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Editorial Preface

Dear Esteemed Readers,

Welcome to *Volume 5, Issue 2* of the *Journal of Research in Language & Translation (JRLT)*. As this issue appears, the editorial team wishes to express its heartfelt gratitude to those whose dedication and service have helped shape the journal. We thank our former editorial members, Dr. Abdulwadood Khan and Dr. Syed Hussain, for their valuable contributions to JRLT's development and scholarly mission. We also extend sincere appreciation to Dr. Dania Salamah, Dr. Dina M. Alsibai, and Dr. Reem Alshalan, who served as assistant editors and have now concluded their terms, for their diligence, insight, and support.

At the same time, we are delighted to welcome our new editorial colleagues who join us in advancing the journal's vision. Prof. Hesham Alyousef, Professor at the College of Language Sciences, King Saud University, Prof. Hala Dalbani, Professor at the College of Humanities & Sciences, Prince Sultan University, and Prof. Mimouna Zitouni, Professor at the College of Humanities & Sciences, Prince Sultan University, bring with them deep expertise and scholarly distinction. We are equally pleased to welcome our new assistant editors, Dr. Mohrah Alotaibi, Dr. Arwa Almubaddel, and Dr. Wafa Othman Aljuaythin, whose commitment and insight will further enrich JRLT's editorial direction and strengthen our capacity to attract rigorous, innovative scholarship.

This issue showcases a rich and diverse collection of studies that deepen our understanding of language, translation, and pedagogy in Saudi Arabia and the wider Arab world. The ten original articles published here span empirical, theoretical, and applied dimensions of language and translation research. Among the contributions, Alfaifi and Mobarki examine the linguistic landscape of Jazan via two commercial zones, offering insights into language signage, public space, and sociolinguistic visibility. Almutairi and Saber present a comparative study of female EFL learners' self-regulation and strategy use in Saudi Arabia, contributing to discourse on learner training and autonomy. Alaghbari and Saeed investigate how Google Docs and mobile instant messaging can support learners' participation in collaborative writing, while Al-Thubaiti explores verb–subject gender agreement in Standard Arabic by Arabic heritage learners and French speakers, an important study in second language morphosyntax. Alzaidi investigates serial verb constructions in Hijazi Arabic through a lexical-functional grammar lens, adding to the typology of Arabic dialect syntax. Abumelha and Alzahrani conduct a corpus-based critical discourse analysis of the representation of children in Saudi Arabic media, illuminating issues of ideology, agency, and discourse. Alhumsi offers a comparative transitivity analysis of human and AI-based translations, evaluating abstracts from the humanities and social sciences to probe differences in transitivity patterns. Al-Athwary discusses the interplay of globalization, localization, and

translation in shaping Saudi Arabia's evolving linguistic landscape, while Otaif addresses critical language awareness in translation, proposing a cognitive corpus-based training model for translators.

Together, these contributions articulate pressing themes: the visible linguistic ecology of Saudi cities, learner cognition and strategy use, collaborative writing practices, morphosyntactic phenomena in Arabic, the critical discursive role of translation, and the implications of artificial intelligence in translation studies. We hope that readers will find in them both theoretical stimulation and practical relevance for language teaching, translation pedagogy, and future research.

We extend our sincere gratitude to our authors, reviewers, and the editorial team for their dedication and hard work in preparing this issue. Thank you for your continued support of JRLT.

Editor

Prof. Hind M. Alotaibi

College of Language Sciences

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October 1, 2025

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Exploring the Linguistic Landscape of Jazan, Saudi Arabia: A Case Study of Two Commercial Zones

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الملخص

إن التطور الاقتصادي المتسارع والتحولات الاجتماعية الكبيرة جعلت من مدينة جازان بالمملكة العربية السعودية بيئة غنية وواحدة لأبحاث المشهد اللغوي (Linguistic Landscape)، فهي منطقة لا تزال غير مدروسة أو مستكشفة بشكل كامل. لذلك تهدف هذه الدراسة إلى: أ) استكشاف ملامح المشهد اللغوي في مدينة جازان؛ ب) إجراء مقارنة دقيقة بين المشهد اللغوي لمنطقتين تجاريتين رئيسيتين في المدينة وهما: السوق الداخلي وطريق الكورنيش؛ ج) تحليل ومناقشة العوامل المختلفة التي تؤثر على تشكيل المشهد اللغوي في مدينة جازان. وقد تم جمع مائتي (200) عينة من اللافتات لهذا الغرض، بواقع مئة (100) عينة من كل موقع باتخاذ المنهج العشوائي في الجمع لضمان النتائج المحايدة. وُجمعت البيانات من خلال الصور، ومقاطع الفيديو، والملاحظات الميدانية. كما استخدمت خرائط جوجل للتحقق والتأكيد. وجميع اللافتات التي تم دراستها تنتمي إلى القطاع التجاري وتمثل النوع التصاعدي (bottom-up). وكشف التحليل عن نتائج مهمة. أولاً، أظهرت لافتات السوق الداخلي هيمنة كبيرة للغة العربية، إذ أعطت أكثر من 90٪ منها الأولوية للعربية بدلاً من الإنجليزية. وقد ركزت هذه اللافتات على إبراز هوية النشاط التجاري بدلاً من الأسماء البراقة أو العصرية. ثانياً، أظهرت لافتات طريق الكورنيش انتشاراً أكبر للغة الإنجليزية، حيث تبين أن 51٪ من الأسماء كانت مستمدة من كلمات إنجليزية. علاوة على ذلك، وظفت 82٪ من اللافتات اللغة الإنجليزية بشكل حصري أو جنباً إلى جنب مع اللغة العربية. وتميزت هذه اللافتات بالتركيز على اختيار أسماء جذابة ولافتة تسهم في تعزيز الحضور القوي للعلامة التجارية. ثالثاً: كان للنمو الاقتصادي السريع وتدفق العلامات التجارية الأجنبية أثر واضح في إحداث تغييرات ملحوظة في حالة اللغة العربية في المشهد العام بمدينة جازان. فكما هو الحال في العديد من المدن السعودية والدول العربية، أصبحت الهيمنة المتزايدة للغة الإنجليزية على المشهد اللغوي تمثل تحدياً كبيراً للغة العربية. لذا، فإن تطوير السياسات اللغوية يُعد خطوة أساسية لتعزيز مكانة اللغة العربية وضمان استمراريتها، مع الأخذ بعين الاعتبار الحاجة والمتطلبات العملية للتواصل العالمي.

