



Designing Culturally Inclusive Narratives in Digital Games for English Language Teaching in Rural Area Sumbawa

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Abstract. English language teaching (ELT) in rural regions of Indonesia, such as Sumbawa, is frequently hindered by an overreliance on conventional textbooks. These educational resources often introduce new cultural contexts to pupils, resulting in significant learning challenges. This study aimed to investigate the effectiveness and perceptions of a culturally inclusive Digital Game-Based Learning (DGBL) application, 'Lexicon Legends,' in addressing the challenges of English language teaching in rural Indonesian contexts. This application is meticulously crafted to present a culturally inclusive, high-fantasy tale that instructs fundamental English grammar. Employing a qualitative case study methodology, research data were gathered from 12 junior high school kids via individual play sessions, followed by an open-ended questionnaire. Thematic analysis of the participants' written responses produced three principal findings. "Narrative Immersion as a Universal Motivator" illustrates that uncomplicated fantasy narratives can foster student participation irrespective of cultural background. Secondly, "Cultural Inclusivity Mitigates Cognitive Barriers," wherein a neutral learning environment enables students to concentrate more effectively on language tasks without the burden of new cultural circumstances. Third, "Gameplay Turns Grammar into a Tool" emphasizes how game dynamics effectively convert grammar practice into a purposeful, goal-driven endeavor focused on attaining success. This study's results indicate that culturally inclusive DGBL is a promising pedagogical strategy for enhancing student engagement and rendering English learning more accessible and practical for students in varied rural contexts.

Keywords: Cultural Inclusivity, Digital Game-Based Learning, English Language Teaching, Rural Education.

1 Introduction

English Language Teaching (ELT) in non-Western contexts, such as rural areas in Indonesia, relies heavily on standard textbooks that are often culturally disconnected from the realities of students' lives. Content analyses of official language textbooks consistently show a significant imbalance in cultural representation. These textbooks often prioritize narrow, tourism-oriented local perspectives or heavily favor dominant

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E. Kurniawan et al. (eds.), *Proceedings of the 4th International Conference on English Studies in Indonesia (ICONESIA 2025)*, Advances in Social Science, Education and Humanities Research 1021,

https://doi.org/10.2991/978-2-38476-587-4_14

Western cultures [1], [2]. This cultural dissonance theoretically imposes a substantial extrinsic cognitive load on learners [3]. Students are forced to simultaneously interpret a new language and an unfamiliar cultural context, preventing their cognitive capacity from being fully dedicated to language acquisition. This dual burden has the potential to trigger anxiety, which has been shown to strain vital cognitive resources such as working memory and ultimately directly impair students' ability to process and produce complex language [4].

This cultural misalignment is exacerbated by systemic pedagogical challenges unique to rural settings, creating a marked gap compared to urban centers. A diagnostic study in Sumbawa revealed that local learning is often hampered by monotonous teaching methods and the limited availability of interactive teaching aids [5]. In this context, learning remains predominantly passive and teacher-centered, relying heavily on memorizing grammar rules. This dominance of traditional methods fails to effectively engage students, contributing to low motivation and stagnant language proficiency. Consequently, reliance on culturally alien teaching materials coupled with rigid teaching frameworks creates a 'double disadvantage' for rural learners.

To address this double disadvantage and overcome the limitations of conventional textbooks, Digital Game-Based Language Learning (DGBLL) offers an interactive alternative. Well-designed educational games are inherently capable of intrinsically motivating students, thus creating a more engaging learning environment [6]. However, the adoption of DGBLL does not automatically resolve the fundamental issue of cultural relevance. Many existing educational games replicate Western cultural contexts, thus simply transferring the problem from textbooks to the digital medium. Consequently, a deeper adaptation process, such as localization, becomes crucial, where a game is not only translated but also culturally adapted to be relevant to the target market [7]. This approach aligns with design frameworks that combine sociocultural theory with gamification elements, ensuring that the learner's cultural context is a primary consideration in game development [8]. Without this consideration, the potential of DGBLL to enhance learner agency and provide contextualized learning will not be optimally achieved [9].

Departing from this design dilemma, this study proposes a fundamental shift from superficial localization to deep cultural inclusivity. Rather than replacing one dominant culture with another or attempting to replicate a specific local culture precisely, this approach suggests the use of a fantasy narrative framework that is both archetypal and universal. The use of archetypes, such as those described in trickster or hero literature, has been shown to transcend cultural boundaries because they resonate with fundamental psychic structures present in the human collective unconscious [10]. Thus, narratives designed to remove specific cultural markers from the real world intentionally can create an imaginative "third space" that is neutral and equitable [11]. Within this space, students' backgrounds are no longer a barrier, as all learners begin from a point of equal understanding. This Inclusive Design approach enables a narrative transportation process, where students can be fully immersed in the story world without being burdened by processing an unfamiliar cultural context, thereby allowing them to focus their cognitive resources entirely on the language learning content [12], [13].

