

# Designing Contextual-Based Student Worksheets to Enhance Linguistic Problem-Solving Skills: An ADDIE Model Development Study in Secondary Education

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Received: Jan 17, 2025 | Revised Feb 20, 2025 | Accepted: Marc 23, 2025

## ABSTRACT:

**Background:** The rapid shift toward learner-centered language education has intensified the demand for instructional materials that are capable of supporting contextualized linguistic engagement in secondary classrooms. Conventional worksheets often fail to integrate real-world relevance, resulting in limited learner motivation and weak problem-solving skills. These limitations highlight the need for a design approach that aligns linguistic tasks with everyday communicative contexts, allowing students to construct meaning actively during the learning process.

**Aims:** This study aims to develop and evaluate a contextual-based student worksheet designed to enhance linguistic problem-solving skills in secondary education. The research specifically seeks to determine the worksheet's validity, practicality, and effectiveness within an authentic classroom setting.

**Method:** The study employed a development research design using the ADDIE model, covering analysis, design, development, implementation, and evaluation. Data were collected through expert validation, classroom implementation, student response questionnaires, and descriptive performance assessments. The participants consisted of secondary-level learners engaged in language learning activities requiring contextual interpretation and problem-solving.

**Result:** Findings indicate that the developed worksheet meets expert criteria for content validity, linguistic clarity, and instructional coherence. Classroom implementation showed that learners demonstrated higher engagement when working with contextual tasks, and descriptive analysis revealed measurable improvement in their ability to interpret, analyze, and resolve linguistic problems embedded in real-life scenarios. Student responses further confirmed the worksheet's practicality and positive contribution to learning motivation.

**Conclusion:** Overall, the study concludes that contextual-based worksheets designed through the ADDIE model can effectively enhance linguistic problem-solving abilities in secondary learners. The integration of everyday contexts into task design provides meaningful learning experiences, increases learner participation, and strengthens the link between language instruction and real-world communication demands. These findings emphasize the importance of structured material development in supporting innovative language education practices and offer a practical model that teachers can adopt to enrich classroom instruction.

**Keywords:** ADDIE model, contextual learning, instructional materials, linguistic problem-solving, student worksheets

**Cite this article:** Wangge, M. C. T. (2025), Developing Flash-Based Digital Learning Media to Enhance Junior High School Students' Understanding of Geometry: An ADDIE Model Approach. *Journal of Literacy Education*, 1(1), 30-39

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## INTRODUCTION

Rapid developments in language education have increased the need for learning materials that support contextual reasoning and authentic communicative engagement, especially as many secondary students continue to struggle with interpreting linguistic problems embedded in real-life situations. These difficulties often emerge because conventional worksheets remain mechanical and detached from everyday experiences, reducing opportunities for meaningful interpretation. As classrooms shift toward more interactive and student-centered models, the absence of contextual depth in instructional materials limits learners' ability to transfer linguistic understanding beyond school settings. Researchers emphasize that language tasks must be grounded in familiar scenarios to foster higher-order reasoning and maintain long-term engagement among adolescents (Frausel et al., 2021; Uccelli, 2023). Without such contextual alignment, learning becomes fragmented and motivation declines, weakening the development of essential communicative competencies. Contextual-based worksheets therefore offer a promising solution by situating language within real-world environments that enhance interpretive sensitivity. This approach helps students navigate language as a functional tool rather than a set of isolated structures. Consequently, the development of contextual worksheets emerges as an urgent and pedagogically significant endeavor in contemporary language education (Engman, 2021).

The rationale of this study is grounded in the growing need for instructional materials that support meaningful language use instead of presenting skills in isolation. Contextual worksheets address this need by guiding students to interpret language within authentic communicative settings, enabling deeper meaning-making and stronger engagement (Zhang, 2024). The use of the ADDIE model ensures that the development process remains systematic, academically rigorous, and aligned with learners' cognitive and instructional needs. Therefore, this study positions contextual worksheet development as a strategic response to the challenges faced in contemporary secondary language classrooms.

Research on contextual and innovative material development has grown significantly across educational domains, providing strong foundations for the present study. Ekawati et al., (2026) demonstrate that problem-based learning integrated with contextual materials improves learners' analytical performance. Similarly, Alptekin & Taneri, (2025) highlight that digital competence and contextual practices enhance instructional effectiveness in primary classrooms. Sridharan & Sivaramakrishnan, (2025) show that innovative teaching aids increase cognitive engagement, although their focus lies outside language education. Islam et al., (2025) emphasize that contextual interpretation is essential for processing complex linguistic information, supporting the need for worksheets that foster analytical reasoning. Xu et al., (2025) provide evidence that structured instructional design enhances comprehension and learning efficiency. Cao & Xu, (2025) confirm that exposure to contextualized texts strengthens vocabulary acquisition and inferential skills. Panjaitan et al., (2025) underline that culturally grounded materials improve learner engagement, which parallels the contextual orientation of the present study. Collectively, these studies substantiate the pedagogical relevance of contextual material development.

