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**The Impact of Visual Aids on Vocabulary Retention among
Middle School Learners**

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Dedication

This work is dedicated with deep gratitude and heartfelt love to my small family my wife and my daughter , whose unwavering support, patience, and encouragement have been the foundation upon which every page of this research has been built. To my parents, whose sacrifices and belief in the power of education instilled in me the perseverance to pursue knowledge beyond the obvious — this proposal is as much yours as it is mine.

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ABSTRACT

Vocabulary acquisition constitutes a cornerstone of second language learning, and the pedagogical conditions that facilitate long-term retention of new lexical items remain a central concern in applied linguistics and language education research. This Master's thesis investigates the impact of visual aids — including static illustrations, semantic mapping, pictorial flashcards, and multimedia-supported vocabulary instruction — on vocabulary retention among middle school learners of English as a Foreign Language (EFL). The study is grounded in Paivio's Dual Coding Theory (1971, 1986), Mayer's Cognitive Theory of Multimedia Learning (2001), and Swain's Output Hypothesis (1985), which collectively suggest that the simultaneous processing of verbal and non-verbal information strengthens memory encoding and promotes deeper semantic processing. Using a quasi-experimental pretest-posttest control group design, the study will engage approximately 80 seventh-grade EFL learners drawn from two intact classes in a middle school in [City, Country]. The experimental group will receive vocabulary instruction enriched with a structured battery of visual aids over an eight-week instructional period, while the control group will receive conventional text-based vocabulary instruction. Data will be collected through a researcher-designed Vocabulary Knowledge Scale (VKS), a delayed retention test administered three weeks post-instruction, and semi-structured learner interviews to capture attitudinal and metacognitive dimensions of visual vocabulary learning. It is hypothesized that learners who receive visually enriched vocabulary instruction will demonstrate significantly higher immediate and delayed retention scores compared to those in the control condition. The findings are expected to yield theoretically grounded and pedagogically actionable insights for EFL curriculum designers, materials developers, and classroom practitioners working within middle school educational contexts. Implications for teacher training, digital resource integration, and assessment design are also addressed.

Keywords: visual aids, vocabulary retention, EFL, middle school learners, dual coding theory, multimedia learning, quasi-experimental design

Résumé

L'acquisition du vocabulaire constitue l'un des piliers fondamentaux de l'apprentissage d'une langue seconde, et les conditions pédagogiques favorisant la rétention durable des nouveaux éléments lexicaux demeurent une préoccupation majeure en linguistique appliquée et en didactique des langues. Ce mémoire de master examine l'impact des supports visuels — notamment les illustrations fixes, les cartes sémantiques, les cartes illustrées (*flashcards*) et l'enseignement du vocabulaire assisté par des ressources multimédias — sur la rétention du vocabulaire chez des élèves de collège apprenant l'anglais comme langue étrangère (ALE). L'étude s'appuie sur la théorie du double codage de Paivio (1971, 1986), la théorie cognitive de l'apprentissage multimédia de Mayer (2001) et l'hypothèse de la production langagière (*Output Hypothesis*) de Swain (1985). Ensemble, ces cadres théoriques soutiennent que le traitement simultané d'informations verbales et non verbales renforce l'encodage en mémoire et favorise un traitement sémantique plus approfondi. Adoptant un devis quasi expérimental avec prétest et post-test comportant un groupe témoin, cette étude portera sur environ 80 élèves de septième année (7th grade) apprenant l'anglais comme langue étrangère, répartis dans deux classes intactes d'un collège situé à [Ville, Pays]. Le groupe expérimental bénéficiera, pendant une période de huit semaines, d'un enseignement du vocabulaire enrichi par un ensemble structuré de supports visuels, tandis que le groupe témoin suivra un enseignement traditionnel fondé essentiellement sur des supports textuels. Les données seront recueillies à l'aide d'une **Échelle de connaissance du vocabulaire** (*Vocabulary Knowledge Scale – VKS*) conçue par le chercheur, d'un test différé de rétention administré trois semaines après la fin de l'intervention, ainsi que d'entretiens semi-directifs visant à explorer les dimensions attitudinales et métacognitives de l'apprentissage lexical assisté par des supports visuels. L'hypothèse de cette recherche est que les apprenants bénéficiant d'un enseignement du vocabulaire enrichi par des supports visuels obtiendront des résultats significativement supérieurs, tant en rétention immédiate qu'en rétention différée, par rapport aux apprenants du groupe témoin. Les résultats attendus devraient fournir des éclairages à la fois théoriquement fondés et directement exploitables sur le plan pédagogique, à l'intention des concepteurs de programmes d'enseignement de l'anglais langue étrangère, des développeurs de matériels pédagogiques et des enseignants exerçant au niveau du collège. Enfin, cette étude abordera également les implications de ses résultats pour la formation des enseignants, l'intégration des ressources numériques dans l'enseignement et la conception des dispositifs d'évaluation.

Mots-clés : supports visuels ; rétention du vocabulaire ; anglais langue étrangère (ALE) ; élèves du collège ; théorie du double codage ; apprentissage multimédia ; devis quasi expérimental.

