enriched stories and practically apply the strategies they had acquired. Finally, during the interactive evaluation phase, the students answered multiple-choice questions embedded seamlessly within the application, receiving immediate automated grading and constructive feedback from the system's digital engine.

Third, following the complete execution of the blended learning syllabus, a final post-test was administered to the exact same cohort of 36 students. The cognitive structure, time constraints, and overall difficulty level of the post-test were perfectly identical to the initial pre-test to guarantee maximum data reliability.

Once the pre-test and post-test scores were successfully extracted and downloaded from the Pijar Sekolah platform database, the raw numerical data were thoroughly analyzed using IBM SPSS Statistics. The quantitative data analysis commenced with descriptive statistics to summarize the foundational characteristics of the performance data set. Following this initial step, a normality test was meticulously conducted using the Shapiro-Wilk method. This method was chosen because the total sample size was under 50 participants, and it served to determine if the gathered data qualified for advanced parametric testing. Finally, the ultimate hypothesis testing was executed utilizing the Paired Sample T-Test set at a 95% confidence interval to rigorously evaluate the exact mean difference between the baseline scores and the post-intervention scores.

3 RESULTS

Following the successful validation of the test items during the try-out phase, the overall reliability of the research instrument was accurately measured. The internal consistency of the 25 validated items was mathematically evaluated using the Cronbach's Alpha statistical formula.

Table 2. *The Result of Instrument Reliability.*

Cronbach's Alpha	N of Items	Status
0.886	25	Highly Reliable

Based on the statistical output displayed in Table 2, the computation generated a Cronbach's Alpha coefficient of 0.886. Referencing the established educational evaluation standards proposed by Arikunto (2018), an assessment instrument is officially classified as highly reliable if its computed coefficient confidently surpasses the 0.60 mark. Because the obtained value of 0.886 was substantially higher than the standard requirement, the instrument was firmly placed into the "Highly Reliable" category.

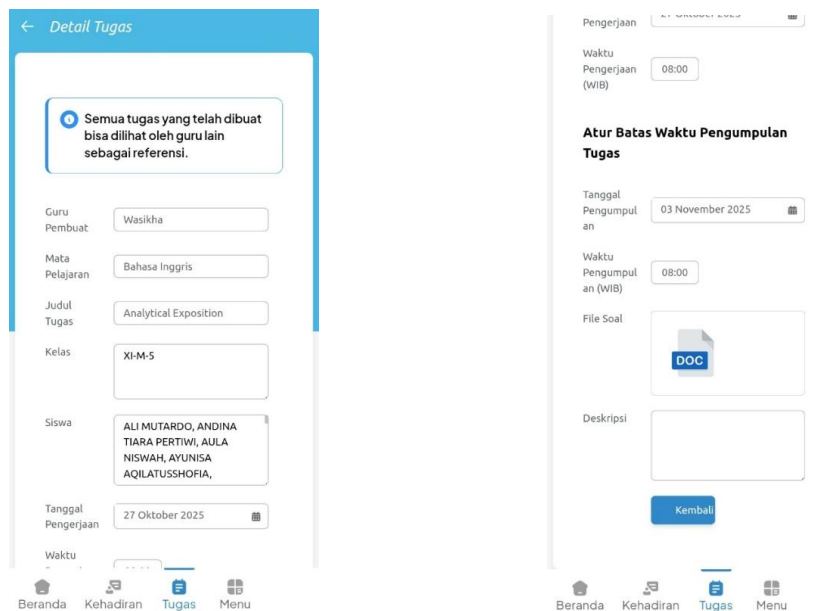
The pedagogical intervention phase was executed across a highly structured chronological timeline that encompassed six comprehensive meetings in total.

The First Meeting: The researcher formally administered the diagnostic pre-test directly through the digital interface of the Pijar Sekolah application. Subsequent to the completion of the pre-test, the

researcher delivered an interactive, face-to-face exposition discussing the generic structural components of narrative texts.

The Second and Third Meetings: The researcher explicitly modeled crucial metacognitive reading strategies to the classroom, focusing specifically on the mechanics of skimming and scanning. During the subsequent online phase, the students accessed immersive narrative texts hosted on Pijar Sekolah. They actively applied these learned strategies to answer the digital comprehension queries, immediately receiving their instantaneous automated feedback.

The Fourth and Fifth Meetings: These particular sessions were carefully engineered to cultivate the students' higher-order cognitive faculties. The researcher introduced far more sophisticated reading strategies, notably training the students on making logical textual inferences and properly deducing the



meaning of obscure vocabulary purely from surrounding context.



