

CHAPTER IV

RESULTS AND DISCUSSION

A. Result

1. Implementation of Articulate Storyline 3 Media

The learning session in this study utilized an interactive multimedia module developed via Articulate Storyline 3, customized to fit the primary school English curriculum requirements for fifth-grade students. The media layout was designed to maximize young learners' engagement through vibrant visual characters, structured learning pathways, and multi-sensory materials.

Before engaging with the core content, students were greeted by an initial setup page where they entered their basic profile details. Once logged into the application, students were directed to the core thematic modules that integrated visual text blocks and active audio triggers, with the vocabulary presentation module providing clear sensory input to help students internalize the months of the year along with correct contextual pronunciation.

Beyond the identity and vocabulary presentation pages, the media incorporated three interactive mechanisms designed to sustain student engagement throughout the session. First, audio narration accompanied each vocabulary item, allowing students to listen to correct pronunciation repeatedly at their own pace, a feature that directly supported the auditory channel of information processing as described by the dual-channel assumption of CTML. Second, short animated sequences contextualized abstract concepts, such as ordinal numbers and calendar months, within familiar visual scenarios, helping students connect new vocabulary to concrete mental images. Third, an interactive quiz feature provided immediate feedback after each response, enabling students to recognize and correct their mistakes in real time rather than waiting for teacher-led review. Together, these three mechanisms transformed the lesson from a passive listening activity, as observed during the conventional teaching session in the first meeting, into an active, self-paced learning experience during the second meeting, consistent with the observed increase in participation and reduced variability in post-test scores.

The visual and narrative theme selected for the module, centred on the traditional Indonesian game “Balap Karung” (sack race), a culturally familiar activity typically held during Indonesian Independence Day celebrations, was deliberately chosen to situate the abstract vocabulary items, months and ordinal numbers, within a concrete, locally relevant context rather than a generic or foreign scenario. Within this narrative, students followed animated characters preparing for and participating in a sack race scheduled on a particular date, with the ordinal position of each participant's finish and the month of the event serving as natural, story-driven opportunities to encounter and practice the target vocabulary. This localized narrative approach is consistent with the coherence principle of the Cognitive Theory of Multimedia Learning, which recommends grounding new material in contexts that are meaningful and familiar to the learner rather than abstract or decontextualized, and offered students a clear communicative purpose for learning to state months and ordinal numbers in English.

During the second meeting, informal classroom observation by the researcher noted several qualitative behavioural changes consistent with the quantitative results reported later in this chapter. Students who had appeared reticent and visually disengaged during the first meeting's conventional lecture were observed leaning forward toward the projector screen, spontaneously calling out answers during the interactive quiz segment, and, in several instances, asking to replay a particular animated sequence a second time. While these observations are anecdotal and were not systematically coded as part of a formal qualitative analysis, given that the present study's design and instrumentation are quantitative in nature, they nonetheless provide a degree of contextual, face-value support for the subsequently reported statistical improvement in learning interest, illustrating the kind of classroom behaviour that the questionnaire items were designed to capture in numerical form.

2. Descriptive Statistics

Data for this analysis came from pre-test and post-test questionnaires completed by all 32 fifth-grade students at SDN Rancatungku 01. The resulting descriptive statistics are presented in Table 4.1.

Table 4. 1 Descriptive Statistics of Pre-Test and Post-Test

Statistic	Pre-Test	Post-Test
N	32	32
Mean	29.3	32.6
Median	29.0	33.0
Std. Deviation	4.07	3.44
Minimum	22.0	26.0
Maximum	39.0	40.0
Students Improved	—	30 (93.75%)
Students Unchanged	—	2 (6.25%)
Students Declined	—	0 (0%)

Based on Table 4.1, the mean pre-test score was 29.3 (SD = 4.07). Following the implementation of Articulate Storyline 3 media, the mean post-test score increased to 32.6 (SD = 3.44), reflecting an improvement of 3.28 points. The smaller post-test standard deviation indicates a more uniform positive impact across all students. Individually, 30 of the 32 students (93.75 percent) demonstrated improvement in learning interest, 2 students (6.25 percent) remained unchanged, and no students experienced a decline in their scores.

When these mean scores are interpreted against the score-range categorization presented in Table 3.3, the shift in students' learning interest becomes clearer. The pre-test mean of 29.3 falls within the “Moderately High” category (26–33), positioned toward the lower end of that range, whereas the post-test mean of 32.6 falls near the upper boundary of the same “Moderately High” category, immediately bordering the “High” category (34–40). This pattern suggests that, prior to the intervention, students' baseline interest in learning English was already moderately positive rather than uniformly low, a nuance not fully captured by the mean difference alone; nevertheless, the post-intervention shift toward the upper boundary of the moderately high range, with several individual students crossing into the high category, indicates that Articulate Storyline 3 media was effective in moving a meaningful proportion of students into a qualitatively higher band of learning interest, rather than producing only a marginal numerical gain within the same interpretive category.