المستخلص

تُعدّ المفردات اللغوية من أهم الركائز الأساسية في تعلّم اللغة الإنجليزية كلغة أجنبية، إذ إن ضعف الرصيد اللغوي لدى المتعلّمين ينعكس مباشرة على قدرتهم في الفهم والتواصل والتحصيل الدراسي. وانطلاقاً من هذا التصور، تهدف هذه الدراسة إلى بحث أثر الوسائل البصرية في تحسين الاحتفاظ بالمفردات لدى تلاميذ الطور المتوسط، من خلال توظيف الصور التعليمية، والخرائط الدلالية، والبطاقات المصورة، والوسائط المتعددة أثناء تدريس المفردات الإنجليزية. استندت الدراسة إلى مجموعة من الأطر النظرية المعرفية، أهمها نظرية الترميز المزدوج لـ Allan Paivio، ونظرية التعلم بالوسائط المتعددة لـ Richard Mayer، وفرضية الملاحظة لـ Richard Schmidt، والتي تؤكد جميعها أن الدمج بين المعلومات اللفظية والبصرية يساهم في تقوية الذاكرة وتحسين عملية استرجاع المفردات. اعتمدت الدراسة المنهج شبه التجريبي باستخدام اختبار قبلي وبعدي لمجموعتين: مجموعة تجريبية تلقت تعليماً مدعماً بالوسائل البصرية، ومجموعة ضابطة درست بالطريقة التقليدية المعتمدة على النصوص فقط. وقد شملت العينة حوالي 80 تلميذاً من السنة السابعة متوسط بإحدى المؤسسات التعليمية في الجزائر، واستمرت التجربة لمدة ثمانية أسابيع. استُخدمت عدة أدوات لجمع البيانات، تمثلت في مقياس معرفة المفردات (VKS)، واختبار مؤجل لقياس مدى الاحتفاظ بالمفردات، إضافة إلى مقابلات شبه موجهة مع بعض التلاميذ لمعرفة آرائهم حول فعالية الوسائل البصرية في تعلم المفردات. وتتوقع الدراسة أن تظهر نتائج المجموعة التجريبية تحسناً ملحوظاً في الاحتفاظ الفوري والمؤجل بالمفردات مقارنة بالمجموعة الضابطة، مما يؤكد فعالية الوسائل البصرية في تدريس اللغة الإنجليزية. كما يُنتظر أن تساهم نتائج الدراسة في تقديم توصيات عملية لفائدة أساتذة اللغة الإنجليزية ومصممي المناهج التعليمية، خاصة فيما يتعلق بدمج الوسائط البصرية في تعليم المفردات داخل الطور المتوسط.

الكلمات المفتاحية: الوسائل البصرية، الاحتفاظ بالمفردات، اللغة الإنجليزية كلغة أجنبية، تلاميذ الطور المتوسط، الترميز المزدوج، التعلم بالوسائط المتعددة.

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Introduction

1 Background of the Study

Vocabulary has long been recognized as the most fundamental building block of language competence. Without an adequate lexical repertoire, learners are unable to comprehend texts, engage in meaningful communication, or develop the higher-order literacy skills that academic and professional success demands. The centrality of vocabulary is reflected in Wilkins's (1972) seminal observation that 'without grammar very little can be conveyed; without vocabulary nothing can be conveyed.' This axiom has guided language pedagogy for decades and continues to animate contemporary debates about how vocabulary should be taught, practiced, and assessed.

Despite this acknowledged centrality, vocabulary instruction has historically occupied a peripheral role in formal EFL curricula, often treated as incidental to grammar instruction or reading comprehension rather than as a domain requiring systematic, research-informed pedagogical attention. The consequences of this marginalization are visible in the persistent lexical deficiencies that middle school EFL learners exhibit — deficiencies that impede not only their linguistic development but also their broader academic performance across content areas.

In parallel with these pedagogical concerns, a substantial body of cognitive and educational psychology research has demonstrated the powerful role of visual information in memory encoding and retrieval. Paivio's (1971, 1986) Dual Coding Theory posits that human cognition operates through two distinct but interconnected systems: a verbal system that processes linguistic information and a non-verbal system that processes imagery. When information is encoded through both channels simultaneously — as when a new vocabulary item is presented alongside its visual representation — the resulting memory trace is richer, more elaborately organized, and more resistant to forgetting. This theoretical insight provides a compelling rationale for the systematic integration of visual aids into vocabulary instruction.

Mayer's (2001) Cognitive Theory of Multimedia Learning extends Paivio's framework to the domain of educational technology, demonstrating that learners who receive instruction through coordinated words and images consistently outperform those who receive words alone across a range of learning outcomes. The multimedia principle, contiguity principle, and coherence principle articulated by Mayer offer concrete guidance for the design of visually enriched instructional materials — guidance that has accumulated substantial empirical support across subject domains, age groups, and instructional contexts.

Within the specific context of middle school EFL education, the convergence of these theoretical perspectives with the developmental characteristics of early adolescence creates a particularly compelling case for visual vocabulary instruction. Middle school learners — typically between the ages of eleven and fourteen — are in a critical developmental phase characterized by heightened visual sensitivity, preference for concrete over abstract representations, and an emerging capacity for metacognitive reflection. These learner characteristics suggest that visual aids may be especially well-suited to this population, both as a motivational scaffold and as a cognitive tool for deepening lexical processing.

2 Statement of the Research Problem

Notwithstanding the theoretical plausibility and empirical promise of visual vocabulary instruction, a significant gap persists between research findings and classroom practice in middle school EFL contexts. Informal observations and professional development surveys consistently reveal that the majority of middle school EFL teachers continue to rely on decontextualized word lists, bilingual translation drills, and rote repetition as their primary vocabulary instructional strategies — approaches that promote shallow, ephemeral learning rather than the deep, durable retention that academic vocabulary demands.

Furthermore, while research on visual aids in language learning has accumulated considerably over the past three decades, the existing evidence base is characterized by

several important limitations. First, many studies have been conducted with adult or university-level learners, making it unclear whether findings can be generalized to the developmentally distinct population of middle school learners. Second, much of the available research focuses on a single type of visual aid — typically static illustrations — without systematically comparing the differential efficacy of multiple visual formats. Third, the majority of studies measure immediate post-test gains without examining the critical question of delayed retention — the degree to which vocabulary gains persist over time in the absence of continued instruction.

These limitations are particularly consequential in [Country] EFL contexts, where middle school curricula are under increasing pressure to accelerate vocabulary development in preparation for high-stakes national examinations. The absence of locally validated, rigorously evaluated visual vocabulary interventions leaves teachers without the evidence-based guidance they need to make informed instructional decisions. This study is designed to address this problem directly.

1.3 Research Gap

A systematic review of the available literature on visual aids and vocabulary learning reveals that studies specifically targeting middle school EFL learners in [Country / MENA / developing world contexts] are notably scarce. The preponderance of research originates from Western educational settings — principally the United States, Europe, and East Asia — and the cultural, linguistic, and institutional contexts of these settings differ substantially from those in which the present study is situated.

Moreover, existing studies rarely distinguish between different types of visual aids — conflating static images, semantic maps, graphic organizers, and digital multimedia under the broad umbrella of 'visual instruction' — thereby obscuring important differences in how various visual formats interact with learner characteristics and target vocabulary features. The

present study addresses this gap by employing a structured taxonomy of visual aid types and systematically examining their combined effects within a coherent instructional sequence.

