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Interactive Contextual Learning Media: Development and Impact on English Language Learning in Junior Secondary School

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Abstract

This study aims to develop and evaluate an Interactive Contextual Learning Media (ICLM) to improve English reading comprehension among Grade VIII students, particularly in understanding procedure texts. The research problem originates from the recurring challenges in junior secondary English classrooms, including low student motivation, limited engagement, and the lack of contextual and interactive learning resources. Employing the Research and Development design with the ADDIE model, the study involved analysis, design, development, implementation, and evaluation stages. Expert validations were conducted by material, media, and instructional design specialists, while feasibility, practicality, and effectiveness were assessed through individual try-outs, small-group trials, and field testing. Data were collected using questionnaires, observations, interviews, and pretest–posttest assessments, and analyzed using descriptive statistics and independent t-tests. The findings indicate that the developed media achieved high feasibility ratings from experts (mean scores ranging from 4.32 to 4.79), and strong practicality responses from teachers (95%) and students (96%). In terms of effectiveness, students in the experimental class showed a significant improvement in learning outcomes, increasing from a mean pretest score of 62.30 to 85.93 in the posttest, while the control class showed no meaningful improvement. Statistical testing confirmed a significant difference between the two groups ($p < 0.001$), indicating that the ICLM had a substantial positive impact on students' reading comprehension. Overall, the results affirm that integrating interactivity and contextual learning into digital media can effectively enhance students' understanding of English texts and support more engaging and meaningful learning experiences in junior secondary education.

Keywords: *ADDIE model; contextual learning; digital media; interactive learning; reading comprehension.*

Introduction

English language education at the junior secondary school level continues to face substantial challenges, particularly in ensuring that learning activities foster active engagement and meaningful understanding. Although current curriculum reforms in Indonesia emphasize student-centered and contextual learning, classroom practices in many schools remain dominated by traditional, teacher-centered approaches. This situation is evident in the English classrooms at SMP IT Daarul Istiqlal, where instruction is still largely focused on lectures and linear presentations, resulting in limited student participation and low learning outcomes, especially in reading comprehension of procedure texts. Over the past two academic years, students' performance has consistently fallen below the expected competency standards, suggesting a persistent need for innovations that better align with learners' characteristics and the demands of contemporary language learning.

Growing evidence in the field of English language teaching underscores the potential of interactive digital media to enhance student motivation, comprehension, and engagement. Studies have shown that multimedia materials combining text, visuals, audio, and learner-controlled interactions can significantly improve information processing and retention (Clark & Mayer, 2016; Mayer, 2021). Parallel research on contextual learning demonstrates that connecting instructional content with students' real-life experiences enriches conceptual understanding and promotes deeper cognitive engagement (Rahmawati et al., 2021; Thomas, 2022).

More recent work highlights how digital tools integrated with contextualized tasks support the development of reading and speaking skills among adolescent learners (Kim, 2023; Nasution & Lubis, 2024). Despite these advancements, existing technological resources used in many schools often lack contextual relevance, while studies that advocate contextual strategies frequently overlook the potential of interactive multimedia design. As a result, the two promising strands interactivity and contextual learning are seldom blended into unified, pedagogically grounded learning media.

The disconnect between recommended instructional approaches and actual teaching practices indicates that available teaching media do not yet fully accommodate students' diverse learning needs or support the cognitive processes required for mastering English texts. Although theory highlights the importance of integrating verbal and visual information through well-structured multimedia, implementations in school settings often adopt only partial aspects of these principles. At the same time, contextual elements that could make learning more meaningful are frequently absent from digital materials, leaving learners without a bridge between linguistic input and authentic situations. This mismatch suggests that English learning tools currently in use fall short of providing both meaningful context and interactive features necessary for effective comprehension of procedural texts. Furthermore, the availability of accessible platforms such as

Canva has not been optimally leveraged to develop comprehensive media that align with students' cognitive, motivational, and contextual needs.

