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Enhancing Vocabulary Acquisition Through Webtoons: A Study Among Undergraduate Second Language Learners

Meningkatkan Akuisisi Kosakata Melalui Webtoon: Sebuah Studi di Kalangan Mahasiswa S1 Pembelajar Bahasa Kedua

Jayanthy Roselin S[1]*, S. J. Kala[2]
[1]Department of English, Fatima College, Madurai Kamaraj University, Madurai, India
Email: jeyanthisjl@gmail.com
[2]Department of English, Fatima College, Madurai Kamaraj University, Madurai, India
Email: kala.english@fcmdu.edu.in

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Abstract

English has increasingly become a global lingua franca, enabling access to academic opportunities across diverse contexts. Its expanding use in education intensified the need for effective approaches to English Language Teaching (ELT), particularly where learners encounter it as a second language (SL). Vocabulary knowledge plays a central role in language proficiency, directly influencing learners' ability to comprehend and communicate meaningfully. This study introduces a novelty method of webtoons as an alternative digital medium in vocabulary acquisition. While prior researchers have explored digital tools for vocabulary learning, this research differs in Enhancing Vocabulary Acquisition Through Webtoons: A Study Among Undergraduate SL learners. This study investigates the potential of webtoons, a form of digital comics, as an innovative pedagogical tool for improving vocabulary in the SL classroom. Using a quantitative design with qualitative support, the study involved 30 undergraduate students. A single-group pre-test and post-test design measured vocabulary development through a structured webtoon-based intervention, assessed using the Vocabulary Knowledge Scale (VKS). Findings indicate significant improvement in learners' vocabulary knowledge, particularly in inferring meaning from context and applying lexical items. Participants also reported increased motivation and engagement due to the visual-narrative structure of webtoons, highlighting their effectiveness in fostering learner-centred practices in ELT.

Keywords: *Webtoons; Vocabulary Learning; Second Language Learners.*

Abstrak

Bahasa Inggris semakin menjadi lingua franca global, memungkinkan akses ke peluang akademik di berbagai konteks. Penggunaannya yang meluas dalam pendidikan meningkatkan kebutuhan akan pendekatan yang efektif untuk Pengajaran Bahasa Inggris (ELT), khususnya di mana pembelajar menggunakannya sebagai bahasa kedua (SL). Pengetahuan kosakata memainkan peran sentral dalam kemahiran berbahasa, secara langsung memengaruhi kemampuan pembelajar untuk memahami dan berkomunikasi secara bermakna. Studi ini memperkenalkan metode baru berupa webtoon sebagai media digital alternatif dalam pemerolehan kosakata. Meskipun peneliti sebelumnya telah mengeksplorasi alat digital untuk pembelajaran kosakata, penelitian ini berbeda dalam Meningkatkan Akuisisi Kosakata Melalui Webtoon: Sebuah Studi di Kalangan

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Mahasiswa S1 Pembelajar SL. Studi ini menyelidiki potensi webtoon, suatu bentuk komik digital, sebagai alat pedagogis inovatif untuk meningkatkan kosakata di kelas SL. Menggunakan desain kuantitatif dengan dukungan kualitatif, studi ini melibatkan 30 mahasiswa S1. Desain pra-uji dan pasca-uji kelompok tunggal mengukur perkembangan kosakata melalui intervensi berbasis webtoon terstruktur, yang dinilai menggunakan Skala Pengetahuan Kosakata (VKS). Temuan menunjukkan peningkatan signifikan dalam pengetahuan kosakata peserta didik, khususnya dalam menyimpulkan makna dari konteks dan menerapkan item leksikal. Peserta juga melaporkan peningkatan motivasi dan keterlibatan karena struktur naratif visual webtoon, yang menyoroti efektivitasnya dalam mendorong praktik berpusat pada peserta didik dalam pengajaran bahasa Inggris

Kata Kunci: *Pendidikan bahasa ibu; Webtoon, Pembelajaran Kosakata, Pembelajar Bahasa Kedua*

INTRODUCTION

The increasing global significance of English has positioned it as a dominant language in education, technology and the media industry. In multilingual societies particularly India, English functions as an important medium of instruction in schools and higher education institutions, making proficiency in the language essential for academic success and future professional opportunities. Consequently, vocabulary development forms a fundamental component of this process: Cheryl Boyd Zimmerman (1997) emphasises the central role of lexical knowledge in language learning, stating that “Vocabulary is central to language and of critical importance to the typical language learner” (p. 5). Vocabulary knowledge enables learners to interpret texts; construct meaning and communicate ideas effectively across a wide range of contexts.