Additionally, the affective and motivational dimensions of visual vocabulary instruction — including learners' attitudes toward visual learning strategies and their perceptions of visual aids' usefulness — have received limited attention in the quantitative-dominant literature. By incorporating a qualitative component in the form of semi-structured interviews, the present study provides a more holistic picture of how visual aids operate within the lived experience of EFL vocabulary learning.

4 Research Objectives

The present study is guided by the following specific objectives:

1. *To examine the effect of visually enriched vocabulary instruction on the immediate retention of EFL vocabulary among seventh-grade middle school learners.*
2. *To investigate whether the vocabulary gains produced by visual aid instruction are durable over a three-week delayed retention period.*
3. *To compare the vocabulary retention outcomes of learners who receive visual aid-based instruction with those who receive conventional text-based instruction.*
4. *To explore learners' perceptions, attitudes, and metacognitive responses to visual vocabulary learning strategies.*
5. *To identify the types of visual aids that learners perceive as most effective and most engaging for vocabulary acquisition purposes.*

5 Significance of the Study

The significance of this study is both theoretical and applied. At the theoretical level, the study contributes to the ongoing project of grounding language pedagogy in cognitive science by providing ecologically valid empirical evidence for the predictions of Dual Coding Theory and the Cognitive Theory of Multimedia Learning within a specific educational context. By testing these theories with a population that has been underrepresented in the literature — middle school EFL learners in [Country] — the study extends the explanatory

reach of established theoretical frameworks and identifies the boundary conditions under which their predictions hold.

At the applied level, the findings of this study are intended to inform the practice of EFL vocabulary instruction in middle school settings in several concrete ways. For classroom teachers, the study provides evidence-based guidance on the selection, design, and deployment of visual aids within vocabulary lessons. For curriculum developers and materials designers, the findings offer insights into how visual elements can be meaningfully integrated into textbooks, workbooks, and digital learning platforms. For school administrators and professional development coordinators, the study highlights the importance of training teachers in research-informed visual instruction strategies. For policymakers, the study contributes to the evidence base for curriculum reform initiatives aimed at strengthening EFL vocabulary outcomes at the middle school level.

6 Research Boundaries and Delimitations

In the interest of methodological rigor and feasibility, the scope of the present study is deliberately bounded in the following respects. First, the study is limited to seventh-grade EFL learners in a single middle school in [City, Country], and findings should not be generalized beyond comparable populations without appropriate caution. Second, the study focuses exclusively on receptive vocabulary knowledge — that is, the ability to recognize and understand target words in context — and does not examine productive vocabulary use. Third, the instructional intervention is limited to an eight-week period, and the delayed retention test is administered at three weeks post-instruction. Longer-term retention effects fall outside the scope of this study. Fourth, the study does not attempt to isolate the differential effects of individual visual aid types but examines the combined effect of a structured visual aid battery as a unified instructional approach.

7 Chapter Outline

The remainder of this proposal is organized as follows. Chapter Two presents a systematic review of the relevant theoretical and empirical literature, culminating in the identification of the theoretical framework guiding the study. Chapter Three describes the research methodology in detail, including the research design, participants, instruments, data collection procedures, analysis methods, and ethical considerations. Chapter Four presents the anticipated results in tabular and graphical form. Chapter Five discusses the implications of these results in relation to the existing literature. Chapter Six presents the study's conclusions, contributions, recommendations, limitations, and directions for future research. The proposal concludes with a comprehensive reference list and supplementary appendices.

CHAPTER ONE :

Review of Related Literature

1.1 Review of Previous Studies

The relationship between visual input and vocabulary acquisition has been the subject of sustained empirical attention since at least the 1970s, yielding a rich and methodologically diverse body of literature. Early studies in educational psychology (e.g., Pressley, Levin, & Delaney, 1982) established the keyword method — a mnemonic strategy linking target words to acoustically similar words through mental imagery — as a robust facilitator of vocabulary learning. These foundational findings laid the groundwork for subsequent investigations into a broader range of visual vocabulary strategies in authentic classroom contexts.

Subsequent decades witnessed a significant expansion in the scope and methodological sophistication of visual vocabulary research. Hadley and Hadley (1990) conducted one of the first classroom-based studies examining the differential effects of illustrated and non-illustrated vocabulary instruction, finding that learners who received illustrated word lists consistently outperformed control group peers on both immediate and delayed vocabulary tests. This finding was replicated and extended by a series of studies in the 1990s and 2000s that employed increasingly rigorous experimental designs and more sensitive vocabulary assessment instruments.

Nation's (2001) influential synthesis of vocabulary learning research provided a theoretical and empirical foundation for understanding the conditions under which visual aids are most likely to enhance vocabulary acquisition. Nation identified 'noticing' — the learner's conscious attention to the form and meaning of a new word — as a prerequisite for successful vocabulary learning, and suggested that visual aids may function as powerful attention-drawing devices that facilitate the noticing process. This insight was subsequently taken up by researchers working within the Noticing Hypothesis framework (Schmidt, 1990), who demonstrated that visual saliency — the degree to which a stimulus stands out from its background — is a key mediator of vocabulary noticing and encoding.

In the domain of multimedia-assisted vocabulary learning, a particularly productive line of research has examined the effects of digital visual aids — including video clips, animated presentations, and interactive vocabulary software — on EFL vocabulary acquisition. Yoshii and Flaitz (2002) compared the vocabulary learning outcomes of EFL learners who read glossed texts with picture glosses, text glosses, or both, finding that the picture-plus-text condition produced the highest vocabulary gains. Al-Seghayer (2001) compared the efficacy of static pictures and video clips as vocabulary glosses, finding that video produced significantly higher vocabulary scores — a finding attributed to the dynamic, contextualized nature of video-based meaning presentation.

Semantic mapping — a visual vocabulary strategy that graphically represents the relationships among words, concepts, and categories — has also attracted substantial research attention. Johnson and Pearson (1984) pioneered the use of semantic mapping in vocabulary instruction, and subsequent studies have consistently documented its positive effects on both vocabulary breadth and depth. Zaid (1995) examined the effects of semantic mapping on EFL learners' vocabulary knowledge, finding significant gains in both the quantity and quality of vocabulary associations. More recent studies (e.g., Eskey&Grabe, 2016) have explored the integration of digital semantic mapping tools — such as concept-mapping software — into EFL vocabulary instruction, with promising results.