Exploring the Linguistic Landscape of Jazan, Saudi Arabia: A Case Study of Two Commercial Zones

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Abstract

The remarkable economic growth and unprecedented social transformations make the underexplored Jazan city in Saudi Arabia rich and promising for linguistic landscape (LL) research. The current study has the following aims: a) To explore the LL of Jazan City; b) To compare and contrast the LL of two commercial zones within Jazan City: The Internal Market and the Corniche Road, and c) To discuss the factors affecting the LL of Jazan City. Two hundred sample signs, 100 from each location, were randomly collected through pictures, videotapes, field notes, and Google Maps for confirmation. All signs were for private businesses (bottom-up signs type). The analysis revealed significant findings. Firstly, there is a clear dominance of Arabic in the signage within the Internal Market, with over 90% of signs prioritizing Arabic. These signs focus on business identity over flashy or trendy names. Secondly, English is more prevalent in the signage along Corniche Road, with 51% of the names originally being English words. Additionally, 82% of the signage utilizes English exclusively or in conjunction with Arabic. The Corniche Road signs emphasize selecting eye-catching, memorable names to establish a strong brand presence. Thirdly, rapid economic growth and the influx of foreign brands significantly contribute to the shifting LL of Jazan City. Like other Saudi cities and Arab countries, English's gradual dominance and prioritization challenge the current LL status of Arabic in Jazan. Improved language policies are necessary to promote and sustain the presence of Arabic while accommodating the practicalities of global communication.

Keywords: *Arabic; English dominance; Jazan; linguistic landscape; signboards*

Introduction

Linguistic landscape (hereafter LL) refers to the visibility and salience of languages on public and commercial signs in a given territory or region (Landry & Bourhis, 1997, p. 23). LL describes a variety of language representations such as road signs, street names, shop signs, names on buildings, advertising billboards, gift cards, and language visible everywhere. LL is a unique approach to analyzing multilingualism that draws from various fields, such as sociolinguistics, language planning, social psychology, geography, and urban studies (Gorter, 2006; Gorter & Cenoz, 2023). Studying LL helps to understand the implementation of language policies within a region and highlights how languages represent cultural identities and heritage.

Jazan City, also spelled (Gazan/Jizan/Gizan), is a captivating port city and the capital of the Jazan province in the southwest corner of Saudi Arabia (see the map in Figure 1). It stretches along the coast of the Red Sea and is located near the northern border of Yemen. According to Saudi Arabia's General Authority for Statistics (2022), Jazan City is home to over 200,911 residents, while the entire Jazan province boasts a population of over 1.4 million. The city houses the regional airport and an important seaport, which made its strategic location a vital trade hub for centuries.

Figure 1

Map of Jazan Location at the Red Pin



Source: Google Maps.

Jazan City thrived as a major fishing site and a strategic seaport for many years. The city served and still serves as a market hub and a gateway to Jazan province, known for its high-quality agricultural products, including wheat, mangoes, bananas, figs, papayas, plums, and coffee. However, the Jazan economy remained small and mainly local compared to other large cities in Saudi Arabia until the ambitious Saudi Vision 2030 was launched in 2017 and transformed its economy.

Since 2017, Jazan City has experienced remarkable economic transformations. In addition to massive infrastructure developments, several mega projects have been transforming the city into a central hub of economic activity, including a brand-new international airport,

Jazan City for Primary and Downstream Industries, Jazan Industrial City, Saudi Aramco's Refinery and Petrochemical Complex, Jazan Downtown, and many other projects.

With Jazan City quickly evolving from a local and historical port town into a modern and dynamic regional metropolis, it serves as an excellent ground for studying the LL. In a rapidly developing city like Jazan, understanding LL holds immense significance for several reasons. Firstly, this study marks the first exploration of the LL of Jazan City, a significant and rapidly developing urban center. Additionally, the diversity of Jazan intensifies as people quickly move to it, bringing their languages and traditions. Jazan LL mirrors its swift economic shift over the past decade from a small local market to a regional metropolis, which can be easily observed on multilingual signs in markets, business districts, and tourism areas. Moreover, the rapid growth of Jazan has reshaped city blocks, where traditional local markets now exist alongside global brands, making the city landscape a fascinating case to investigate the LL aspects. The data can also be crucial for upcoming businesses and infrastructure projects in the city. Finally, the findings and recommendations of this study may provide valuable insights for decision-makers in Jazan City, particularly in the context of multilingual signage in public spaces, government documents, and services, thereby promoting inclusivity and accessibility for all residents and visitors.

While LL has been extensively studied in various global contexts, rapidly transforming urban centers in the Arabian Peninsula, like Jazan City in Saudi Arabia, remain underexplored. Despite its historical significance, growing diversity, and recent economic shifts under Saudi Vision 2030, no research has examined Jazan's LL or its reflection of traditional heritage versus modern influences. Little is known about LL differences between traditional and newly developed commercial areas and what they reveal about language links to socio-economic changes. This study addresses these gaps by exploring Jazan's multilingual signage amidst rapid urbanization.

The aim and objective of this paper is to explore the LL of Jazan City. It seeks to compare and contrast LL between two different commercial zones within Jazan City: a traditional one named Internal Market and a recently developed zone named Corniche Road. Additionally, the paper aims to discuss the factors affecting the LL of Jazan City in Jazan, Saudi Arabia. To achieve these objectives, the research is guided by the following research questions:

- How does the traditional Internal Market's LL compare and contrast with the recently developed Corniche Road?
- What are the possible explanations for the current LL of Jazan City in Jazan, Saudi Arabia?

