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The Use of Comics and Visual materials in Arabic Language Learning: Challenges and Factors Influencing Effectiveness in a Systematic Literature Review

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Abstract

Comics and visual materials may support Arabic language learning, but their effectiveness depends on material design, learners' abilities and the teaching context. This study synthesises empirical evidence on the challenges of using comics and visual materials and the factors influencing their effectiveness in Arabic language learning. This systematic literature review reports the study selection process using PRISMA 2020. Searches in Scopus, Web of Science, Google Scholar and Jurnal Dunia Pendidikan identified 400 records. After screening and eligibility assessment, 19 empirical articles published between 2021 and 2025 were analysed thematically. Three challenge themes were identified: preparation and use of learning materials, technology and accessibility, and the suitability of presentation for learners' abilities. Four factors influencing effectiveness were identified: clear and relevant material design, integration of text and visual representations, teaching practices that encourage active participation, and suitability for learners' abilities and needs. The synthesis suggests that comics and visual materials can support learning when language content, visual representations and learning activities are aligned and accessible to learners. Their effectiveness depends on context and should not be assumed to be the same across different media, learners and learning settings.

Keywords: Arabic Language, Comics, Visual Materials, Language Learning, Systematic Literature Review

Introduction

Arabic language learning involves vocabulary development and related skills such as reading, speaking and understanding meaning in context. Learners need to connect language forms with their meanings and use them in suitable situations. Comics and visual materials may support this process by presenting language through text, illustrations and meaningful contexts. Comics also provide a sequence of events that can help learners follow how language is used, while some digital materials include multimedia elements. These features make comics and visual materials relevant resources for Arabic language teaching and learning.

Empirical studies provide evidence of their potential benefits. Bahri et al. (2024) reported positive evaluations of digital comics developed for Arabic vocabulary learning, including learners' acceptance and understanding of vocabulary. Hijriyah et al. (2022) reported improved reading achievement after the use of digital comics, while Rahmawati et al. (2025) reported improved learning outcomes and positive responses to comic-based materials. Together, these findings suggest that comics can support learning when language content and visual representations are combined for a clear learning purpose. However, positive outcomes in individual studies also raise a further question about the conditions that make these materials useful in different learning settings.

Understanding these conditions requires attention to both material design and learners' needs. Zhang and Zhang (2024), in a foreign language learning context, found that the benefits of non-verbal input varied according to the type of input and learner-related factors, particularly comprehension of the input. Their findings provide supporting evidence that visual presentation needs to match learners' ability to process language information. In Arabic language learning, Yuslam et al. (2023) reported that students with visual impairment faced limited access to suitable materials and required alternative forms of support. These findings show that the potential benefits of visual materials need to be considered alongside their suitability, accessibility and conditions of use.

The specific problem addressed in this review is that the evidence covers different media, language skills, research designs and educational settings, making it difficult to draw a clear overall understanding of implementation challenges and factors associated with effectiveness. Development studies often focus on the validation and usability of materials, while other studies examine learning outcomes, engagement, multimodal input or accessibility. Bringing these findings together can help explain how material features, teaching practices and learner needs relate to one another. A synthesis is therefore needed to move from separate reports of learning benefits towards a clearer understanding of the conditions that support or limit the use of comics and visual materials in Arabic language learning.

This study aims to identify and systematically synthesise empirical findings on these challenges and factors through a systematic literature review of 19 articles published between 2021 and 2025. The main focus is Arabic language learning. Relevant studies from second or foreign language learning are used as supporting evidence when they directly address comics, visual representations or multimodal input. Their findings are considered within their original contexts and are not treated as direct evidence for Arabic language learning.

The distinctive contribution of this review is its combined focus on implementation challenges and factors associated with effectiveness. By examining these two aspects together, the review connects evidence on material design with teaching practices, learners' abilities and accessibility. It contributes to education research within the social sciences by explaining how learning materials interact with learner characteristics and teaching conditions. The resulting synthesis can inform teachers, material developers and researchers when designing, selecting and using comics and visual materials for Arabic language learning.