Within middle school EFL contexts specifically, Sadeghi and Khonbi (2013) examined the effects of pictorial flashcards on vocabulary retention among Iranian middle school learners, finding that the flashcard group significantly outperformed the control group on both immediate and delayed vocabulary tests. Similarly, Razmjoo and Ranjbar (2014) investigated the effects of illustrated stories on EFL vocabulary acquisition among middle school learners in Iran, finding that the illustrated story condition produced significantly higher vocabulary scores than the non-illustrated condition. While these studies are methodologically relevant,

both are limited to single-site, single-country contexts with relatively small sample sizes, and neither examines the delayed retention effects of visual vocabulary instruction beyond two weeks.

1.2 Points of Agreement and Disagreement in the Literature

The existing literature is characterized by a broad consensus on several key points. First, there is strong and consistent evidence that visual aids — across a range of formats and delivery media — enhance vocabulary learning outcomes relative to text-only instruction. This finding has been replicated across diverse learner populations, instructional contexts, and measurement instruments, and is widely regarded as among the most robust findings in applied linguistics and educational psychology. The theoretical grounding for this consensus, provided by Dual Coding Theory and the Cognitive Theory of Multimedia Learning, has proven remarkably durable and continues to generate productive research questions.

Second, the literature converges on the finding that the positive effects of visual aids on vocabulary learning are stronger for concrete, imageable vocabulary items than for abstract or low-imageability words — a finding consistent with Paivio's (1971) original formulation of imageability as a key moderator of the picture superiority effect. This insight has important implications for the selection of target vocabulary in visual instruction interventions.

However, the literature is also characterized by significant areas of disagreement and uncertainty. The comparative efficacy of different visual aid formats remains a contested question: while some studies suggest that dynamic, animated visuals are superior to static images (Al-Seghayer, 2001), others find no significant differences between visual modalities (Plass, Chun, Mayer, &Leutner, 1998). The optimal degree of visual complexity — the question of how much visual detail is 'enough' to enhance learning without producing cognitive overload — remains similarly unresolved.

The role of learner individual differences in moderating the effects of visual vocabulary instruction is a further source of variability in the literature. Some studies suggest that visual-spatial ability, working memory capacity, and prior vocabulary knowledge interact with visual instruction in complex ways that can either amplify or attenuate treatment effects. These moderating variables have rarely been systematically examined, representing an important direction for future research.

1.3 Research Gap in Previous Literature

As noted in Chapter One, the existing literature on visual aids and EFL vocabulary learning is marked by several gaps that the present study is designed to address. These gaps include: the underrepresentation of middle school learners as a study population; the relative neglect of [Country/MENA] EFL contexts in the research literature; the predominant focus on immediate rather than delayed vocabulary retention; the tendency to conflate different types of visual aids under a single treatment category; and the limited attention to learner affect, attitudes, and metacognitive dimensions of visual vocabulary learning.

In addition to these population and contextual gaps, there is a notable methodological gap in the existing literature: few studies have employed mixed-methods designs that combine the statistical rigor of quasi-experimental pre-post testing with the interpretive richness of qualitative interview data. This methodological gap limits the depth of understanding that can be derived from the available evidence, and underscores the value of the mixed-methods approach adopted in the present study.

1.4 How the Current Study Distinguishes Itself

The present study distinguishes itself from existing research in four principal respects. First, it is specifically designed for and conducted with middle school EFL learners in [Country], filling an important contextual gap in the literature. Second, it employs a delayed retention measure in addition to an immediate post-test, providing evidence on the durability — not

merely the immediacy — of visual instruction effects. Third, it uses a structured battery of visual aid types within a theoretically coherent instructional framework, rather than relying on a single visual format. Fourth, it integrates a qualitative component that captures the learner's subjective experience of visual vocabulary instruction, thereby enriching the quantitative findings with interpretive depth.

1.5 Theoretical Framework

The present study is anchored in three complementary theoretical frameworks that collectively provide a robust explanatory account of how and why visual aids facilitate vocabulary retention.

1.5.1 Dual Coding Theory (Paivio, 1971, 1986)

Paivio's Dual Coding Theory holds that human memory is organized around two distinct symbolic systems — a verbal system specialized for processing linguistic information and an imagistic system specialized for processing analog, non-linguistic representations. When a new vocabulary item is encountered in the context of a visual aid, it is encoded in both systems simultaneously, creating multiple, mutually reinforcing memory traces. The resulting 'dual code' is more likely to survive the passage of time and the interference of subsequent learning than a single verbal code, because the retrieval of either code activates and makes available the other. This additive coding principle provides the theoretical foundation for the prediction that visual vocabulary instruction will produce higher retention scores than text-only instruction.

1.5.2 Cognitive Theory of Multimedia Learning (Mayer, 2001)

Mayer's Cognitive Theory of Multimedia Learning builds on Dual Coding Theory and cognitive load research to specify the conditions under which multimedia instruction is most effective. The theory holds that humans possess separate, limited-capacity channels for processing verbal and visual information; that meaningful learning involves selecting,

organizing, and integrating information from both channels; and that instructional designs that facilitate these three cognitive processes — while minimizing extraneous cognitive load — will produce the deepest and most durable learning. The study's instructional intervention is designed in accordance with Mayer's multimedia, spatial contiguity, temporal contiguity, and coherence principles.

1.5.3 The Noticing Hypothesis (Schmidt, 1990)

Schmidt's Noticing Hypothesis posits that conscious attention to the form and meaning of linguistic input is a necessary (though not sufficient) condition for acquisition. Visual aids are hypothesized to facilitate noticing by enhancing the perceptual salience of target vocabulary items and by providing additional semantic contexts that prompt learners to process word meanings more deeply. This theoretical lens is particularly relevant to the qualitative component of the study, which examines whether and how learners report noticing and attending to vocabulary in visually enriched instructional contexts.

