

RESEARCH ARTICLE

Enhancing EFL Learning Through Multimodal Integration: The Role of Visual and Auditory Features in Moroccan Textbooks

Rachid Ed-dali

Cadi Ayyad University, Faculty of Letters and Human Sciences, Department of English Studies, Marrakech Morocco. **Corresponding Author:** Rachid Ed-dali, **E-mail**: r.eddali@uca.ac.ma

ABSTRACT

This study examines the impact of multimodal integration, particularly the combination of visual and auditory elements, on EFL learning through Moroccan textbooks, specifically *English Spotlight 1* and *English Horizons*. It investigates how these educational materials rely on visuals, diagrams, and audio tools to foster comprehension, retention, and engagement among secondary school students in Morocco. Employing a mixed-methods approach that includes both qualitative and quantitative analyses, the study evaluates the effectiveness of these features from the viewpoints of students and teachers. The results indicate that visual components significantly and positively affect vocabulary acquisition and grammatical comprehension, while auditory elements enhance listening skills and pronunciation. The research emphasizes the necessity for more advanced multimodal content in Moroccan EFL education and identifies technological barriers that impede full integration. It recommends an increased emphasis on multimodal resources in textbook development and the improvement of technological infrastructure in educational institutions.

KEYWORDS

Multimodal integration; EFL learning; visual aids; auditory features; Moroccan textbooks; language acquisition strategies.

ARTICLE INFORMATION

ACCEPTED: 02 October 2024	PUBLISHED: 27 October 2024	DOI: 10.32996/jweep.2024.6.3.5
---------------------------	----------------------------	--------------------------------

1. Introduction

Multimodal integration, encompassing visuals, audio, and diagrams, is essential in language acquisition as it significantly improves comprehension, retention, and learner engagement (Eugenijus, 2023; Serafini, 2023). Learners can assimilate language structures and vocabulary more effectively by engaging in various sensory pathways (Rahmanu & Molnár, 2024). Visual elements, including images and videos, offer contextual support that renders abstract language concepts tangible, while auditory components enhance listening abilities and pronunciation skills (Pantaleo, 2015; Noone & Mooney, 2018). In addition, diagrams like mind maps and flowcharts facilitate the organization and clarification of complex ideas, fostering a more profound understanding (Yassine, 2014; Ajayi, 2012; Tang, 2023). This amalgamation of modalities addresses varied learning preferences, rendering the language learning experience more interactive and accessible, which ultimately enhances educational outcomes (Elmiana, 2019; Teo & Zhu, 2018; Mitsikopoulou, 2020).

In Moroccan EFL classrooms, the teaching of English is influenced by a distinct socio-cultural and educational framework (Erguig, 2017; R'boul, 2022). The curriculum frequently includes a range of textbooks that are methodically chosen to address the learning requirements of Moroccan students while considering the nation's predominant language education objectives (Erradi & Belhorma, 2024). These textbooks generally prioritize communicative competence, aiming to enhance students' skills in reading, writing, speaking, and listening (Nguyen & Cao, 2019). They often feature culturally pertinent content (Ashbee, 2019), striving to link the global application of the English language with the realities of Moroccan life. Teachers typically supplement textbook use by modifying lessons to local contexts and offering additional resources that broaden students' exposure to various language forms

Copyright: © 2024 the Author(s). This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC-BY) 4.0 license (https://creativecommons.org/licenses/by/4.0/). Published by Al-Kindi Centre for Research and Development, London, United Kingdom.

and usages (Thompson et al., 2013; Davis & Janssen, 2016; Strogilos et al., 2023). Despite certain constraints, these textbooks remain vital instruments for directing language teaching and fostering learners' English proficiency (Maklakova et al., 2020).

This research examines two primary textbooks used in Moroccan secondary education for novice English as a Foreign Language (EFL) students, namely *English Spotlight 1*, and *English Horizons*. These resources play a crucial role in the English language curriculum for learners embarking on their educational journey. *English Spotlight 1* prioritizes the development of essential language skills, integrating communicative activities with fundamental grammar and vocabulary tasks. *English Horizons* focuses on enhancing both linguistic abilities and cultural understanding, featuring a variety of reading, writing, listening, and speaking exercises that resonate with both global and Moroccan contexts (Igbaria, 2013). The analysis of each textbook encompasses its content, pedagogical strategies, and suitability within the Moroccan educational framework, providing valuable insights into their effectiveness in supporting beginner EFL learners in secondary schools.

The increasing acknowledgment of multimodal elements such as visuals, audio, and interactive diagrams, as vital components in language learning, has not been matched by sufficient research on their integration within Moroccan EFL textbooks. Current literature predominantly emphasizes linguistic content, grammar, and communicative strategies, neglecting the significant contributions of multimodal resources to comprehension and engagement, especially for novice learners. While textbooks like *English Spotlight 1*, and *English Horizons*, incorporate visual and diagrammatic features, there is a scarcity of research assessing their effective use and impact on language acquisition. Also, the effects of more sophisticated multimodal elements, including audio-visual content, on student learning outcomes in Moroccan educational settings remain largely unexplored. This emphasizes the necessity for comprehensive investigations into the role of multimodal components in EFL textbooks and their potential to improve language learning in Morocco.

This research also sheds light on the influence of visual and auditory elements in the EFL textbooks *English Spotlight 1*, and *English Horizons*, on the language acquisition process among Moroccan students. By analyzing the integration of these multimodal components within the textbooks, the study aims to elucidate their contributions to enhancing students' understanding, memory retention, and engagement in learning English. A further objective is to examine how Moroccan students interact with multimodal content, focusing on their engagement with visuals, diagrams, and audio features, as well as the degree to which these elements enrich their educational experience. Furthermore, the research explores teachers' perceptions of the effectiveness of multimodal integration in these textbooks, providing insights into how educators assess and utilize these features in their instructional methods. Through these inquiries, the study aspires to offer a thorough understanding of the role of multimodal elements in shaping the learning environment for Moroccan EFL students.