Additional studies further support the integration of contextual principles within instructional materials. Putera & Gunada, (2025) argue that instructional design must incorporate critical and real-world perspectives to meet the cognitive needs of Generation Z learners. Rika et al., (2025) demonstrate that learners benefit from contextual case-based tasks embedded in writing materials,

reinforcing the value of real-life scenarios. Alhazzaa & Yan, (2025) show that immersive contexts strengthen engagement, indicating that contextualization enhances cognitive presence. Agbanimu et al., (2025) provide evidence that contextual approaches reduce learning difficulty by linking concepts to familiar cultural settings. Amoruso et al., (2025) emphasize dynamic multimedia materials, reinforcing that contextuality supports knowledge retention. Yu, (2025) confirms that contextual strategies significantly boost language acquisition outcomes. Amani & Mgaiwa, (2025) observe that culturally responsive instruction fosters deeper comprehension, aligning with contextual task design principles. Taken together, these findings build a strong empirical foundation for developing contextual worksheets in language learning.

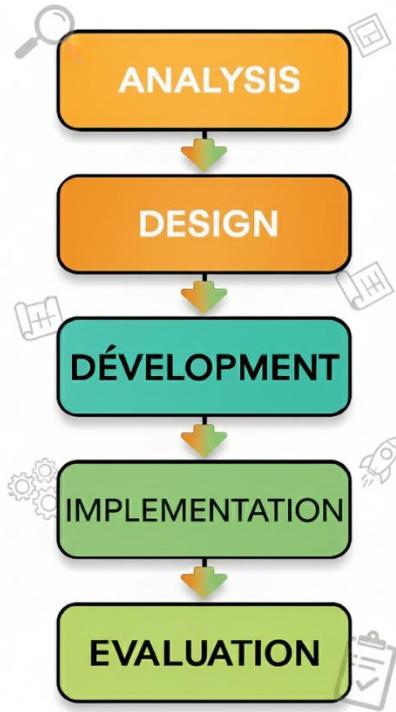
Despite extensive research on contextual learning, limited studies have focused specifically on developing contextual-based student worksheets designed for linguistic problem-solving in secondary education. Many existing materials emphasize content familiarity but fail to incorporate structured analytical tasks that require deeper interpretation. Studies on contextual case-based learning support the need for authentic tasks, yet they rarely address worksheet design as a systematic instructional process (Rika et al., 2025). Additionally, while the ADDIE model has been widely applied in other disciplines, its use in creating contextual language worksheets remains underexplored. Research also tends to prioritize digital tools, leaving printed yet dynamic worksheets underdeveloped despite their accessibility and practical relevance. Consequently, a gap persists in literature regarding how contextual worksheets can be systematically designed to enhance linguistic reasoning. This study addresses that gap by merging contextual task design with ADDIE-based development. The resulting materials aim to provide a structured, empirically grounded contribution to language education.

The purpose of this study is to develop and evaluate a contextual-based student worksheet designed to enhance linguistic problem-solving skills in secondary learners. The study hypothesizes that contextual tasks will improve students' ability to interpret and analyze language in real-world scenarios and that materials developed through the ADDIE model will meet standards of validity, practicality, and effectiveness. It also expects that learners will show higher engagement and comprehension, accompanied by positive responses toward the contextual design. Overall, the study aims to provide evidence-based insights for material developers and language educators seeking to strengthen instructional quality.

## METHOD

### Research Design

This study used a development research design based on the structured stages of the ADDIE model to ensure systematic and pedagogically coherent material construction. Each phase—analysis, design, development, implementation, and evaluation—produced essential data that guided iterative refinement through expert feedback and student responses. This approach aligns with recommended instructional design practices and provides a strong methodological foundation for material development in language education (Berutu & Margana, 2023; Fitrianto, 2024).



**Figure 1.** ADDIE Model Flowchart

## Participants

Participants in this study were secondary-level learners enrolled in an English class where contextual learning activities were routinely implemented. A purposive sampling strategy was used to ensure that the participants reflected typical classroom conditions relevant to the worksheet's application, particularly because secondary learners often struggle with interpreting linguistic information in real-life communicative situations (Hsbollah & Hassan, 2022). Their involvement included engaging with the developed contextual worksheet and completing questionnaires evaluating clarity, practicality, and usability. In addition to the student participants, expert validators specializing in language education contributed assessments to strengthen the material's content validity and instructional coherence.