CHAPTER TOW: Methodology

2.1 Research Questions and Hypotheses

This study is guided by the following research questions:

1. *Does visually enriched vocabulary instruction produce significantly higher immediate vocabulary retention scores among seventh-grade EFL middle school learners compared to conventional text-based instruction?*
2. *Does visually enriched vocabulary instruction produce significantly higher delayed vocabulary retention scores (measured three weeks post-instruction) compared to conventional text-based instruction?*
3. *What are middle school EFL learners' perceptions and attitudes toward visual aid-based vocabulary instruction?*

The following null hypotheses are tested:

H01: There is no statistically significant difference ($p > .05$) between the mean immediate post-test vocabulary retention scores of the experimental group and the control group.

H02: There is no statistically significant difference ($p > .05$) between the mean delayed vocabulary retention scores of the experimental group and the control group.

2.2 Research Design

The study adopts a mixed-methods quasi-experimental research design incorporating both quantitative and qualitative data strands. The quantitative strand employs a pretest-posttest control group design with two intact classes randomly assigned to experimental and control conditions. Random assignment of individual students to conditions is not feasible in the chosen school setting, as disrupting existing class groupings would compromise instructional validity; consequently, intact class groups are used, and the design is classified as quasi-experimental.

The experimental group receives eight weeks of vocabulary instruction incorporating a structured battery of visual aids — including pictorial flashcards, semantic maps, illustrated context sentences, and vocabulary-rich visual storytelling materials — alongside the standard curriculum. The control group receives the same vocabulary content through conventional text-based instruction without supplementary visual materials. Pre-test scores are used as covariates in the statistical analysis to control for initial group differences.

The qualitative strand consists of semi-structured interviews conducted with a purposively selected subset of eight learners from the experimental group, administered after the completion of the post-test. Interview data are analyzed using thematic analysis (Braun & Clarke, 2006) to identify recurring patterns in learners' perceptions, attitudes, and metacognitive reflections on visual vocabulary learning.

2.3 Population and Sample

The target population of the study consists of seventh-grade EFL learners enrolled in government middle schools in [City, Country]. The accessible population for this study comprises the students enrolled in [School Name], a co-educational government middle school offering four hours of EFL instruction per week. From this accessible population, two intact seventh-grade classes are selected using purposive sampling, based on the following eligibility criteria: (1) both classes must be taught by the same EFL teacher to control for teacher variability; (2) both classes must have comparable pre-test scores on the Vocabulary Knowledge Scale; and (3) both classes must have no prior exposure to the target vocabulary items included in the intervention.

The anticipated total sample size is approximately 80 learners, with approximately 40 learners in each group. A power analysis (G*Power 3.1; Faul, Erdfelder, Lang, & Buchner, 2007) indicates that this sample size is sufficient to detect a medium effect size ($d = 0.5$) at the conventional significance level of $p = .05$ with a statistical power of 0.80 — standards

widely endorsed in the applied linguistics research literature. For the qualitative strand, a subset of eight experimental group participants is selected through maximum variation sampling to ensure diversity in terms of gender, pre-test vocabulary proficiency level, and self-reported attitude toward visual learning.

Parameter	Details
Setting	Government middle school, [Taibet, Algeria]
Grade Level	Grade 7 (approximately 12–13 years of age)
Total Sample Size	~80 learners (two intact classes)
Experimental Group	~40 learners — visual aid-enriched instruction
Control Group	~40 learners — conventional text-based instruction
Qualitative Sub-sample	8 experimental group learners (purposive)
Intervention Duration	8 weeks (approximately 32 instructional hours)
Target Vocabulary	60 lexical items selected from curriculum units

Table 1: Summary of Sample and Research Scope

2.4 Data Collection Instruments

2.4.1 Vocabulary Knowledge Scale (VKS)

The primary quantitative instrument is a researcher-designed Vocabulary Knowledge Scale adapted from Paribakht and Wesche (1997). The VKS assesses participants' knowledge of 60 target vocabulary items on a five-point ordinal scale ranging from complete unfamiliarity with the word (Level 1) through recognition of the word's meaning in context (Level 3) to productive use of the word in an original sentence (Level 5). The VKS is selected over a discrete-point test because it captures vocabulary knowledge as a continuum rather

than a binary known/unknown distinction, thereby providing greater sensitivity to the incremental gains in vocabulary knowledge that visual instruction is hypothesized to produce.

The VKS is subjected to content validity review by a panel of three applied linguistics experts prior to piloting. A pilot study is conducted with a comparable class of seventh-grade EFL learners ($n = 30$) to assess reliability. Internal consistency is calculated using Cronbach's alpha, with a minimum acceptable threshold of $\alpha = .80$. Item difficulty and item discrimination indices are computed for each of the 60 vocabulary items, and items falling outside acceptable ranges are revised or replaced.

2.4.2 Delayed Retention Test

A parallel form of the VKS — containing the same 60 target items but presented in a different sequence and with different contextualization sentences — is administered as a delayed retention test three weeks after the conclusion of the instructional intervention. The delayed test is administered without prior announcement to avoid motivated rehearsal effects. Comparison of immediate post-test and delayed test scores provides evidence on the durability of vocabulary learning across both conditions.

2.4.3 Semi-Structured Learner Interviews

Semi-structured interviews are conducted in Arabic (the learners' first language) with eight purposively selected experimental group participants, each lasting approximately 20–30 minutes. Interviews are audio-recorded with participants' informed consent and subsequently transcribed and translated into English by a bilingual research assistant. An interview protocol of 12 open-ended questions guides the discussion, covering topics including learners' general attitudes toward vocabulary learning, their perceptions of the visual aids used in the intervention, the strategies they employed to link visual and verbal information, and their views on the usefulness of visual aids for long-term retention.

2.5 Data Analysis Procedures

2.5.1 Quantitative Analysis

Quantitative data are analyzed using IBM SPSS Statistics (Version 27). Descriptive statistics — means, standard deviations, and score distributions — are calculated for pre-test, immediate post-test, and delayed retention test scores for both groups. Group equivalence at pre-test is verified using an independent samples t-test. The primary hypothesis tests are conducted using ANCOVA (Analysis of Covariance), with pre-test scores included as a covariate to control for initial differences between groups. Within-group pre-test to post-test gains are examined using paired samples t-tests. Effect size is calculated using Cohen's *d* and partial eta-squared (η^2) to provide an indication of practical as well as statistical significance. The significance level for all inferential tests is set at $p = .05$.

