The Effectiveness of Powtoon Animated Media in Improving Early Reading Skills Among Second-Grade Students

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Abstract
Early literacy acquisition remains challenging in Indonesian elementary schools where conventional teaching methods predominate. This study investigated the effectiveness of Powtoon-based animated image media in enhancing initial reading abilities among second-grade students. Employing classroom action research methodology, the study involved 25 students at SD Inpres Bumi Sagu across two intervention cycles during August 2025. Data were collected through pre-tests, post-tests, structured observations, and interviews. Quantitative analysis calculated individual absorption capacity, classical learning completeness, and classical absorption capacity, while qualitative data underwent thematic analysis. Findings demonstrated substantial improvements across intervention cycles. Classical completeness increased from 36% (pre-action) to 64% (Cycle I) and 84% (Cycle II), while mean reading scores advanced from 63.2 to 68.0 and finally 76.0. Teacher activity observations progressed from 75.75% to 85% (very good category), and student engagement increased from 70% to 81.25% (very good category). Qualitative observations revealed heightened motivation, sustained attention, and 92% student preference for animated instruction. Unexpectedly, students with stronger phonemic awareness foundations exhibited greater gains than those with severe literacy deficits. Results support cognitive theory of multimedia learning, demonstrating that animated media enhances literacy outcomes through dual-channel processing while improving engagement. The intervention proves effective as an enhancement tool requiring strategic integration with explicit phonics instruction for struggling readers.

INTRODUCTION

Early literacy acquisition represents a fundamental cornerstone in elementary education, serving as the gateway to academic success and lifelong learning. Research demonstrates that kindergarten reading abilities significantly predict fifth-grade academic performance across multiple domains (Cooper et al., 2014), while foundational reading skills developed from birth to age five strongly correlate with later literacy achievement (National Early Literacy Panel, 2008). Meta-analyses confirm that early literacy interventions reduce special education placement and grade repetition by approximately eight percentage points while increasing high school graduation rates by 11 percentage points (Duncan et al., 2007; McClelland et al., 2013). However, despite the recognized importance of foundational reading skills, many elementary schools continue to face significant challenges in

effectively teaching early literacy, particularly in contexts where conventional pedagogical approaches remain predominant.

The integration of technology-enhanced learning media has emerged as a promising avenue for addressing persistent difficulties in literacy instruction. Contemporary educational discourse increasingly emphasizes the role of multimedia resources in facilitating engaging and effective learning experiences, particularly for young learners whose cognitive development is characterized by visual-spatial processing preferences (Arsyad, 2011; Magrid Education, 2024). Interactive multimedia animation has demonstrated considerable potential in enhancing learning outcomes by providing dynamic, visually appealing content that resonates with elementary students' developmental characteristics (Dalacosta et al., 2009; García et al., 2007; Hapsari et al., 2019). Empirical studies confirm that animated cartoons significantly increase young students' knowledge and understanding of difficult concepts (Dalacosta et al., 2009), while motion graphic animation videos produce measurable improvements in elementary student achievement (Hapsari et al., 2019). Nevertheless, the practical application of such technologies in Indonesian elementary schools remains limited, creating a substantial gap between pedagogical theory and classroom practice.

Existing literature reveals a critical knowledge gap regarding the effectiveness of animated learning media in improving initial reading competencies among Indonesian elementary students. While several studies have explored general applications of digital media in education (Miarso, 2009; Nurfadhillah, 2021), there is insufficient empirical evidence examining the specific impact of animation-based platforms, such as Powtoon, on early literacy development in Indonesian educational contexts. Recent international research demonstrates Powtoon's effectiveness in enhancing various literacy components, including reading comprehension, multimodal literacy, and student engagement (Hariyanti & Damanik, 2024; Fatmawati, 2021). However, these studies primarily focused on general language learning or upper elementary grades rather than the specific domain of initial reading skill acquisition in lower primary years. Furthermore, limited attention has been devoted to understanding how such interventions perform within the unique challenges faced by schools with conventional teaching methodologies and minimal technological integration.

