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Mapping Narrative Game-Based Learning for Language Development: A Systematic Literature Review

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Abstract. Narrative Game-Based Learning (NGBL) has emerged as an innovative pedagogical approach that combines storytelling, gameplay, and interactive learning to enhance language development. By embedding language tasks within immersive narratives, NGBL promotes meaningful communication, learner engagement, collaboration, and contextualised learning experiences beyond conventional teaching approaches. This study employed a combined bibliometric and Systematic Literature Review (SLR) approach to examine the development and educational contributions of NGBL in language education. Bibliographic coupling analysis was conducted using 211 articles extracted from the Scopus database and analysed through VOSviewer to identify the intellectual structure of the field. Subsequently, an SLR guided by the PRISMA framework synthesised empirical studies published between 2020 and 2024. The findings identified four major bibliographic clusters and four dominant themes related to language development, motivation, experiential learning, and social interaction. Across the reviewed studies, NGBL was consistently associated with

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improved learner motivation, communication skills, collaboration, confidence, and contextualised language use. The findings further highlight the growing integration of immersive technologies within narrative learning environments, positioning NGBL as a transformative and learner-centred approach aligned with SDG 4: Quality Education.

Keywords: Narrative learning; Game-based learning; Language development; Digital storytelling; Learner engagement

1. Introduction

Language learning is widely recognised as a complex and multidimensional process that extends beyond the memorisation of grammar structures and vocabulary (Macedonia, 2025). Effective language acquisition requires learners to engage in meaningful communication, contextual interaction, cultural understanding, and emotional participation. However, traditional instructional approaches often struggle to sustain learner motivation and active engagement, particularly among second- and foreign-language learners. As a result, educators and researchers have increasingly explored innovative pedagogical strategies that integrate technology, interaction, and learner-centred experiences into language education. One approach that has gained growing scholarly attention is Narrative Game-Based Learning (NGBL), which combines storytelling, gameplay, and educational objectives to create immersive learning environments that support language development, engagement, and communication skills (Chen et al., 2018; Esteban, 2024).

Game-Based Learning (GBL) has long been recognised as an effective pedagogical approach that incorporates game mechanics such as challenges, rewards, competition, and feedback to enhance learner motivation and participation. Previous studies have demonstrated that GBL can improve engagement, knowledge retention, and active learning across various educational contexts (Plass et al., 2020; Nitisakunwut & Hwang, 2023). However, many conventional GBL environments emphasise task completion and achievement systems without providing coherent narrative structures that contextualise learning experiences. Narrative Game-Based Learning (NGBL) extends traditional GBL by integrating storytelling, character development, and narrative progression into gameplay. Unlike conventional game-based learning approaches, NGBL places learners within interactive narrative worlds where progress depends on communication, decision-making, role-playing, and problem-solving.

More recent studies have highlighted that narrative structures enhance emotional immersion, curiosity, and learner persistence, making educational experiences more memorable and authentic (Esteban, 2024; Nitisakunwut & Hwang, 2023). Similarly, Palmieri et al. (2025) emphasised that storytelling structures enhance emotional immersion, curiosity, and learner persistence, making educational experiences more memorable and authentic. Through quests, branching narratives, and character interaction, learners become active participants rather than passive recipients of information. Such experiences are particularly beneficial for language learning because they allow learners to practice language

naturally through socially meaningful interactions rather than isolated drills and repetitive exercises (Xu et al., 2020).

Research has also shown that NGBL supports multiple dimensions of language acquisition, including vocabulary learning, speaking proficiency, communication skills, and creative language production. McCollum (2023), for example, found that tabletop role-playing games encouraged spontaneous communication and improved speaking confidence among learners in online English language courses. Likewise, Zhang et al. (2018) reported that storytelling games promoted creative foreign-language production by situating learners in narrative-rich environments that stimulated collaboration and interaction. Beyond linguistic outcomes, narrative gameplay has also been associated with emotional and socio-emotional benefits. Kuimova and Karpacheva (2016) noted that narrative learning environments can reduce learner anxiety and increase willingness to communicate, while Cheng et al. (2026) observed improvements in learner motivation and engagement within higher education settings.

Technological advancements have further expanded the potential of NGBL in education. Digital platforms, mobile applications, augmented reality (AR), virtual reality (VR), and adaptive learning systems now enable more personalised and immersive narrative experiences. Liu (2025) highlighted that adaptive narrative educational games can tailor learning experiences according to learner needs and progression, while Nitisakunwut and Hwang (2023) emphasised the effectiveness of mobile digital game-based environments in improving learner engagement and language outcomes. Despite increasing interest in NGBL, existing studies remain fragmented across different technologies, pedagogical contexts, and learner outcomes. Although numerous studies have explored game-based learning broadly, fewer reviews have specifically synthesised the role of narrative-driven learning in supporting language development.