This study investigates two primary questions concerning the influence of multimodal features in Moroccan EFL textbooks. The first question examines the impact of multimodal elements in *English Spotlight 1*, and *English Horizons* on students' comprehension, engagement, and learning outcomes, evaluating the role of visuals, audio, and diagrams in enhancing language acquisition. The second question explores teachers' perceptions and applications of these multimodal features in their classrooms, focusing on how educators incorporate them into their teaching and their assessment of their effectiveness in facilitating student learning. Collectively, these inquiries aim to deepen the understanding of multimodal integration within Moroccan EFL education.

2. Literature Review:

Multimodal learning significantly impacts cognitive processing in language acquisition by relying on various sensory channels and cognitive pathways to improve the brain's capacity to absorb and retain new information (Giannakos & Cukurova, 2023). By integrating diverse input forms, including visual elements such as images, videos, and text, auditory cues like spoken language and music, and kinesthetic experiences, including gestures and interactive tasks, this approach activates multiple brain regions to enhance language learning (Ektefaie et al., 2023; Ramachandram & Taylor, 2017; Emerson et al., 2020). This method is consistent with Dual Coding Theory, which posits that the combination of visual and verbal information strengthens memory retention, as learners can encode data through several modalities (Sadoski & Paivio, 2013). Besides, it aligns with Cognitive Load Theory, which advocates for the efficient distribution of cognitive load, enabling learners to process language in digestible segments without cognitive overload (Taha Atta, 2021). By presenting information through varied modalities, multimodal learning accommodates different learning styles and improves comprehension, making language concepts more approachable and easier to assimilate (Sankey et al., 2010; Rohi & Nurhayati, 2024). This comprehensive strategy not only nurtures vocabulary growth but also enhances learners' listening, speaking, and reading abilities, creating a more engaging and integrated educational experience (Gilakjani et al., 2011; Widyaningrum et al., 2022).

Visual elements such as images, diagrams, and infographics in textbooks are essential for facilitating communication and comprehension in EFL classrooms (Behnke,2016). These resources provide alternative, non-verbal representations of complex ideas, vocabulary, and grammatical structures to make abstract concepts more tangible and easier to grasp (Yildirim, 2016). For

Enhancing EFL Learning Through Multimodal Integration: The Role of Visual and Auditory Features in Moroccan Textbooks

students who may find textual information challenging, these visuals act as cognitive supports that enhance understanding and memory, in line with Dual Coding Theory (Sadoski & Paivio, 2013). Diagrams can effectively depict relationships among concepts, such as sentence structures or verb forms, while infographics present information in a visually coherent manner, aiding in the processing and retention of new language (Tarkhova et al., 2020). Furthermore, these visual aids promote student engagement and boost discussions, collaborative learning, critical thinking, and deeper exploration (Martin & Unsworth, 2023). In EFL settings, where language barriers can hinder communication, the integration of visual tools enables learners to articulate their thoughts and comprehend others more readily to create a more inclusive and interactive educational atmosphere (Afify, 2018).

Several studies were carried out to highlight the significance of multimodal integration in textbooks. Liu and Treagust (2013) conducted a comprehensive analysis of the types and prevalence of diagrams found in nine science textbooks used by senior high school students in Western Australia. Employing content analysis as their primary method, the researchers classified the diagrams into three distinct categories: iconic, schematic, and charts and graphs. The initial segment of the study detailed the distribution of these diagram types across various textbook categories, while the subsequent section explored the differences in diagram usage among these categories. In the concluding part, the research highlighted trends in the application of diagrams across different school years. The results of this study provided significant insights for science educators, emphasizing the importance of effectively integrating diagrams into lesson planning and instructional strategies to improve students' comprehension.

Another study conducted by Majidi and Assadi in 2016 sought to explore how contextual visual aids influence the reading comprehension abilities of Iranian high school students. Using a quasi-experimental framework, the study involved 96 intermediate-level EFL learners, who were selected based on a homogeneity assessment from an initial pool of 140 students. The participants were organized into four distinct groups and participated in a structured process that included a pretest, an intervention phase, and a posttest. The results revealed that the use of contextual visual aids significantly enhanced the students' reading comprehension skills. Remarkably, pre-thematic visual aids demonstrated the most pronounced effect, while thematic aids provided a moderate benefit, and post-thematic aids contributed a lesser yet still significant improvement in reading comprehension outcomes.

Liu and Khine (2016) examined the significance of visual representations, with a particular emphasis on diagrams, in promoting conceptual understanding within the field of science education. This investigation involved the classification, coding, and analysis of diagrams extracted from 20 science textbooks and workbooks that are part of the primary science curriculum in Bahrain. The objective was to uncover the distribution patterns and distinctive features of various types of diagrams. The results of this study outlined the characteristics associated with the use of diagrams in these educational materials, highlighting their critical role in enhancing students' comprehension of scientific concepts. Furthermore, the methodology employed in analyzing the textbooks offers valuable perspectives for researchers who are exploring the application of diagrams and visual aids in the context of science learning.

The research conducted by Huang in 2019 explored the influence of visual aids on reading comprehension among 26 intermediatelevel learners of Chinese as a Foreign Language (CFL) at an American institution. Employing a combination of between-subjects and within-subjects designs, the participants were organized into two distinct groups to engage in multiple-choice and translation exercises aimed at evaluating the effectiveness of visual aids. The results revealed a generally favorable impact of visual aids on the reading comprehension abilities of CFL learners. Nevertheless, the findings from the within-subjects design were only partially statistically significant, indicating that various factors, including the learners' backgrounds, the specific tasks assigned, and the characteristics of the visual aids, may have played a role in shaping the results. This study, which is based on Dual-Coding Theory, offers valuable insights for enhancing CFL teaching methodologies by advocating for the integration of visual aids to bolster reading comprehension skills.