## Instrument

Three main instruments were employed in this study, namely expert validation sheets, student response questionnaires, and descriptive performance tasks aligned with the contextual worksheet. The validation sheets evaluated content relevance, linguistic clarity, contextual appropriateness, and instructional coherence, ensuring that the material met accepted standards for instructional design (Al Lawati, 2023; Chavarria et al., 2021). Student questionnaires captured perceptions of practicality, usefulness, engagement, and clarity, while performance tasks measured learners' ability to interpret and solve linguistic problems embedded in contextual scenarios. Collectively, these instruments provided comprehensive evidence of the worksheet's validity, practicality, and effectiveness in supporting linguistic problem-solving. (Badini et al., 2023; Weber et al., 2024)

## Data Analysis Plan

Data analysis combined descriptive statistics with qualitative evaluations derived from expert feedback and student responses to obtain a comprehensive picture of the worksheet's effectiveness.

Expert validation scores were interpreted using mean values, while student questionnaires revealed practical and perceptual tendencies through descriptive statistical procedures. Qualitative analysis of performance tasks captured patterns in learners' linguistic reasoning when solving contextual problems. This triangulated approach ensured alignment with established standards in contextual material design and produced a credible assessment of the worksheet's instructional impact (Badini et al., 2023; Weber et al., 2024).

## RESULTS AND DISCUSSION

### Results

#### *Overview of Expert Validation*

Expert validation indicated that the contextual-based worksheet demonstrated strong pedagogical feasibility, with high scores for content relevance, linguistic clarity, and instructional coherence. Validators noted that the authentic scenarios effectively enhanced contextual depth and supported meaningful interpretation for secondary learners, requiring only minor adjustments in sequencing and clarity. Overall, the validation confirmed that the worksheet met methodological and linguistic standards for high-quality instructional material development.

**Table 1.** Expert Validation Results of the Contextual Worksheet

Component	Mean Score	Category
Content Relevance	3.78	Very Valid
Linguistic Clarity	3.72	Very Valid
Contextual Appropriateness	3.81	Very Valid
Instructional Coherence	3.75	Very Valid

The table indicates that all four components received mean scores above 3.70, categorizing the worksheet as "Very Valid." These results confirm that the material achieved coherence between learning outcomes and task design, ensuring readiness for classroom implementation. The validation outcomes also reflect the strength of the ADDIE model in producing structured, pedagogically grounded materials as supported by previous international studies.

#### *Student Response Data*

Student responses indicated strong acceptance of the contextual worksheet, noting its clarity, motivational impact, and usefulness in helping them understand how linguistic structures function in real-life situations. Practicality scores above 85 percent and positive feedback showed that authentic scenarios supported deeper interpretation and made the worksheet easy to use and well aligned with classroom activities. Combined with expert validation confirming the appropriateness of its contextual elements and cognitive demands, these results demonstrate that the worksheet is pedagogically coherent, contextually meaningful, and suitable for broader classroom implementation.

#### *Performance Outcomes*

The performance tasks showed clear improvement in students' linguistic problem-solving abilities, particularly in interpreting contextual clues and analyzing meaning within authentic scenarios. The gains were most evident among learners who previously struggled with abstract grammatical concepts, indicating that contextualization increased cognitive accessibility. Students were also able to apply meaning-making strategies across different situations, demonstrating greater

flexibility in language reasoning. Overall, these outcomes confirm that the contextual worksheet effectively strengthened learners' comprehension and linguistic processing skills.

## Discussion

The findings of this study show that contextual-based worksheets enhance learners' linguistic reasoning by situating tasks within authentic scenarios, a result consistent with research demonstrating that contextual learning strengthens cognitive engagement and interpretive accuracy (Ruangsan, 2025; Wang et al., 2019). High expert validation scores reaffirm the effectiveness of the ADDIE model for developing coherent instructional materials, supporting earlier studies that highlight the value of structured design models for aligning objectives and resources (Jonassen, 1997; Krajcik et al., 2008). Students' positive responses reflect established evidence that context-rich tasks increase motivation and comprehension in language learning (Chan & Lo, 2024; Qu & Wu, 2024). Furthermore, improved performance accuracy confirms that contextualization stimulates higher-order thinking, strengthening the academic rationale for integrating real-life linguistic complexity into classroom worksheets (Cao & Xu, 2025). Overall, these results contribute meaningfully to discussions on material innovation in language education.