Against this backdrop, innovation in learning media becomes essential to address classroom challenges and align instructional practices with contemporary pedagogical theories. The present study therefore seeks to develop an Interactive Contextual Learning Media (ICLM) tailored for English language learning in junior secondary schools. The study aims to determine the feasibility, practicality, and effectiveness of this media in supporting students' understanding of procedure texts. By combining principles of multimedia learning with contextual learning strategies in a single, accessible digital platform, this research offers a novel contribution to English language education, providing a learning tool that is theoretically grounded, contextually meaningful, and empirically tested within authentic classroom conditions.

Method

This study employed a research and development (R&D) design to create, validate, and evaluate an Interactive Contextual Learning Media (ICLM) for English language learning at the junior secondary school level. The development process followed the ADDIE model, which consists of analysis, design, development, implementation, and evaluation. This model was selected because it enables a systematic and iterative approach to producing a learning media that aligns theoretical principles with practical classroom needs, particularly in responding to issues of low engagement and limited contextualization in English instruction identified in the introductory section. The stages were carried out to ensure that the resulting media was pedagogically sound, technically feasible, and effective in supporting students' comprehension of procedure texts.

The research was conducted at SMP IT Daarul Istiqlal during the 2025/2026 academic year, involving students of Grade VIII as the main participants. The sample was divided into three groups according to the developmental testing stages: an individual try-out group of three students, a small-group test of ten students, and a field trial involving 30 students in the experimental class. For the effectiveness testing, two intact classes each consisting of 30 students were assigned as the experimental and control groups. In addition, English teachers participated as media users, while experts in material, media, and instructional design were involved to assess the feasibility of the developed product. This multi-level sampling structure ensured that the media was evaluated comprehensively from expert, practitioner, and learner perspectives.

Data collection was conducted through interviews, questionnaires, observations, documentation, and learning outcome tests. Preliminary data were obtained through interviews with the English teacher to identify instructional problems and confirm the contextual needs of the learners. Questionnaires were administered to teachers, students, and expert validators during various phases of development. The instruments for data collection were constructed based on

established criteria for assessing learning needs, media quality, content accuracy, design suitability, and usability. Observations were carried out during classroom implementation to record student engagement and the practicality of the media in real instructional settings. Documentation including photographs, screenshots of media development stages, and instructional materials was used to strengthen the qualitative data obtained during implementation. Learning outcomes were measured using a multiple-choice reading comprehension test consisting of items aligned with the objectives of the procedure text unit. The test underwent expert validation, try-out testing, and psychometric analysis to ensure its reliability, validity, item difficulty, discrimination power, and functioning distractors prior to its use in data collection.

Data analysis consisted of multiple components corresponding to the objectives of the study. The feasibility of the media was analyzed through expert judgment scores, which were converted into categorical criteria to determine the appropriateness of the developed product. Practicality was assessed through teacher and student responses gathered during try-out stages, where mean scores were interpreted against predetermined criteria. To evaluate effectiveness, the study employed pretest and posttest comparisons between the experimental and control groups. The data were examined using normality and homogeneity tests as preliminary requirements.

Because the data did not meet the assumptions of normal distribution, the Mann–Whitney U test was used to determine differences in learning gains between groups. Additionally, normalized gain (N-Gain) analysis was applied to measure the extent of improvement in students' reading comprehension after using the interactive media. All analyses followed recognized statistical procedures to ensure accuracy and validity in interpreting the impact of the developed media on student learning outcomes

Results

The development and evaluation of the Interactive Contextual Learning Media (ICLM) were conducted through several stages following the ADDIE model: analysis, design, development, implementation, and evaluation. The results of each stage are presented in the following subsections.

Analysis Results

Needs analysis was conducted through teacher and student questionnaires administered to four English teachers and 39 Grade VIII students at SMP IT Daarul Istiqlal. The analysis revealed that both groups expressed a strong need for contextual and interactive learning media for English instruction, particularly to support reading comprehension.