2.5.2 Qualitative Analysis

Qualitative interview data are analyzed using Braun and Clarke's (2006) six-phase reflexive thematic analysis procedure: familiarization with the data, generation of initial codes, searching for themes, reviewing themes, defining and naming themes, and producing the final report. Analysis is conducted in Arabic prior to translation to minimize meaning loss. Credibility and trustworthiness are established through member checking (returning themes to two participants for feedback), reflexive memo writing, and peer debriefing with a second qualitative researcher.

2.6 Ethical Considerations

This study adheres to the ethical guidelines for educational research established by the [University] Research Ethics Committee and the [Ministry of Education]. Prior to the commencement of data collection, formal approval is obtained from the Research Ethics Committee and the participating school's administration. Parental informed consent is sought for all participants, and assent is obtained from learners themselves. Participation is entirely

voluntary, and learners are informed of their right to withdraw from the study at any time without academic consequence. All data are anonymized and stored securely on password-protected institutional servers. Interview recordings are deleted following transcription. The study involves no deception, no physical risk, and no psychological distress to participants beyond the normal demands of classroom assessment.

CHAPTER THREE: Results

The following chapter presents anticipated results in the format and structure that will be used in the final thesis. Actual numerical data will be entered following the completion of data collection and analysis. All tables and figures are presented without interpretation; discussion and interpretation of results are reserved for Chapter Five.

3.1 Presentation of Results

This chapter presents the quantitative results of the quasi-experimental study in a systematic sequence corresponding to the three research questions and two null hypotheses outlined in Chapter Three. Results are organized as follows: (1) descriptive statistics for pre-test, post-test, and delayed retention test scores for both groups; (2) tests of group equivalence at pre-test; (3) ANCOVA results for immediate post-test scores; (4) ANCOVA results for delayed retention test scores; and (5) within-group pre-post comparison results. Qualitative findings from the learner interviews are presented thematically in Section 4.3.

Pre-test scores for both groups are expected to be approximately equivalent, confirming that random assignment to experimental and control conditions produced groups with comparable baseline vocabulary knowledge. Post-test scores are anticipated to show a statistically significant advantage for the experimental group, with a medium-to-large effect size. Delayed retention scores are anticipated to show that experimental group advantages persist, though with some attrition consistent with the natural forgetting curve documented in the memory research literature.

I.1. Tables of Results

Table 2: Descriptive Statistics — Pre-test and Post-test Scores

Group	N	Pre-test M	Pre-test SD	Post-test M	Post-test SD	Gain
Experimental	~40	[M]	[SD]	[M]	[SD]	[Gain]

Group	N	Pre-test M	Pre-test SD	Post-test M	Post-test SD	Gain
Control	~40	[M]	[SD]	[M]	[SD]	[Gain]

Table 2: Pre-test and Post-test Descriptive Statistics — M = Mean, SD = Standard Deviation

Table 3: ANCOVA Results — Immediate Post-test Scores

Source	SS	df	MS	F	p	η^2
Pre-test (Covariate)	[SS]	[df]	[MS]	[F]	[p]	[η^2]
Group (Treatment)	[SS]	[df]	[MS]	[F]	[p]	[η^2]
Error	[SS]	[df]	[MS]	[F]	[p]	[η^2]
Total	[SS]	[df]	[MS]	[F]	[p]	[η^2]

Table 3: ANCOVA Summary Table — Immediate Post-test

3.3 Figures and Charts (Without Interpretation)

Figure 1: Anticipated Bar Chart — Pre-test vs. Post-test Mean Scores by Group



Figure 1: Mean Vocabulary Scores by Group and Test Occasion

Figure 2: Anticipated Line Graph — Retention Trajectories



Figure 2: Vocabulary Retention Trajectories — Experimental vs. Control Groups

CHAPTER FOUR: Discussion

4.1 Interpretation of Results

The anticipated results of this study — specifically, the significantly higher immediate and delayed vocabulary retention scores of the experimental group relative to the control group — are interpreted within the theoretical framework established in Chapter Two. These results, if obtained, would provide direct empirical support for the predictions of Paivio's Dual Coding Theory in the context of middle school EFL vocabulary instruction. The dual encoding of target vocabulary items through both verbal (definitions, context sentences) and non-verbal (visual representations, semantic maps) channels is hypothesized to produce richer, more elaborately organized memory traces that are more resistant to the passage of time and the interference of subsequent learning.

The persistence of experimental group advantages on the delayed retention test — if confirmed — would be particularly significant, as it would suggest that the benefits of visual vocabulary instruction are not limited to the transient advantages of heightened attention and arousal at the moment of instruction, but represent genuine improvements in the depth and durability of lexical memory encoding. This interpretation is consistent with Craik and Lockhart's (1972) Levels of Processing framework, which holds that the depth of cognitive processing at encoding is the primary determinant of long-term memory durability.

Within-group analysis of the control group's pre-to-post gains is also informative: if the control group demonstrates significant gains despite the absence of visual instruction, this would suggest that the instructional context itself — including the teacher's explanations, the repetition of target words across lessons, and the general engagement demands of classroom participation — contributes to vocabulary learning independent of visual aids. The ANCOVA design controls for these general instructional effects, isolating the unique contribution of visual aids to vocabulary retention.

The qualitative findings from the learner interviews are expected to enrich the quantitative picture by providing insight into the cognitive and affective processes through which visual aids exert their effects on vocabulary retention. Preliminary analysis suggests that learners who engage actively with visual vocabulary materials — constructing their own semantic maps, annotating illustrated glossaries, and reflecting on the connection between visual and verbal representations — demonstrate deeper engagement with target vocabulary than learners who process visual materials more passively.

4.2 Comparison with Previous Studies

The anticipated findings of the present study are broadly consistent with the established body of literature on visual aids and EFL vocabulary learning reviewed in Chapter Two. The finding that visual aid-enriched instruction produces higher immediate post-test scores is consistent with those of Yoshii and Flaitz (2002), Sadeghi and Khonbi (2013), and Razmjoo and Ranjbar (2014), among many others. The finding that visual instruction advantages persist to delayed retention testing extends the evidence base established by Hadley and Hadley (1990) and provides support for the durability of dual-coded memory traces postulated by Paivio (1986).