Traditional instructional practices of vocabulary development have often relied heavily on memorisation and repetitive drilling of word lists, which may not promote meaningful language use. In this regard, Acs and Audretsch (2010) observe that “The traditional approach focuses on fact-based learning includes rote memorization repetitive drilling and similar mechanisms)” (p. 345). However, researches on second language (SL) acquisition have consistently accentuated the importance of sustained exposure to linguistic input for effective vocabulary development. Jahrani and Listia (2023) decipher that “Learners with extensive exposure to the language have a greater probability of speaking and comprehending it” (p. 416). Alongside cognitive exposure, affective factors also play an influential role in language learning outcomes. It is proposed that “a variety of affective variables relate to success in second language acquisition” (Krashen, 1982, p. 31), Learning environments that are engaging and visually stimulating may therefore contribute to lowering anxiety and enhancing learner motivation, creating favourable conditions for vocabulary acquisition.

Developments in educational technology have encouraged a shift towards more contextualised and learner-centred pedagogical approaches in the digital era. Nguyen Van Duc (2025) heightens this transformation by noting that, “The integration of digital technologies into educational practice has increasingly reshaped instructional methodologies” (p. 306). Among these emerging digital resources, webtoons—digital

comics that originated in South Korea—have attracted global attention because of their accessibility, visual format and engaging storytelling. As Haixia Man (2023) construes, "Webtoons have become the 'treasure trove' for transmedia storytelling in Korean cultural industries and lately, a transnational transmedia source of big screen culture in the global market" (p. 4518). The growing popularity of webtoons among young readers suggests that they may provide an appealing medium for language learning.

The educational potential of webtoons lies in their ability to present language within meaningful and context-rich narratives supported by visual elements. Unlike conventional text-based materials, webtoons combine images, dialogue and sequential storytelling to convey meaning, allowing learners to infer vocabulary from both visual and textual hints. In this regard, Rismawati et al. (2025) note that "the use of comic strips successfully enhanced students' comprehension of narrative texts by combining visual and textual elements that facilitated both literal and inferential understanding" (p. 29). The episodic structure of webtoons further allows learners to encounter vocabulary repeatedly across episodes and narrative contexts, which may strengthen lexical retention and reinforce understanding over time.

The effectiveness of webtoon-based learning can also be interpreted through theoretical perspectives related to multimodal learning and cognitive processing. According to Richard E. Mayer (2024), "people learn more deeply from words and pictures than from words alone" (p. 4), indicating that the combination of visual and verbal input can facilitate meaningful learning. This principle aligns closely with Allan Paivio's dual-coding theory, which proposes the presence of "two classes of phenomena handled cognitively by separate subsystems, one specialized for the representation and processing of information concerning nonverbal objects and events, the other specialized for dealing with language" (Paivio, 1990, p. 53) .These theoretical perspectives are applied to webtoon-based learning, to clarify how the integration of visual imagery and textual dialogue may strengthen vocabulary acquisition.

Empirical studies on multimedia annotations and visual supports have been shown to enhance learners' processing and retention of lexical items. Chun and Plass (1996) demonstrate this effect by reporting that "annotations of individual vocabulary items consisting of both visual and verbal information help more than verbal information only" (p. 503). In addition to multimodal input, exposure to authentic language is widely considered essential for developing communicative competence. Gilmore (2007) points out this value by stating that "authentic materials are often superior because they provide rich input that is more likely to cater to the different stages of development and individual differences that exist within any classroom population" (p. 62). Through their conversational style and narrative context, webtoons may therefore provide learners with authentic and meaningful exposure to language, helping to bridge the gap between classroom learning and real-world communication.

The accessibility and flexibility of digital platforms also support autonomous and self-directed learning. Mobile-assisted language learning environments allow learners to access learning materials beyond the physical boundaries of the classroom and engage with content according to their own pace and preferences. Kukulska-Hulme and Shield (2008) describe this flexibility by observing this mode of learning as "mediated via handheld devices and potentially available anytime, anywhere" (p. 273). From a sociocultural perspective, language development is also shaped through interaction and

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collaboration within social environments. Vygotsky (1978) brings forth this idea by expounding that, “every function in the child’s cultural development appears twice: first on the social level and later on the individual level” (p. 57). Within digital learning platforms, learners often encounter and interpret vocabulary through shared experiences namely discussions, collaborative interpretation of narratives and engagement with multimedia texts.