Table 1. Teacher Needs Analysis Results

Aspect	Mean	Percentage	Category
Needs & Interest	4.88	98%	Highly needed
Benefits	4.42	88%	Highly needed
Effectiveness & Practicality	4.63	93%	Highly needed
Learner Autonomy	4.38	88%	Highly needed
Overall	4.57	91%	Highly needed

Table 2. Student Needs Analysis Results

Aspect	Mean	Percentage	Category
Needs & Interest	4.53	91%	Highly needed
Benefits	4.67	93%	Highly needed
Effectiveness & Practicality	4.51	90%	Highly needed
Learner Autonomy	4.64	93%	Highly needed
Overall	4.59	92%	Highly needed

These results confirm the premise outlined in the introduction that both teachers and students require engaging, contextual, and interactive English learning media to address the limitations of conventional instruction

Design and Development Results

Based on the needs and curriculum analysis, the media was designed using Canva and supported by auxiliary platforms such as YouTube, Wordwall, Quizizz, Google Forms, CapCut, FlipHTML5, and Mentimeter. The final prototype consisted of:
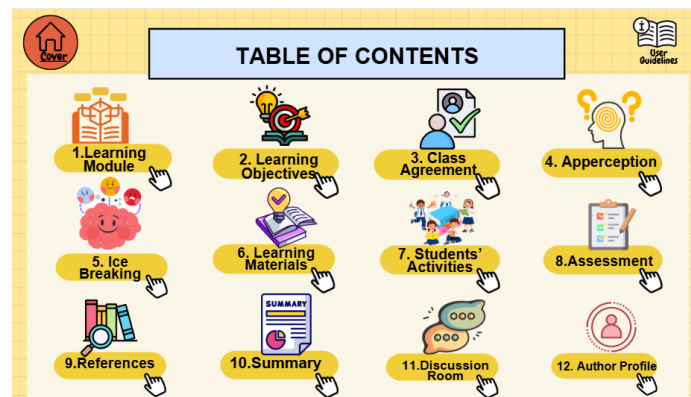

Figure 1. Homepage

Figure 2. Menu

- learning modules
- video-based and text-based materials
- interactive quizzes
- contextual activities
- ice breaking features
- assessment tools (pretest–posttest)
- discussion room
- summary page
- teacher guidelines

The media incorporated multimodal elements (text, audio, visuals, animation) and context-rich tasks aligned with the curriculum requirements for reading comprehension of procedure texts.

Expert Validation (Feasibility Testing)

Three groups of experts (material, media, and instructional design specialists) evaluated the feasibility of the developed media.

Table 3. Material Expert Validation

Aspect	Mean	Percentage	Category
Instructional Clarity	4.38	88%	Very feasible
Content Quality	4.29	86%	Very feasible
Evaluation Quality	4.31	86%	Very feasible
Overall	**4.33**	**87%**	**Very feasible**

Table 4. Media Expert Validation

Aspect	Mean	Percentage	Category
Systematics	4.67	93%	Very feasible
Aesthetics	4.00	80%	Very feasible
Media Quality	4.29	86%	Very feasible
Overall	**4.32**	**86%**	**Very feasible**

Table 5. Instructional Design Expert Validation

Aspect	Mean	Percentage	Category
Objectives	5.00	100%	Very feasible
Materials	5.00	100%	Very feasible
Methods	4.50	90%	Very feasible
Media	4.75	95%	Very feasible
Time	4.50	90%	Very feasible
Assessment	5.00	100%	Very feasible
Overall	**4.79**	**96%**	**Very feasible**

Together, these results indicate that the media met expert standards and was suitable for classroom implementation.

Implementation Results

Small group test

Ten students participated in the small group. Results show high feasibility across six assessment aspects.

Table 6. Small Group Test Results

Aspect	Mean	Percentage	Category
Learning Information	5.00	100%	Very feasible
Material Quality	4.33	87%	Very feasible
Design & Media Quality	4.75	95%	Very feasible
Language & Typography	4.33	87%	Very feasible
Pedagogical Effect	4.33	87%	Very feasible
Evaluation	4.33	87%	Very feasible
Overall	**4.51**	**90%**	**Very feasible**

Field Group Try-out

Thirty students participated at this stage.