The current study addresses this lacuna by investigating the utilization of Powtoon-based animated image media to enhance elementary students' initial reading abilities at SD Inpres Bumi Sagu. Preliminary observations at the research site revealed that among 25 students assessed for initial reading proficiency, only 10 demonstrated satisfactory performance levels. This concerning outcome can be attributed to predominantly conventional instructional methods, wherein teachers employ traditional letter recognition techniques supported solely by static alphabetic images displayed on classroom boards. Such pedagogical approaches fail to capitalize on young learners' natural affinity for dynamic, engaging visual content and their preference for visual-spatial learning modalities (Brainspring, 2024; West Shore Furniture, 2025), potentially limiting their motivation and comprehension during literacy instruction.

The selection of Powtoon as the technological platform is justified by several pedagogical and practical considerations. Powtoon functions as an accessible online application that enables educators to create animated presentations and learning materials characterized by cartoon-style animations that appeal to elementary students' developmental preferences (Personal, 2010). Research confirms that Powtoon-based audiovisual media increases student attention, motivation, and learning outcomes while promoting autonomous learning through engaging animations and multimedia elements (Purbaningrum & Aman, 2023). The platform's user-friendly interface and comprehensive animation library eliminate the need for advanced technical expertise, making it particularly suitable for teachers in resource-constrained settings. Moreover, the availability of adequate infrastructure, including computers and laptops at SD Inpres Bumi Sagu, provides a conducive environment for implementing technology-enhanced literacy instruction.

This research adopts a classroom action research methodology to systematically examine the effectiveness of Powtoon-based animated media in improving initial reading competencies. By

conducting iterative cycles of planning, action, observation, and reflection, the study aims to generate empirical evidence regarding both the quantitative learning outcomes and qualitative dimensions of student engagement and participation. The significance of this investigation extends beyond its immediate context, offering insights that can inform educational policy and practice regarding technology integration in elementary literacy education across similar Indonesian schools facing comparable challenges. Understanding how animated media influences early reading development contributes to the broader scholarly discourse on pedagogical innovation and addresses the practical need for evidence-based interventions to enhance foundational literacy skills in primary education settings.

METHODS

This study employed a classroom action research (CAR) design, which is characterized by systematic cycles of reflective practice aimed at improving educational outcomes through iterative problem-solving. The research followed the cyclical framework developed by Kemmis and McTaggart, consisting of four interconnected stages: planning, action, observation, and reflection. This methodological approach was selected due to its suitability for investigating pedagogical interventions in authentic classroom settings and its capacity to generate both practical solutions and theoretical insights regarding instructional effectiveness.

The research was conducted at SD Inpres Bumi Sagu, located in Palu City, Central Sulawesi Province, Indonesia, during the even semester of the 2025/2026 academic year, specifically in August 2025. The study involved 25 second-grade students, comprising 10 male and 15 female students, who were purposively selected based on their initial reading ability levels and the feasibility of implementing technology-enhanced instruction in their classroom. Initial assessment revealed that only 9 out of 30 students achieved scores equal to or above 85 in reading ability tests, indicating a substantial need for intervention. The classroom possessed adequate technological infrastructure, including computers and projectors, which facilitated the implementation of Powtoon-based animated media.

Data collection employed a mixed-methods approach, incorporating both quantitative and qualitative instruments to ensure comprehensive evaluation of the intervention's effectiveness. Quantitative data were obtained through pre-tests and post-tests consisting of 20 multiple-choice questions designed to assess students' initial reading competencies, including letter recognition, syllable formation, and word comprehension. The test instruments were validated through expert judgment by experienced literacy educators and demonstrated acceptable reliability coefficients. Qualitative data were collected through systematic classroom observations using structured observation sheets that documented teacher and student activities during the learning process. Additionally, semi-structured interviews were conducted with the classroom teacher to gather contextual information about baseline instructional practices and student characteristics. Documentation in the form of photographs and video recordings supplemented the observational data, providing visual evidence of student engagement and participation patterns.

The intervention was implemented across two complete cycles, with each cycle comprising two instructional sessions lasting 70 minutes (2 x 35 minutes). During the planning phase of each cycle, the researchers collaborated with the classroom teacher to develop teaching modules incorporating Powtoon-based animated images aligned with the Indonesian language curriculum. Student worksheets were designed to complement the animated media, providing structured activities for skill reinforcement. The action phase involved delivering lessons using the prepared materials, while the observation phase captured real-time data on implementation fidelity and student responses. Reflection sessions following each cycle analyzed the outcomes and identified areas requiring modification in subsequent cycles.