Webtoons, as a form of digital narrative media, offer a unique combination of visual storytelling and linguistic input that can enhance both vocabulary acquisition and learner engagement. Visual narratives including comics and digital storytelling can support comprehension and vocabulary inference by providing contextual markers that help learners interpret unfamiliar words. As Armie et al. (2023) notice, “Mobile language learning can enable interactive and spontaneous learning content and activities across diverse contexts” (p.102). In consort with enhancing engagement, digital learning environments offer visually rich and interactive materials that encourage sustained exposure to language.

This perspective spotlights the importance of developing effective pedagogical approaches that support vocabulary growth in language classrooms. The complexity of vocabulary development is further stressed in research on vocabulary pedagogy. Alpino Susanto (2017) states that, “learning vocabulary items is not such a simple matter of committing them to memory, but how to use them in appropriate situations as well as how to expand the knowledge of one’s vocabulary is also crucial” (p. 189). This view suggests that vocabulary instruction should fuse contextualised exposure and meaningful engagement with language. The integration of technology in language education has created new opportunities for vocabulary learning. For instance, Hanadi Abdulrahman Khadawardi (2023) notes that “technology also makes it possible for language learners to use facilities such as dictionaries, annotated services and discussion rooms” (p. 11). These technological affordances allow learners to explore vocabulary more independently.

Multimodal texts combine various communicative modes to construct meaning and engage learners more effectively than single-mode texts. Diamantopoulou and Ørevik (2022) acclaims that “a multimodal text is a text that combines two or more modes of communication— such as linguistic, visual, aural, gestural and spatial—to convey meaning” (p. 3). In a similar vein, Sindoni and Moschini (2022) defines that digital text “is composed of multiple meaning-making resources, … combinations of modes and graphic designs” (p. 2). These perspectives demonstrate that meaning in digital environments is often constructed through the interaction of language with visual and design elements.

Visual and textual elements interact to shape interpretation and comprehension. As Gunther Kress (2003), elucidates, “language alone cannot give us access to the meaning of the multimodally constituted message” (p. 35). This idea is further supported by Stefan Meier (2022) who justifies that in multimodal communication “language makes images readable in specific ways and images make language understandable in different ways” (p.1). These insights suggest that learning materials which attune to visual and linguistic elements can enhance comprehension and facilitate vocabulary acquisition.

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Empirical research demonstrates the pedagogical potential of this medium. Luh Putri Maharani (2021) reports that," Line Webtoon Comic is proved to have helped them grasp the flow of the story more easily by providing them with some fascinating illustrations…The result of this study proposes a great recommendation to use webtoon as an online media to explore and upgrade the students' vocabularies" (p. 5). This finding indicates that webtoon-based learning materials can support vocabulary development by combining narrative engagement with visual scaffolding.

Recent discussions on literacy further reinforce the relevance of multimodal digital texts that engage contemporary learners. Reyes-Torres et al. (2025) illuminates that "Contemporary literacy has evolved into a multidimensional and plural concept that extends beyond mere decoding and encoding of written texts" (p. 2). In light of these developments, exploring the potential of multimodal platforms like webtoons becomes increasingly relevant for language pedagogy. Incorporating media into vocabulary instruction may provide learners with richer contextual input and meaningful opportunities to engage with lexical items, by this means supporting both vocabulary enrichment and assessment in innovative ways.

The review of literature brings forth the pedagogical use of webtoons remains relatively limited and much of the existing literature focusses primarily on learner engagement and reading comprehension rather than systematically evaluating vocabulary acquisition. This indicates a need for further inquiry on how webtoons can be fused into structured vocabulary assessment, particularly in higher education contexts where learners are expected to develop both linguistic proficiency and academic competence.