Figure 1. The Teacher's Assignment Configuration Interface on Pijar Sekolah.

Figure 2. *The Student's Assignment Dashboard on Pijar Sekolah*

The Sixth Meeting: The paramount objective of this concluding instructional session was the formal administration of the post-test. Conducted under strictly controlled academic parameters, the students accessed the Pijar Sekolah application one final time to complete their summative evaluation.

To provide a comprehensive macro-level overview of the students' cognitive trajectory, the raw numerical data were rigorously computed. The summary of the descriptive statistics for the 36 participating students is presented in Table 3 below.

Table 3. *Descriptive Statistics of Pre-test and Post-test.*

	N	Minimum	Maximum	Mean	Std. Deviation
Pre-test Scores	36	48	76	60.33	6.811
Post-test Scores	36	64	92	77.11	6.666

Based on the detailed statistical output generated in Table 3, the initial reading proficiency of the tenth-grade students prior to the digital intervention was relatively inadequate, yielding a pre-test mean score of only 60.33. In stark contrast, the post-test results exhibited a massive cognitive enhancement following the systematic implementation of the Pijar Sekolah application. The minimum score achieved by a student increased to 64, a feat that completely eliminated the presence of any failing grades within the classroom. Simultaneously, the maximum score achieved reached an impressive 92. Consequently, the mean score of the experimental class experienced a profound elevation, settling at 77.11.

To further map the shifting cognitive abilities of the classroom, the students' raw numerical scores were systematically categorized into distinct proficiency levels adapted from the academic rubrics of Arikunto (2018).

Table 4. *Frequency Distribution of Students' Reading Comprehension.*

Score Range	Category	Pre-test Frequency	Post-test Frequency
81 - 100	Excellent	0	8
61 - 80	Good	15	28
41 - 60	Fair	21	0
21 - 40	Poor	0	0
0 - 20	Very Poor	0	0
Total		36	36

The distribution table visibly portrays the undeniable pedagogical success of the blended treatment. During the initial pre-test phase, absolutely zero students managed to reach the "Excellent" category. However, upon reviewing the post-test results, the "Fair" failing category was completely eradicated. The bulk of the classroom successfully advanced into the "Good" category, totaling 28 students, and 8 outstanding learners propelled themselves upwards into the "Excellent" tier.

Before conducting the primary inferential hypothesis testing, the normality of the data was rigorously evaluated utilizing the Shapiro-Wilk test. The standard decision-making criterion dictates that if the significance value (Sig.) is mathematically greater than the alpha level of 0.05, the data set is officially classified as normally distributed.

Table 5. *Tests of Normality (Shapiro-Wilk).*

	Statistic	df	Sig.
Pre-Test	.958	36	.183
Post-Test	.967	36	.340

Based on the statistical output presented in Table 5, the pre-test scores yielded a significance value of 0.183, while the post-test scores produced a significance value of 0.340. Because both of these values clearly exceed the standard 0.05 threshold, the statistical assumption of normality was perfectly fulfilled. This vital statistical conclusion is strongly corroborated by the visual evidence provided by the Normal Q-Q Plots generated by the software.