The remainder of this paper is organized into four main sections. Section 2 presents the literature review. Section 3 outlines the methodology. Section 4 presents the results. Section 5 discusses the results. The paper concludes with a summary, limitations, and suggestions for future research.

Literature Review

This section offers a comprehensive literature review on LL and is organized into three subsections: LL research, LL in Arabic-speaking countries, and LL in Saudi Arabia.

LL research

LL studies have been rapidly growing in the last three decades. This growth is evident in the increasing number of publications and research projects that explore various aspects of LL from interdisciplinary backgrounds. Gorter and Cenoz (2023) reported that LL publications have risen exponentially from 10 publications before 1998 to 30 by 2006 to over 200 publications yearly from 2020 to 2022.

LL research highlights two fundamental functions of signs: the informative function and the symbolic function (Landry & Bourhis, 1997). The *informative* function reveals the sign's origin, encompassing geographic and cultural dimensions. This function offers valuable contextual information, enabling us to better comprehend the significance of the sign. The *symbolic* function is what the signs convey or the underlying message hidden behind the visible symbol. For example, using specific words/language to convey prestige. Understanding these functions allows us to explore the intricate interplay between language and our environment.

Recent papers in LL research are exploring new trends. Some increasingly focus on utilizing these landscapes as pedagogical materials, specifically for teaching English as a Second Language (ESL) students (Al-Jarf, 2021). Another emerging trend is incorporating digital tools and methodologies in the analysis of LLs (Grzech & Dohle, 2018). Geospatial technologies and social media enable researchers to efficiently collect and analyze extensive datasets of linguistic signs from diverse locations. This facilitates dynamic and comprehensive studies that consider the physical and virtual presence of languages and their perception and interaction by different audiences. These digital approaches offer new avenues for understanding the complex and fluid nature of LLs in a globalized world. Other notable trends include language policy and contestation (Shohamy, 2015) and even the relations between linguascapes and smellscapes (Pennycook & Otsuji, 2015).

One significant trend within this discipline is the exploration of multilingualism and the representation of minority languages in public spaces. This research examines the coexistence and interaction of various languages in urban environments, providing insights into social hierarchies and cultural identities. The visibility of different languages on street signs, advertisements, and other public texts is scrutinized to understand the implications for language policy, power dynamics, and community identity (Gorter, 2006). This paper investigates multilingualism and language representation in Jazan City's landscape. Before going into the Jazan context, let us overview some of the landscape work internationally, in Arabic-speaking countries other than Saudi Arabia (Section 2.2), and in the Saudi Arabia context (Section 2.3).

LL in Arabic-speaking countries

LL in Arabic-speaking countries varies widely due to several interconnected factors such as colonial history, migration, globalization, and official policies (Al Hosani, 2022).

Colonialism, in particular, significantly influenced the LL of many Arabic-speaking countries. The best examples can be found in North African Arabic-speaking countries such as Algeria, Tunisia, and Morocco (Seredina & Kalegina, 2017). The imposition of foreign languages, such as French and English, led to their coexistence with Arabic, which is reflected in the LL so that the presence of English and French alongside Arabic on public signs is a common sight (Seredina & Kalegina, 2017).

In Morocco, for example, the government has implemented policies to promote the use of Standard Arabic and Amazigh (Berber) alongside French (Tomaščík, 2010). This multilingual policy reflects the country's linguistic diversity and colonial history, reflected in the landscape. In contrast, Tunisia has pushed to Arabize (i.e., adapt Arabic) public signs and reduce the presence of French in most public places (Ben Said, 2010). This policy is part of a broader effort to assert national identity and promote the use of Arabic in public life. However, the presence of French remains strong, particularly in urban areas and in sectors like education and business (Ben Said, 2010).

Dubai (in the UAE) offers the most vivid example of a multilingual LL in the Arabic context. As a major international hub, Dubai's public signs often feature Arabic alongside English. The estimates say that around 100 languages are spoken in the UAE by 200 nationalities and 150 ethnic groups (Randall & Samimi, 2010). A recent noteworthy study by Gu and Almanna (2023) analyzes bilingual and translation practices in Dubai's LL, revealing a common trend in Dubai's LL. Arabic information is frequently presented as transliterations from English rather than authentic Arabic, a practice often called "pseudo-Arabic," prioritizing the phonetic transfer of sounds over the preservation of meaning and function (AKA Arabized English). Gu and Almanna (2023) demonstrated the widespread reliance on transliteration as a primary strategy, given the availability of genuine Arabic equivalents. In the discussion section, we will discuss how the newly implemented policy in Saudi Arabia aligns with Dubai's approach to brand naming.

Other examples of LL studies in the Arab World include Sana'a City in Yemen (Al-Athwary, 2014), Aqaba City in Jordan (Amer, 2014), Oman (Jamoussi & Roche, 2017), Baghdad City in Iraq (Al-Obaidi, 2021), and Ramallah in the West Bank (Farran & Hortobágyi, 2020), among others. The following section discusses LL studies in Saudi Arabia.

LL in Saudi Arabia

Despite its relatively late start, several studies have been undertaken to explore Saudi Arabia LL in different cities and various public spaces across the country. Most of these studies mainly focused on large metropolitan and tourist cities in Saudi Arabia such as Mecca (Alsaif & Starks, 2020), Riyadh (Aldholmi, 2010; Alotaibi & Alamri, 2022), Jeddah (Alotaibi & Alamri, 2022; Blum, 2014), Medina (Al Haija, 2022; Aljohani, 2019), Abha (Alhaider, 2018), Khamis Mushait (Alfaifi 2015), and Najran (Al-Athwary, 2022), and some collected data across multiple of those cities (Al-Jarf, 2022).

