

Development of Game-Based Instructional Materials for Grade 7 English

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ABSTRACT

This developmental research focused on the design, development, and validation of game-based instructional materials for Grade 7 English to address critical learning gaps in vocabulary development, reading comprehension, and grammar. Guided by the **ADDIE Model** (Analysis, Design, Development, Implementation, and Evaluation), the study involved 120 Grade 7 students, 10 English teachers, and 5 curriculum specialists from Bonbon National High School in Libon, Albay.

The baseline needs analysis indicated that vocabulary development (84%), reading comprehension (78%), and grammar skills (74%) were the most urgent instructional priorities. To address these needs, a seven-module instructional package was developed, integrating core gamification elements including immediate feedback mechanisms, point systems, badges, and progressive challenges.

Expert validation and pilot testing yielded exceptionally high marks for user engagement, with **immediate feedback** (4.8/5.0), **visual appeal** (4.7/5.0), and **interactivity** (4.6/5.0) receiving the highest ratings. The findings confirm that the developed materials are pedagogically grounded, curriculum-aligned, and effective in promoting active participation while mitigating language learning anxiety. Integrating structured, gamified resources is recommended to supplement conventional junior high school language programs.

Keywords: game-based learning, instructional materials development, ADDIE Model, Grade 7 English, vocabulary development, reading comprehension, gamification.

INTRODUCTION

Problem Statement and Context

In contemporary secondary education, traditional lecture-heavy paradigms often struggle to sustain the focus of adolescent digital natives. Within the Philippine K to 12 Basic Education Curriculum, Grade 7 English serves as a foundational milestone for building communicative competence. However, diagnostic indicators, performance records, and teacher feedback at Bonbon National High School reveal persistent instructional gaps:

- Declining student motivation during repetitive written drills.
- Pervasive learning anxieties regarding language output.
- Pronounced deficiencies in baseline vocabulary acquisition, grammatical syntax, and literal or inferential reading comprehension.

Conventional print materials offer limited avenues for interactive practice or real-time remediation. This research addresses these structural shortcomings by designing, producing, and validating a localized, game-based supplementary instructional package using the systematic ADDIE framework.

Study Objectives

This investigation sought answers to the following specific research questions:

1. What are the baseline learning needs of Grade 7 English students that can serve as the framework for game-based instructional design?
2. How can the game-based instructional materials be systematically designed and developed across the five phases of the **ADDIE Model**?
3. What are the key features and expert evaluation ratings of the developed game-based materials across learning objectives, content organization, game mechanics, instructional activities, assessment strategies, and learner engagement?

Theoretical and Conceptual Framework

The study is pedagogically anchored upon three overlapping learning frameworks:

- **Constructivism (Piaget & Vygotsky):** Posits that learners actively construct linguistic rules through dynamic environmental interaction rather than passive memorization.
- **Experiential Learning Theory (Kolb):** Emphasizes a continuous cognitive cycle of concrete experience, reflective observation, abstract conceptualization, and active experimentation via targeted gamified gameplay.
- **Gamification and Flow Theories (Kapp; Csikszentmihalyi):** Argues that balancing challenge levels with user skills via intrinsic mechanics (points, badges, leaderboards) drives continuous cognitive engagement and minimizes affective filter anxiety.

[Constructivism] + [Experiential Learning] + [Gamification Theory]



[ADDIE Design Framework]



[Input: Needs & Curriculum] → [Process: ADDIE Matrix] → [Output: Validated Materials]

LITERATURE REVIEW SYNTHESIS

A synthesis of international educational literature highlights that structured game mechanics significantly improve structural vocabulary retention, reading focus, and oral fluency (Gee, 2023; Kim & Lee, 2023; Ahmed & Thompson, 2024). Crucially, multimedia learning principles require balancing visual elements with clear learning parameters to prevent unnecessary mental strain (Mayer, 2023; Brown & Chen, 2022).

Locally, researchers emphasize that game-based learning in Philippine public high schools successfully reduces learning anxiety and boosts engagement (Santos et al., 2023; Navarro & dela Cruz, 2024). However, implementation faces real-world challenges, including limited school technology, varying teacher confidence, and lack of curriculum alignment (Salazar & Fermin, 2023; Quinto & Labajo, 2024). This study fills these localized gaps by engineering an affordable, high-utility, and curriculum-mapped gamified solution tailored specifically for public junior high school settings.

METHODS

Research Design

This study utilized a **developmental research design** mixed with a descriptive, mixed-methods approach. It utilized quantitative survey rubrics alongside qualitative feedback to systematically create, adjust, and evaluate instructional resources.

Participants and Setting

The investigation was conducted during the 2025–2026 academic year at Bonbon National High School in Libon, Albay. The target sample comprised:

- **120 Grade 7 Students** (the primary end-users for needs mapping and pilot runs).
- **10 English Teachers** (for field testing and classroom feedback).
- **5 Curriculum Specialists** (for expert validation).