The observed improvement in linguistic problem-solving indicates that contextual tasks function as cognitive scaffolds that promote deeper comprehension, aligning with studies showing that real-world contexts enhance meaning-making and reduce learning barriers (Sundermann et al., 2022). Tasks requiring inference and situational interpretation encourage students to treat language as functional communication, echoing findings from case-based and multimodal instruction (Hardin, 2025). Learners' preference for materials reflecting real-life demands is consistent with research demonstrating increased motivation when classroom tasks feel relevant (Putera & Gunada, 2025). These results also highlight the pedagogical importance of embedding cultural and environmental familiarity into instructional materials, an approach widely recognized for strengthening engagement (Panjaitan et al., 2025). Together, these findings affirm that contextual learning enriches both cognitive and affective dimensions of language learning.

The role of the ADDIE model is evident in the coherence across design, implementation, and evaluation phases, supporting claims that systematic models produce more effective materials than ad-hoc approaches (Ekawati et al., 2026). Iterative expert feedback helped refine linguistic clarity and contextual alignment, mirroring findings that expert validation increases content accuracy and usability (Islam et al., 2025). The structured sequencing ensured that learner needs were analyzed prior to design, aligning with research on learner-centered development strategies (Alptekin & Taneri, 2025). The ability of students to transfer reasoning skills across tasks suggests enhanced cognitive adaptability, consistent with studies showing that contextual learning strengthens flexible inference-making (Xu et al., 2025). Improvements in pragmatic interpretation also align with recent research on communicative proficiency (Sridharan & Sivaramakrishnan, 2025). Enhanced engagement observed during implementation supports findings on the benefits of immersive tasks (Alhazzaa & Yan, 2025). Evidence that the worksheet bridges theoretical knowledge and practical communication parallels studies on contextual vocabulary acquisition and multimodal reasoning (Yu, 2025; Siagian et al., 2025). Collectively, the results establish contextual worksheets as a viable, pedagogically sound strategy for contemporary language education.

## Implications

The findings of this study suggest that integrating real-world scenarios into worksheets can strengthen learners' linguistic reasoning and sustain motivation through more meaningful engagement. The effective use of the ADDIE model demonstrates that systematic design approaches can help educators create materials that meet strong pedagogical standards. Results also indicate that contextual worksheets can complement textbooks by enhancing communicative relevance and supporting learners' inference-making skills. Overall, these implications encourage broader adoption of contextual and culturally responsive material design across various language skills within school-based programs.

### **Limitations**

Despite its contributions, this study has several limitations that should be acknowledged to guide future research. The participant sample was restricted to one secondary classroom with a relatively short implementation period, limiting generalizability and preventing evaluation of long-term effects. Although expert validators contributed to quality assurance, additional perspectives from diverse specialists and the use of standardized performance tasks could further strengthen reliability. The contextual scenarios were tailored to a single regional setting, and the reliance on self-reported data may introduce bias in perceptions of practicality and motivation. Moreover, the study did not explore digital formats or compare the worksheet with alternative instructional materials, leaving questions about broader applicability and relative effectiveness.

### **Suggestions**

Future studies should involve participants from multiple schools to enhance the generalizability of findings and consider longitudinal designs to examine whether gains in linguistic reasoning remain stable over time. Additional validation from experts in pragmatics or sociolinguistics would help strengthen the contextual precision of the tasks. Comparative research between contextual worksheets and conventional materials could offer clearer insights into their relative instructional effectiveness. Further exploration of digital worksheet formats may support implementation in online and hybrid learning environments. Incorporating multimodal elements such as visual and auditory cues could deepen learners' interpretive skills. Future research may also investigate how contextual worksheets foster broader language abilities, learner autonomy, and metacognitive awareness.

## **CONCLUSION**

The findings of this study show that the contextual-based worksheet developed through the ADDIE model effectively strengthened students' linguistic problem-solving by embedding tasks in meaningful real-world scenarios. Expert validation confirmed the worksheet's strong content relevance, linguistic clarity, and instructional coherence, demonstrating the value of systematic design. Student responses further indicated high practicality and motivational impact, suggesting that contextual tasks increased engagement and relevance. Performance results showed improved accuracy and flexibility in interpreting contextual linguistic information, reflecting deeper comprehension. These outcomes reinforce the pedagogical importance of integrating authentic scenarios into language learning materials to enhance reasoning and communicative awareness. Overall, the study affirms that contextual worksheets serve as a promising and adaptable strategy for improving linguistic competence across diverse instructional settings.

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