Despite increasing scholarly interest in game-based language learning, several gaps remain. Existing reviews have predominantly focused on digital game-based language learning broadly, often treating narrative design as only one component among numerous game elements (Xu et al., 2020; Esteban, 2024). Consequently, limited attention has been given to understanding how narrative structures themselves contribute to language development, communication, and learner engagement. Furthermore, studies remain fragmented across educational disciplines, technologies, and learning contexts, making it difficult to identify consistent pedagogical patterns and learner outcomes. A focused synthesis of Narrative Game-Based Learning is therefore necessary to clarify its educational contributions and future research directions. Therefore, this systematic literature review aims to examine thematic trends, pedagogical approaches, and learner outcomes associated with Narrative Game-Based Learning in language education.

In order to guide the systematic review and thematic synthesis, this study addressed the following research questions:

1. What are the major thematic trends in Narrative Game-Based Learning (NGBL) research for language development?

2. What pedagogical approaches and narrative elements are commonly implemented in NGBL for language learning?
3. What learner outcomes have been reported in studies related to Narrative Game-Based Learning?
4. How do narrative-driven learning environments contribute to learner engagement, communication, and experiential learning?

2. Methodology

This study utilises a combined methodological approach by integrating Bibliographic Coupling Analysis with a Systematic Literature Review (SLR) to examine the development of Narrative Game-Based Learning (NGBL) in language education. The purpose of combining these two approaches is to obtain both a macro-level overview of the research landscape and a deeper qualitative understanding of the pedagogical contributions of NGBL. While bibliographic coupling identifies thematic and intellectual relationships among studies, the SLR provides a structured synthesis of findings on narrative elements, instructional approaches, and learner outcomes. The integration of these methods strengthens the comprehensiveness and analytical depth of the study by combining bibliometric visualisation with systematic evidence synthesis.

2.1 Bibliographic Coupling Analysis

Bibliographic coupling was employed as the first stage of analysis to examine the intellectual relationships among studies related to Narrative Game-Based Learning (NGBL). This bibliometric technique identifies connections between publications based on the references they share, indicating similarities in concepts, theories, or research directions (Kessler, 1963). Compared to traditional citation analysis, bibliographic coupling is better suited to identifying contemporary and emerging research trends because it focuses on current scholarly relationships rather than historical influence. The method is particularly appropriate for NGBL research due to the interdisciplinary nature of the field, which integrates education, language learning, educational technology, psychology, and digital media studies.

In the extension of a study by Yob et al. (2026), the data for the analysis were retrieved from the Scopus database. The Scopus database is chosen for its broad coverage of peer-reviewed academic publications across multidisciplinary areas (Wider et al., 2025). Although this ensured data quality, relevant studies indexed in other databases such as Web of Science, ERIC, or Dimensions may not have been captured. To ensure relevance to the study focus, the search employed the query: TITLE-ABS-KEY ("narrative") AND TITLE-ABS-KEY ("game-based") AND TITLE-ABS-KEY ("educat*"). This search strategy enabled the identification of studies related to narrative-driven game-based educational practices. A total of 211 articles were extracted and subsequently analysed using VOSviewer to identify thematic clusters, conceptual relationships, and intellectual structures within the NGBL literature.

Table 1: Inclusion Criteria for Bibliometric Analysis

Scopus Database	ALL
Time period	2015 to 2024
Search field	TITLE-ABS-KEY
Search keywords	“narrative” AND “game-based” AND “educat*”
Document Types	Article
Language	English

2.2 Systematic Literature Review (SLR)

This study employed a Systematic Literature Review (SLR) approach to comprehensively examine the role of Narrative Game-Based Learning (NGBL) in enhancing learners’ language development within higher education contexts. The review process was conducted systematically to ensure methodological transparency, rigour, and reproducibility. To achieve this, the study adopted the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) framework, which provides a structured process for identifying, screening, evaluating, and selecting relevant studies for review. The PRISMA framework is widely recognised for improving the reliability and transparency of systematic reviews by documenting every stage of the article selection process in a clear and traceable manner (Moher et al., 2009; Page et al., 2021).

Table 2: Inclusion Criteria for Systematic Literature Review

Scopus Database	Inclusion	Exclusion
Time period	2020 to 2024	Not 2020 to 2024
Document Types	Article	Not Research Article
Access	All Open Access	Not Open Access
Others	Higher Education Context	Not Higher Education

The PRISMA framework in this study consisted of four major stages: Identification, Screening, Eligibility, and Inclusion. These stages ensured that only relevant, high-quality, and methodologically appropriate studies were included in the final review. The framework also provided a visual representation of the selection process through a PRISMA flowchart, enabling readers to understand how the final corpus of studies was derived from the initial search results.

A broader search approach was adopted as many narrative game-based studies report communication, literacy, and language-related outcomes without explicitly using language-focused terminology in their titles, abstracts, or keywords. Limiting the search to language-related terms may therefore have excluded relevant studies. To minimise this risk, relevance was determined through title, abstract, and full-text screening, where only studies demonstrating explicit connections to communication, literacy, language use, or language-related educational outcomes were retained.