Rationale for the Study

The use of comics and visual materials in language learning has a theoretical basis in the processing of verbal and non-verbal information. Dual Coding Theory explains that information can be represented through separate but related verbal and non-verbal systems. Links between these representations may provide additional ways to form and recall information (Paivio, 1986). This idea is relevant to comics, which present language alongside illustrations and visual context. Similarly, the Cognitive Theory of Multimedia Learning explains that learning from words and visuals depends on selecting, organising and integrating relevant information, rather than simply adding visuals (Mayer, 2021). These theories provide a basis for understanding how comics and visual materials may help learners connect language forms, context and meaning.

These theories also suggest that the effectiveness of visual materials depends on certain conditions. Empirical evidence indicates that the benefits of visuals may vary according to their design and purpose, learner characteristics and the teaching context. In foreign language learning, Zhang and Zhang (2024) showed that the effects of multimodal input on vocabulary learning were influenced by the type of input and learner-related factors. In Arabic language learning, Yuslam et al. (2023) showed the importance of accessibility and suitable presentation when learners have different needs. These findings, together with positive evidence on the use of comics in Arabic language learning (Bahri et al., 2024; Hijriyah et al., 2022; Rahmawati et al., 2025), show that effectiveness should not be judged simply by the presence of comics or visuals. It should be examined in relation to material design, teaching practices, learners' abilities and the teaching context. A systematic synthesis is therefore needed to explain both the potential of these materials and the conditions that support or limit their effectiveness.

Methodology

This study used a systematic literature review (SLR) to identify, assess and synthesise empirical evidence on the use of comics and visual materials in language learning, with a main focus on Arabic. A systematic approach was used to organise the search, screening, selection and synthesis of studies according to a defined scope and eligibility criteria. The procedure covered four components: the literature search strategy, inclusion and exclusion criteria, article selection, and data analysis and synthesis.

The identification and selection of articles were organised and reported using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA 2020) flow, which covers identification, screening and eligibility assessment (Page et al., 2021). This approach makes the selection process clearer by reporting the number of records identified, removed and retained in the final set of studies. Findings from eligible articles were then analysed thematically to identify patterns across studies relating to implementation challenges and factors influencing the effectiveness of comics and visual materials.

Literature Search Strategy

The literature search focused on empirical studies of comics and visual materials in Arabic language learning. The sources were Scopus, Web of Science (WoS), Google Scholar and Jurnal Dunia Pendidikan. The search strategy combined three main elements: Arabic language

learning, comics or visual materials, and teaching and learning. Search strings were adapted to the functions and search structure of each source to identify relevant articles.

The Scopus search was conducted in the title, abstract and keyword fields using this search string:

TITLE-ABS-KEY("Arabic language learning" OR "Arabic language education" OR "learning Arabic") AND TITLE-ABS-KEY(comics OR "comic-based learning" OR "comic media" OR "visual materials" OR "visual media" OR "visual-based learning") AND TITLE-ABS-KEY(challenges OR factors OR effectiveness)

The Web of Science search was conducted in the Topic field using this search string:

TS=("Arabic language" OR "Arabic learning" OR "Arabic language teaching") AND TS=(comics OR "comic media" OR "comic-based learning" OR "visual learning" OR "visual aids") AND TS=(teaching OR learning)

In Google Scholar, the Malay search phrases were “pembelajaran Bahasa Arab menggunakan komik”, “penggunaan komik dalam pembelajaran Bahasa Arab”, “media visual dalam pembelajaran Bahasa Arab”, “bahan visual pembelajaran Bahasa Arab” and “komik digital Bahasa Arab”. These phrases are retained as used in the original search. Records from all sources were then combined and screened against the inclusion and exclusion criteria before full-text assessment.

Inclusion and Exclusion Criteria

Inclusion and exclusion criteria were set to ensure that selected articles matched the review focus and provided enough empirical evidence for synthesis. Eligibility was assessed according to publication period, document type, language, language-learning context, research design, type of material and relevance of findings to the study objectives.