3. Normality Test

Before proceeding to hypothesis testing, a Shapiro-Wilk test was conducted to examine whether the pre-test and post-test data followed a normal distribution. The results are presented in Table 4.2.

Table 4. 2 Shapiro-Wilk Normality Test Results

Variable	W	p-value	Result
Pre-Test	0.967	.421	Normal
Post-Test	0.977	.708	Normal

Both p-values (.421 for the pre-test and .708 for the post-test) exceeded the .05 threshold, confirming that both datasets were normally distributed. Consequently, the parametric Paired Samples T-Test was determined to be the appropriate statistical technique for hypothesis testing in this study.

This confirmation of normality is methodologically significant because it validates the use of a parametric test, which generally offers greater statistical power than its non-parametric counterparts, such as the Wilcoxon Signed-Rank Test, when the underlying distributional assumptions are met. Had either the pre-test or post-test data departed substantially from normality, a non-parametric alternative would have been required instead, potentially reducing the sensitivity of the analysis to detect a true effect even if one were present. The relatively higher p-values obtained for both datasets, well above the .05 threshold rather than only marginally exceeding it, further suggest that the normality assumption was reasonably robust for this sample rather than being a borderline determination.

4. Hypothesis Testing

The Paired Samples T-Test results are presented in Table 4.3.

Table 4. 3 Paired Samples T-Test Results

t	df	p	Mean Diff.	Cohen's d
-7.23	31	<.001	-3.28	-1.28

The results yielded $t = -7.23$, $df = 31$, $p < .001$. Since $p < 0.05$, H_0 is rejected and H_a is accepted, confirming a significant effect of Articulate Storyline 3 media

on fifth-grade students' interest in learning English at SDN Rancatungku 01. The mean difference of -3.28 demonstrates an average improvement of 3.28 points on the learning interest scale. Cohen's $d = -1.28$ falls within the large effect category (> 0.8), indicating that the effect is not only statistically significant but also practically meaningful for classroom practice.

To place this result in context, a t -value of this magnitude with 31 degrees of freedom corresponds to a probability of observing such a difference by chance alone of well under one in a thousand, providing strong statistical grounds for rejecting the null hypothesis. Moreover, because Cohen's d expresses the mean difference in standard deviation units rather than raw score points, it allows the size of this effect to be compared directly with effect sizes reported in other studies regardless of differences in sample size or instrument scale, a form of comparison that raw mean differences alone do not permit. The fact that the obtained effect size exceeds the conventional threshold for a large effect, rather than merely reaching the smaller thresholds for small or medium effects, suggests that the improvement documented here is unlikely to be a marginal or borderline statistical finding, and is instead likely to be noticeable in the everyday classroom behaviour of the students involved.

For reference, the conventional benchmarks used to classify the magnitude of Cohen's d in the social and educational sciences are presented in Table 4.4.

Table 4. 4 Interpretation of Cohen's d Effect Size

Cohen's d (d)	Interpretation
< 0.2	Negligible
$0.2 - 0.49$	Small
$0.5 - 0.79$	Medium
≥ 0.8	Large

As shown in Table 4.4, the obtained effect size of $|d| = 1.28$ falls well within the large-effect category, exceeding the 0.8 threshold that marks the boundary between medium and large effects by a considerable margin. This effect the magnitude falls on the higher end of what is typically reported in classroom-based

educational interventions, where medium effects are considerably more common than large ones, further reinforcing the practical significance of the finding beyond its statistical significance alone.

5. Indicator-Based Analysis

To provide a more nuanced understanding of the improvement beyond the aggregate score, students' responses were further analyzed according to each of the four learning interest indicators, as presented in Table 4.4.

Table 4. 5 Paired Samples T-Test Results by Learning Interest Indicator

Indicator	Pre-Test M (SD)	Post-Test M (SD)	t	df	p	Cohen's d
Attention	8.66 (1.47)	9.53 (1.41)	3.63	31	.001	0.64
Participation	9.16 (1.51)	9.72 (1.33)	2.33	31	.027	0.41
Enthusiasm	5.66 (1.56)	6.88 (1.10)	4.82	31	<.001	0.85
Curiosity	5.84 (1.27)	6.41 (0.98)	3.79	31	.001	0.67

All four indicators demonstrated statistically significant improvement ($p < .05$), although the magnitude varied considerably across dimensions. The enthusiasm indicator recorded the largest effect (Cohen's $d = 0.85$), suggesting that the interactive multimedia environment was particularly effective in generating positive affective responses toward the English lesson. The curiosity indicator followed with a similarly substantial effect ($d = 0.67$), consistent with the media's animated scenarios designed to provoke exploratory engagement with new vocabulary. The attention indicator also showed a moderate-to-large effect ($d = 0.64$), likely reflecting improved sustained focus supported by the audio narration feature. In contrast, the participation indicator exhibited the smallest, though still statistically significant, improvement ($d = 0.41$), suggesting that behavioural engagement, such as actively responding or volunteering during the lesson, is comparatively more resistant to change within a brief two-meeting intervention than affective and attentional responses. This pattern indicates that Articulate Storyline 3 exerted its strongest influence on students' internal affective and cognitive engagement, while behavioural participation may require a longer or more sustained intervention period to achieve comparable gains.