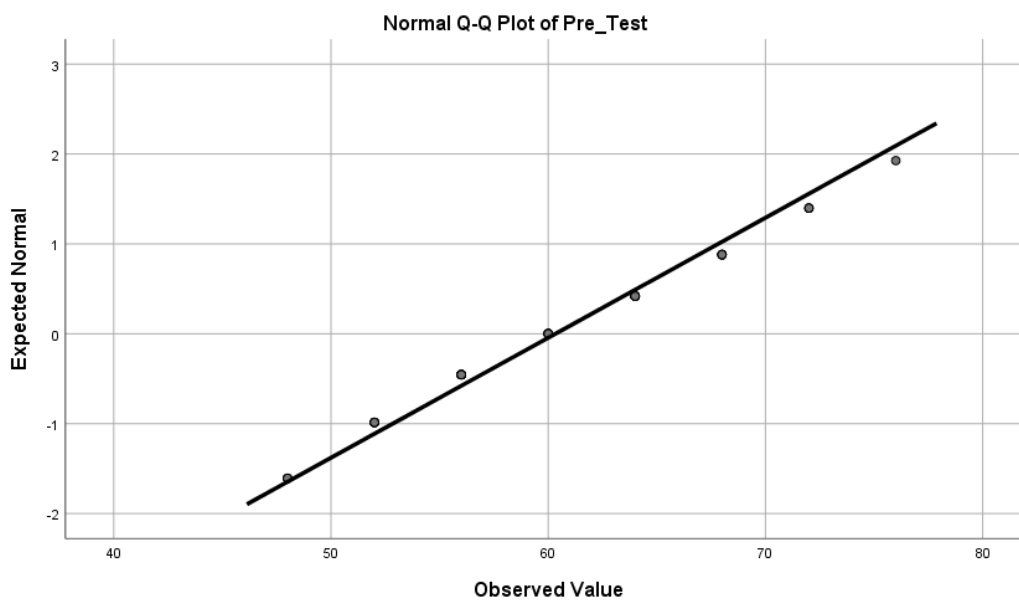


Figure 3. Normal Q-Q Plot of Pre-test Scores

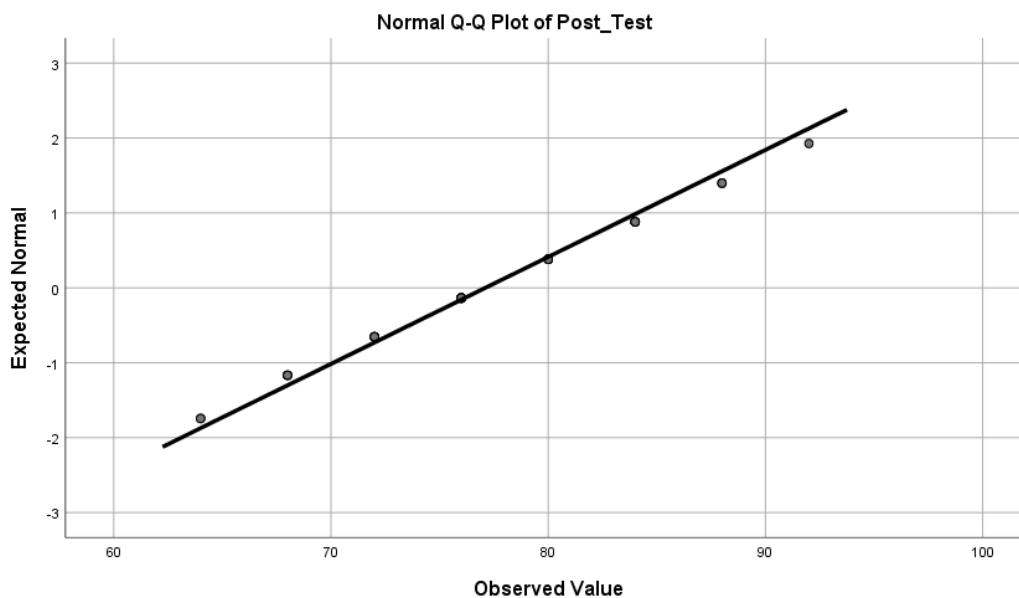


Figure 4. Normal Q-Q Plot of Post-test Scores

After successfully fulfilling the strict prerequisite of the normality test, the ultimate inferential analysis was conducted utilizing the parametric Paired Sample T-Test.

Table 6. *Paired Samples Test.*

	Mean Difference	Std. Deviation	t	df	Sig. (2-tailed)
Pre-test - Post-test	-16.778	3.528	-28.534	35	.000

The primary objective of this academic research was to scientifically evaluate the effectiveness of the blended learning method utilizing the Pijar Sekolah application on students' reading comprehension skills. Based on the robust statistical outcomes presented extensively in the results section, the empirical data strongly supports the alternative hypothesis (H1). The classroom mean score increased significantly from 60.33 in the diagnostic pre-test to 77.11 in the final post-test, showcasing a statistically proven improvement accompanied by a significance value of 0.000. This quantitative evidence definitively indicates that the implemented teaching intervention was highly successful in enhancing the reading capabilities of the tenth-grade students at SMAN 1 Bojong.

The massive improvement observed in the students' reading comprehension scores can be directly attributed to the structured synergy of the blended learning framework. As theorized by Horn and Staker (2014) in the foundational literature, combining direct classroom instruction with autonomous online practice creates a highly supportive and mutually reinforcing learning experience. During the offline phase, the researcher actively modeled essential metacognitive reading strategies, including the mechanics of skimming for main ideas, scanning for specific factual details, making textual inferences, and deducing obscure vocabulary from context. However, teaching these complex strategies in a limited physical classroom timeframe is rarely sufficient to ensure long-term memory retention.