The findings from these studies offer valuable insights into the LL of public spaces in Saudi Arabia. Each study contributes a comprehensive understanding of the Saudi LL over the past 15 years. We can categorize the findings from these studies into the following themes:

First, most previous studies agree that Arabic remains the dominant, primary, and official language across most sectors and regions in Saudi Arabia. English is secondary and commonly used alongside Arabic, especially in commercial zones, urban centers, tourist areas, and airports, to provide convenience for international visitors.

Second, different cities in Saudi Arabia exhibit diverse social, cultural, and economic factors, resulting in a dynamic and varied LL from one city to another. Distinctions can be observed based on factors such as size and population, religious significance, and importance of tourism. For example, large metropolitan areas like Riyadh, Jeddah, and Dammam feature a more diverse LL than smaller inland cities like Najran and Khams Mushait. Holy cities such as Makkah and Almedina boast the greatest diversity in LL and accommodate a broader range of languages due to their influx of Muslims from around the globe (Alsaif & Starks, 2020). Tourism-centric cities like Al-Aula, Red Sea Islands, and Abha are expected to have a stronger presence of English due to economic incentives (Alhaider, 2018).

Third, the impact of globalization is more pronounced in commercial areas and urban centers. Conversely, the LL of rural areas and traditional zones within cities predominantly features Arabic and remains largely unaffected by globalization (Alhaider, 2018). Alotaibi and Alamri (2022) call for more investigation of rural areas and zones within cities where Arabic is the only language present in the landscape. Jazan City, the focus of this study, exemplifies this phenomenon. As the results will demonstrate, rapid globalization has divided the two target locations in Jazan into two distinct LL zones: one with significant English influence and another with none at all.

Fourth, Arabic predominates the LL in cultural and religious zones. This is particularly true for mosques, museums, and heritage landmarks, where Arabic ensures alignment with local values. However, the religious areas of Mecca and Almadina are exceptions because the demographic of visitors is more international, with a significant number of non-Arabic speakers (Alsaif & Starks, 2020).

Fifth, the LL of locations frequented by youth, such as fast-food restaurants, coffee shops, parks, and modern shopping centers, predominantly feature English. This trend emphasizes the appeal of foreign cuisines and styles. English is often deliberately used in these areas to convey a sense of prestige and luxury to consumers, aiming at times for higher profits (Aldholmi, 2010) or to attract attention with foreign names (Al-Jarf, 2022). The present study observes a similar phenomenon along the Corniche Road, where English appears to be intentionally used to convey prestige. These patterns are visible in the results of this study, which aims to identify differences between two distinct areas of Jazan City. The following section discusses the methodology used to collect data in the present study.

Methodology

This section comprises two subsections: one detailing the data collection methods and locations and the other outlining the data analysis procedures.

Data Collection

The research objectives and questions outlined in the introduction guided the data collection process and instruments. Initially, the researchers defined and agreed upon the areas for the data collection process. Two areas were selected: the recently developed Corniche Road (Jazan's downtown) and the Internal Market area, which is more traditional. Images and information of 200 signs were collected, 100 from each road, accounting for over 50% of the signboards displayed in each area. A sample size of 100 is sufficient and provides diverse data to capture common trends within each road or location. This sample size aligns with previous research that used a similar sample size, such as studies by Aldholmi (2010), Alhaider, (2018), Al-Obaidi (2020), and Alotaibi and Alamri (2022). Other studies, such as those by Al-Athwary (2014, 2022) and Al-Jarf (2022), collected larger datasets.

The collection method was random. We collected from the beginning on both sides until the target of 100 for each road was reached, as Table 1 shows. Both locations being commercial zones meant that all signs were for private businesses, thus classifying them under the bottom-up.

Table 1

Sample Size and Location

Location	Sample size
Corniche Road	100
Internal Market	100
Total	200

The Corniche Road (see Figure 2) starts from Alhokair Plaza and stretches onwards along five Kilometers next to the beach, reaching the Danube Supermarket in Jazan City (driving time around 6 minutes). This area has recently been developed and represents the downtown core of Jazan City. The collected data from this area amounted to 100, including shops, restaurants, and clothing stores (See Appendix A).

Figure 2

Corniche Road and Internal Market in Jazan City



Source: Google Maps with author modification.

The second area is [*Al-sūq Al-dākhilī*] 'lit. The Internal Market is located in the oldest and most traditional zone of Jazan City (Figure 2). The Internal Market stretches out in an area of around 35000 square meters. Specifically, the data was gathered from two Internal Market streets hosting most stores: King Abdulaziz Street and 4th Street. The collected data from this area amounted to 100, including shops, restaurants, and clothing stores (See Appendix B).

The researchers conducted multiple physical visits to the locations to take photographs and videos of the shop signs using smartphone cameras. For each road, we documented each sign from the beginning, capturing both sides until we had collected 100 signs per road. A writing session immediately followed each physical visit. The field data, including notes, photos, and videos, were organized in an Excel sheet (see Table 2 in the following section) and double-checked for additional observations.

In a subsequent stage, the researchers conducted virtual visits using Google Maps to verify the observations from the physical visits. This step allowed us to verify the accurate names and signs, observe any details not captured by our images, and confirm the shops' activities (e.g., food and beverages, entertainment, beauty, etc.). For the complete list of shops, see Appendixes A and B.

Data Analysis

During the data analysis stage, after categorizing the sample signboards as either Corniche Road or Internal Market, the following codes (summarized in Table 2) were utilized to analyze the data for each signboard:

Table 2
Tagging Procedure

Original language	Display Name	Display priority
Arabic	Arabic	Arabic
English	English	English
Mix	Mix	Equal
Other languages	Arabic/Other/Mix	Arabic/Other/Mix

1) **Original language:** Each signboard was tagged with one of the following codes: *Arabic*, *English*, *mix*, or *other* (Table 2). This tagging component refers to the linguistic origin of the name. For example, a name such as (عصير) ['aṣīr] 'juice' is tagged as Arabic origin, a name such as (باربيكيو) 'barbeque' is tagged as English, a name such as (عصير تايم) ['aṣīr time] 'juice time' is tagged as mix, and a name such as (Cinepolis) is tagged as other since the word in Spanish. See also the results section for picture examples and analysis.