Hence the present study aims at probing effectiveness of webtoons as a multimodal tool for vocabulary acquisition and retention, while also evaluating their potential as a contextualised instrument for vocabulary assessment in English language learning. It also aims:

- To measure the impact of a structured webtoon-based intervention on the acquisition and retention of academic and discipline-related vocabulary among undergraduate learners.
- To evaluate vocabulary learning outcomes using pre-tests, post-tests and semi-structured interviews following webtoon exposure.
- To analyse the relationship between learner engagement with webtoon narratives and vocabulary performance.
- To explore learners' perceptions and challenges in using webtoons as a primary tool for vocabulary learning.

The present study proposes to scrutinize the pedagogical potential of multimodal digital resources, particularly prioritising webtoons, in enhancing vocabulary acquisition through the integration of visual and textual elements. It further seeks to investigate the effectiveness of webtoon-based materials in supporting undergraduate learners who transition from vernacular-medium backgrounds to English-medium higher education, where lexical challenges are often pronounced. In addition, the study explores how the contextual and narrative features of webtoons contribute to meaningful vocabulary learning and retention. Ultimately, the research intends to contribute to the development of more innovative and learner-centred approaches to vocabulary pedagogy within

ESL/EFL contexts, addressing the limited empirical attention given to webtoon-based learning in Indian educational settings.

This study addresses the following Research Questions:

1. How do webtoons influence second language learners' vocabulary learning?
2. How does the use of webtoons impact SL learners' ability to understand a text and use the new vocabulary found in them?
3. What are the contributions of the visual and narrative elements of the webtoons in kindling SL learners' interest?
4. How do the varied components of webtoons hone the visualisation skills of SL learners?
5. How do the visual and narrative elements of webtoons aid in memory retention of vocabulary?

This study attempts to prove the following hypothesis:

H1- Use of multimodal platforms specifically Webtoons to enhance Vocabulary acquisition and retention rate among SL learners'

H2 – Vocabulary acquisition involves the overall improvement of five distinct variables including vocabulary learning, text comprehension, learner interest, visualisation skills and memory retention.

This study is organised into four sections. The first section presents the introduction, outlining the research background, gap, objectives, research questions, and hypotheses. The second section elaborates on the methodology, including research design, participants, instruments, and procedures. The third section presents the data analysis and results. The final section discusses the findings, implications, limitations, scope for further research and conclusion.

METHOD

The present study employs a quantitative research design supported by qualitative insights to inspect vocabulary learning outcomes among undergraduate learners exposed to webtoon-based instruction. The study was conducted at Fatima College, Madurai, Tamilnadu, India with a total of 30 second year undergraduate participants from diverse academic disciplines in a higher education context where English functions as a second language.

The study adopted a single-group pre-test–post-test experimental design to evaluate the impact of webtoon-based instruction. This approach allows researchers to measure changes in learners' knowledge before and after exposure to an instructional intervention. Discussing experimental approaches in educational research, John W. Creswell and J. David Creswell (2018) unfolds that, experimental research is used to examine whether a specific intervention influences an outcome variable. In this study, the design facilitated a systematic comparison of learners' vocabulary-related performance prior to and following exposure to webtoon-based learning. In the present study, this design enabled a systematic comparison of students' vocabulary knowledge before and after the webtoon-based learning activities.

Vocabulary development was measured using the Vocabulary Knowledge Scale (VKS) developed by Marguerite Wesche and T. Sima Paribakht (1996). The VKS assesses incremental vocabulary knowledge across several levels ranging from unfamiliarity with a word to the ability to use it accurately in context. Demonstrating the

purpose of the instrument, the authors describe it as a tool designed to capture "learners' self-reported knowledge of words along a continuum ranging from total unfamiliarity to the ability to use the word correctly in a sentence" (p. 29). The scale measures both receptive recognition and productive use, providing a detailed representation of learners' lexical development during the instructional intervention.

Qualitative data in this study refers to descriptive information that captures learners' personal experiences, perceptions and interpretations of the learning process. Unlike quantitative data derived from the Vocabulary Knowledge Scale (VKS), which focus on measurable outcomes, qualitative data primarily consist of verbal responses and narrative insights. While these data are interpretive in nature, they may be systematically organised and, where appropriate, presented in a partially quantified form (such as grouped responses or graphical representations). This type of data helps in unfolding learners' attitudes, engagement levels and cognitive processes, thereby offering a deeper understanding of the effectiveness of the instructional approach.