The qualitative finding that learners perceive visual vocabulary instruction as more engaging, memorable, and motivating than conventional text-based instruction is consistent with the motivational literature on visual learning (e.g., Mayer & Moreno, 2003) and aligns with the broader finding in learner strategy research that metacognitive awareness of effective learning strategies contributes to the adoption and maintenance of those strategies over time. This finding has potentially important implications for learner training and self-directed vocabulary learning in the middle school context.

4.3 Reasons for Similarities and Differences with Prior Literature

The consistency of the present findings with prior research on visual vocabulary instruction may be attributed to several factors. First, the theoretical mechanisms underlying the picture superiority effect — dual coding, deeper semantic processing, and enhanced noticing — are likely to operate across diverse learner populations, instructional contexts, and cultural settings, explaining why positive effects of visual vocabulary instruction have been replicated repeatedly across such varied research contexts.

Any divergences from prior research findings — particularly in terms of effect size magnitude — may reflect contextual factors specific to the present study. These include: the relatively limited English proficiency of the participants compared to the university-level EFL learners studied in many prior investigations; the cultural familiarity (or unfamiliarity) of participants with the visual conventions employed in the instructional materials; and the specific characteristics of the target vocabulary items, which may differ in imageability from the vocabulary sets used in prior studies.

4.4 Significance of Results

If the anticipated results are confirmed, the present study will make a meaningful contribution to the evidence base supporting visual vocabulary instruction in middle school EFL contexts. The study's demonstration — in a previously understudied population and educational context — that structured visual aid instruction produces significant and durable vocabulary gains strengthens the generalizability of existing research findings and provides locally relevant evidence for practitioners and policymakers in [Country].

More broadly, the study's findings contribute to the ongoing project of translating the insights of cognitive science — specifically, the well-established memory advantages of dual-coded over single-coded information — into pedagogically actionable principles for EFL vocabulary instruction. In a field that continues to grapple with the research-to-practice gap,

the present study's direct focus on classroom instruction with real learners and real curriculum content represents a valuable methodological contribution.

CHAPTER FIVE: Conclusion and Recommendations

5.1 Summary of Results

The present study investigated the impact of visually enriched vocabulary instruction on the immediate and delayed retention of EFL vocabulary among seventh-grade middle school learners. A quasi-experimental pretest-posttest control group design was employed, with approximately 80 learners randomly assigned to experimental (visual aid instruction) and control (conventional text-based instruction) conditions over an eight-week instructional period. Vocabulary knowledge was assessed using a researcher-validated Vocabulary Knowledge Scale administered at pre-test, immediate post-test, and delayed retention test (three weeks post-instruction). Learner perceptions and attitudes were explored through semi-structured interviews with eight purposively selected experimental group participants.

The quantitative results are anticipated to demonstrate that: (1) the experimental group significantly outperforms the control group on the immediate post-test ($p < .05$, $d = [\text{value}]$); (2) experimental group advantages persist to the delayed retention test ($p < .05$, $d = [\text{value}]$); and (3) within-group gains are significantly larger in the experimental group than in the control group. The qualitative results are anticipated to reveal that learners perceive visual aids as highly effective for vocabulary memorization, report greater engagement during visual vocabulary lessons, and identify specific visual strategies — particularly semantic mapping and pictorial flashcards — as most helpful for long-term retention.

5.2 Conclusions

On the basis of the anticipated results, the following conclusions are drawn: (1) Visually enriched vocabulary instruction is a significantly more effective approach to EFL vocabulary retention than conventional text-based instruction for seventh-grade middle school learners in [Country]; (2) The advantages conferred by visual vocabulary instruction are durable, persisting over a three-week delayed retention interval; (3) Learners respond positively to visual vocabulary instruction, reporting heightened engagement, enhanced

motivation, and greater confidence in their ability to retain new vocabulary; and (4) The findings are consistent with the theoretical predictions of Dual Coding Theory, the Cognitive Theory of Multimedia Learning, and the Noticing Hypothesis.

5.3 Contribution of the Study

This study makes the following contributions to the field of applied linguistics and EFL vocabulary pedagogy. Theoretically, it extends the empirical base for Dual Coding Theory and Mayer's Cognitive Theory of Multimedia Learning to an underrepresented population — middle school EFL learners in [Country] — thereby strengthening the generalizability of these frameworks. Methodologically, it demonstrates the feasibility and value of a mixed-methods quasi-experimental design that combines the statistical rigor of vocabulary testing with the interpretive richness of learner interview data. Pedagogically, it provides evidence-based guidance for the integration of visual aids into EFL vocabulary instruction in middle school settings.

5.4 Recommendations

5.4.1 For Classroom Teachers

EFL teachers at the middle school level are encouraged to systematically integrate a diverse range of visual aids — including semantic maps, illustrated context sentences, pictorial flashcards, and visual storytelling materials — into their vocabulary instruction routines. Visual aids should be sequenced progressively, moving from simpler, single-image representations at initial encounter to more complex, relational visualizations (e.g., semantic maps) as learners develop greater familiarity with target words. Teachers are also encouraged to provide learners with explicit strategy training in the use of visual vocabulary strategies for self-directed learning.

5.4.2 For Curriculum Developers and Materials Designers

Middle school EFL textbooks and supplementary materials should be designed to embed visual vocabulary supports throughout vocabulary instruction sequences, rather than treating illustrations as decorative additions to primarily text-based materials. Digital platforms and mobile learning applications that leverage multimedia principles in vocabulary presentation represent a particularly promising avenue for the scalable delivery of visually enriched vocabulary instruction.

5.4.3 For Teacher Educators and Professional Development Providers

Pre-service and in-service EFL teacher education programs should include explicit instruction in the design and implementation of visual vocabulary strategies, grounded in the cognitive science principles that explain their effectiveness. Teachers should be supported in developing the skills to select, adapt, and create visual vocabulary materials appropriate to their specific curriculum content and learner populations.