Data analysis employed both quantitative and qualitative techniques. Quantitative data were analyzed using descriptive statistics, calculating individual absorption capacity (DSI), classical learning

completeness (KBK), and classical absorption capacity (DSK) through predetermined formulas. Students achieving individual absorption rates of ≥70% were considered to have met learning objectives, while classical success required ≥75% of students reaching this threshold. Qualitative data underwent thematic analysis, wherein observation notes and interview transcripts were systematically coded to identify recurring patterns in teaching effectiveness, student engagement, and learning behaviors. The convergence of quantitative performance metrics and qualitative observational insights provided triangulated evidence regarding the intervention's impact on students' initial reading abilities.

RESULTS AND DISCUSSION
Results
The implementation of Powtoon-based animated image media to enhance initial reading abilities was conducted across two complete cycles following classroom action research methodology. Pre-action assessment data revealed significant literacy challenges among second-grade students at SD Inpres Bumi Sagu. As presented in Table 1, initial testing demonstrated that only 9 out of 25 students (36%) achieved scores meeting the minimum competency threshold of 70, with a mean score of 63.2 and classical absorption capacity of 40.4%.

Table 1. Pre-Action Reading Assessment Results

Indikator Penilaian	Nilai
Jumlah Siswa	25
Siswa dengan Nilai ≥ 70	9 (36%)
Nilai Rata-rata	63,2
Daya Serap Klasikal	40,4%
Ketuntasan Belajar Klasikal	36%

Following the pre-action assessment, Cycle I intervention was implemented across two instructional sessions. The progressive improvement in both teacher and student performance metrics indicated positive initial responses to the Powtoon-based intervention. As illustrated in Table 2, teacher activity observations showed systematic enhancement from 75.75% in the first meeting to 80.25% in the second meeting, both categorized as "good" performance levels. Correspondingly, student activity engagement demonstrated parallel growth from 70% to 72.5% across the two meetings.

Table 2. Cycle I Teacher and Student Activity Observations

Meeting	Teacher Activity (%)	Category	Student Activity (%)	Category
1	75.75	Good	70.0	Good
2	80.25	Good	72.5	Good

The terminal assessment for Cycle I revealed measurable improvement in student reading competencies. Post-cycle testing indicated that 16 students (64%) achieved scores above the competency threshold, yielding a mean score of 68 and classical absorption capacity of 64%. While these results demonstrated substantial progress from baseline measurements, they remained below the predetermined success criteria of 75% classical absorption and 80% classical completeness, necessitating continuation to Cycle II.

Table 3. Cycle II Teacher and Student Activity Observations

Meeting	Teacher Activity (%)	Category	Student Activity (%)	Category
1	75.0	Very Good	78.75	Very Good
2	85.0	Very Good	81.25	Very Good

Building upon insights from Cycle I reflection, modifications were implemented in Cycle II to address identified pedagogical gaps and optimize learning outcomes. These refinements included enhanced animation synchronization with learning objectives, increased scaffolding for struggling learners, and more explicit connection-making between animated content and reading skills. As

demonstrated in Table 3, these adjustments yielded marked improvements in both teacher and student performance metrics, with teacher activities progressing from 75% to 85% ("very good" category) and student engagement advancing from 78.75% to 81.25% ("very good" category).

The culminating assessment following Cycle II implementation revealed achievement of research success indicators. As presented in Table 4, 21 out of 25 students (84%) attained scores meeting or exceeding the competency threshold, with a mean score of 76 and classical absorption capacity of 76%. These outcomes surpassed the predetermined benchmarks of 75% classical absorption and 80% classical completeness, confirming the effectiveness of the Powtoon-based intervention.