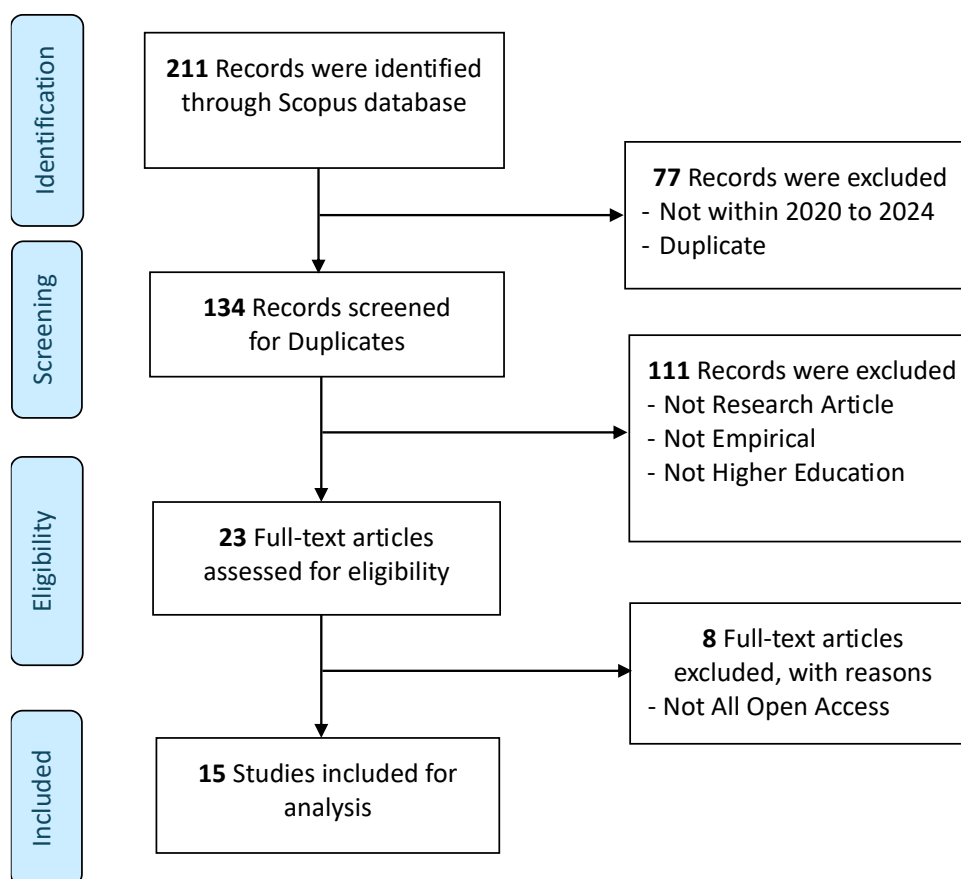


Figure 1: PRISMA Flowchart

2.2.1 Identification

The first stage of the review process involved identifying relevant studies from the Scopus database. Scopus was selected because of its extensive coverage of peer-reviewed scholarly publications across multidisciplinary fields, including education, language learning, and educational technology. The search focused on studies of Narrative Game-Based Learning and language development in educational settings. Several inclusion criteria were applied during this stage to refine the dataset. Only studies published between 2020 and 2024 were included to capture the most recent developments in digital and narrative-driven pedagogical practices. Furthermore, the review focused exclusively on studies conducted within higher education contexts to ensure consistency in learner demographics and educational environments. The initial database search identified 211 records related to the research topic. At this stage, all potentially relevant publications were collected before the filtering, and refinement processes began.

2.2.2 Screening

The second stage involved screening, during which duplicate and irrelevant studies were removed from the dataset. During this stage, studies that did not fall within the selected publication period of 2020-2024 were excluded. Duplicate records identified across the search results were also removed to avoid redundancy in the analysis. As a result, 77 records were excluded during the

preliminary filtering, leaving 134 for further screening. Subsequently, titles and abstracts of the remaining studies were carefully examined to determine their relevance to the research focus. Studies that were not directly related to Narrative Game-Based Learning, language development, or higher education contexts were excluded from the review. This stage ensured that only studies aligned with the objectives of the review progressed to the next phase.

2.2.3 Eligibility

The eligibility stage involved a more detailed assessment of the remaining full-text articles. In this phase, studies were evaluated according to several predefined criteria to ensure methodological quality and relevance. Only research articles were included, while non-research publications such as editorials, reviews, notes, and conceptual papers were excluded. Additionally, the study focused specifically on empirical studies, resulting in the exclusion of theoretical or non-data-driven publications. Studies conducted outside higher education contexts were also removed. Following the eligibility assessment, 111 records were excluded for not meeting the inclusion criteria, particularly in terms of empirical focus, research article classification, and educational context. Consequently, 23 full-text articles remained for detailed evaluation.