Inclusion Criteria

Articles were included if they:

were published between 2021 and 2025;

were empirical journal articles using quantitative, qualitative or mixed methods, including development studies with empirical evaluation;

were published in Malay, English or Arabic;

were within education, language teaching and learning, or applied linguistics;

focused on Arabic language learning or provided relevant empirical evidence from second or foreign language learning;

involved comics, visual materials, audiovisual materials, pictorial representations or multimodal input in learning;

involved learners in formal education;

provided full text that allowed the methods and empirical findings to be examined; and

reported findings relevant to implementation challenges and/or factors influencing the effectiveness of comics and visual materials in language learning.

Exclusion criteria

Articles were excluded if they:

were published outside 2021 to 2025;

were literature reviews, systematic literature reviews (SLRs), bibliometric studies, conceptual papers, books, book chapters or publications without primary empirical data;

were published in languages other than Malay, English or Arabic;

were outside education, language learning or applied linguistics;

had no substantial connection with language learning or provided no relevant evidence on comics, visual materials or multimodal input;

did not involve comics or a visual or multimodal component relevant to this review;

provided insufficient empirical information to assess the methods and findings;

had no accessible full text; or

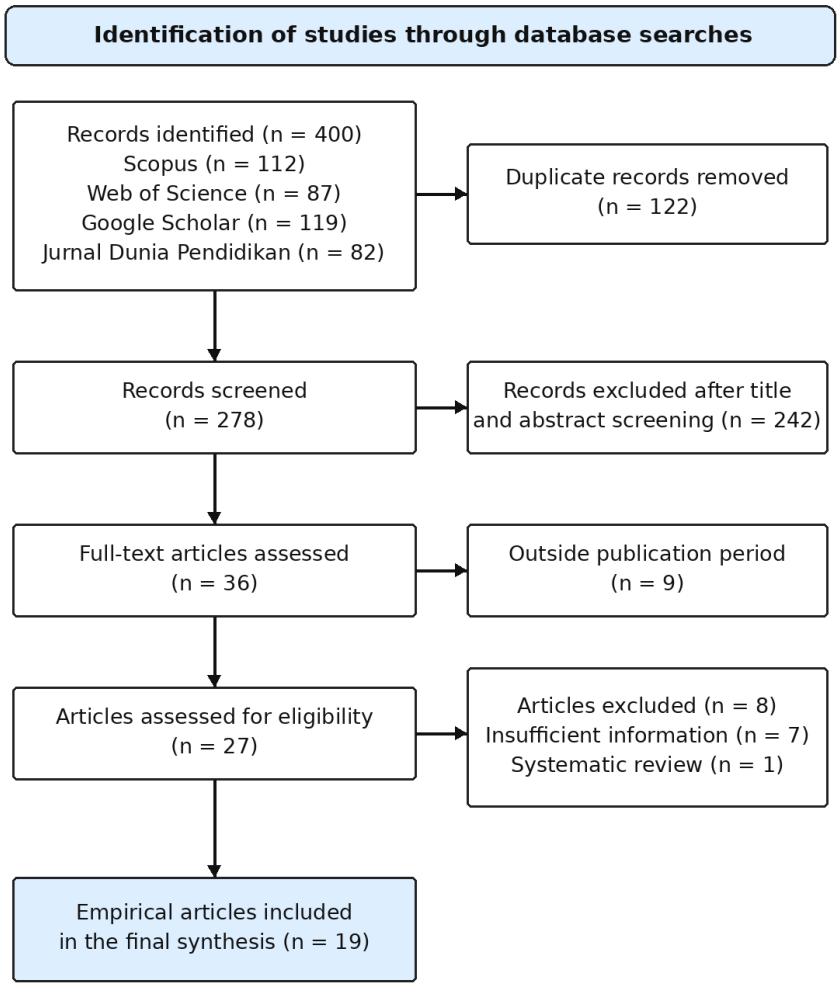
did not report findings relevant to the synthesis of implementation challenges and/or factors influencing effectiveness.