Another study conducted by Marek and Maněnová (2022) focused on examining how often graphical data representations appear in Czech elementary mathematics textbooks. The analysis encompassed 84 textbooks and workbooks that received approval from the Ministry of Education, Youth, and Sports of the Czech Republic, leading to the identification of a total of 2,760 graphical data representations. These representations were systematically categorized into seven primary types and 14 subtypes, employing predetermined and emergent coding techniques. The findings revealed the importance of graphical representations within the educational materials, highlighting their role in enhancing the learning experience in mathematics.

In the framework of the Swedish National English curriculum, Sino (2024) investigated the impact of visual aids, particularly images, on vocabulary enhancement for EFL students, focusing specifically on the development of independent reading abilities. The research aimed to determine if the combination of visual elements with textual content could improve reading comprehension and raise student motivation. The findings of the study emphasized the significant role that visual support plays in the vocabulary

learning process, demonstrating that such aids not only contribute positively to vocabulary acquisition and reading comprehension but also serve to increase learners' motivation by promoting a more effective approach to vocabulary learning.

3. Research Methodology:

3.1 Research Design:

This study uses a mixed-methods approach, effectively merging quantitative and qualitative analyses to achieve a thorough understanding of the research issue. The quantitative aspect focuses on the collection and examination of numerical data, which facilitates the identification of patterns and relationships among various variables. In parallel, the qualitative aspect enriches the study by scrutinizing the participants' experiences, perceptions, and attitudes through methodologies such as interviews, focus groups, or open-ended surveys. The integration of these two methodologies fosters a more intricate interpretation of the data. This approach is particularly advantageous for investigating complex educational phenomena, where both measurable results and individual experiences play a crucial role.

3.2 Sample Selection:

The focus of this study is on secondary school EFL students and their educators in Morocco, specifically those who use the textbooks *English Spotlight 1*, and *English Horizons*. These educational resources are extensively relied on in Moroccan secondary schools, and their incorporation of various modes, such as visual and auditory components, creates an engaging environment for exploring their effects on EFL learning. By examining both the perspectives of students and teachers, the study seeks to provide a comprehensive insight into the ways in which the integration of multimodal elements in these textbooks affects language learning and instructional methodologies within the Moroccan educational setting.

Also, to achieve a representative dataset, a variety of sampling methods are used to identify schools that implement the chosen textbooks. For the quantitative aspect of the research, a total of 120 students is selected to ensure a statistically good evaluation of the impact of multimodal elements on EFL learning. Furthermore, a group of 30 students is chosen for qualitative analysis to facilitate a deeper investigation into their experiences and perceptions regarding the learning process. Besides, 10 teachers who employ these textbooks are included in the study to provide valuable insights into their use of visual and auditory components in teaching and to enhance the understanding of the multimodal approach within Moroccan EFL classrooms.

3.3 Data Collection:

The analysis of multimodal features within the two selected Moroccan EFL textbooks, *English Spotlight 1*, and *English Horizons*, seeks to investigate the integration of visual and auditory components to facilitate language acquisition. *English Spotlight 1*, a relatively new addition to the Moroccan secondary education curriculum, employs a variety of visual tools, including images and diagrams, to aid student understanding. *English Horizons*, which has been in use since its release in 2003, stands out by effectively combining visual and auditory elements, such as illustrations, charts, and audio resources, which collectively enhance students' listening, reading, and writing skills. Through the classification of these multimodal elements, ranging from images and diagrams to audio tracks, the study aims to assess how each textbook uses diverse communication modes to enrich EFL teaching and provide valuable insights into their practical application within Moroccan educational settings.

To evaluate the influence of multimodal features a series of surveys were administered, as previously mentioned, to 120 students. These surveys aim to measure the students' interaction with visual and auditory components and to determine the extent to which these elements contribute to their language acquisition. In addition to the surveys, detailed interviews with 30 students are conducted to gain deeper insights into their experiences with the multimodal tools provided. Furthermore, 10 educators who use these textbooks were also interviewed to discuss their integration of images, diagrams, and audio in their teaching practices as well as their views on how these resources affect student engagement.

3.4 Data Analysis:

In conducting the qualitative analysis, thematic coding serves as a pivotal method for examining data derived from interviews, which enables the identification of consistent themes and patterns associated with the incorporation of multimodal features within the textbooks. To enhance the coding process and the organization of qualitative data, the software NVivo is used to promote a structured methodology that reveals more profound insights from the feedback provided by participants. On the other hand, for the quantitative analysis of survey data, the statistical software SPSS is employed to distinguish trends and correlations between the multimodal features in the two textbooks and their respective learning outcomes.

4. Findings:

4.1 Quantitative Findings:

4.1.1 Overview of Responses

The research involved 120 student participants, with a gender distribution of 60% females (72 students) and 40% males (48 students), all aged between 12 and 16 years, which is considered the typical age range for secondary school EFL learners. The participants were from various grades, with 45% (54 students) in their first year and 55% (66 students) in their third year, ensuring a broad variety of experiences in English language acquisition. A subgroup of 30 students, representing 25% of the total, was chosen for detailed interviews to gain qualitative insights into their interactions with multimodal resources, including visual, auditory, and diagrammatic elements. Also, the study included interviews with 10 teachers, consisting of 7 females and 3 males, whose teaching experience varied from 5 to 15 years. Among them, 40% (4 teachers) had more than a decade of experience, while the remaining 60% (6 teachers) had between 5 and 10 years of teaching EFL. This diverse group of educators contributed valuable insights regarding the use of multimodal features in EFL classrooms.