2) **Display name:** Each signboard was also categorized with one of the following tags: *Arabic*, *English*, or *mix* (Table 2). This classification pertains to the written language displayed on the signboard. A signboard was tagged as *Arabic* if it featured only Arabic letters, *English* if it contained only English letters, and *mix* if it included both Arabic and English letters.

3) **Display Priority:** Each signboard was categorized with one of the following tags: *Arabic*, *English*, or *equal* (Table 2). This classification pertains to the prominence of the text on the signboard, considering factors like size, appearance, color, brightness, or any other feature that enhances the text's visibility. A signboard was tagged as *Arabic* if the Arabic text was prioritized over English by any means or if Arabic was exclusively used on the sign. Conversely, a signboard was tagged as *English* if the English text was prioritized over Arabic or if English was solely used on the sign. A signboard was tagged as *equal* if both Arabic and English texts were used on the sign and given equal prominence. If the Arabic and English texts on a sign were presented differently, the authors evaluated them to determine if certain features made one more attention-grabbing. Features such as larger text size, distinctive fonts, vibrant colors like yellow and red, special lighting, or reflective materials were considered if they enhanced the text's prominence significantly. These coding procedures are similar to those used by some of the previous studies, such as Alfaifi (2015) and Alotaibi and Alamri (2022), as they have demonstrated their effectiveness in their work and serve our study purpose.

Results

This section presents the results of the current study. It starts with a summary of the findings and two subsections for the locations under investigation. Each subsection contains descriptions and picture examples for each component of the results.

Table 3 includes a summary and distribution of the data and findings for each tagging category in each location.

Table 3
Summarized Data

A. Original language	Internal Market	Corniche Road
Arabic	98	35
English	1	51
Mix	1	10
Other languages	0	4
Total	100 (100%)	100 (100%)

B. Display name	Internal Market	Corniche Road
Arabic	89	18
English	1	24
Mix	10	58
Total	100 (100%)	100 (100%)

C. Display priority	Internal Market	Corniche Road
Arabic	92	23
English	1	28
Equal	7	49
Total	100 (100%)	100 (100%)

Regarding the original language (Table 3A), Arabic overwhelmingly dominated the internal market data, with 98% of names originating from Arabic. In contrast, only 35% of the names in Corniche Road are of Arabic origin. English is predominant in Corniche Road, with 51% of the names originally being English words.

The distinction between the two nearby locations is more pronounced in the display name category. Approximately 89% of the signboards in the Internal Market display Arabic, compared to only 18% in Corniche Road. English is rarely seen in the LL of the Internal Market, whereas it dominates in Corniche Road, with 24% of signboards displaying only English and 58% displaying both English and Arabic.

A similar pattern emerges when examining the category of display priority. Arabic dominates the LL of the Internal Market, while English prevails in Corniche Road. In the Internal Market, Arabic is prioritized on 92% of the signboards, whereas on Corniche Road, Arabic is prioritized on just 23%. Conversely, English is prioritized on 28% of Corniche Road's signboards, compared to only 1% in the Internal Market. However, equal use of Arabic and English was notable concerning display priority, with 49% of bilingual signboards appearing in both languages equally.

To sum up, the findings indicated greater stability and significant use of Arabic on the signage in the Internal Market. This consistency was evident across three dimensions: original

language, display name, and display priority. The establishment dates of the stores are significant to these findings. Shops within the internal market were set up before the region's recent economic shifts. Conversely, the results for Corniche Road were more varied. English was predominantly used as the original language. A mix of Arabic and English was prominent in terms of display name. Finally, equal use of Arabic and English was notable regarding display priority.

The following sections present demonstrations and examples of the various aspects identified in the results above. Each tagged component is demonstrated with a relevant picture example and explanation.

Internal Market

Figure 3 demonstrates that Arabic is the original language in the internal market. The figure also demonstrates the status of Arabic in terms of display name and display priority. The signboard contains four words, all of which originated from Arabic (مؤسسة) [mu'assasat] 'establishment', (عميد) [amīd] 'leader', (البلد) [al-balad] 'downtown', and (التجارية) [al-tijārīyah] 'commercial' (English translation: Downtown's Leader Commercial Establishment). The words were written and only displayed monolingually in Arabic. So, the signboard can easily be read from right to left. Herein arises the display name and display priority of Arabic.

Figure 3

Mu'assasat 'Amīd Al-balad Al-tijārīyah



Figure 4 demonstrates English as the original language in the Internal Market. The signboard highlights the prominence of English in terms of display name and display priority, which is uncommon in the Internal Market's LL. The words on the signboard, "Roses Princess," are derived from English in both alphabet and meaning, allowing the sign to be read from left to right. The Arabic words in a smaller font indicate that the shop sells roses and gifts for women.

Figure 4
Roses Princess



Figure 5 illustrates the blend of Arabic and English in terms of original language and display name within the Internal Market. The signboard features three words written in Arabic script. Note that (أزياء) [‘azyā’] ‘clothing’ and (للعبايات) [lil‘abāyāt] ‘for abayas’ has Arabic origins, whereas the word (زارا) [zārā] ‘Zara’ is not Arabic and refers to a popular fashion retailer called Zara. The non-Arabic word ‘Zara’ was transliterated and incorporated into the signboard, making it readable from right to left with its neighboring Arabic words.

Figure 5
‘Azyā’ Zārā ll‘Bāyāt

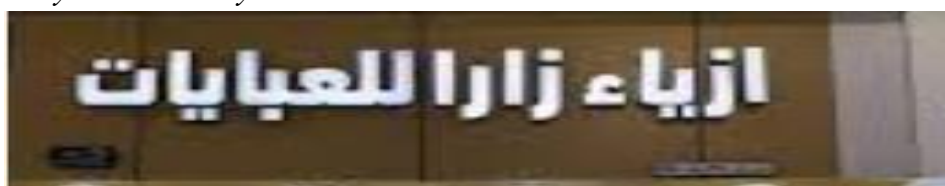


Figure 6 displays the signboard of the renowned Saudi Arabian perfume brand, Deraah. This example highlights a bilingual sign where both Arabic and English are given equal importance in size and prominence.