To investigate the potential of this theoretical approach, the researchers designed and evaluated a prototype DGBLL application called "Lexicon Legends" built on a culturally inclusive fantasy narrative for elementary English grammar learning. This exploratory qualitative case study was guided by the following research question: How do EFL learners in a rural junior high school in Sumbawa experience and perceive a culturally inclusive fantasy-based DGBLL environment for grammar acquisition, especially when compared to their experiences with traditional textbook materials? The following sections detail the methodology used, present and discuss themes emerging from student interactions, and conclude with implications of the findings for the future design of more equitable educational technologies.

2 Method

This study uses an exploratory qualitative case study methodology to gain an in-depth understanding of students' perceptions and experiences of the "Lexicon Legends" prototype in a specific rural context. This approach, which prioritizes contextual insights over statistical generalizations, aligns with recent research in game-based learning that emphasizes the importance of qualitative methods for capturing unique player experiences that are often overlooked by quantitative approaches [14].

This case study recruited 12 students (aged 13–15) from a public junior high school in rural Sumbawa, Indonesia. This demographic selection was deliberate to evaluate the effectiveness of DGBLL in an environment that, according to the literature, faces a digital divide [15] and has a strong local cultural identity. This focus directly targets a crucial audience that is often overlooked in educational technology design.

The data collection process was conducted individually and systematically. After 30 minutes of play, each participant completed an open-ended qualitative questionnaire designed to explore their interpretations and reflections. The choice of this written questionnaire format was based on its goal of standardizing the stimulus and reducing researcher bias, a practice supported by the game-based learning literature for enriching research findings with context [16].

Qualitative data analysis was conducted following Braun and Clarke's six-phase thematic analysis [17], a flexible yet rigorous framework for theme identification [18], [19]. Through a process of coding and theme refinement focused on participants' experiences, three central themes were identified: (1) Narrative Immersion as a Universal Motivator, (2) Cultural Inclusion for Mitigating Cognitive Barriers, and (3) Game Mechanics as an Instrument for Grammar Learning. The research findings will be presented under three key themes.

3 Results

A thematic analysis of the collected qualitative data yielded three main themes that describe students' experiences using the "Lexicon Legends" prototype. Each theme is presented below, integrating findings from the data with relevant theoretical interpretations.

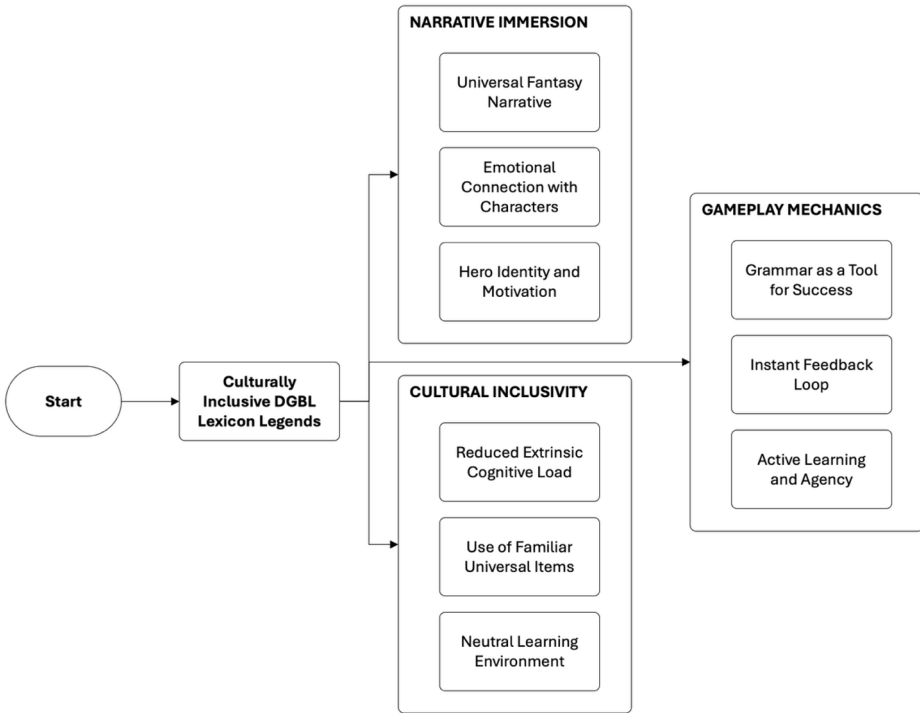


Fig. 1. Thematic map of research findings on "Lexicon Legends".