Textbook	Visual Elements (Images, Diagrams)	Auditory Elements (Audio Tracks)	Diagrammatic Elements (Charts, Graphs)	Visual Elements per Page (%)	Auditory Elements per Page (%)	Diagrammatic Elements per Page (%)
English Spotlight 1 (Part 1 & 2)	85	20	10	42.5	10.0	5.0
English Horizons	60	15	8	60.0	15.0	8.0

Concerning the multimodal elements in the textbooks and as shown in Table 1, the latter provides a comparative analysis of multimodal elements in *English Spotlight 1* (Parts 1 & 2 combined) and *English Horizons*. *English Horizons* features 60 visual elements, accounting for 60% of its total pages, whereas *English Spotlight 1* contains 85 visual elements, representing 42.5% of its 200 pages. This indicates that *English Horizons* places a greater emphasis on visual aids relative to its length. In terms of auditory resources, *English Horizons* again demonstrates a higher integration rate, with auditory elements making up 15% of its content compared to 10% in *English Spotlight 1*, suggesting a marginally stronger focus on auditory learning tools in *English Horizons*. Lastly, diagrammatic elements, including charts and graphs, are less prevalent in both textbooks; *English Spotlight 1* features 10 diagrammatic elements (5% of its 100 pages), while *English Horizons* includes 8 (8% of its 200 pages).

4.1.2 Trends in Student Engagement with Visual and Auditory Features:

The analysis of student interaction with visual elements in English Spotlight 1 (Parts 1 & 2) and English Horizons reveals notable differences in engagement patterns. In English Spotlight 1, which features 85 visual components across 200 pages, accounting for 42.5% of the content, student feedback was predominantly positive, with 70% indicating that the images facilitated their understanding. Conversely, the effectiveness of diagrams and charts, which represent only 5% of the content, was limited, as only 45% of students reported improved comprehension of these elements. A Chi-Square test for images yielded a value of 2.69 and a p-value of 0.101, indicating no significant difference in engagement levels between the two textbooks regarding images (see Table 2).

Table 2. Chi-Square Results for Students Engagement with Visual Features.				
Multimodal Feature	Chi-Square Value	p-value	Significance	
Images	2.69	0.101	Not Significant	
Diagrams and Charts	8.91	0.0028	Significant	

In contrast, English Horizons contains 60 visual elements within its 100 pages, constituting 60% of the total content. Student engagement with these visuals was notably higher, with 80% of respondents affirming that the images significantly enhanced their learning experience. The diagrams and charts in this textbook, making up 8% of the content, were also more effective, with 65% of students acknowledging their role in improving understanding of complex topics. The Chi-Square test for these elements revealed a value of 8.91 and a p-value of 0.0028, indicating a statistically significant difference in engagement between the two textbooks. Overall, the increased density of visual elements in English Horizons likely contributes to enhanced student comprehension and retention.

The examination of students' views on the efficacy of auditory resources, as shown in Table 3, including audio tracks, in strengthening listening and pronunciation abilities highlights prominent distinctions between the two textbooks, *English Spotlight* 1 and *English Horizons*. In the case of *English Spotlight* 1, which features 20 auditory components throughout its 200 pages,

representing 10% of the entire content, 60% of the students acknowledged that the audio tracks were beneficial for enhancing their listening comprehension. Conversely, only half of the students felt that these resources significantly influenced their pronunciation skills. Feedback from the students indicated that while the audio tracks were clear and effective for fundamental listening exercises, they perceived a lack of variety and depth in the materials, which limited their ability to master more complicated pronunciation aspects.

Textbook	Auditory Elements	Pages	Percentage of Auditory Content (%)	Students Reporting Improved Listening (%)	Students Reporting Improved Pronunciation (%)
English Spotlight 1	20	200	10	60	50
English Horizons	15	100	15	75	75

	Table 3. Stude	nt Perceptions	s of Auditory	Resources.
--	----------------	----------------	---------------	------------

On the other hand, *English Horizons* includes 15 auditory elements spread over 100 pages, making up 15% of its total content. In this textbook, a substantial 75% of the students reported that the auditory resources were exceptionally effective in improving both listening comprehension and pronunciation. Many students highlighted the diverse accents and authentic dialogue examples as crucial factors contributing to their favorable learning experiences. A Chi-Square test assessing the effectiveness of auditory resources on pronunciation improvement yielded a value of 12.29, with a p-value of 0.00046, indicating a highly significant advantage for *English Horizons* in enhancing pronunciation skills compared to *English Spotlight 1*.

4.2 Qualitative Findings:

4.2.1 Analysis of Student Interviews:

The examination of interviews with 30 students revealed significant themes related to their experiences and views on multimodal components in English language education. These themes focused on the incorporation of visual aids, auditory elements, and the challenges and preferences linked to different learning resources. Throughout the interviews, students repeatedly highlighted the critical role of visual and auditory tools in enhancing engagement and accessibility in their learning journey. Also, they provided perspectives on how these elements aided their comprehension of intricate language concepts, pointing out both the advantages and drawbacks of the textbooks used.

In the analysis of student interviews, a significant majority of the participants, specifically 28 out of 30 (93%) (see Table 4), acknowledged that the incorporation of visual elements such as images, diagrams, and charts greatly improved their understanding of English language concepts. Among these respondents, 22 students (73%) pointed out that images were particularly effective in providing context and making abstract or unfamiliar vocabulary more accessible and relatable. Besides, diagrams and charts received a positive view from 20 students (67%), who noted that these tools were instrumental in simplifying complex grammar structures and language rules, transforming them into more manageable components. The use of visuals also enabled 18 students (60%) to better grasp the interconnections between various linguistic elements, including sentence structures and grammatical rules.

While the feedback was predominantly positive, an observable minority of 8 students (27%) expressed a desire for a broader range of visual aids. These students voiced that, although the current visuals were beneficial, the inclusion of more detailed diagrams could provide further assistance, particularly in grammar and syntax, where complex rules and structures necessitate clearer visual representation. This feedback highlights the potential for enhancing the educational experience by diversifying the types of visual aids available to students.

In terms of vocabulary retention, 25 students (83%) indicated that linking words with images significantly improved their ability to remember meanings. Furthermore, 21 students (70%) found that diagrams and flowcharts were especially advantageous for comprehending the progression of conversations and the structure of sentences. This capacity to visualize the connections among different language components not only facilitated their understanding but also enhanced their proficiency in both spoken and written English.