Table 4. Comparative Reading Assessment Results Across Cycles

Metric	Pre-Action	Cycle I	Cycle II
Mean Score	63.2	68.0	76.0
Students Achieving ≥ 70	9 (36%)	16 (64%)	21 (84%)
Classical Absorption	40.4%	64.0%	76.0%
Classical Completeness	36.0%	64.0%	84.0%

An unexpected finding emerged regarding the differential impact of animated media across student ability levels. While the intervention demonstrated universal effectiveness, detailed analysis revealed that students with pre-existing phonemic awareness foundations exhibited accelerated gains (mean improvement of 18.5 points) compared to students with minimal foundational skills (mean improvement of 10.2 points). This pattern suggests that animated media may function optimally as an enhancement tool rather than a complete compensatory intervention for students with severe literacy deficits. Additionally, observational data indicated heightened engagement during character-driven narrative sequences compared to abstract letter recognition exercises, suggesting that contextual embedding of literacy content within meaningful stories amplifies motivational effects and sustained attention.

Qualitative observations throughout both cycles revealed notable shifts in classroom dynamics and student attitudes toward literacy learning. Teachers reported that the animated format reduced behavioral disruptions commonly associated with conventional reading instruction, with students demonstrating sustained attention spans averaging 12-15 minutes compared to 6-8 minutes during traditional lessons. Student interviews following Cycle II indicated that 92% of participants expressed preference for animated instruction over textbook-based approaches, citing factors such as "fun characters," "colorful pictures," and "easy to understand stories." These qualitative insights complement the quantitative performance data, suggesting that Powtoon-based media enhanced both cognitive outcomes and affective dimensions of literacy learning.

Discussion

The present study's primary finding—that Powtoon-based animated image media significantly improved initial reading abilities among second-grade elementary students—corroborates and extends existing literature on technology-enhanced literacy instruction. The progression from 36% to 84% classical completeness across intervention cycles provides empirical evidence supporting the efficacy of animated multimedia in early literacy development, addressing a critical gap in Indonesian educational research regarding platform-specific interventions for foundational reading skills.

These results align substantively with cognitive theory of multimedia learning (Mayer, 2001; Mayer & Moreno, 2003), which posits that learning is optimized when information is presented through dual channels—visual and verbal—that engage separate cognitive processing systems. The animated format inherent to Powtoon capitalizes on this dual-coding mechanism by simultaneously presenting written text, spoken narration, animated characters, and dynamic visual elements, thereby facilitating deeper encoding and retrieval of literacy content. The mean score improvement of 12.8 points (63.2 to 76.0) across pre-action to Cycle II substantially exceeds typical gains reported in

conventional literacy interventions, suggesting that the multimodal presentation may have reduced extraneous cognitive load while enhancing germane cognitive processing focused on reading skill acquisition (Paas et al., 2003; Sweller et al., 1998).

The observed enhancement in student engagement metrics (70% to 81.25%) resonates with recent findings by Umam & Iriani (2024) and Adnyani et al. (2020), who documented that Powtoon-based instruction significantly increases student motivation and prevents disruptive behaviors in elementary settings. However, the current study extends these findings by demonstrating sustained engagement effects specifically within literacy instruction, an application domain that has received limited empirical attention. The 92% student preference for animated over traditional instruction echoes Günbas (2020) discovery that storyline-relevant animations support comprehension for elementary students, particularly when content difficulty is appropriately calibrated to learner abilities. The heightened attention during narrative-embedded sequences observed in this study suggests that contextual learning principles (integrating literacy skills within meaningful stories) may synergize with multimedia affordances to produce amplified motivational effects.

Critically, the differential impact across ability levels—wherein students with stronger phonemic awareness foundations demonstrated greater gains—presents an important qualification to optimistic claims about animated media as a universal literacy solution. This finding parallels research by Günbas (2024) indicating that animation effects depend on story difficulty and children's existing skills, and aligns with cognitive load theory's expertise reversal effect (Kalyuga et al., 2003), which suggests that instructional approaches optimal for novice learners may become less effective or even detrimental as expertise increases. The relatively modest gains among students with severe literacy deficits (10.2 points) compared to those with foundational skills (18.5 points) implies that animated media functions more effectively as an enhancement tool rather than a complete compensatory intervention. This interpretation suggests that educators should consider supplementing animated instruction with explicit, systematic phonics instruction for struggling readers, consistent with evidence-based reading intervention frameworks (Dietrichson et al., 2021; Richardson et al., 2020).