Consequently, significant cognitive progress occurred during the online phase of the intervention, where the students applied these theoretical strategies independently using the Pijar Sekolah application. A primary factor contributing massively to this academic success was the advanced visual features hosted by the platform. Unlike traditional printed textbooks, which frequently cause reading fatigue and induce low motivation among modern high school students, the Pijar Sekolah ecosystem allowed for the seamless integration of high-quality visual aids directly alongside the English narrative texts. This multimedia visual support immensely helped students to activate their background knowledge (schema) and intuitively grasp the context of the complex stories, effectively reducing their mental cognitive load (Todorova, 2024).

Furthermore, the application provided an incredibly valuable mechanism of instant automated feedback. Whenever the students completed a reading evaluation on the Pijar Sekolah platform, they immediately received their objective numerical scores. This continuous evaluation cycle actively encouraged self-regulated learning habits among the teenagers. Instead of waiting for days for a teacher to manually grade their physical papers, the students could quickly recognize their comprehension levels and analyze their analytical mistakes in real-time. This specific feature aligns perfectly with modern language acquisition principles, where autonomous digital practice builds academic confidence and learning independence (Shafiee Rad, 2025).

These positive findings strongly align with the previous empirical studies discussed in the introduction phase of this paper. Benjamin-Ohwodede et al. (2024) highlighted that implementing blended learning environments radically improves material accessibility and fosters active student engagement. The current research confirms this theoretical claim, as the tenth-grade students at the school were visibly more motivated to read extensively and complete their English assignments when the texts were presented to them through a highly familiar digital medium.

Additionally, the research results robustly support the academic observations made by Pradini (2025), who noted that the specific format of reading materials whether digital or printed directly influences reading comprehension outcomes. By systematically guiding the students to practice reading digitally through the Pijar Sekolah application, the educational intervention helped them to navigate modern reading requirements highly effectively. It also completely supports the findings published by Tessensohn et al. (2025), which heavily emphasize that educational technology providing objective, automated feedback creates massive new opportunities for enhancing receptive reading skills within the ESL classroom context.

From a microscopic skills perspective, the final post-test evaluations revealed that the students became substantially more proficient at logically deducing vocabulary from context and accurately locating specific factual information buried within the text. Before the digital intervention began, many students struggled deeply with complex vocabulary found in narrative texts, very often halting their entire reading process when they encountered unknown English words. The strategic combination of human teacher guidance in the physical classroom and visually supported digital practice enabled them to tackle these complex texts with a much higher degree of confidence. In conclusion, the successful integration of the Pijar Sekolah application functioned as an extraordinarily effective pedagogical teaching strategy that effortlessly bridged the gap between teacher-led instruction and autonomous student practice.

4 CONCLUSIONS

The rigorous statistical analysis confirms that there is an overwhelmingly positive and significant effect of using the blended learning method combined with the Pijar Sekolah application on students' reading comprehension skills. The Paired Sample T-Test procedure resulted in a significance value of 0.000, a number that is strictly lower than the standard alpha level of 0.05. Furthermore, the absolute calculated t-value of 28.534 was phenomenally higher than the critical t-table limit of 2.030. These mathematical results indicate that the null hypothesis (H0) is officially rejected and the alternative hypothesis (H1) is firmly accepted. Regarding the extent of the cognitive improvement, the mean score of the experimental class increased dramatically from 60.33 in the pre-test to 77.11 in the post-test, showing an incredible average improvement of 16.78 points per student. The "Fair" reading ability category was completely eliminated in the final post-test, with the vast majority of the students successfully advancing upwards to the "Good" and "Excellent" proficiency categories.

Based on the highly positive research findings, English teachers are strongly encouraged to integrate localized digital platforms like Pijar Sekolah into their regular reading instruction. By adopting a blended learning approach, teachers can easily provide their students with visually engaging texts and interactive assessments that perfectly align with their modern digital habits. Furthermore, teachers can utilize the automated grading features provided by the platform to massively reduce their administrative workload. Students are encouraged to take full advantage of these educational applications to practice reading independently outside of their regular school hours. School administrators are advised to strictly maintain and financially support the school's digital infrastructure, ensuring that high-speed internet access is always reliable. For future academic researchers, it is highly recommended to conduct similar studies using a true-experimental or quasi-experimental design involving a separate control group for better comparative analysis, or to apply this specific digital method across varying text genres like descriptive or exposition texts to provide a much deeper understanding of the platform's long-term effectiveness.

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