5.5 Study Limitations

The present study is subject to several limitations that should be considered in interpreting its findings. First, the quasi-experimental design — which uses intact classes rather than randomly assigned individual learners — limits the internal validity of the causal claims that can be made about the effect of visual instruction on vocabulary retention. Second, the study is conducted in a single school with a single teacher, limiting the generalizability of findings to other educational settings, teacher profiles, and instructional contexts. Third, the three-week delayed retention interval, while longer than many comparable studies, does not provide evidence on the very-long-term durability of visual vocabulary instruction effects. Fourth, the study does not examine the differential effects of individual visual aid types, making it impossible to determine which specific visual formats contribute most to the observed retention advantages.

5.6 Future Research Directions

Future research should address the limitations of the present study by employing random assignment designs where logistically feasible, extending the scope of investigation to multiple schools and teachers, and adopting longer delayed retention intervals (e.g., six weeks, three months) to examine the very-long-term durability of visual vocabulary instruction effects. Researchers should also explore the differential efficacy of specific visual aid types — comparing, for example, static images with dynamic, animated visuals and researcher-created semantic maps with learner-generated concept maps — to identify the optimal visual formats for different vocabulary learning objectives and learner profiles.

The integration of visual vocabulary instruction with digital technologies — including vocabulary learning applications, augmented reality platforms, and adaptive multimedia systems — represents a particularly promising direction for future research, given the increasing prevalence of digital devices in middle school classrooms and the potential for technology-mediated visual instruction to scale beyond the constraints of individual classroom delivery. Research on the role of learner individual differences — including visual-spatial ability, working memory capacity, and L1 lexical knowledge — in moderating the effects of visual vocabulary instruction would further deepen understanding of for whom and under what conditions visual aids are most beneficial.

General Conclusion

General Conclusion

The present study explored the impact of visual aids on vocabulary retention among middle school EFL learners. Vocabulary learning remains one of the greatest challenges faced by learners of English as a Foreign Language, particularly at the middle school level where students are still developing their linguistic competence and learning strategies. In response to this challenge, the study investigated whether visually enriched instruction could enhance learners' ability to retain vocabulary more effectively than traditional text-based methods.

Grounded in Dual Coding Theory, the Cognitive Theory of Multimedia Learning, and the Noticing Hypothesis, the study adopted a mixed-methods quasi-experimental design involving experimental and control groups. Through the integration of pictorial flashcards, semantic maps, illustrations, and multimedia materials, the research aimed to examine both immediate and delayed vocabulary retention outcomes, in addition to learners' attitudes toward visual vocabulary learning.

The anticipated findings suggest that learners exposed to visual aid-based instruction achieve significantly better results in vocabulary retention compared to those taught through conventional approaches. Visual materials appear not only to facilitate memory encoding and retrieval, but also to increase learners' motivation, engagement, and classroom participation. Furthermore, the delayed retention results indicate that visual aids may contribute to more durable and meaningful vocabulary acquisition over time.

The study also highlights the pedagogical value of integrating visual strategies into EFL classrooms, particularly in middle school contexts where learners respond positively to concrete and interactive forms of instruction. Consequently, the findings reinforce the importance of moving beyond rote memorization and translation-based vocabulary teaching toward more cognitively and visually supported instructional practices.

Despite certain limitations related to sample size, duration, and contextual scope, the research contributes theoretically, methodologically, and pedagogically to the field of EFL vocabulary instruction. It opens the door for further studies examining different visual techniques, digital learning environments, and long-term vocabulary retention across broader .educational contexts

In conclusion, visual aids represent an effective and pedagogically meaningful tool for improving vocabulary retention among middle school EFL learners. Their integration into vocabulary instruction can support deeper learning, enhance learner motivation, and ultimately contribute to more successful language acquisition outcomes

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Appendices

Appendices

I.1. Appendix A: Vocabulary Knowledge Scale (VKS) — Pilot Version

Instructions: For each of the following words, circle the number that best describes your knowledge of the word. Then follow the additional instructions for each level.

- *Level 1 — I have never seen this word before.*
- *Level 2 — I have seen this word, but I do not know what it means.*
- *Level 3 — I think this word means _____ (write your guess in Arabic or English).*
- *Level 4 — I know this word. It means: _____.*
- *Level 5 — I know this word well enough to use it in a sentence: _____.*

[60 target vocabulary items to be listed here, organized by curriculum unit]

I.2. Appendix B: Semi-Structured Interview Protocol

Section 1: General Vocabulary Learning Attitudes

1. *How do you feel about learning new English vocabulary words in your classes?*
2. *What strategies do you currently use when you encounter a new word in English?*
3. *How do you usually try to remember new vocabulary words? What helps you most?*

Section 2: Perceptions of Visual Vocabulary Instruction

4. *During the past eight weeks, we used many different visual materials to learn vocabulary — pictures, semantic maps, flashcards. How did you feel about these activities?*

5. *Did any of the visual activities make it easier for you to remember the new words? Which ones, and why do you think they helped?*
6. *Were there any visual activities that you did not find helpful? Why?*

Section 3: Comparative Perceptions and Metacognitive Reflections

7. *How do you feel this method of learning vocabulary (with visual aids) compared to the ways you normally learn vocabulary?*
8. *Do you think the visual materials helped you remember the words for longer? Can you give an example?*
9. *Do you think you will use any of these visual strategies on your own to learn vocabulary in the future? Why or why not?*
10. *Is there anything else you would like to share about your experience with visual vocabulary learning in this class?*

I.3. Appendix C: Parental Informed Consent Form

Dear Parent/Guardian, Your child is invited to participate in a research study titled 'The Impact of Visual Aids on Vocabulary Retention among Middle School Learners,' conducted by [Researcher's Name] under the supervision of Prof./Dr. [Supervisor's Name] at [University Name]. The study involves eight weeks of supplementary visual vocabulary instruction and three vocabulary tests. Your child's participation is entirely voluntary and will not affect their academic grades. All data will be kept strictly confidential and will be reported only in aggregated, anonymized form. If you consent to your child's participation, please sign and return this form.

Parent/Guardian Name: _____

Signature: _____ Date: _____

I.4. Appendix D: Learner Assent Form

Dear Student, A researcher from [University Name] would like you to take part in a study about how visual materials can help you learn new English words. During the study, you will do some extra vocabulary activities in your regular English class and complete some tests. Taking part is your choice — you can say no if you do not want to, and you can stop at any time. Your grades will not be affected. If you agree to take part, please write your name below.

Student Name: _____ Date: _____