Article Selection Process

Articles were selected in stages following the PRISMA 2020 flow: identification, screening and eligibility assessment. At the identification stage, 400 records were found in Scopus (n = 112), Web of Science (n = 87), Google Scholar (n = 119) and Jurnal Dunia Pendidikan (n = 82). After 122 duplicate records were removed, 278 records remained for title and abstract screening.

At screening, 242 records were excluded because they did not meet the initial focus and criteria, leaving 36 articles for full-text assessment. Of these, nine were excluded because they were published outside the 2021 to 2025 period. The remaining 27 articles were assessed for eligibility based on empirical design, relevance to the review and sufficient information for synthesis.

At eligibility assessment, another eight articles were excluded. Seven did not provide enough study information for empirical analysis, while one was an SLR rather than a primary study. This left 19 eligible empirical articles for the final synthesis. Figure 1 shows the full identification and selection process.



Source: Authors' article selection process.

Figure 1. Article selection process based on PRISMA 2020

The screening and eligibility assessment produced the final set of studies used for the thematic synthesis of implementation challenges and factors influencing effectiveness.

Table 1
Characteristics of the 19 empirical articles

No.	Author (Year)	Research Design	Study Focus	Material / Context
1	Bahri et al. (2024)	R&D, Four-D model	Development and evaluation of digital comics for Arabic vocabulary learning	Digital comics; 27 students in Grades VII–IX, MTsN 1 Makassar City
2	Setiyadi et al. (2025)	R&D within applied research	Development of comic-based teaching materials and improvement in Arabic speaking skills	Comics; language programme participants at Pondok Modern Darussalam Gontor
3	Hijriyah et al. (2022)	R&D, ADDIE model	Development, feasibility, appeal and effectiveness of digital comics for Arabic reading	Digital comics; Year 5 pupils in Madrasah Ibtidaiyah
4	Rizcallah & Parlak (2025)	Classroom-based experimental study; pre-test, post-test and delayed post-test	L2 vocabulary learning through multimodal input	Comics as multimodal input; 97 English learners in the UAE
5	Brioua et al. (2022)	Descriptive analytical study; questionnaire	Challenges in online Arabic learning and the effects of audiovisual materials	Audiovisual materials; 79 non-native Arabic learners in foundation and primary school
6	Zhang & Zhang (2024)	Experiment	Effects of multimedia input conditions and learner-related factors on foreign language vocabulary learning	Verbal input, content-related pictures and paralinguistic video; Year 7 French learners
7	Rahmawati et al. (2025)	R&D, ADDIE model	Development of comic-based materials and motivation in Arabic language learning	Comic-based materials; 25 students in a Grade X Culinary Arts class at a vocational school
8	Aziz et al. (2022)	Classroom action research	Improvement of Arabic vocabulary knowledge	Visual materials; Grade VII A students at MTs Al-Ishlah
9	Amrizal (2022)	Experiment; experimental and control groups	English descriptive writing skills	Comic strips; 70 STAIN Mandailing Natal students, 35 in each group
10	Mufidha & Sari (2025)	R&D, Four-D model	Development and effectiveness of printed comics for Arabic reading skills	Printed comics; 31 Grade XI E students at MAN Sumenep