This graduated pattern of effect sizes, moving from the largest effect for enthusiasm down to the smallest for participation, is broadly consistent with the sequencing implied by the Four-Phase Model of Interest Development (Renninger & Hidi, 2022). Within a single two-meeting intervention, it appears more attainable to trigger an affective response, enthusiasm, and to stimulate curiosity through novel visual and auditory stimuli, than to elicit the sustained behavioural participation, such as spontaneously answering or volunteering, that is more closely associated with the model's later, more internally driven phases of interest development. Rather than indicating a limitation of the media itself, this pattern is more plausibly a function of the intervention's short duration, suggesting that the affective and cognitive gains documented here would need to be reinforced across additional sessions before a comparable shift in behavioural participation could reasonably be expected.

B. Discussion

Data from this research demonstrate that utilizing Articulate Storyline 3 media significantly elevates the interest of fifth-grade elementary students in learning English at SDN Rancatungku 01. The fact that an overwhelming majority of students demonstrated consistent improvement in interest, without a single individual experiencing a decline, strongly reinforces this empirical evidence. This major finding is grounded in the Cognitive Theory of Multimedia Learning (Mayer, 2024), which posits that drawing on more than one sensory channel at once improves information processing more effectively than relying on a single channel.

It is important to note that, since this study employed a one-group pretest-posttest design, the absence of a control group means that the observed improvements cannot be attributed solely to Articulate Storyline 3 media with absolute certainty. Two alternative explanations warrant consideration. First, a practice effect may have occurred, in which students' familiarity with the questionnaire items after completing them once could have influenced their post-test responses regardless of the intervention. Second, the short interval between the pre-test and post-test limits, though does not eliminate, the possible influence of

naturally occurring changes in student mood or classroom conditions between the two testing sessions. Nevertheless, the consistency of improvement across nearly all students (93.75 %), rather than a scattered or marginal pattern, suggests that the treatment itself played a substantial role beyond what practice effects or incidental factors alone would typically produce.

Building on this alignment with the Cognitive Theory of Multimedia Learning, each feature implemented in this study maps onto a specific psychological mechanism. The audio narration operationalizes the dual-channel principle by pairing spoken pronunciation with on-screen text, engaging both auditory and visual channels rather than visual input alone. The animated vocabulary scenarios serve as a concrete anchor for abstract concepts, aligning with the triggered situational interest phase of the Four-Phase Model of Interest Development (Renninger & Hidi, 2022), in which novel, vivid stimuli capture initial attention. The interactive quiz's immediate feedback corresponds to the model's maintained situational interest phase, reinforcing competence and encouraging continued engagement after mistakes. This finding is consistent with a broader literature review of interactive media applications in elementary science education, which similarly found that formats such as interactive video and educational games improved students' understanding and motivation to learn, indicating that the benefits of interactive media are not confined to language instruction alone (Prayoga et al., 2025).

The present findings also align closely with Majid & Kawuryana (2024), who similarly reported significant gains in fifth-grade students' learning interest and activeness following the implementation of Articulate Storyline 3, despite using a two-group quasi-experimental design applied to general classroom material rather than English specifically. The convergence of findings across two independently conducted studies, both involving fifth-grade Indonesian elementary students and the same software version, but employing different research designs, subjects, and samples, strengthens confidence that the observed effect on learning interest reflects a genuine property of the medium rather than an artifact specific to either study's particular sample or design. A comparable pattern of positive outcomes among

fifth-grade students was also reported by Ramadhanti et al. (2024), whose narrative-based Articulate Storyline medium for mathematics was found feasible and engaging for the same grade level, and by Daryanes et al. (2023), whose case-method-based Articulate Storyline medium proved effective even among university students, together suggesting that the instructional mechanisms underlying Articulate Storyline's effectiveness, namely narrative contextualization, interactivity, and immediate feedback, generalize meaningfully across grade levels and subject domains rather than being unique to English instruction at the elementary level.