Table 7. Field-Group Try-out Results

Aspect	Mean	Percentage	Category
Learning Information	4.89	98%	Very feasible
Material Quality	4.67	93%	Very feasible
Design & Media Quality	4.72	94%	Very feasible
Language & Typography	4.89	98%	Very feasible
Pedagogical Effect	4.89	98%	Very feasible
Evaluation	4.56	91%	Very feasible
Overall	**4.77**	**95%**	**Very feasible**

These results indicate consistent improvement from the small group test stage.

Practicality Testing

Practicality was evaluated by four English teachers and 30 students in the experimental class.

Table 8. Practicality Test Results

Respondent	Score (%)	Category
Teachers	95%	Very practical
Students	96%	Very practical

The findings show that the media is easy to use, attractive, and supportive of the learning process.

Effectiveness Testing

Pretest and posttest were administered to 30 students in the experimental class.

Table 9. Pretest–Posttest Scores (Experimental Class)

Test	N	Min	Max	Mean	SD
Pretest	30	22	97	62.30	22.94
Posttest	30	47	100	85.93	12.30

The average score increased by 23.63 points, accompanied by reduced score variability, indicating a more consistent understanding after using the media.

Table 10. Pretest–Posttest Scores (Control Class)

Test	N	Min	Max	Mean	SD
Pretest	30	17	100	58.17	27.94
Posttest	30	19	100	53.07	25.82

The control class showed a slight decline in average performance, indicating that conventional instructional methods did not support improved learning.

Statistical Hypothesis Testing

An independent-sample t-test was conducted.

Table 11. Independent Sample t-test Results

Group	Mean	Sig. (2-tailed)	t-value	t-table
Experimental	85.93	0.000	6.78	1.677
Control	53.07			

With sig < 0.05 and t-value > t-table, the results confirm a significant difference in learning outcomes, indicating that ICLM is effective in improving students' reading comprehension.

Discussion

The findings of this study demonstrate that the Interactive Contextual Learning Media (ICLM) developed through the ADDIE model is not only feasible and practical but also significantly effective in improving students' English reading comprehension, particularly in understanding procedure texts. Each stage of validation and classroom testing supports the argument that contextual and interactive digital media can address the persistent challenges identified in the introductory section, namely low motivation, limited engagement, and the abstract nature of conventional English instruction at the junior secondary level.

The results of the needs analysis confirm that both teachers and students perceive a strong need for learning media that offers contextualized material, interactive features, and multimodal resources. This aligns with earlier studies that argue for the importance of user-need alignment in educational media development to ensure relevance and pedagogical impact (Clark & Mayer, 2016). The high percentage of need—91% for teachers and 92% for students—indicates that the existing classroom conditions indeed suffer from instructional gaps that can be mediated through digital learning tools. These findings reinforce the empirical problem described in the introduction, that conventional teacher-centered instruction does not sufficiently engage learners or support deep comprehension.

The validation by material, media, and instructional design experts further confirms the feasibility of the developed media. The very high mean scores across expert evaluations (87% for material, 86% for media, and 96% for instructional design) indicate that the media aligns well with curriculum expectations and instructional design principles. This is consistent with Mayer's Multimedia Learning Theory, which posits that students learn more effectively when information is presented in dual modalities and structured according to cognitive processing principles. The integration of video, audio, quizzes, contextual tasks, and interactive navigation demonstrates compliance with these theoretical demands. Moreover, the inclusion of contextual elements—such as real-life examples, relevant situations, and problem-based tasks—reflects the core principles of Contextual Teaching and Learning (CTL), which emphasize meaningful connections between instructional content and students lived experiences.

The effectiveness findings provide compelling evidence for the instructional value of ICLM. Students who were taught using the media experienced a substantial improvement in their learning outcomes, with the mean score increasing from 62.30 in the pretest to 85.93 in the posttest. In contrast, the control group which learned through conventional slideshow-based instruction experienced a slight decline in mean score. The statistically significant difference between the two groups ($t = 6.78$; $p < 0.001$) confirms the key proposition that interactive contextual media can facilitate comprehension more effectively than traditional methods. This supports the findings of Rahmawati et al. (2021), who reported that contextual

learning improves students' comprehension by enabling them to connect linguistic forms with situational meaning, and Putra & Dewi (2022), who found that interactive digital environments foster deeper engagement and increase retention in ELT settings.