Node (Theme)	Number of References	Percentage of Students (%)
Effectiveness of Visual Elements	28	93
Images for Vocabulary Context	22	73
Diagrams for Grammar Comprehension	20	67
Desire for a Variety of Visual Aids	8	27
Impact on Vocabulary Retention	25	83
Benefits of Diagrams for Sentence Structure	21	70

Table 4. Nvivo Analysis of Student Interviews.

The qualitative analysis of student interviews offers valuable insights into the perceived effectiveness of auditory components, such as audio tracks, in facilitating English language acquisition. In the context of *English Spotlight 1*, a notable 40% of the students interviewed (12 out of 30) conveyed positive impressions regarding the clarity of the audio tracks for foundational listening exercises. However, a significant 60% (18 students) identified shortcomings in the materials, particularly concerning their diversity and depth. A considerable portion of the students (67%) indicated that the audio tracks predominantly featured simplistic dialogues, which limited their exposure to a range of accents and more complex linguistic structures. This lack of variety hindered their ability to grasp more nuanced elements of pronunciation, including intonation and rhythm. Specifically, 53% of the students (16 out of 30) acknowledged that while the tracks aided their understanding of individual words, they felt less assured in their pronunciation, particularly regarding connected speech and the natural flow of English. One student articulated this sentiment by stating that although the audio tracks were beneficial for comprehending simple dialogues, they struggled with pronunciation due to the basic and repetitive nature of the recordings.

In contrast, students using *English Horizons* expressed a more favorable view of the auditory features. Among the 30 students interviewed, an impressive 75% (22 students) reported that the audio tracks significantly enhanced both their listening comprehension and pronunciation skills. The diversity of accents and the authenticity of the dialogues in the audio materials were highlighted by 80% of the students (24 out of 30) as pivotal elements contributing to their positive learning experiences. Furthermore, 70% (21 students) appreciated the structured pronunciation exercises that accompanied the audio, which provided them with explicit guidance on articulating challenging sounds and mastering various accents. One student emphasized the transformative nature of the experience, stating that they felt they were learning "real English" rather than merely classroom English, attributing their improved pronunciation to the variety present in the audio tracks.

Feedback Category	Number of Students	Percentage of Students (%)		
Positive Feedback on Listening Practice (English Spotlight 1)	12	40		
Criticism on Lack of Variety/Depth (English Spotlight 1)	18	60		
Struggled with Pronunciation (English Spotlight 1)	16	53		
Positive Feedback on Listening Practice (English Horizons)	22	75		
Positive Feedback on Pronunciation (English Horizons)	21	70		
Appreciation of Variety and Accents (English Horizons)	24	80		

Table 5. Perceived Effectiveness of Auditory Features of The Interviewees.

4.2.2 Analysis of Teacher Interviews:

The examination of teacher interviews uncovers a variety of methods employed to integrate multimodal elements, including images, diagrams, audio, and video resources, into their instructional practices. Among the ten educators interviewed, a significant 80% (8 teachers) indicated that they utilized visual components such as images and diagrams to support the teaching of vocabulary and grammar. These visual aids were frequently employed to address diverse learning preferences, as they helped to contextualize language and render abstract concepts more tangible for students. Furthermore, 70% of the teachers consistently incorporated audio materials to bolster listening comprehension and pronunciation skills, particularly in exercises where students could engage with dialogues or narratives. Conversely, only 30% (3 teachers) reported using video resources, primarily due to constraints related to technological access in their classrooms; nonetheless, they expressed a strong interest in integrating more video content to enhance student engagement (see Figure 1).

In relation to the perceptions surrounding student engagement, teachers largely agreed that the incorporation of multimodal features significantly enhanced student involvement and comprehension levels. Visual aids were particularly highlighted as essential tools for sustaining student attention and supporting those who find traditional text-based learning challenging. 90% of the educators reported that the use of images and diagrams effectively simplified complex language structures and facilitated a better understanding of new concepts among students. Furthermore, audio components were recognized as advantageous, with 75% of the teachers observing that students exhibited increased motivation to engage in lessons that incorporated listening

activities, particularly when these audio resources reflected authentic language usage. Nonetheless, some educators voiced concerns regarding the potential for students to develop an excessive dependence on visual and auditory supports, which could lead to a neglect of critical reading and writing competencies.

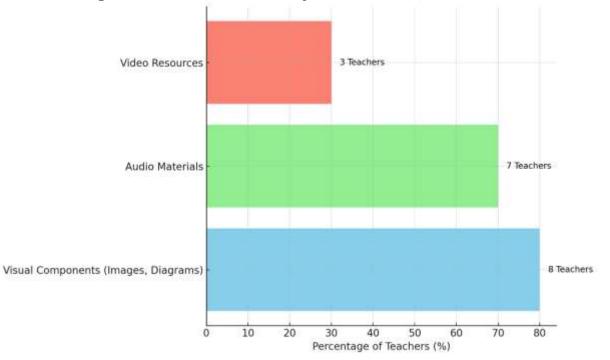


Figure 1. Multimodal Elements Used by Teachers in Instructional Practices.

Regarding the challenges encountered, teachers identified several obstacles in the effective implementation of multimodal elements within their instruction. The predominant issue, highlighted by 60% of the educators, was the insufficient technological infrastructure, including inadequate audio equipment and unreliable internet connectivity, which impeded the regular integration of audio and video resources into their teaching practices. In addition, resource constraints emerged as a significant concern, with 50% of the teachers indicating that they lacked access to updated and varied multimedia materials, which complicates their efforts to maintain student engagement over time. Also, some educators expressed challenges in creating a balance between the use of multimodal resources and traditional pedagogical approaches, fearing that an excessive focus on multimedia might undermine essential language skills.