Figure 6
Deraah



Corniche Road

On the side of the Corniche Road, Figure 7 illustrates the use of Arabic in terms of originality, display name, and display priority. As the image shows, this signboard features two words: (المشوي) [al-mashwa] ‘grill’ and (العنابي) [Al-‘annābī] ‘maroon’. These two words are exclusively written and displayed in Arabic, and their meanings are rooted in Arabic. It is

important to note that this example and most examples below are branches of businesses found also in major Saudi cities. Hence, they do not necessarily reflect the linguistic choices of local investors in Jazan.

Figure 7

Al-mshwá Al-'annābī



Figure 8 is for a cafe called Dose, a well-known brand in Saudi Arabia. "Dose" originates from English and is used on the cafe's signboard. Notably, the signboard displays the word 'Dose' without any presence of Arabic words or any other language. Consequently, English is the language origin, display name, and display priority.

Figure 8

Dose



Figure 9 illustrates the combination of Arabic and English origins and mixed display names. The signboard involves two words written and displayed in Arabic and their equivalents written and displayed in English. The language of origin is mixed with the Arabic word (الحكير) [Al-ḥukair] 'lit. Owner's surname' and the English word 'time'. In this case, the display priority is equal, with both languages having equal use and representation on the signboard.

Figure 9

Al-ḥukair Time



The data from the Corniche Road includes other languages as well. Figure 10 is one example. The Spanish brand name 'Cinépolis' appears in big font with Arabic transliterated script. In this case, Arabic and Spanish display priority is equal.

Figure 10

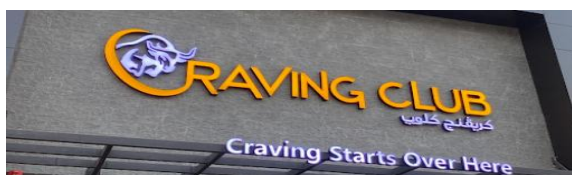
Cinépolis



Overall, the LL of Corniche Road differs from that of the Internal Market by showing an increasing presence of bilingual Arabic-English or English-only signs. This shift often comes at the expense of monolingual Arabic-only signs, reflecting the broader influences of modernization and globalization on Jazan's newly developed landscape. Figure 11 illustrates some of the bilingual and English-only signs from Corniche Road. Such signs do not exist in the Internal Market.

Figure 11

Bilingual and English-only Signs from the Corniche Road (Anoosh, Craving Clup, Real Burger, Burger33)



Additional Observations

Additionally, we observed two noteworthy aspects during our fieldwork and data collection that are important to highlight. The first observation is that foreign brands often incorporate and prioritize the Arabic language on their store signs to attract local customers and establish a sense of cultural belonging. Figure 12 shows MacDonald's branch on Corniche Road, whose name is written in large Arabic script. By incorporating Arabic this way, these brands communicate their products and services and show respect for the local culture and traditions. This strategic choice helps them blend seamlessly into the local market, making their stores more approachable and relatable to the Arabic-speaking community.

Figure 12

MacDonald's



The second observation pertains to the Internal Market. We observed that many of the Arabic signboards in this location share specific characteristics: 1) The store name often includes the owner's full name (sometimes consisting of three fathers and grandfather's names), and 2) the signboard typically describes in detail the business activity of the store (e.g., selling clothing or jewelry).

Figure 13

Mu'assasat 'Asūnī



Figure 13 illustrates this observation. The store's name is long, translating in English to "Jaber Mohammed Othman Asouni Establishment for selling generators, agricultural motors, submersible pumps, and their spare parts."

Discussion

This research extends previous Arabic LL studies by examining Jazan City's LL. It contrasts two commercial zones in this rapidly growing economic hub: a newly developed area (Corniche Road) with a significant English presence and a traditional, less developed area (Internal Market) featuring only Arabic signs. This comparison highlights how Jazan's LL is evolving towards a highly multilingual future, with English likely to dominate the scene.

Jazan LL reflects a fascinating interplay between the date of business establishment and evolving language preferences, shedding light on the shift from Arabic dominance to bilingual and sometimes English-only prominence. In the traditional Internal Market, older businesses established decades ago in a less globalized era overwhelmingly use Arabic signage, as the data show. Conversely, the newly developed Corniche Road hosts younger businesses that embrace English and Arabic-English bilingualism to signal modernity, attract diverse customers, and compete in a global economy. This topic warrants further exploration to fully understand how the passage of time changes business owners' priorities and business naming strategies.

The choice of names and naming conventions offers insight into cultural preferences and tendencies. In the Internal Market, names reflect deep-rooted local traditions and family connections. Most signs are written in Arabic and prominently feature the owners' full names including the family names, catering to local customers with examples like محل عقيلة ولي محمد ('Aqila Wali Muhammad Hakimi Shoes Store'), مؤسسة محسن جابر شوعي هاشم التجارية ('Mohsen Jaber Shuai Hashim Trading Establishment'), and محل بيان علي حسن صادق للتجارة ('Bayan Ali Hassan Sadiq Trading Store'). This naming practice prioritizes business identity over flashy or trendy names, focusing little on modern marketing strategies to attract customers. In contrast, Corniche Road highlights a different approach, where cultural influences and business strategies emphasize selecting eye-catching, memorable names to establish a strong brand presence. Examples like *Dr. Waffle*, *Froz*, and *Back Street* demonstrate a preference for foreign languages—particularly English—and Western cultural influence. These naming conventions suggest a deliberate effort to appeal to a broader, possibly more multicultural audience, prioritizing recognition and appeal over traditional naming norms.