The significant reduction in score variability in the experimental class from SD = 22.94 in the pretest to 12.30 in the posttest also indicates that the media contributed to more equitable learning outcomes. This suggests that ICLM supports diverse learners, including those with lower initial proficiency, by providing multimodal scaffolding and autonomous learning pathways. This finding aligns with recent research suggesting that digital multimodal environments help lower-performing students close achievement gaps by offering additional entry points to comprehension (Kim, 2023).

The practicality results 95% from teachers and 96% from students highlight that the media is not only pedagogically effective but also practically usable in the classroom. Teachers reported that the media reduces instructional workload, facilitates structured delivery, and enhances classroom interaction, while students expressed that the media was easy to navigate, engaging, and motivating. These results resonate with Suryani and Hidayat (2020), who emphasized that interactive contextual media increases students' operational engagement, making learning both enjoyable and meaningful.

Taken together, the findings demonstrate that ICLM effectively addresses the gap between theoretical ideals (multimedia learning, contextual pedagogy) and classroom realities (limited media use, low motivation, fragmented comprehension). The developed media integrates theoretically grounded instructional principles with practical classroom needs, bridging the gap identified in the introduction between recommended pedagogical approaches and real instructional practices. Furthermore, the successful use of Canva and supporting platforms illustrates that effective digital learning tools can be developed using accessible technologies, offering a scalable solution for schools with limited resources.

Overall, this study contributes to the growing body of literature on digital contextual learning by providing empirical evidence that a unified instructional media combining interactivity, contextualization, and multimodality can significantly improve students' reading comprehension outcomes. The results affirm that such media can serve as a viable innovation to support English language learning in junior secondary schools, particularly within contexts where traditional methods remain predominant and technology integration is limited.

Conclusion

The present study aimed to develop and evaluate an Interactive Contextual Learning Media (ICLM) for English language learning among junior secondary school students, with a focus on improving reading comprehension of procedure texts. The findings demonstrate that the developed media is feasible, practical, and effective. Expert evaluations indicate that the media meets high standards in terms of content accuracy, design quality, and instructional alignment. Classroom implementation further shows positive learner engagement and strong teacher acceptance, with both groups rating the media as very practical. Most notably, the experimental group achieved a significant improvement in learning outcomes compared with the control group, confirming that the integration of contextual elements and interactive multimedia can enhance students' comprehension in meaningful ways.

These results highlight the potential of contextual and interactive digital media to address persistent learning challenges found in junior secondary English classrooms, such as low motivation, limited engagement, and difficulty comprehending text-based materials. However, conclusions must be drawn cautiously. While the media proved effective within the context of this study, the results cannot be generalized beyond the specific school, grade level, and learning topic involved. Furthermore, the implementation period was limited, preventing the study from examining long-term impacts on language development or effects on other language skills beyond reading comprehension. Additionally, external factors such as student motivation, home learning environment, and teacher technological expertise were not controlled, which may have influenced learners' performance.

Based on the findings and limitations of this study, several recommendations can be proposed for future research and practice. First, subsequent studies may expand the implementation to different schools, grade levels, and English learning topics to examine the external validity of the media and determine whether similar outcomes can be achieved in diverse educational settings. Second, longitudinal studies are recommended to investigate the long-term effects of interactive contextual media on students' overall language proficiency, including productive skills such as speaking and writing.

It is also recommended that future research examine how teacher readiness, digital competence, and classroom environment moderate the effectiveness of such media, as these factors remain underexplored yet critical for successful implementation. Furthermore, the media can be further developed to integrate adaptive features that respond to individual learner needs, allowing students with different ability levels to receive personalized support. Finally, researchers and practitioners are encouraged to explore the integration of emerging technologies such as augmented reality, gamification frameworks, and AI-driven feedback to enrich the contextual learning experience and enhance student engagement in English language learning.

Acknowledgement

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