No.	Author (Year)	Research Design	Study Focus	Material / Context
11	Umami & Hidayah (2024)	R&D, ADDIE model	Development and effectiveness of comic books for Arabic reading skills	Comic books; 25 Grade X students at Madrasah Aliyah al-Bairuny
12	Saniyyah et al. (2024)	Qualitative single case study	Use of comics for Arabic speaking skills and creative thinking	Comics; 32 Grade 3 secondary students, purposive sampling
13	Amrullah et al. (2024)	Quasi-experiment	Comparison of speaking outcomes and engagement using two media	Plotagon and digital comics; students in classes X IPS 1 and X IPS 2
14	Al Farissi et al. (2024)	Quantitative quasi-experiment	English vocabulary knowledge and students' views of digital comics	Digital comics; Grade VIII students at SMP Negeri 2 Patikraja
15	Shofiah & Ammar (2024)	Quantitative experiment; pre-test and post-test	Arabic vocabulary knowledge and retention	Picture materials; 25 pupils
16	Hassan & Nik Mohd Rahimi (2022)	Quantitative quasi-experiment; pre-test and post-test	Arabic vocabulary achievement	Comic module; 34 Year 5 pupils in experimental and control groups
17	Kafi & Husna (2022)	Qualitative	Use of comics in Arabic speaking lessons (mahārah al-kalām)	Comics; students at MTs Mabdaul Ma'arif Jombang Jember
18	Yuslam et al. (2023)	Qualitative phenomenological approach	Process and challenges of Arabic learning for students with visual impairment	Inclusive madrasah, MAN 2 Sleman; audio materials, digital applications and adapted learning support
19	Fahmi et al. (2025)	Quantitative pre-experimental intact group comparison	Effectiveness of comic-based materials for Arabic language learning outcomes	Comic-based materials; 59 Year 5 pupils, 31 experimental and 28 control

Table 1 presents the characteristics of the 19 empirical articles included in the synthesis. The studies include research and development, experimental and quasi-experimental research, classroom action research and qualitative studies. Most examined comics and visual materials in Arabic language learning, particularly vocabulary, reading and speaking. Several second or foreign language studies provided supporting evidence on comics and multimodal input. The different designs, materials and learning contexts formed the basis for comparing implementation challenges and factors influencing effectiveness across studies.

Data Analysis

All 19 eligible articles were analysed thematically to identify and synthesise patterns relevant to the study objectives. The analysis focused on empirical findings concerning two main areas: implementation challenges and factors influencing the effectiveness of comics

and visual materials in language learning. Research design, learning context and type of material were also considered when interpreting findings across studies.

The analysis began by reading each article and identifying findings relevant to the review focus. These findings were coded according to the main issues or ideas reported in the original studies. Codes with similar meanings were compared and grouped, while differences were examined to identify variation across studies. Broader categories were then developed and combined into themes based on recurring patterns across articles.

The synthesis considered similarities, differences and study contexts so that evidence from different designs, materials and learning settings was not treated as uniform. Findings from second or foreign language studies were used as supporting evidence when directly relevant to comics, visual representations or multimodal input. They were not treated as direct evidence for Arabic language learning. The resulting themes were used to organise the findings.

Findings

The thematic analysis of 19 empirical articles produced two main groups of findings: implementation challenges and factors influencing the effectiveness of comics and visual materials in language learning. Findings across studies involved not only material features but also design, teaching practices, learner characteristics and the teaching context. Although most articles examined Arabic language learning, findings from second or foreign language studies were used selectively as supporting evidence when they showed relevant patterns.

The analysis compared similarities and differences across studies to identify recurring patterns in both groups. The findings are presented in two sections: challenges in using comics and visual materials, and factors influencing their effectiveness. Themes in each section were drawn from the empirical evidence in the selected articles and interpreted in light of each study's context.

Challenges in Using Comics and Visual Materials in Arabic Language Learning

The selected articles show that challenges vary with the type of material, learner characteristics and the teaching context. The challenges reported in the studies relate to preparing and using materials, technology and accessibility, and matching presentation to learners' abilities. These challenges concern the conditions under which materials can be developed, accessed and used in learning.

Preparation and Use of Learning Materials

The first challenge concerns the preparation of suitable materials and the conditions for using them in teaching. Rahmawati et al. (2025) reported that Arabic learning in a vocational school faced limited teaching time, a lack of engaging materials and insufficient resources. Observations and interviews in that study showed that these problems were among the reasons for developing comic-based learning materials.

A similar pattern appears in Kafi and Husna (2022), who reported that, before comics were introduced, students showed limited interest in Arabic speaking lessons, which tended to be monotonous and made little use of learning media. Together, these findings suggest that

implementation challenges involve both the availability of materials and the ability to prepare suitable content for meaningful learning activities.