2.2.4 Inclusion

The final stage involved including studies for systematic analysis. During this process, the remaining full-text articles were reviewed to ensure accessibility and relevance. Studies that were not categorised as Open Access were excluded to ensure full-text availability and transparency during data extraction and synthesis. As a result, 8 studies were excluded at this stage because they were not openly accessible. After completing all stages of the PRISMA process, a final corpus of 15 studies was included for analysis in the Systematic Literature Review. These selected studies served as the basis for a thematic synthesis and conceptual analysis of Narrative Game-Based Learning and language development in higher education settings.

2.2.5 Data Synthesis and Analysis

The coding process followed an iterative thematic analysis procedure involving repeated comparisons across studies. Emerging categories were refined through multiple rounds of discussion among the researchers until consensus was achieved, resulting in the final thematic structure. The selected articles were examined to identify recurring themes, pedagogical strategies, narrative game elements, technological approaches, and learner outcomes associated with Narrative Game-Based Learning.

Thematic categorisation enabled the studies to be grouped by shared educational focuses, including communication development, learner motivation, immersive storytelling, role-playing, collaboration, and experiential learning. Additionally, the synthesis process allowed the study to identify conceptual similarities, emerging research patterns, and gaps within literature. By combining systematic review procedures with thematic mapping, the analysis provided a comprehensive understanding of how Narrative Game-Based Learning contributes to language development within higher education contexts.

3. Results and Findings

3.1 Bibliographic Coupling by Cluster Analysis

The bibliographic coupling analysis revealed four major thematic clusters within the field of Narrative Game-Based Learning (NGBL). These clusters represent interconnected research directions that share similar conceptual foundations, pedagogical approaches, and technological orientations. The clustering structure generated through VOSviewer demonstrates the multidisciplinary nature of NGBL research, highlighting the integration of storytelling, immersive learning, gamification, problem-solving, and technology-enhanced pedagogy across different educational domains.

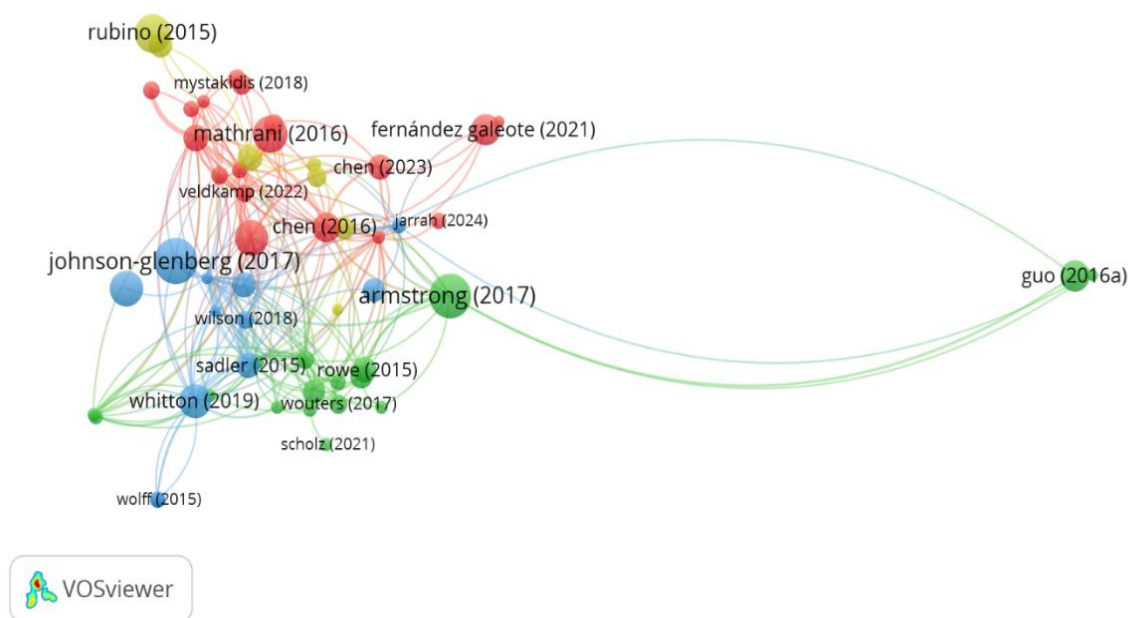


Figure 2: Bibliographic Coupling by Cluster Analysis (VOSviewer visualisation)

3.1.1 Cluster 1 (Red): Immersive and Technology-Enhanced Narrative Learning

Cluster 1, represented in red with 18 articles, focuses on immersive and technology-supported narrative learning environments. The studies within this cluster emphasise the use of augmented reality (AR), mobile learning, digital storytelling, escape rooms, and interactive game-based experiences to enhance learner engagement and educational effectiveness. Representative works include Mathrani et al. (2016), Lee (2022), Chen and Huang (2023), Fotaris and Mastoras (2022), Fernández Galeote and Hamari (2021), and Mystakidis and Berki (2018). A key feature of this cluster is the emphasis on learner immersion through interactive narratives and emerging technologies.