Quantitative findings refer to the data collected through semi-structured interviews conducted after the instructional period. These interviews allowed participants to reflect on their experiences with webtoon-based learning and the strategies they used to glean unfamiliar vocabulary from graphic storyline. Qualitative interviewing is particularly useful when researchers seek to understand participants' interpretations and learning experiences. As Sharan B. Merriam and Elizabeth J. Tisdell (2016) disclose, "Interviewing is necessary when we cannot observe behaviour, feelings, or how people interpret the world around them" (p. 109). The interview responses therefore helped contextualise the quantitative results by revealing how learners interacted with illustrated texts and processed vocabulary within pictorial narration.

Research Design

Phase 1: Pre-Intervention Baseline

All participants (N=30) completed a Vocabulary Knowledge Scale (VKS) test consisting of 30 low-frequency lexical items derived from selected online reading materials. The VKS is a validated instrument that measures incremental vocabulary knowledge, ranging from unfamiliarity to productive use, thereby capturing both receptive and productive lexical competence (Wesche & Paribakht, 1996). Semi-structured interviews were conducted to establish baseline data regarding participants' vocabulary learning strategies, attitudes towards English reading and prior exposure to multimodal or digital learning environments. This phase ensured a comprehensive understanding of learners' initial linguistic and motivational profiles.

Phase 2: Intervention

Participants were engaged with two, age-appropriate English webtoons over a four-week period, with two 20-minute sessions per week (total = 8 sessions). Selected texts included Lore Olympus (episodes 104-109) and True Beauty (episodes 0-9), were chosen based on academic criteria, including their popularity among young adult readers, accessibility of language, conversational style, vocabulary density and strong integration of visual and textual elements, making them suitable for contextual vocabulary learning.

During the intervention, learners maintained a Vocabulary Learning Journal in which they:

- Recorded unfamiliar lexical items
- Inferred meanings using contextual and visual indicators
- Reflected on their confidence levels in word usage
- Evaluated their engagement with the reading material

This design aligns with multimedia learning theory, which posits that dual-channel input enhances cognitive processing and retention (Mayer, 2021).

Phase 3: Post-Intervention Data Collection

The same VKS instrument was re-administered to measure changes in vocabulary knowledge. Follow-up semi-structured interviews elicited deeper reflections on learning strategies, multimodal inference processes and learner engagement. Questions were refined for clarity and academic appropriateness, for example:

- How would you describe your experience of learning vocabulary through webtoons?
- What strategies did you use to infer and retain new words?
- What ways do webtoon-based learning differ from traditional vocabulary learning?
- What extent did visualisation support comprehension and retention?

Data Analysis

The data were analysed using a paired-samples t-test to determine whether there was a statistically significant difference between pre-test and post-test vocabulary scores following the Webtoon-based intervention. Descriptive statistics (mean, standard deviation, percentage gain) were computed to summarise learner performance. Assumptions underlying parametric testing were verified through a normality test. Furthermore, the reliability of the instrument (test) was established using Cronbach's alpha to ensure internal consistency.

Table 1. ***Descriptive Statistics for Pre-Test and Post-Test Scores (N = 30)***

Test Condition	Mean (%)	Standard Deviation	Variance
Pre-Test	25.00	18.37	270
Post-Test	91.20	6.76	36.56