LL serves as both an informative guide and a symbolic indicator, shedding light on the power dynamics and status of linguistic groups within a region, as noted by Landry and Bourhis (1997). In the Internal Market, signs are highly informative, typically displaying the business name, the owner's full name, and the services offered. The overwhelming presence of Arabic here underscores that, despite Jazan City's exposure to modern and global influences, its deep-rooted culture and traditions endure, particularly in the city's more traditional areas. As mentioned in the Additional Observation Section, a notable feature of the Internal Market signs is including the owner's full name. This practice carries deep cultural significance, reflecting values of personal identity, family pride, and community connection. This practice emphasizes the individual's reputation and accountability, signaling trust and reliability to customers who often know the name and the family.

In contrast, the LL along Corniche Road blends informativeness with strong symbolic undertones. While still practical, the frequent use of English on these signs hints at a potential future where it might surpass Arabic. English dominance is fueled by the younger generation's preference and knowledge of English and business owners' strategic choice to project modernity and prestige. This trend aligns with the demands of an increasingly globalized market, where English serves as a marker of sophistication and competitiveness. Unlike the Internal Market's focus on tradition, Corniche Road's signage reflects a forward-looking identity, balancing cultural roots with aspirations for global integration. Together, these contrasting landscapes highlight how language choices in the two investigated public spaces mirror both enduring traditions and evolving societal shifts in Jazan.

The significant presence and prioritization of English in Jazan LL, particularly seen in Corniche Road's data, poses significant challenges for the future of the Arabic language on the LL scene. This is, however, not a unique problem for Jazan City. Still, it is also an issue in other Saudi cities and Arab countries, as seen in previous studies about Saudi Arabia LL (e.g., Al-Jarf, 2022). In fact, this is an English-specific global phenomenon. English can be seen everywhere in shopping streets around the globe, and it poses challenges to any other language,

as well as becoming the world's lingua franca (Gorter & Cenoz, 2023). Regarding Arabic, there is a growing concern among Arabic specialists and academic circles that the widespread use of English is diminishing the status and use of Arabic in the economic sphere. However, Arabic status is not vulnerable in other aspects of life since it is deeply intertwined with its speakers' history, religion, and traditions.

The issue of English gradual dominance on Jazan's LL is economic in nature, and it can be addressed by implementing the appropriate policies to protect and enhance the use of Arabic. The current language policies for shop names are either ineffective or not being adhered to, considering the reality of the LL. In a recent interview (Ya Hala Program, 2024, September 19), the official speaker of the Ministry of Commerce, who grants shop owners a permit to establish their new business, mentioned that the current policy allows using the nearest equivalent letter from the existing standard Arabic alphabet. Businesses now may own the right to the Arabic or the English name word and own the right to its equivalent in the other language alphabet. For example, a business named 'The book' owns also its Arabic equivalent (ذا بوك) [ða buk], but the same business may not own the Arabic word name (الكتاب) [ʔal kita:b] 'the book'.

An improved policy would mandate the use of Arabic on public signage, and when English is also included, Arabic should take precedence alongside it. Some scholars call for more Arabic protection by implementing laws preventing shops from using non-Arabic names. Still, when a foreign name is necessary, it should be displayed in smaller fonts, with the Arabic name in larger, more prominent fonts (Al-Jarf, 2022). However, while such policies might be effective in terms of Arabic preservation on LL, they pose significant risks of potentially hindering economic growth due to language regulations.

We propose taking several simultaneous actions to ensure the sustainable presence of Arabic on the LL (LL). These actions include:

1. Helping new businesses by suggesting creative Arabic names with the aid of linguistic and branding experts.
2. Raising awareness through the media about the importance of using Arabic names on the LL and motivating both new and existing businesses to participate by incorporating Arabic.
3. Engaging the community to cultivate pride in the Arabic language. Since the community is the primary user and beneficiary of public signage, their preference for Arabic will influence signage makers to meet their expectations.
4. Mandate businesses to prioritize Arabic or use it exclusively on bilingual signage through economic incentives like tax breaks, grants, or other financial support.

Implementing such strategies makes it possible to create a LL that respects and promotes Arabic while still accommodating the practicalities of global communication.

Conclusion

This study compared two commercial zones within Jazan City, highlighting the city's rapid economic growth. The findings indicate that Jazan's linguistic landscape is progressing

towards a highly multilingual future, with English poised to dominate newly developed areas. English usage in these zones surpasses Arabic usage. Specifically, the study revealed that 51% of the Corniche Road signs have English origins, while 10% display mixed names combining English and Arabic. In contrast, Arabic remains dominant in traditional zones, such as the Internal Market, where 98% of signs have Arabic origins.

Like any other research, this study has limitations, notably the sample size and the sampling locations. While we analyzed 200 signs (100 signs from each location), a larger dataset would enhance the reliability of the generalizations. Additionally, exploring other areas within Jazan City, such as specific markets (food, utilities, fish market) and other surrounding small towns near Jazan, is essential for a more comprehensive understanding of the LL in this region. These are venues to explore in future research.

Future research on the LL in Jazan and similar Saudi Arabian cities should prioritize capturing local residents' perspectives on their area's LL and identifying LL factors that affect their purchasing choices. Additionally, such studies should assess native speakers' awareness of the linguistic diversity exhibited in the malls and streets they frequently visit.