Lee (2022) demonstrated how AR mobile games support interaction and participation in foreign language learning, while Mystakidis and Berki (2018) highlighted the effectiveness of immersive 3D storytelling for literacy motivation and digital storytelling. The cluster also reflects broader educational applications involving STEAM education, sustainability, and challenge-based learning. Overall, the studies within this cluster demonstrate a methodological preference for technology-enhanced interventions and design-based learning environments.

Theoretically, the cluster aligns closely with situated learning perspectives, suggesting that immersive narrative experiences facilitate learning through contextualised participation and interaction.

3.1.2 Cluster 2 (Green): Gamification, Motivation, and Narrative Engagement

Cluster 2, represented in green with 17 articles, focuses on gamification, learner motivation, and affective engagement within narrative-based learning environments. Representative studies include Armstrong and Landers (2017), Rowe and Lester (2015), Huynh et al. (2021), R  th and Kaspar (2021), Guo and Goh (2016), and Espinosa-Curiel et al. (2020). The studies in this cluster emphasise how narrative-driven game mechanics influence learner participation, persistence, and educational performance. A central characteristic of this cluster is the role of storytelling and gamified elements in sustaining learner motivation and engagement. Armstrong and Landers (2017) demonstrated that integrating narratives into gamified training positively improves learner reactions and outcomes.

Rowe and Lester (2015) highlighted how narrative-centred learning environments enhance problem-solving abilities. The cluster also explores emotional and psychological engagement in educational gameplay. Huynh et al. (2021) examined narrative role-playing games for visualisation literacy, whereas Guo and Goh (2016) investigated affective embodied agents in information literacy games. Across this cluster, experimental and quasi-experimental designs dominate the literature, reflecting a strong focus on measuring engagement and motivational outcomes. The findings collectively support self-determination theory by demonstrating that narrative immersion, learner choice, and meaningful challenges contribute to sustained participation and intrinsic motivation.

3.1.3 Cluster 3 (Blue): Narrative-Centred Learning and Language Development

Cluster 3, represented in blue with 12 articles, focuses on narrative-centred learning environments, embodied learning, and language-related educational experiences. Representative studies include Johnson-Glenberg and Megowan-Romanowicz (2017), Tang et al. (2020), Sadler et al. (2015), Govender and Arnedo-Moreno (2021), Whitton (2019), and Chang et al. (2020). The studies within this cluster emphasise the role of storytelling, interaction, and immersive learning in supporting communication and meaningful educational experiences.

A key focus of this cluster is the use of narrative-based learning environments to enhance language development, literacy, and learner engagement. Govender and Arnedo-Moreno (2021) highlighted the effectiveness of digital game-based language learning in improving vocabulary acquisition and learner motivation through narrative game elements. Similarly, Whitton (2019) emphasised the educational value of playful learning and interactive storytelling in higher education contexts.

The cluster also reflects strong attention toward embodied and experiential learning. Johnson-Glenberg and Megowan-Romanowicz (2017) demonstrated that mixed reality environments and physical interaction can strengthen cognitive

engagement and experiential learning. Overall, Cluster 3 demonstrates the strongest alignment with language learning objectives. Vocabulary acquisition, communicative competence, contextual language use, and literacy development consistently emerge as key outcomes, highlighting the distinctive role of narrative-centred environments in supporting language development.

3.1.4 Cluster 4 (Yellow): Location-Based and Collaborative Experiential Learning

Cluster 4, represented yellow with 7 articles, focuses on location-based learning, collaborative interaction, and experiential gameplay within educational settings. Representative studies include Rubino et al. (2015), de Lope et al. (2017), Gilliam et al. (2017), Nadolny and Halabi (2016), and Dania et al. (2020). The studies in this cluster emphasise the use of narrative and game mechanics to create authentic, situated, and socially interactive learning experiences.

A major characteristic of this cluster is the integration of physical and contextual learning environments into gameplay. Rubino et al. (2015) demonstrated how location-based mobile games within museum settings enhance learner participation and knowledge acquisition through interactive storytelling. Similarly, de Lope et al. (2017) highlighted the use of educational game design frameworks to support meaningful learning processes. These studies underline the importance of contextualised and physically engaging learning experiences in Narrative Game-Based Learning research.

The cluster also emphasises collaboration and social participation. Gilliam et al. (2017) explored alternate reality games for STEM engagement, showing how collaborative gameplay encourages participation and experiential discovery. Likewise, Nadolny and Halabi (2016) highlighted the effectiveness of augmented reality and mobile learning in promoting active learner involvement beyond traditional classroom settings. Overall, Cluster 4 prioritises authentic participation, collaboration, and contextual learning experiences. This indicates a growing shift toward socially situated learning environments where communication and cooperative problem-solving become central learning mechanisms.