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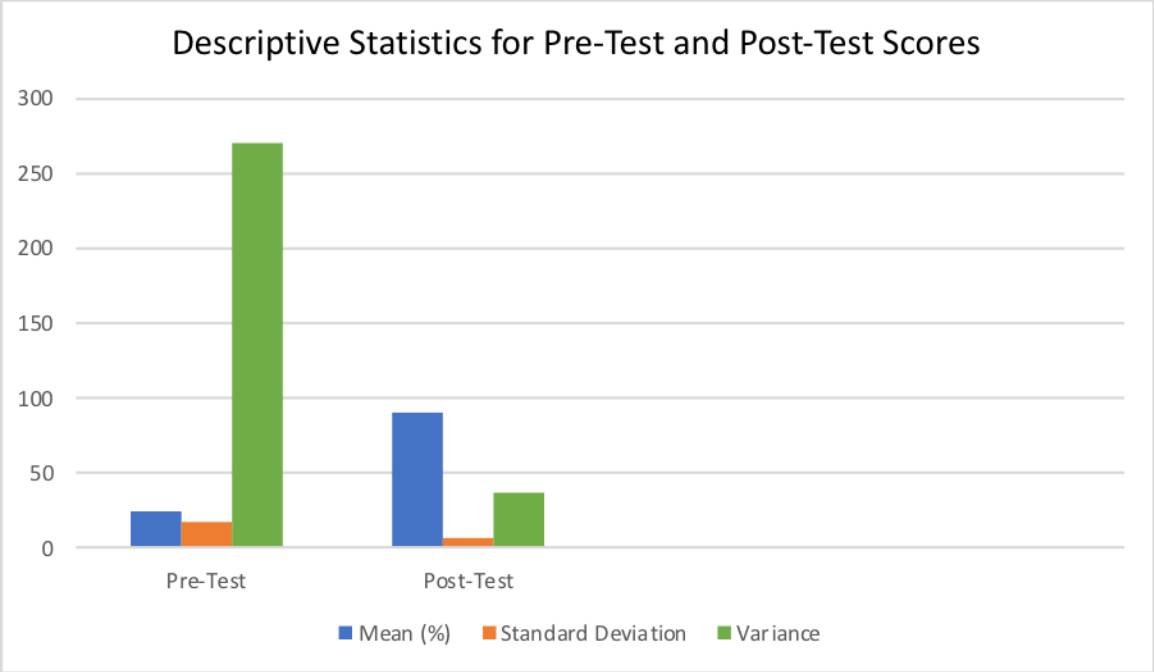

Figure. 1 ***Descriptive Statistics for Pre-Test and Post-Test Scores (N = 30)***

- The mean average inferred from the pre-test and post-test results prove that the implementation of Webtoon plays a vital role in Vocabulary acquisition.
- The median for pre-test amounts to 25 whereas median for post-test amounts to a significant change upto 91.20 marks prove that students have shown substantial improvement after the intervention of webtoons.
- The standard deviation and the variance of pre-test stand around 18.37 and 270, whereas the standard deviation of post-test is 6.76 and variance of post-test is 36.56. The smaller range of standard deviation denotes that the marks are equally distributed and the students have gained a uniform improvement in language acquisition.

FINDINGS AND DISCUSSION

Overall Performance Improvement

The data indicate a clear and consistent improvement in students' vocabulary performance following the webtoon-based intervention. A comparison of pre-test and post-test scores shows that all participants demonstrated a positive increase in their scores. No student exhibited a decline in performance and the improvement trend remained consistent across the entire sample. The mean score increased substantially from the pre-test to the post-test, indicating measurable gains in vocabulary acquisition within a short instructional period. This overall improvement suggests that the intervention was effective across varying proficiency levels.

The graphical representation of the data further confirms a significant upward trend in vocabulary scores. The transition from lower baseline scores in the pre-test to considerably higher scores in the post-test reflects enhanced lexical knowledge among learners.

Additionally, supporting indicators from the data show improvement in:

- Text comprehension (from approximately 20% to 80%)

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- Learner interest (from approximately 5% to 97%)
- Visualisation ability (from approximately 5% to 94%)
- Memory retention (from approximately 20% to 90%)

These results demonstrate consistent gains across cognitive and affective dimensions of vocabulary learning.

The notable increase in vocabulary scores can be interpreted through the lens of multimodal learning theory and dual-coding theory, which emphasise the integration of visual and verbal information in facilitating deeper learning. In contrast to the conventional approaches that prioritise memorisation of isolated word lists, webtoon-based learning situates vocabulary within coherent narrative contexts enriched by visual cues. As Richard E. Mayer (2021) explains, sensory memory temporarily retains visual and auditory input, enabling learners to process "pictures and printed text…as exact visual images" and "spoken words…as exact auditory images" (p. 62). This dual-channel processing supports the integration of linguistic and visual information, thus enhancing encoding and retention. While the study aligns with the theoretical assumptions it also suggests that the dual processing has to take into considerations the factors such as repeated exposure or task alignment to the same in order to have more desirable outcomes.

The improvement across learners with varying initial proficiency levels further indicates the inclusive affordances of multimodal instruction, particularly when viewed through cognitive load theory. The combination of imagery and text may reduce extraneous cognitive load by providing contextual scaffolding that supports meaning-making. As Karen J. Murchie and Dylan Diomede (2020) note, compelling imagery captures attention and enhances engagement (p. 414), which may facilitate learners' ability to infer the meaning of unfamiliar lexical items. Nevertheless, this interpretation requires caution, as the absence of a control group limits the ability to determine whether similar gains might have occurred through other forms of enriched input. The findings of the study suggest that webtoons may support learners with diverse proficiency levels, However, further comparative research is necessary to substantiate this claim.