5. Discussion:

The analyses conducted, both quantitative and qualitative, indicate that visual components such as images and diagrams play a crucial role in enhancing vocabulary acquisition and comprehending complex grammatical structures. A significant number of students reported that these visual aids enabled them to contextualize language more effectively, transforming abstract or unfamiliar concepts into more accessible forms. In the case of *English Horizons*, which features 60% visual content, student engagement levels were markedly higher than those observed in *English Spotlight 1*, which contains 42.5% visual content. This disparity suggests that a greater incorporation of visual elements correlates with improved educational outcomes. Furthermore, educators noted that the presence of images and diagrams contributed to clearer communication of complex concepts and facilitated a more efficient information-processing experience for students.

In addition to visual elements, auditory components also significantly influenced the EFL learning experience. Students using both textbooks reported enhancements in their listening comprehension attributed to the inclusion of audio tracks. Remarkably, those using *English Horizons*, which includes 15% auditory content, demonstrated greater improvements in pronunciation skills compared to their counterparts using *English Spotlight 1*, which offers 10% auditory content. The diverse range of accents and authentic dialogues present in the audio tracks of *English Horizons* was particularly valued by students, as it boosted a more genuine and engaging learning atmosphere. Teachers documented these observations, highlighting the vital role of audio resources in cultivating listening and pronunciation abilities, while also expressing some concerns regarding the potential for students to become overly dependent on these auditory aids.

Enhancing EFL Learning Through Multimodal Integration: The Role of Visual and Auditory Features in Moroccan Textbooks

Besides, interviews with teachers revealed valuable visions regarding the practical challenges and advantages of integrating multimodal elements into their instructional practices. While a significant 80% of educators effectively used visual aids, including images and diagrams, only 30% employed video resources, primarily due to technological constraints. Many educators expressed a strong interest in increasing their use of videos, recognizing their potential to enhance student engagement. Furthermore, 70% of teachers consistently incorporated audio materials, understanding their importance in improving listening and pronunciation skills.

Nonetheless, the adoption of multimodal resources faced several obstacles. Sixty percent of teachers reported that inadequate technological infrastructure, such as insufficient audio equipment and unreliable internet connections, hindered the effective use of audio and video resources. Also, the lack of access to multimedia materials emerged as a significant issue, with half of the educators highlighting the necessity for updated resources to maintain student interest and engagement.

Furthermore, the results of this research carry significant implications for the future design and application of EFL textbooks in Morocco. It is essential to prioritize the incorporation of a variety of visual and auditory materials within textbooks, providing students with access to diverse multimodal resources that accommodate various learning styles. The positive outcomes observed in *English Horizons*, though it was first used in 2003 compared to *English Spotlight 1* which emerged in 2023, indicate that when multimodal elements are skillfully integrated, they can enhance both understanding and retention.

It is also vital to tackle the technological limitations present in Moroccan classrooms to fully realize the benefits of multimodal learning. Ensuring that schools are equipped with dependable audio systems and internet connectivity will enable educators to use videos and audio resources more effectively and enrich the educational experience. The provision of current and diverse multimedia materials is critical for sustaining student interest and improving educational results over time.

6. Conclusion:

This study thoroughly explored the significance of multimodal integration in the enhancement of EFL instruction within Moroccan secondary education, particularly emphasizing the integration of visual and auditory components. By analyzing two prominent textbooks, *English Spotlight 1* and *English Horizons*, the study aimed to investigate the interactions between students and teachers with these multimodal elements and to evaluate their perceived effectiveness in promoting language learning.

The results revealed that visual aids, such as illustrations, diagrams, and charts, played a crucial role in boosting students' understanding of vocabulary and grammatical structures. These visual components not only provided essential contextual support but also facilitated the simplification of complex linguistic concepts and made them more approachable for learners. Similarly, auditory resources, including audio tracks and sound recordings, were found to significantly improve students' listening abilities and pronunciation skills. These auditory materials enabled students to engage with authentic dialogues and a variety of accents, which contributed to the development of their pronunciation and listening comprehension skills.

A significant finding of the research was the recognition of distinct disparities between the two educational textbooks. *English Horizons* was determined to be the superior resource, providing a more integrated and diverse multimodal experience in contrast to *English Spotlight 1*. The textbook featured a greater emphasis on visual and auditory components, which effectively fascinated students across various dimensions, resulting in enhanced learning outcomes. Those using *English Horizons* exhibited increased engagement levels and conveyed a deeper comprehension of the subject matter, attributed to the thorough incorporation of multimodal elements throughout the material.

6.1 Limitations of the Study:

The research highlighted the considerable advantages of incorporating multimodal resources, including visual and auditory components, into EFL instruction. Nevertheless, it did not thoroughly investigate the specific technological challenges that could hinder the effective use of these resources within Moroccan educational institutions. While issues such as limited availability of audio-visual tools, inconsistent internet access, and insufficient classroom technology were acknowledged, they were not examined in depth. Subsequent studies could focus on these barriers to gain insights into their effects on the deployment of multimodal strategies, especially in schools with limited resources. Furthermore, the investigation primarily concentrated on short-term engagement, emphasizing immediate enhancements in student understanding and participation. It did not evaluate the long-term effects of multimodal learning on language retention and fluency. Future research could explore how long exposure to multimodal resources affects students' capacity to retain and use language skills over time to offer a more thorough perspective on the enduring benefits of these educational methodologies.

6.2 Recommendations:

Textbook developers ought to prioritize the integration of a wider range of visual and auditory components, such as increased use of videos and interactive diagrams, to accommodate various learning styles and boost student engagement. The positive impact of multimodal elements in *English Horizons* indicates that a more thorough approach to incorporating these resources can enhance learning outcomes. Furthermore, schools must be provided with dependable audio-visual equipment and internet access to facilitate the effective implementation of multimodal resources. Government and educational authorities need to invest more in technological tools to ensure that both educators and students have the necessary equipment.

Funding Information: This manuscript was prepared without any financial support.