Table 3: Bibliographic Coupling by Cluster

Cluster No and Colour	Cluster Labels	No. of Articles	Representative Publications
Cluster 1 (Red)	Immersive and Technology-Enhanced Narrative Learning	18	Mathrani et al. (2016); Lee (2022); Chen & Lin (2016); Fotaris & Mastoras (2022); Fernández Galeote & Hamari (2021); Mystakidis & Berki (2018)
Cluster 2 (Green)	Gamification, Motivation, and Narrative Engagement	17	Armstrong & Landers (2017); Rowe & Lester (2015); Huynh et al. (2021); Rütth & Kaspar (2021); Guo & Goh (2016); Espinosa-Curiel et al. (2020)

Cluster 3 (Blue)	Narrative-Centred Learning and Language Development	12	Johnson-Glenberg & Megowan-Romanowicz (2017); Tang et al. (2020); Sadler et al. (2015); Govender & Arnedo-Moreno (2021); Whitton & Langan (2019); Chang et al. (2020)
Cluster 4 (Yellow)	Location-Based and Collaborative Experiential Learning	7	Rubino et al. (2015); de Lope et al. (2017); Gilliam et al. (2017); Nadolny & Halabi (2016); Dania & Harvey (2020)

3.2 Systematic Literature Review Analysis

The Systematic Literature Review (SLR) analysed 15 empirical studies on Narrative Game-Based Learning (NGBL) within higher education settings. The findings indicate that NGBL has been widely applied across multiple disciplines, including language education, healthcare, programming, sustainability, and professional training. Despite the diversity of contexts, the reviewed studies consistently highlighted the effectiveness of narrative-driven gameplay in improving learner engagement, motivation, collaboration, communication, and experiential learning. In this review, language development is interpreted broadly to include communicative competence, literacy practices, dialogue, collaborative interaction, and contextual language use. Consequently, studies from healthcare, programming, and professional training contexts were examined to the extent that they demonstrated transferable language-related outcomes.

The thematic analysis identified four major themes: (1) Language, Literacy, and Communication Development, (2) Motivation, Engagement, and Affective Learning, (3) Simulation, Problem-Solving, and Experiential Learning, and (4) Branching Narratives, Choice, and Social Learning. Narrative elements such as storytelling, role-playing, quests, escape rooms, and collaborative missions were found to create immersive and meaningful learning experiences. Additionally, technologies including augmented reality, mobile learning, and interactive storytelling platforms further enhanced learner-centred and contextualised learning environments. Overall, NGBL demonstrates strong potential in supporting cognitive, linguistic, effective, and social learning outcomes.

Table 4: Literature Matrix Mapping

No.	Article	Theme 1: Language, Literacy & Communication	Theme 2: Motivation, Engagement & Affective Learning	Theme 3: Simulation, Problem-Solving & Experiential Learning	Theme 4: Branching Narratives, Choice & Social Learning
1	Clark (2022)		✓	✓	✓
2	Huang et al. (2024)		✓		✓
3	Nessler et al. (2021)		✓	✓	
4	Gravelsina & Daniela (2024)	✓	✓	✓	
5	Pérez-López et al. (2022)		✓		✓
6	Richardson et al. (2024)	✓	✓	✓	
7	Borrás-Gené et al. (2024)		✓	✓	✓
8	Shilo & Raidou (2024)	✓	✓	✓	✓
9	Mhadhbi et al. (2024)		✓	✓	
10	Surapaneni (2024)	✓	✓	✓	✓
11	Govender & Arnedo-Moreno (2021)	✓	✓		✓
12	Fenici & Mosca (2024)	✓	✓		✓
13	Ashley et al. (2022)		✓	✓	✓
14	Scholz et al. (2021)	✓	✓	✓	✓
15	Zitha et al. (2023)	✓	✓		✓

3.2.1 Theme 1: Language, Literacy, and Communication Development

One of the dominant themes identified across the selected studies is the role of Narrative Game-Based Learning (NGBL) in supporting language, literacy, and communication development. Narrative-driven environments provide learners with meaningful contexts where language is used authentically through interaction, dialogue, role-play, and collaborative problem-solving. Govender and Arnedo-Moreno (2021) emphasised that digital game-based language learning frequently integrates elements such as feedback, narrative, levels, and thematic progression to sustain learner engagement while promoting vocabulary acquisition and retention.

Their review further highlighted that narrative immersion allows learners to practice language skills in contextualised situations rather than isolated drills,

making learning more communicative and experiential. Similarly, Fenici and Mosca (2024) demonstrated that branching narratives and gamebooks encourage communication, collaboration, and prosocial interaction among learners, reinforcing the social dimensions of language learning.

Other studies also reinforced the communicative potential of narrative games. Shilo and Raidou (2024) showed how visual narratives can enhance literacy and critical interpretation skills through interactive educational gameplay. Meanwhile, Zitha et al. (2023) highlighted that role-playing, peer learning, and collaborative activities improve student interaction and communication skills. Collectively, these findings indicate that NGBL promotes language development not only through linguistic practice but also through meaningful communication, collaboration, and narrative immersion.