The results of the students resonate with incidental vocabulary acquisition theory, particularly the role of contextualised exposure in lexical development. I.S.P. Nation (2001) observes that, "small amounts of incidental vocabulary learning occur from reading" (p. 149), highlighting the gradual and cumulative nature of vocabulary growth. Webtoons, by combining narrative continuity with multimodal input, may intensify this process by increasing learner engagement and frequency of exposure. Nevertheless, the magnitude of gains observed in this study appears to have a significant edge over what is typically associated just with mere incidental learning alone, suggesting that this intervention may have functioned as a form of enhanced or guided incidental learning. Consequently, the findings add to the existing theoretical perspectives by indicating that multimodal narrative environments such as webtoons may accelerate vocabulary acquisition, while also underscoring the need for more rigorous empirical designs to isolate the specific mechanisms involved.

The statistical and graphical interpretation of the data substantiates the statement that the use of webtoons significantly increases the five distinctive variables of the vocabulary acquisition such as vocabulary learning, text comprehension, learner

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interest, visualisation skills and memory retention among the select learners. Hence the results from the analysis validates the research hypothesis.

Pedagogical Implications

The findings highlight several important implications for English language teaching. The observed increase in learner interest and motivation indicates that webtoons create a low-anxiety learning environment, which is crucial for "more autonomous forms of motivation will lead to an enhancement of students' engagement, learning and wellness" (Ryan & Deci, 2020, p. 3). These results suggest that incorporating multimodal, ambience-rich resources like webtoons not only supports vocabulary acquisition but also fosters learner autonomy, sustained motivation and meaningful engagement in the language learning process.

Webtoons support incidental vocabulary learning by embedding words within authentic communicative situations. This enables learners to understand not only the meaning of words but also their usage, connotation and pragmatic function. Milieu exposure is essential for developing both receptive and productive vocabulary knowledge. The strong gains in memory retention and visualisation suggest that webtoons facilitate long-term learning by creating multiple cognitive associations. This study has paved way for measurable and consistent learner outcomes, enabling observable and reliable evaluation of performance. This demonstrates that webtoons can be extended beyond instructional purposes to function as an alternative assessment tool.

Scope for Further Research

Future research can advance the pedagogical potential of webtoon-based learning by developing structured instructional frameworks grounded in multimedia learning and vocabulary acquisition theories. Designing pedagogically organised modules that accommodate images, dialogue and contextual cues may help learners establish stronger connections between word form, meaning and usage. The creation of curated and annotated webtoon repositories would also support teachers in selecting texts appropriate to learner proficiency levels and instructional goals.

Continued research may explore how different instructional strategies influence vocabulary learning through webtoon narratives. Comparative studies could delve into passive reading approaches alongside more interactive methods resembling collaborative storytelling, student-generated webtoon narratives or task-based vocabulary activities. Active engagement with narrative content encourages learners to manipulate lexical items in meaningful communicative surroundings and can strengthen retention and learner autonomy. The incorporation dynamic assessment techniques may provide deeper insights into how learners gather meaning and construct lexical knowledge while interacting with multimodal texts.

Later studies could address how webtoons can be adapted for secondary school curricula through age-appropriate content selection and structured scaffolding. Exploring the use of multimodal narratives at earlier stages of language education may reveal whether early exposure strengthens foundational vocabulary knowledge and reading comprehension. Cross-cultural studies conducted across diverse ESL and EFL setting may also provide insights into how learners from different linguistic and cultural

backgrounds interpret visual narratives metacommunication within webtoon-based materials.

The vital direction involves examining how webtoon-based instruction can support the unified development of listening, speaking, reading and writing skills. The current study primarily addresses vocabulary learning and reading comprehension; however, webtoon narratives can be expanded through supplementary activities such as audio narration, role-play discussions and creative writing tasks. These extensions may allow learners to apply newly learned vocabulary in productive language use and develop broader communicative competence.

Longitudinal research is essential to determine the durability of vocabulary learning achieved through webtoon-based instruction. Short-term interventions may demonstrate augmentation in vocabulary recognition and comprehension, yet sustained acquisition requires repeated exposure to lexical items in varied circumstances. Long-term tracking of learners over extended periods would therefore provide stronger evidence of vocabulary retention, frequency of use and the integration of newly learned vocabulary into productive language skills.