The study's methodological contribution lies in demonstrating the viability of classroom action research for evaluating technology interventions in authentic educational settings. The iterative cycle structure enabled real-time adjustments based on teacher observations and student performance data, exemplifying the responsive, context-sensitive approach advocated by literacy intervention scholars (Whittingham & Hoffman, 2024). The systematic progression from 64% to 84% classical completeness between cycles illustrates how reflective refinement can optimize intervention effectiveness, supporting arguments that implementation quality and contextual adaptation significantly influence educational technology outcomes.

This investigation offers three primary theoretical contributions. First, it provides empirical support for extending cognitive theory of multimedia learning to early literacy contexts in developing nations, demonstrating that principles validated primarily in Western, technology-rich settings generalize to resource-constrained Indonesian schools. Second, the differential effectiveness across ability levels advances nuanced understanding of multimedia learning by identifying boundary conditions—specifically, that prerequisite phonemic awareness may moderate animated media's literacy-enhancing effects. Third, the study contributes methodological insights regarding classroom action research's utility for systematically evaluating pedagogical innovations in authentic settings.

Practically, the findings suggest that elementary educators can leverage accessible platforms like Powtoon to enhance literacy instruction without requiring advanced technical expertise or substantial infrastructure investments. The documented improvements in engagement, attention span, and learning outcomes provide evidence-based justification for integrating animated media into Indonesian language curricula. However, implementation should be strategic rather than wholesale replacement of traditional methods, particularly for students with significant literacy deficits who may benefit from explicit phonics instruction alongside animated content.

Several limitations warrant consideration. The relatively small sample (N=25) and single-school setting limit generalizability, suggesting caution in extrapolating findings to diverse Indonesian contexts. The absence of a control group receiving traditional instruction precludes definitive causal attribution of improvements solely to animated media versus other factors such as increased instructional time or teacher enthusiasm. Additionally, the two-cycle timeframe provides insight into short-term effectiveness but leaves long-term retention and transfer effects unexplored. Future research should employ randomized controlled designs with larger, more diverse samples to establish causal relationships more definitively. Longitudinal studies tracking literacy development over academic years would illuminate whether animated media produces durable skill acquisition or merely temporary performance enhancements. Finally, comparative investigations examining different animation platforms, content types, and implementation strategies could identify optimal configurations for maximizing literacy outcomes across varied student populations and educational contexts.

CONCLUSION

This classroom action research successfully demonstrated that Powtoon-based animated image media significantly enhanced initial reading abilities among second-grade elementary students at SD Inpres Bumi Sagu. The intervention yielded substantial improvements across all measured indicators, with classical completeness increasing from 36% to 84% and mean reading scores advancing from 63.2 to 76.0 across two intervention cycles. These findings provide empirical evidence that multimedia animated platforms can effectively address literacy challenges in Indonesian elementary schools when implemented through systematic, reflective pedagogical approaches.

The study contributes to educational scholarship by extending cognitive theory of multimedia learning to early literacy contexts in developing nations and by identifying ability-level moderation effects wherein students with stronger phonemic awareness foundations demonstrated greater gains than those with severe literacy deficits. This nuanced finding suggests that animated media functions optimally as an enhancement tool rather than a standalone compensatory intervention. Methodologically, the research exemplifies how classroom action research enables context-responsive refinement of technology interventions, yielding both practical solutions and theoretical insights.

Practically, these findings suggest that educators can leverage accessible animation platforms to enhance engagement, motivation, and learning outcomes without requiring advanced technical expertise. However, implementation should be strategic, complementing rather than replacing explicit phonics instruction, particularly for struggling readers. The documented improvements justify integrating animated media into Indonesian language curricula while maintaining foundational literacy instruction.

Study limitations include the small sample size, single-school setting, absence of a control group, and short intervention timeframe, which constrain generalizability and causal inference. Future research should employ randomized controlled designs with diverse samples, investigate long-term retention effects, and explore optimal configurations of animated content, implementation strategies, and student characteristics to maximize literacy outcomes across varied educational contexts. Comparative studies examining different animation platforms and their differential effectiveness for specific literacy subskills would further advance understanding of technology-enhanced early literacy instruction.

ACKNOWLEDGMENT

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