3.2.2 Theme 2: Motivation, Engagement, and Affective Learning

Another recurring theme across the reviewed literature is the strong relationship between NGBL and learner motivation, engagement, and affective development. Narrative structures, immersive gameplay, and interactive challenges create emotionally engaging learning experiences that sustain learners' interest and participation. Pérez-López et al. (2022), for instance, demonstrated that a narrative gamification programme based on the "Star Wars" universe significantly increased students' motivation and encouraged healthier behavioural outcomes. Similarly, Borrás-Gené et al. (2024) found that educational escape rooms enhanced learners' motivation and transformed difficult programming concepts into enjoyable and practical learning experiences.

Several studies further revealed how NGBL reduces anxiety and creates more positive emotional learning environments. Gravelsina and Daniela (2024) reported that students perceived game-based examinations as less stressful than traditional assessments because the narrative scenarios helped them visualise real-life situations more effectively. Richardson et al. (2024) similarly emphasised the "joy" generated through game-based pedagogies, showing that learner enjoyment and educator satisfaction are important dimensions of successful game-based learning environments. Surapaneni (2024) also observed increased learner confidence and positive perceptions after the implementation of a narrative board game in medical education. Together, these studies suggest that NGBL functions as both a cognitive and emotional catalyst, strengthening engagement, confidence, and intrinsic motivation among learners.

3.2.3 Theme 3: Simulation, Problem-Solving, and Experiential Learning

The third theme emerging from the literature focuses on simulation, experiential learning, and problem-solving through narrative gameplay. Many of the reviewed studies employed immersive simulations and scenario-based learning environments that encouraged learners to actively apply knowledge in realistic situations. Mhadhbi et al. (2024) found that game-based simulation in osteopathy training improved engagement, clinical reasoning, and reflective practice while reducing stress among students. Likewise, Ashley et al. (2022) demonstrated that narrative cybersecurity simulations allowed participants to practice decision-making and adaptive responses within authentic workforce scenarios. These

findings reinforce the value of experiential learning, where learners develop competencies through active participation rather than passive instruction.

Problem-solving and authentic application were also emphasised in educational escape rooms and game-based assessments. Borrás-Gené et al. (2024) highlighted that hybrid escape room activities promoted practical understanding through collaborative puzzle-solving and narrative-guided progression. Similarly, Nessler et al. (2021) showed that mobile geocaching and outdoor narrative tasks increased learner participation and supported active learning through case-based problem-solving. Gravelsina and Daniela (2024) further illustrated how narrative examinations allow learners to engage in realistic pedagogical decision-making. Overall, these studies suggest that NGBL enhances experiential learning by situating learners in interactive, meaningful environments where knowledge application, collaboration, and critical thinking become central to the learning process.

3.2.4 Theme 4: Branching Narratives, Choice, and Social Learning

The final theme highlights the importance of branching narratives, learner autonomy, and social interaction in NGBL. Narrative games often allow learners to make decisions that shape the storyline, creating personalised and participatory learning experiences. Fenici and Mosca (2024) argued that branching narratives and interactive fiction support communication, collaboration, and sustainability competencies by allowing learners to explore multiple perspectives and outcomes. Such narrative flexibility promotes learner agency, as participants actively shape the progression of the story rather than merely consuming content passively.

Social learning also emerged as a major component of narrative game-based environments. Scholz et al. (2021) designed a game-based course framework using narrative quests, team collaboration, and learner discovery to strengthen engagement and collective participation. Similarly, Zitha et al. (2023) highlighted the value of collaborative learning strategies such as peer feedback, group projects, and role-playing activities in fostering communication and teamwork. Even in healthcare-related studies, narrative and interactive game elements encouraged reflective discussion and social interaction among learners (Shilo & Raidou, 2024). These findings collectively demonstrate that NGBL extends beyond individual learning by encouraging cooperation, social negotiation, and learner autonomy through branching pathways and collaborative narrative experiences.

4. Discussion

The findings can be interpreted through several complementary theoretical perspectives. From a social constructivist perspective, narrative game environments facilitate learning through interaction, collaboration, and shared meaning-making. Situated Learning Theory further explains why learners demonstrate stronger communication and engagement outcomes, as language use occurs within authentic narrative contexts rather than decontextualised classroom exercises. Moreover, Self-Determination Theory suggests that branching

narratives, learner choice, and role-playing fulfil learners' needs for autonomy, competence, and relatedness, thereby strengthening motivation and persistence.