3.1 Narrative Immersion as a Universal Motivator

Data analysis suggests that the universal and straightforward fantasy narrative in “Lexicon Legends” plays a key role in driving student engagement and motivation. Rather than simply presenting isolated grammar exercises, the story provides a clear purpose and meaningful context to the learning process. Students understand that mastery of linguistic material is not an end in itself, but rather a necessary tool for achieving a mission. This effectively shifts their perception from “doing an assignment” to “going on an adventure.” One student analytically explains the pragmatic function of this narrative:

“It is interesting enough to be a reason why we have to go around and fight monsters. Instead of just being asked to answer questions aimlessly, which would be boring.” — Participant 1

Going deeper than simply providing a purpose, narrative also successfully builds an emotional connection between students and the characters in the game. Many participants in this study, especially female students, expressed genuine sympathy and empathy for the character of "Old Man Fitz." Their motivation was no longer driven solely by the desire to win, but by a genuine desire to help someone in trouble. This connection provides "heart" to the learning process, as beautifully expressed by one female student:

"When there is a story like this, it feels like learning English has a heart. We are not just learning for grades, but for a good purpose, which is to help." — Participant 2

In this study, this phenomenon was clearly manifested when almost all male students explicitly mentioned feeling like a "hero." This heroic identity becomes a robust mental framework, where challenges (such as grammar problems) become obstacles to be overcome and victories (defeating monsters) become affirmations of their heroic role. Thus, the motivation to learn becomes closely tied to the desire to fulfill this role.

"I feel sorry for Old Man Fitz... Of course, I am motivated, because a hero has to help those in need." —Participant 3

3.2 Cultural Inclusion Reduces Cognitive Barriers

The second theme, which is the core of this study's argument, provides strong empirical evidence that a culturally inclusive design approach successfully reduces cognitive load for students. This strategy is achieved through two means: (1) the use of familiar, universal items, and (2) the placement of these items in a neutral fantasy world. This finding is validated by participant statements confirming that the use of universally recognizable objects such as 'book,' 'hat,' and 'apple' significantly facilitates the learning process. They do not need to spend mental resources identifying objects, so they can concentrate directly on applying grammar rules.

"Yes, it is easier. So I do not have to wonder what this picture is anymore." — Participant 4

Furthermore, some students were able to articulate the cognitive mechanisms behind this ease. They recognized that by removing unfamiliar cultural elements, the game freed up "space" in their minds to focus entirely on the learning material.

"Using familiar examples lessens the burden of learning new things. So I can focus 100% on the grammar rules." — Participant 5

The power of this approach was further demonstrated when students were asked to imagine the opposite scenario. They consistently predicted that using items tied to a foreign cultural context (e.g., 'subway') would create significant learning barriers. One

student even pointedly identified this as adding "unnecessary cognitive load," directly validating the theoretical premise of this study from a learner's perspective.

"It is definitely more difficult. That is adding unnecessary cognitive load. Players from areas like mine will struggle. Developers should research their target audience."
— Participant 6

3.3 Gameplay Mechanics: Transform Grammar into a Tool

A crucial discovery is the efficacy of "Lexicon Legends" in addressing grammatical issues within the core gaming experience. In "Lexicon Legends," this notion is actualized by presenting grammar quizzes as "combat" techniques, thereby converting a tedious task into a meaningful endeavor. Students now perceive language not as a passive topic for rote memorization, but as an active talent to be acquired for success. The metaphors employed by students effectively demonstrate this perceptual transformation:

"It feels cool! It is like casting a magic spell to fight a monster. The hero's power here is not swords, but knowledge." — Participant 7

A primary mechanism enhancing the efficacy of this strategy is the availability of prompt and significant feedback and repercussions. In contrast to the classroom, where errors are indicated by a red squiggle, in games, each mistake directly affects the player's essential resources (e.g., "blood" or "life"). This low-stakes, high-consequence setting functions as a covert formative evaluation, wherein pupils' comprehension is evaluated without the pressure of formal assessment. Therefore, pupils are urged to be more diligent and actively assimilate the regulations, as one participant elucidated:

"Yeah, it makes it easier to remember. Because if you make a mistake, you are immediately punished, and your blood pressure is low. So you are forced to memorize the rules." — Participant 8

Consequently, students clearly differentiated this experience from classroom learning, which they regarded as a more passive and less efficacious approach. They recognized the game methodology as "learning by doing," which they deemed significantly more effective for long-term knowledge retention.

"I prefer games, 100 percent. In class, the teacher explains, we listen, and then forget. In games, we try, make mistakes, and try again until we get it right. The knowledge sticks."

4 Discussion

The finding that narrative drives engagement is highly relevant, as previous research consistently demonstrates that strong narratives in educational games can enhance player immersion, which in turn leads to better learning outcomes and engagement [20]. The shift in student perception described in the results aligns with literature describing the facilitation of a state of psychological flow that can enhance perceived learning [21]. Furthermore, the emotional connection observed aligns with research indicating that educational games with strong narratives and role-playing elements are effective in fostering emotional attachments to the game's characters [22]. This affective attachment, referred to in other literature as player-avatar attachment, served as a key motivator for maintaining student engagement in the game [23].