Procedures and the ADDIE Matrix

The research followed the five phases of the ADDIE framework:

1. **Analysis:** Needs assessment surveys, interviews, and curriculum mapping were completed to isolate severe learning gaps.
2. **Design:** Formulated specific behavioral objectives, scaffolded difficulty tiers, selected corresponding game mechanics, and drafted navigational storyboards.
3. **Development:** Assembled the actual modules, produced localized texts, integrated graphic assets, and built formative checkpoints.
4. **Implementation:** Orchestrated classroom trials with a pilot sample of 30 students, alongside teacher orientations and infrastructure setups.
5. **Evaluation:** Gathered detailed validation reviews from experts and checked user satisfaction scores to implement final revisions.

Data Analysis and Formulas

Quantitative evaluation data were calculated using several primary statistical operations:

- **Percentage Rule:** Used to categorize and rank the baseline survey problems:

Where:

- f = frequency of a specific response
- N = total number of respondents

Weighted Mean (WM): Calculated across a 5-point Likert scale to evaluate structural attributes:

$$\text{Weighted Mean (WM)} = \Sigma(w \times x) / \Sigma w$$

Where:

w = weight or frequency of each rating

x = rating value

$\Sigma(w \times x)$ = sum of products of weights and ratings

Σw = sum of all weights

- **Content Validity Ratio (CVR):** Computed to mathematically measure expert consensus regarding content relevance:

Formula:
$$CVR = \frac{ne - N/2}{(N/2)}$$

Where:

ne = number of experts rating the item as "essential"

N = total number of experts

- **Thematic Analysis:** Applied to qualitative focus group responses to track common operational themes.

RESULTS

Baseline Learning Needs Identification

The initial diagnostic assessment outlined severe instructional vulnerabilities concentrated in early literacy skills, as summarized in Table 1.

Table 1: Learning Needs of Grade 7 Students in English

Learning Need Area	Frequency (f)	Percentage (%)	Rank
Vocabulary Development	42	84%	1
Reading Comprehension	39	78%	2
Grammar Skills	37	74%	3
Writing Skills	33	66%	4
Listening Skills	31	62%	5
Speaking Skills	29	58%	6
Critical Thinking	26	52%	7
Engagement/Motivation	24	48%	8

Final Material Organization and Curricular Mapping

The completed instructional bundle was structured into seven distinct modules mapped to core competencies.

Table 2: Modular Scope and Sequence of the Instructional Package

Module	Core Topic Focus	Game Level Target	Structural Time	Estimated
Module 1	Vocabulary Building (Synonyms/Antonyms)	Levels 1–2	2 Instructional Sessions	
Module 2	Grammar Essentials (Parts of Speech)	Levels 2–3	3 Instructional Sessions	
Module 3	Reading Comprehension (Main Idea/Inference)	Levels 3–4	3 Instructional Sessions	

Module 4	Writing Fundamentals (Paragraph Structure)	Levels 4–5	3 Instructional Sessions
Module 5	Listening and Speaking (Structured Dialogue)	Level 5	2 Instructional Sessions
Module 6	Critical Thinking (Textual Logic Analysis)	Levels 5–6	2 Instructional Sessions
Module 7	Integrated Language Review (Consolidation)	Level 6	2 Instructional Sessions

Evaluation and Usability Ratings

The expert panel and end-users evaluated the package's design and features using a 5-point Likert scale (with 5.0 indicating the highest score).

Table 3: Summary of Learner Engagement and Usability Ratings

Engagement Metric Feature	Weighted Mean Score	Descriptive Interpretation
Immediate Feedback	4.8	Very High / Highly Acceptable
Visual Appeal	4.7	Very High / Highly Acceptable
Interactivity Level	4.6	Very High / Highly Acceptable
Challenge Appropriateness	4.5	Very High / Highly Acceptable
Goal Clarity	4.4	High / Acceptable
Reward System	4.3	High / Acceptable
Personalization	4.2	High / Acceptable
Autonomy/Choice	4.1	High / Acceptable
Social Interaction	4.0	High / Acceptable
Narrative Engagement	3.9	High / Acceptable

DISCUSSION

Interpretation of Findings

The results demonstrate that game-based learning tools effectively address key learning gaps when built using systematic instructional design. The high rating for **immediate feedback (4.8)** matches principles of Cognitive Load Theory. Real-time feedback helps guide correction immediately, preventing errors from turning into persistent language misconceptions.

The low rating for **narrative engagement (3.9)** suggests that while story elements are useful, older junior high school students prioritize clear goals and active gameplay mechanics over complex text-heavy backstories.

Comparison with Prior Research

The positive results from this study align with international findings by Kim and Lee (2023) and Ahmed and Thompson (2024), which show that structured points and puzzle mechanics enhance vocabulary retention and reading endurance.

Locally, the study's high validation scores confirm the findings of Garcia and Mendoza (2022). They showed that the ADDIE model provides an excellent framework for creating materials that fit well within public high schools. This design method successfully balances engaging game elements with the academic requirements of the K-12 curriculum.

Limitations

This research has several scope boundaries:

- The study evaluates initial validation, usability, and immediate user responses during a short pilot test. It does not track long-term academic language growth over several years.
- The project focused on a selected set of Grade 7 competencies rather than the full junior high school English curriculum.
- The materials were designed based on the available resources of a specific public school, which may limit direct application in resource-constrained schools.

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