These theoretical perspectives collectively explain why NGBL consistently supports cognitive, linguistic, affective, and social learning outcomes across diverse educational settings. (Govender & Arnedo-Moreno, 2021; Whitton, 2019). The findings further reveal the increasing integration of immersive technologies such as augmented reality, mobile learning, digital storytelling, and escape rooms within narrative learning environments. Studies by Lee (2022), Fotaris and Mastoras (2022), and Mystakidis and Berki (2018) emphasised that technology-supported narratives enhance learner participation, interaction, and contextualised communication. Similarly, the SLR findings showed that role-playing, storytelling, and collaborative problem-solving activities create authentic communicative opportunities for learners (Shilo & Raidou, 2024; Zitha et al., 2023). These findings suggest that immersive narrative environments support both cognitive engagement and communicative competence by situating learners within meaningful social interactions.

Another significant finding is the strong relationship between NGBL, learner motivation, and affective learning. Armstrong and Landers (2017), as well as Rowe and Lester (2015), demonstrated that narrative-driven game mechanics positively influence learner motivation, persistence, and emotional engagement. The reviewed studies consistently reported that narrative gameplay reduces anxiety, strengthens learner confidence, and increases participation in educational activities. For example, Pérez-López et al. (2022) found that narrative gamification increased learner motivation and behavioural engagement, while Gravelina and Daniela (2024) highlighted that narrative-based assessments reduced stress and improved learner visualisation of authentic scenarios. These findings reinforce the idea that NGBL functions not only as a cognitive instructional strategy but also as an affective learning tool that supports emotional engagement and intrinsic motivation.

The findings also highlight the growing importance of collaborative and experiential learning within NGBL research. Rubino et al. (2015) and Gilliam et al. (2017) emphasised the value of location-based and alternate reality games in promoting authentic participation, collaboration, and experiential discovery. Similarly, Fenici and Mosca (2024) and Scholz et al. (2021) demonstrated that branching narratives and collaborative quests strengthen communication, teamwork, and learner-driven decision-making. These findings align closely with social constructivist principles, which hold that knowledge is developed through interaction, negotiation, and shared experiences. Overall, the findings suggest that NGBL supports cognitive, linguistic, emotional, and social dimensions of learning while contributing to more interactive, adaptive, and learner-centred educational environments.

5. Implications

The findings of this study offer several theoretical and practical implications for language education and Narrative Game-Based Learning (NGBL) research. From

a theoretical perspective, the integration of bibliographic coupling and systematic review findings reinforces the view that language learning is most effective when situated within meaningful, interactive, and socially constructed experiences. The prominence of themes related to communication, motivation, experiential learning, and social interaction supports constructivist and sociocultural perspectives, which emphasize learning through authentic engagement, collaboration, and contextualized practice (Govender & Arnedo-Moreno, 2021; Whitton, 2019). Furthermore, the growing incorporation of immersive technologies within narrative learning environments extends existing understandings of game-based learning by demonstrating how storytelling can strengthen both cognitive and affective dimensions of language acquisition (Lee, 2022; Mystakidis & Berki, 2018).

Practically, the findings suggest that educators should move beyond traditional language instruction by incorporating narrative-driven activities such as role-playing, branching scenarios, quests, and collaborative storytelling. Such approaches can enhance learner motivation, confidence, communication skills, and engagement while providing authentic opportunities for language use (Pérez-López et al., 2022; Zitha et al., 2023). Educational institutions and curriculum designers may also leverage emerging technologies, including augmented reality, digital storytelling platforms, and adaptive learning systems, to create more immersive and learner-centered language learning experiences (Fotaris & Mastoras, 2022; Nitisakunwut & Hwang, 2023). Collectively, these implications highlight the potential of NGBL to support innovative, inclusive, and engaging language education aligned with the goals of twenty-first-century learning and SDG 4: Quality Education.

6. Conclusion

This study examined the development of Narrative Game-Based Learning (NGBL) in language education through the integration of bibliographic coupling analysis and a Systematic Literature Review (SLR). The findings indicate that NGBL has evolved into a multidisciplinary educational approach that combines storytelling, gameplay, interaction, and immersive technologies to create meaningful and engaging learning experiences. The bibliographic coupling analysis identified four major research clusters related to immersive technology-enhanced learning, gamification and motivation, narrative-centred language learning, and collaborative experiential learning, revealing the growing scholarly interest in narrative-driven pedagogies.

The SLR findings further highlighted four dominant themes: language and communication development; motivation and affective learning; simulation and experiential learning; and branching narratives with social learning. Across the reviewed studies, NGBL was consistently associated with improved learner engagement, communication skills, collaboration, confidence, and contextualised language use. The integration of technologies such as augmented reality, digital storytelling, escape rooms, and adaptive learning systems also demonstrates the increasing potential of NGBL within contemporary educational environments.

Despite these contributions, gaps remain in the literature, particularly regarding younger learners, low-resource contexts, and long-term language-learning outcomes. Future research should therefore explore longitudinal implementations, culturally responsive narrative designs, and the integration of emerging technologies, such as artificial intelligence and virtual reality, into language learning. Overall, this study highlights NGBL as a transformative, learner-centred pedagogical approach that supports the cognitive, linguistic, affective, and social dimensions of learning while contributing to SDG 4 (Quality Education).

7. References

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