Conflict of Interest Statement: The author declares no conflicts of interest related to the content of this article.

Ethics Statement: This study was conducted in accordance with the ethical principles outlined in the World Medical Association's Declaration of Helsinki for research involving human participants. The research adhered to the Recommendations for the Conduct, Reporting, Editing, and Publication of Scholarly Work in Medical Journals, with a focus on including a representative sample of the population in terms of sex, age, and ethnicity. The terms "sex" and "gender" were used accurately throughout the manuscript. Informed consent was obtained from all participants prior to their involvement in the study, and their privacy rights were strictly observed, ensuring confidentiality and anonymity of all personal data.

References:

- [1] Afify, M. K. (2018). The effect of the difference between infographic designing types (static vs animated) on developing visual learning designing skills and recognition of its elements and principles. *International Journal of Emerging Technologies in Learning*, *13*(9). DOI: 10.3991/ijet.v13i09.8541.
- [2] Ajayi, L. (2012). How teachers deploy multimodal textbooks to enhance English language learning. *Tesol Journal*, 6(1), 16-35.
- [3] Ashbee, R. (2021). Curriculum: Theory, culture and the subject specialisms. Routledge. DOI: https://doi.org/10.4324/9781003039594.
- [4] Behnke, Y. (2016). How textbook design may influence learning with geography textbooks. *Nordidactica: Journal of Humanities and Social Science Education*, (2016: 1), 38-62.
- [5] Davis, E. A., Janssen, F. J., & Van Driel, J. H. (2016). Teachers and science curriculum materials: Where we are and where we need to go. Studies in science education, 52(2), 127-160. DOI: <u>https://doi.org/10.1080/03057267.2016.1161701</u>.
- [6] Ektefaie, Y., Dasoulas, G., Noori, A., Farhat, M., & Zitnik, M. (2023). Multimodal learning with graphs. *Nature Machine Intelligence*, 5(4), 340-350. DOI: <u>https://doi.org/10.1038/s42256-023-00624-6</u>.
- [7] Elmiana, D. S. (2019). Pedagogical representation of visual images in EFL textbooks: a multimodal perspective. *Pedagogy, Culture & Society, 27*(4), 613-628.DOI: <u>https://doi.org/10.1080/14681366.2019.1569550</u>
- [8] Emerson, A., Cloude, E. B., Azevedo, R., & Lester, J. (2020). Multimodal learning analytics for game-based learning. British journal of educational technology, 51(5), 1505-1526.DOI: <u>https://doi.org/10.1111/bjet.12992</u>.
- [9] Erradi, H., & Belhorma, S. (2024). Building a Foundation for Effective English Language Teaching in Morocco: Integrating 21st Century Skills in Teacher Preparation Curriculum. *Revue Linguistique et Référentiels Interculturels*, 5(1), 68-85.DOI: https://doi.org/10.34874/IMIST.PRSM/liri-v5i1.49982.
- [10] Erguig, R. (2017). The mosques-based literacy campaign in Morocco: A socio-cultural perspective. *Studies in the Education of Adults*, 49(1), 3-25.DOI: <u>https://doi.org/10.1080/02660830.2017.1283755</u>.
- [11] Eugenijus, L. (2023). The Effectiveness of Multimodal Task Design in Second Language Teaching. *Research and Advances in Education*, 2(12), 1-6.DOI: 10.56397/RAE.2023.12.01.
- [12] Giannakos, M., & Cukurova, M. (2023). The role of learning theory in multimodal learning analytics. British Journal of Educational Technology, 54(5), 1246-1267. DOI: <u>https://doi.org/10.1111/bjet.13320</u>.
- [13] Gilakjani, A. P., Ismail, H. N., & Ahmadi, S. M. (2011). The effect of multimodal learning models on language teaching and learning. *Theory & Practice in Language Studies (TPLS)*, 1(10). DOI: 10.4304/tpls.1.10.1321-1327.
- [14] Huang, T. (2019). Effects of visual aids on intermediate Chinese reading comprehension. *Reading in a Foreign Language*, 31(2), 173. DOI: https://doi.org/10125/66929.
- [15] Igbaria, A. K. (2013). A Content Analysis of the WH-Questions in the EFL Textbook of "Horizons". International Education Studies, 6(7), 200-224.
- [16] Liu, Y., & Treagust, D. F. (2013). Content analysis of diagrams in secondary school science textbooks. In Critical analysis of Science textbooks: Evaluating instructional effectiveness (pp. 287-300). Dordrecht: Springer Netherlands.DOI: <u>https://doi.org/10.1007/978-94-007-4168-3_14</u>.
- [17] Liu, Y., & Khine, M. S. (2016). Content analysis of the diagrammatic representations of primary science textbooks. *Eurasia Journal of Mathematics, Science and Technology Education*, 12(8), 1937-1951. DOI: <u>10.12973/eurasia.2016.1288a</u>.
- [18] Majidi, N., & Aydinlu, N. A. (2016). The effect of contextual visual aids on high school students' reading comprehension. *Theory and Practice in Language Studies*, 6(9), 1827. DOI: <u>http://dx.doi.org/10.17507/tpls.0609.15</u>.
- [19] Maklakova, N., Besedina, E., Kalimullina, O., & Maklakov, I. (2020). ENGLISH-LANGUAGE TEXTBOOKS IN THE RUSSIAN EFL CLASSROOM. In *inted2020 Proceedings* (pp. 3893-3897). IATED. DOI: <u>10.21125/inted.2020.1085</u>.
- [20] Marek, T., & Maněnová, M.(2022). An Analysis of Graphical Representation of Data in Elementary School Mathematics Textbooks. In European Proceedings of International Conference on Education and Educational Psychology. European Publisher.DOI: <u>https://doi.org/10.15405/epiceepsy.22123.15</u>.
- [21] Martin, J. R., & Unsworth, L. (2023). Reading images for knowledge building: Analyzing infographics in school science. Taylor & Francis.