Technology and Accessibility of Materials

The second challenge concerns access to technology and learning materials suited to learners' circumstances. Brioua et al. (2022) reported technological and interaction-related constraints in online Arabic language learning. In a digital learning setting, access to technology is one condition affecting the use of audiovisual materials.

Accessibility is especially important in inclusive education. Yuslam et al. (2023) found that students with visual impairment faced a shortage of Arabic reference materials in Braille, a lack of suitable Arabic Braille dictionaries and applications, and limited teacher ability to use Arabic Braille. Learning therefore required other forms of support, such as audio recordings, voice messages and help from peers. These findings show that access depends not only on whether technology is available but also on whether learners with different needs can use the materials.

Suitability of Presentation for Learners' Abilities

Another challenge is matching visual and multimodal presentation to learners' ability to process information. Evidence from Zhang and Zhang's (2024) foreign language study shows that the benefits of non-verbal input for vocabulary learning were not the same for all learners. Its effects varied by type of presentation and learner-related factors, especially comprehension of the input. Because this study concerned French as a foreign language, its findings are used as supporting evidence rather than direct evidence for Arabic language learning.

Overall, adding visuals or multimedia does not necessarily make materials suitable for every learner. The form of presentation should fit the language content and the learner's ability to understand and combine the information. In this set of studies, this issue is better described as a challenge of matching presentation to learners' abilities. It should not automatically be labelled "cognitive load" or "visual literacy", as these constructs were not consistently measured directly in the analysed articles.

Factors Influencing the Effectiveness of Comics and Visual Materials in Arabic Language Learning

The selected articles suggest that effectiveness depends on how well material features, their use in lessons, learners' abilities and the teaching context fit together. Four main factors were identified: clear and relevant material design, integration of text and visual representations, teaching practices that encourage active participation, and suitability for learners' abilities and needs.

Clear and Relevant Material Design

Material design is a recurring factor in studies developing comics for Arabic language learning. Bahri et al. (2024), Hijriyah et al. (2022), Mufidha and Sari (2025), Umami and Hidayah (2024), and Rahmawati et al. (2025) reported positive results for validation, usability or learner responses to the comics they developed. Across these studies, the comics combined language content with illustrations, characters and situations related to the

learning content. These findings suggest that visuals need to support language content rather than serve only as decoration.

The importance of planned design is also reflected in learning outcomes. Hijriyah et al. (2022) reported improved reading achievement after the use of digital comics, while Mufidha and Sari (2025) and Umami and Hidayah (2024) reported that comics supported Arabic reading. Hassan and Nik Mohd Rahimi (2022) and Fahmi et al. (2025) also reported better achievement with comics than with conventional instruction. Together, these findings support the value of visual materials clearly linked to learning content and objectives.

Integration of Text and Visual Representations

Effectiveness also relates to how verbal and non-verbal information are combined. Zhang and Zhang (2024) found that different forms of non-verbal input had different effects on foreign language vocabulary learning, with some advantages for productive knowledge, particularly recalling meanings. Their findings suggest that different forms of multimedia input do not produce the same results; the purpose and form of the visual representation matter. As their study involved French as a foreign language, its findings are used here as supporting evidence.

Rizcallah and Parlak (2025) also examined comics as multimodal input in L2 vocabulary learning. Considered alongside Arabic comic studies such as Bahri et al. (2024) and Hijriyah et al. (2022), this evidence across languages points to the link between text and visuals as an important feature of comics. However, this synthesis does not assume that combining text and visuals is always more effective. Its value depends on how the representations support language content and the learning task.

Teaching Practices and Active Participation

The way comics are used in learning activities also matters. Setiyadi et al. (2025) used comics based on everyday situations in speaking lessons and reported a significant improvement in student achievement. Kafi and Husna (2022) described activities in which students completed dialogues and built conversations using comics, while Saniyyah et al. (2024) studied the use of comics in speaking activities involving creative thinking. These findings show how comics can prompt language use when tasks require learners to respond and produce language.