Limitations of the Study

Webtoons are primarily accessed through screen-based platforms that distinguishes it from traditional print materials. The existing knowledge on digital reading indicates that, “screen inferiority is a major challenge across age groups that becomes more severe as the presence of technology increases” (Delgado, et al., 2018, p. 34). Corresponding differences suggest that learners interacting with webtoon narratives on digital devices tend to employ distinct reading strategies, which could influence the depth of lexical processing and retention.

A second barrier is cognitive demands associated with multimodal learning environments. Webtoons link visual imagery, narrative sequencing and textual dialogue, requiring learners to process multiple semiotic resources simultaneously. While multimodal input can facilitate comprehension by providing environmental support, it may also impose additional cognitive demands. As Huang et al. (2022) mentions, “multimodal input has the potential to lead to more sound learning outcomes, but it carries the risk of causing cognitive overload” (p. 6). Within webtoon-based learning, differences in how learners attend to visual prompts, story design and linguistic information may therefore shape the extent to which vocabulary items are noticed and internalised.

Multidimensional nature of constraint relates to the complex vocabulary knowledge. It involves the gradual development of multiple aspects of lexical competence, including form, meaning, use and collocation. Although the instruments employed in the present study were designed to measure vocabulary learning outcomes, they may capture only certain dimensions of lexical knowledge. Consequently, the results may not fully reflect the learners’ ability to employ newly encountered lexical items in broader communicative structure.

Further drawback concerns learner-related variables that were not screened systematically within the scope of the present research. Vocabulary development in multimedia learning environments is often influenced by individual differences in vocabulary knowledge, reading proficiency and cognitive processing capacity. Recent

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research denotes that “with a larger vocabulary size or working memory capacity make larger vocabulary gains from multimodal input” (Zhang & Zhang, 2024, p. 3). These factors could have contributed to variations in learners’ engagement with the webtoon materials and can partly reveal differences in vocabulary gains among participants.

Finally, the interpretation of the findings should also consider the relatively limited body of empirical research on webtoon-based pedagogy. Although multimodal literacy and digital reading have received increasing scholarly attention, studies concentrating specifically on webtoons or digital comics in language learning remain comparatively scarce. As Cárcamo & Pino, (2025) spots, “few studies have examined multimodal literacy development in EFL contexts” (p.1). As a result, the present study should be viewed as a contribution to the inquiry of webtoons rather than providing definitive evidence regarding its effectiveness in vocabulary instruction.

CONCLUSION

Vocabulary, as a foundational component of language proficiency, requires innovative instructional strategies that extend beyond memorisation towards more meaningful and sustained engagement in the digital era. The present study suggests that webtoons, as a form of multimodal digital storytelling, may offer a promising alternative to traditional vocabulary teaching methods. Webtoons that combine visual and textual elements to create immersive learning experiences that would facilitate vocabulary development through contextualised input. The results of this study point to observable improvements in vocabulary performance, together with increased levels of learner motivation, engagement, and confidence. However, these outcomes should be interpreted with caution, due to the limitations of the research design, particularly the absence of a control group and the possibility of testing effects or measurement bias.

The findings indicate the potential benefits of integrating multimodal and narrative-driven resources into language pedagogy such as memory retention, visualisation, vocabulary learning, text comprehension and learner interest in supporting learners’ engagement with lexical items. The study also highlights the potential of webtoon-based materials as supportive tools for vocabulary assessment, particularly in creating less intimidating and more contextually grounded evaluation environments. At the same time, the effectiveness of such approaches appears to depend on careful pedagogical design, including appropriate material selection, structured guidance and integration with explicit vocabulary instruction. So, the study foresees that in adequate scaffolding, may lead the SL learners to rely on surface-level inference rather than developing deeper lexical knowledge.

In conclusion, webtoons can be viewed as a potentially valuable pedagogical resource in vocabulary instruction, particularly within digitally oriented learning contexts, yet, their effectiveness should be understood as indicative rather than definitive and furthering the research over a large number of samples with a wider time framework could increase the validity and reliability. Future studies may be built on this work by exploring comparative interventions and diverse learner populations to better understand the role of webtoon-based learning in English language education.

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