The results align with the core pedagogical principle that learning interest is closely linked to the enjoyability and interactivity of the instructional process (Adam & Mulyani, 2023). Compared with Saputra et al. (2025), who reported a 77 percent increase in English learning interest among junior high school students alongside high expert-validation and practicality scores, and Idris et al. (2025), who found a significant effect of Articulate Storyline on both interest and learning outcomes among fourth-graders in a social studies context, this study's large effect size (Cohen's $d = -1.28$) offers a standardized measure of practical significance that neither prior study reported, suggesting that Articulate Storyline 3's impact on English learning interest is at least comparable to its effects in other subjects and levels. This is corroborated by Mutmainnah et al. (2025), who similarly found that animated multimedia significantly improved elementary students' interest and learning outcomes, and by Husna et al. (2026), who reported that interactive problem-based media enhanced elementary students' problem-solving abilities, together suggesting that well-designed interactive media reliably strengthens young learners' engagement across different learning domains.

Furthermore, the significant improvement in student engagement directly responds to the practical pedagogical challenges identified during the preliminary baseline observations described in Chapter I. Unlike traditional lecture-based and textbook-reliant instruction, which frequently generates passive learning environments, the implementation of Articulate Storyline dynamically transformed the fifth-grade classroom ecosystem. Its core features, including interactive visuals

and real-time prompt mechanisms, systematically stimulated students' intrinsic curiosity and sustained attention (Maizura & Nukman, 2025). This qualitative shift in learning dynamics is empirically consistent with the findings of Nisa' & Yulianto (2025), who observed that integrating contextually relevant interactive multimedia elements successfully drives a profound change in student attentiveness and active participation. Practically, this technological intervention serves as a valuable pedagogical reference for primary school teachers seeking to overcome limitations in digital resource readiness, thereby fostering a more active and student-centred classroom dynamic in line with the goals of Kurikulum Merdeka.

Mechanistically, the visual appeal and interactive quiz features, such as drag-and-drop activities, successfully turn abstract concepts into engaging experiences that capture the attention of fifth-grade primary learners. However, a notable limitation of this study lies in its time-consuming nature, particularly regarding the classroom preparation required to set up a projector and associated digital hardware before each lesson. Therefore, future research directions should focus on exploring the application of Articulate Storyline via web-based or mobile platforms to enable independent student access and minimize technical setup time. Additionally, expanding the research scope to larger and more diverse sample sizes, and incorporating a comparison group within a quasi-experimental framework, would further validate the scalability and generalizability of these findings.

From a pedagogical standpoint, the indicator-level pattern observed in this study, wherein enthusiasm and curiosity showed the strongest gains while participation lagged behind, carries a practical implication for classroom teachers: interactive multimedia alone may be sufficient to spark affective and attentional interest quickly, but eliciting sustained behavioural participation, such as students voluntarily speaking up or initiating interaction, likely requires the intervention to be paired with explicit participation-oriented activities, such as pair work or structured speaking tasks, delivered across a longer instructional sequence rather than a single two-meeting exposure. This suggests that Articulate Storyline 3 may be most effective not as a stand-alone replacement for teacher-led interaction, but

as a complementary tool that primes students' attention and enthusiasm before more participatory, teacher-facilitated activities are introduced.

An additional dimension worth considering is the teacher's own role during the intervention. Although the media was designed to operate with a high degree of learner autonomy, the teacher remained present throughout the second meeting to operate the projector, facilitate transitions between segments, and encourage quieter students to participate in the interactive quiz session. This suggests that the observed improvement in learning interest should not be attributed to the media in complete isolation from the teacher's facilitation, but rather to the combination of a well-designed interactive medium and a teacher who actively facilitated its use, a combination that future implementations of Articulate Storyline 3 in similar elementary contexts would need to replicate in order to achieve comparable results.

More broadly, these findings contribute to an emerging body of evidence suggesting that the theoretical mechanisms underlying multimedia learning, namely dual-channel processing and the triggering of situational interest, operate similarly for foreign language content as they do for other subject areas such as mathematics, science, and social studies, at least within the short timeframe examined by pretest-posttest intervention studies. This cross-domain consistency lends some support to the broader theoretical claim that CTML and the Four-Phase Model of Interest Development describe relatively general cognitive and motivational processes rather than mechanisms specific to any single content area, though confirming this claim more definitively would require systematic replication across a wider range of subjects, grade levels, and intervention durations than any single undergraduate thesis, including the present one, can provide.

In summary, the discussion above indicates that the significant improvement in fifth-grade students' English learning interest documented in this study is theoretically well-grounded, empirically consistent with a growing body of Articulate Storyline research across grade levels and subject domains, and practically meaningful given its large effect size. At the same time, the indicator-level and design-related limitations discussed throughout this section indicate that this improvement should be understood as an initial, short-term shift in situational

interest rather than definitive proof of long-term individual interest development, a distinction that directly shapes the conclusions and recommendations presented in the following chapter.