Enhancing EFL Learning Through Multimodal Integration: The Role of Visual and Auditory Features in Moroccan Textbooks

- [22] Mitsikopoulou, B. (2020). Multimodal and Digital Literacies in the English Classroom: Interactive textbooks, open educational resources and a social platform. *Multiliteracy advances and multimodal challenges in ELT environments.-(Tracce. Itinerari diricerca)*, 97-110. DOI: 10.1400/285541.
- [23] Nguyen, T. T. M., & Cao, T. H. P. (2019). An evaluation of the intercultural orientation of secondary English textbooks in Vietnam: How well are students prepared to communicate in global contexts. *Building Teacher Capacity in English Language Teaching in Vietnam*, 1, 150-165. DOI: <u>10.4324/9780429457371</u>.
- [24] Noone, M., & Mooney, A. (2018). Visual and textual programming languages: a systematic review of the literature. *Journal of Computers in Education*, *5*, 149-174.DOI: <u>https://doi.org/10.1007/s40692-018-0101-5</u>.
- [25] Pantaleo, S. (2015). Language, Literacy and Visual Texts. English in Education, 49(2), 113–129. DOI: https://doi.org/10.1111/17548845.2015.11912532
- [26] Rahmanu, I. W. E. D., & Molnár, G. (2024). Multimodal Immersion in English Language Learning in Higher Education: A Systematic Review. *Heliyon*.DOI: <u>https://doi.org/10.1016/j.heliyon.2024.e38357</u>.
- [27] Ramachandram, D., & Taylor, G. W. (2017). Deep multimodal learning: A survey on recent advances and trends. *IEEE signal processing magazine*, 34(6), 96-108.DOI: 10.1109/MSP.2017.2738401.
- [28] R'boul, H. (2022). The spread of English in Morocco: Examining university students' language ontologies. *English Today*, 38(2), 72-79.
- [29] Rohi, M. P., & Nurhayati, L. (2024). Multimodal Learning Strategies in Secondary EFL Education: Insights from Teachers. Voices of English Language Education Society, 8(2). DOI: <u>https://doi.org/10.29408/veles.v8i2.26546</u>.
- [30] Sadoski, M., & Paivio, A. (2013). Imagery and text: A dual coding theory of reading and writing. Routledge. DOI: <u>https://doi.org/10.4324/9780203801932</u>.
- [31] Sankey, M., Birch, D., & Gardiner, M. (2010, January). Engaging students through multimodal learning environments: The journey continues. In Proceedings of the 27th Annual Conference of the Australasian Society for Computers in Learning in Tertiary Education (ASCILITE 2010). Retrieved from <u>https://research.usq.edu.au/item/q026x/engaging-students-through-multimodal-learning-environments-the-journey-continues</u>.
- [32] Serafini, F. (2022). Beyond the visual: An introduction to researching multimodal phenomena. Teachers College Press.
- [33] Sino, R. (2024). The Impact Of Visual Support On Efl Learners' Vocabulary Acquisition When Reading: Självständigt arbete på grundnivå (yrkesexamen), 10 poäng/15 hp.Retrieved from https://www.diva.portal.org/smash/record.jsf?pid=diva2%3A1857153&dswid=2552
- [34] Strogilos, V., Lim, L., & Binte M B N. (2023). Differentiated instruction for students with SEN in mainstream classrooms: contextual features and types of curriculum modifications. *Asia Pacific Journal of Education*, 43(3), 850-866.DOI: <u>https://doi.org/10.1080/02188791.2021.1984873</u>.
- [35] Taha A H., Mahmoud I, A., & Mohammad Y, T. (2021). Cognitive Load of Assigned EFL Textbooks for Al-Azhar Secondary School Students: An Analytical Study. *Sohag University International Journal of Educational Research*, 4(4), 79-121.DOI: <u>10.21608/suijer.2021.174771</u>.
- [36] Tang, K. S. (2023). The characteristics of diagrams in scientific explanations: Multimodal integration of written and visual modes of representation in junior high school textbooks. *Science Education*, *107*(3), 741-772.DOI: <u>https://doi.org/10.1002/sce.21787</u>.
- [37] Tarkhova, L., Tarkhov, S., Nafikov, M., Akhmetyanov, I., Gusev, D., & Akhmarov, R. (2020). Infographics and their application in the educational process. *International Journal of Emerging Technologies in Learning (IJET)*, 15(13), 63-80. Retrieved fromhttps://www.learntechlib.org/p/217600/.
- [38] Teo, P., & Zhu, J. (2018). A multimodal analysis of affect and attitude education in China's English textbooks. *Multimodal Communication*, 7(1), 20170014.DOI: <u>https://doi.org/10.1515/mc-2017-0014</u>.
- [39] Thompson, D., Bell, T., Andreae, P., & Robins, A. (2013, March). The role of teachers in implementing curriculum changes. In *Proceeding of the 44th ACM technical symposium on Computer science education* (pp. 245-250).DOI: <u>https://doi.org/10.1145/2445196.2445272</u>.
- [40] Widyaningrum, L., Rizal, D., & Prayogo, A. (2022). Multimodal Project-Based Learning in listening and speaking activities: Building environmental care?. *EduLite: Journal of English Education, Literature and Culture, 7*(2), 209-223.DOI: <u>http://dx.doi.org/10.30659/e.7.2.209-223</u>.
- [41] Yassine, S. (2014). Multimodal design of EFL textbooks: A social semiotic multimodalapproach. ANGLISTICUM. Journal of the Association-Institute for English Language and American Studies, 3(12), 84-90. Retrieved from <u>https://www.anglisticum.org.mk/index.php/IJLLIS/article/view/1523</u>.
- [42] Yildirim, S. (2016). Infographics for educational purposes: Their structure, properties and reader approaches. *Turkish Online Journal of Educational Technology-TOJET*, *15*(3), 98-110. Retrieved from https://files.eric.ed.gov/fulltext/EJ1106376.pdf.