Amrullah et al. (2024) examined the use of digital comics and Plotagon for Arabic speaking, focusing on speaking outcomes and learner engagement. Taken together, this evidence suggests that effectiveness depends on both the material shown and the activities built around it. Comics used in communication activities give learners opportunities to engage more actively with language content.

Suitability for Learners' Abilities and Needs

The final factor concerns the fit between materials and learner characteristics. Zhang and Zhang (2024) found that the benefits of multimedia input for vocabulary learning were influenced by learner-related factors, especially comprehension of the input and existing vocabulary knowledge. This shows that the effects of a particular representation are not the same for all learners and need to be considered alongside their language abilities.

In Arabic language learning, Yuslam et al. (2023) showed that students with visual impairment need different ways of presenting materials. These include audio recordings, voice messages and peer support when suitable Arabic Braille materials are unavailable. This finding extends the idea of suitability beyond language proficiency to accessibility. The effectiveness of comics and visual materials therefore depends both on design quality and on whether learners with different abilities and needs can use the materials.

Discussion

The findings suggest that the effectiveness of comics and visual materials in Arabic language learning depends on material design, the type of representation and how materials are used in lessons. Development and intervention studies in this review generally reported positive outcomes when comics or visual materials were organised for specific learning purposes, including vocabulary, reading and speaking (Bahri et al., 2024; Hijriyah et al., 2022; Hassan & Nik Mohd Rahimi, 2022; Setiyadi et al., 2025; Fahmi et al., 2025). This pattern is consistent with Dual Coding Theory, which explains that verbal and non-verbal information can be represented through separate but related systems (Paivio, 1986). However, Zhang and Zhang (2024) found that the benefits of non-verbal input varied by type of representation and learner characteristics. The value of comics therefore depends on how text and visuals represent the language content being learned, rather than on illustrations alone.

The findings also show that material design needs to be supported by teaching practices that allow learners to use language actively. Comics used in dialogue, conversation and speaking tasks may encourage language production when paired with suitable learning activities (Kafi & Husna, 2022; Saniyyah et al., 2024; Setiyadi et al., 2025; Amrullah et al., 2024). This is consistent with the Cognitive Theory of Multimedia Learning, which emphasises the selection, organisation and integration of relevant information rather than passive exposure to different representations (Mayer, 2021). In this context, comics can provide visual and language contexts for learning activities. Their effectiveness depends on the fit between material design, tasks and learners' ability to process information.

The synthesis also shows that effectiveness depends on the conditions in which materials are used. The time, resource and infrastructure constraints reported by Rahmawati et al. (2025), the technological challenges of online learning described by Brioua et al. (2022), and the limited accessible materials for students with visual impairment reported by Yuslam et al. (2023) show that materials with learning potential may not work equally well in every setting. Developing comics and visual materials for Arabic language learning therefore requires attention to visual quality and language content, as well as accessibility, learners' abilities, learning activities and available resources. Overall, effectiveness depends on how well material design, teaching practices, learner characteristics and the teaching context fit together.

Conclusion

This systematic literature review synthesised 19 empirical studies on comics and visual materials in language learning, mainly in Arabic language learning. The findings suggest that the learning potential of these materials depends on the fit between material design, teaching practices, learners' abilities and the teaching context. The main challenges concern preparing and using materials, technology and accessibility, and matching presentation to learners'

abilities. Four factors influence effectiveness: clear and relevant design, integration of text and visuals, teaching practices that encourage active participation, and suitability for learners' abilities and needs.

Overall, comics and visual materials may support Arabic language learning when they connect language content with visual context and meaningful learning activities. However, their effectiveness depends on context and should not be assumed to be the same for all learners or learning settings. The development and use of visual materials should therefore consider learning objectives, the purpose of verbal and visual elements, learning activities, accessibility and learner characteristics. Future studies could examine more systematically how visual design features, learning processes and differences in learner ability interact, particularly in Arabic language learning.

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