The peak of narrative immersion observed reflects a process known in the game-based learning literature as avatar identification. This process refers to the temporary alteration in a player's self-perception that occurs when a mental association is made with their game character [24]. Strengthening this identification has been shown to increase motivation and engagement [25]. These findings empirically support the principle of “epic meaning” in game-based learning, a concept whose relevance continues to be emphasized in contemporary discourse on Gee’s learning principles [26]. In modern design frameworks such as Octalysis, this principle is known as ‘Epic Meaning & Calling’ and is consistently identified as a core driver of intrinsic motivation [27]. The quest to help the wise man and the role of hero, observed in this study, are concrete examples of narrative archetypes that have been shown to consistently motivate players in game-based interventions in school contexts [28]. These narratives are universal and culturally agnostic. It suggests that for DGBL design in diverse contexts, narrative universality that taps into basic human emotional motivations and identities may be more effective than superficial cultural localization.

This study provides strong evidence for the reduction of cognitive load through inclusive design. This approach directly targets the reduction of extrinsic cognitive load, the mental load caused by instructional design that is irrelevant to the core learning task [29]. The design practice observed, which prioritizes multimodal input and clear context, aligns with research showing that such strategies reduce cognitive load and promote higher-order cognitive skills [30]. Furthermore, focusing on user characteristics is a crucial inclusive design principle for specific audiences like rural learners [31].

Students' ability to articulate the cognitive benefits of removing unfamiliar cultural elements reflects the importance of cognitive load management, a fundamental principle in effective educational game design [32]. Research corroborates that well-designed interventions can significantly reduce students' cognitive load [33]. Thus, students' perceptions provide qualitative evidence supporting the notion that thoughtful instructional design minimizes extrinsic cognitive load, allowing for greater resource allocation to core learning materials.

Conversely, students' prediction that foreign contexts would create barriers aligns with research identifying irrelevant context as a significant hurdle [34]. These findings directly support Cognitive Load Theory, which posits that navigating unfamiliar social

norms causes frustration and emotional strain [35]. This serves as an extrinsic cognitive load that distracts from learning objectives. In contrast, "Lexicon Legends" creates an inclusive form of "virtual immersion" [36], resulting in a "low-load cultural context" that allows cognitive resources to be efficiently allocated to the mental processes ("germane load") that directly contribute to learning and understanding English grammar rules.

Finally, the transformation of grammar into an active gameplay mechanic illustrates the power of gamification. The conversion of traditional exercises into interactive components like quizzes is an established technique utilized to match learning activities with educational objectives [37]. This method has consistently demonstrated a significant improvement in student motivation and learning outcomes. The rapid feedback provided by digital games, as observed in this study, is a significant instructional benefit, allowing pupils to swiftly correct errors and solidify their understanding [38].

Students' preference for this interactive experience aligns with recent studies indicating a greater preference for game-based learning over standard lecture techniques [40], [41]. This viewpoint corroborates research indicating that game-based platforms enhance motivation and augment the overall learning experience [39].

Crucially, the seamless amalgamation of educational responsibilities with play observed in "Lexicon Legends" exhibits the pedagogical notion of "intrinsic integration" [40], [41]. Grammar ceases to be a mere "test" and instead becomes the fundamental mechanism of gameplay. This transformation converts language from an abstract principle into a practical tool for achieving success, cultivating a sense of agency. The literature underscores that this technique effectively reconciles motivation and learning outcomes, as gameplay fosters significant engagement with the learning material [42]. Students perceive the experience not as a "test," but rather as "utilizing a skill" to surmount challenges.

5 Conclusion

This qualitative case study demonstrates that the DGBLL app, designed with a cultural inclusion framework and a universal fantasy narrative, effectively increased engagement and reduced cognitive barriers for EFL learners in a rural Indonesian context. This success is attributed to two key mechanisms: an archetypal narrative that triggers intrinsic motivation through emotional immersion, and culturally neutral elements that minimize extrinsic cognitive load. Furthermore, the integration of grammar into the game mechanics functionally transformed it from a rote exercise into an active tool. Thus, these findings suggest that "cultural inclusion" serves as a superior design framework for producing more effective and equitable educational technology, surpassing superficial localization.

The implications of this research encourage educational technology designers to prioritize universal narratives and educators to harness the power of intrinsic integration in learning. However, the qualitative nature, small sample size ($N = 12$), and short duration of the intervention are key limitations that hinder statistical generalization and

the measurement of long-term retention. Therefore, quantitative research with a control group and longitudinal studies are urgently needed to validate these findings. Ultimately, "Lexicon Legends" serves as a promising proof of concept for shifting from culturally biased teaching materials to more universal and inclusive learning tools.

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