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Appendix A (Corniche Road data)

Arabic Name	English Name	Sector
شاورما كنج	NONE	Food & beverage
المشوى الغنابي	NONE	Food & beverage
عنايتي مساج حمام مغربي	NONE	Therapy
مشاوي وشاورما تل الريم	NONE	Food & beverage
الوزن المثالي	NONE	Nutrition
هليل	NONE	Food & beverage
هرفي	NONE	Food & beverage
الطازج	NONE	Food & beverage
الضيافة السعيدة للمأكولات البحرية	NONE	Food & beverage
عشق	NONE	Food & beverage
قصر الضيافة	NONE	Food & beverage
شاي لجب	NONE	Food & beverage
دومينوز	NONE	Food & beverage
كرسيي كريم	NONE	Food & beverage
كوست فيو	CV	Food & beverage
شاورما أنجريل	NONE	Food & beverage
قرية البرجر	NONE	Food & beverage
عصير تايم	NONE	Food & beverage
أبو زيد	Abu Zaid	Food & beverage
سنابل السلام	Sanabel Al Salam	Food & beverage
مشويات أدنا	BBQ	Food & beverage
باسكن روبنز	BR	Ice Cream Shop
مساج شرق آسيا الرياضي	Spa	Therapy
NONE	Kastro	Food & beverage
NONE	Dose	Food & beverage
NONE	Lost	Food & beverage
NONE	Seron	Food & beverage
NONE	W Cafe and Lounge	Food & beverage
NONE	Blanco	Food & beverage
NONE	SouthWest	Food & beverage
NONE	Cove	Food & beverage
NONE	Donuts 8	Food & beverage
NONE	Chocolate and Sweets	Candy Store
NONE	Hey Bumbai	Food & beverage
NONE	Burger33	Food & beverage
NONE	LLumar	Car services
NONE	Impala	Gym
NONE	Forever	Beauty
NONE	I need Bake shop and cafe	Food & beverage
NONE	Sugar Spa	Therapy
NONE	Brown Dose	Food & beverage
NONE	Wknd	Food & beverage

للخياطة الرجالية	Gazal	Clothing
NONE	Chef Ahmed	Food & beverage
NONE	Boza	Food & beverage
NONE	Bora Bora juice	Food & beverage
كريفنج كلوب	Craving Club	Food & beverage
جيور دانو	Giordano	Clothing
هاوستن برجر	Houston Burger	Food & beverage
كويك المطاعم الغربية السريعة	Quick Western Restaurants	Food & beverage
باك ستريت	Back Street	Food & beverage
بوليتانو	Politano	Food & beverage
الضيافة البحرية	Happy Hospitality seafood restaurant	Food & beverage
كودو	Kudo	Food & beverage
كيان	Kyan	Food & beverage
أنوش	Anoosh	Candy Store
بيتوتي	Baytoti	Food & beverage
الأهلي مركز التمويل التاجيري	SNB Lease Finance center	Finance
الفارس لتأجير السيارات	Alfars rental cars	Car rental
فتجان النخبة	Finjan Alnukhba	Food & beverage
العربية للعود	Arabian Oud	Beauty
ملتقى الخبازين	Moltaqa alkhabbazeen	Food & beverage
سعد الدين	Saadeddin	Food & beverage
اليسر	Alyusr	Finance
عنوان القهوة	Coffee Adress	Food & beverage
البيك	Albaik	Food & beverage
النايفات	Nayifat	Finance
النقلي	Alnukaly	Candy Store
سجايا للرعاية الطبية	Sajaya Medical Care Services	Health care
بستاني	Bostani	Candy Store
الضيافة السعيدة للمأكولات البحرية	Happy Hospitality Seafood Restaurant	Food & beverage
ماكدونالدز	McDonald's	Food & beverage
دانكن	Dunkin	Food & beverage
اوشكن	o'chikn	Food & beverage
فلورينا	Florina	shoe Store
أروماتك	Aromatic	Beauty
ستور	Store	Furniture
أشلي	Ahley	Furniture
سيمبل سيتي	Simple City	Furniture
توب سنتر	Top Center	Clothing
ماكدونالدز	McDonald's	Food & beverage
سجنتشر	Signature	Food & beverage
سينابون	Cinnabon	Food & beverage
بارنز	Barns	Food & beverage
أوشن باسكت	Ocean Basket	Food & beverage
أبل بيز	Applepeas	Food & beverage
ريل برجر	Real burger	Food & beverage
أونو	Uno	Food & beverage
صب واي	Subway	Food & beverage
فروز	Froz	Food & beverage
د. وافل	Dr. Waffle	Food & beverage
بتر بيكري	Butter Bakery	Food & beverage

سكتشرز	Skechers	shoe Store
الحكيرتايم	Alhokair time	Entertainment
دجاج كنتاكي	KFC	Food & beverage
السعدون يونفورم	Alsaadoun Uniform	Clothing
ذوق البهارات	Taste of Spaces	Food & beverage
سينيبوليس	Cinepolis	Cinemas
هيللا	Hella	Food & beverage
جيا للمأكولات الهندية	Jyia Indian restaurant	Food & beverage

Appendix B (Internal Market data)

Arabic Name	English Name	Sector
نغمة العطور	NONE	perfumes
بطاطس عمو أحمد	NONE	Food & beverage
صالون واحدة فحسب للحلاقة الرجالية	NONE	Barbershop
حفلة الجنوب	NONE	Logistics
بقالة عمائر للمواد الغذائية	NONE	Food & beverage
كيان للعطور	NONE	Beuaty
ركن الابداع للمفارش	NONE	Logistics
محل سحابة لود للزهور	NONE	Giftshop
دنيا للعطور	NONE	beuaty
أضواء الأفراح توزيعات لجميع المناسبات	NONE	Logistics
مؤسسة سداد القرض لتحصيل الديون	NONE	Finance
لمساتي أحلا	NONE	Giftshop
مواهب الورد	NONE	Giftshop
محل صراحة ابداع	NONE	Giftshop
عبايات الأميرات	NONE	Clothing
محل لمعة داتنة للملابس الرجالية	NONE	Clothing
شركة الغاية التجارية	NONE	Clothing
شركة الأسطورة للتجارة	NONE	Clothing
محل رواع الحزيرة للمفروشات	NONE	Logistics
وديع للمشراشف	NONE	Logistics
مؤسسة ركن عطور الديرة	NONE	beuaty
مؤسسة بنت البلاد للمفارش	NONE	Logistics
الوفاء للمفارش	NONE	Logistics
صالون لمسة السلام	NONE	Barbershop
الإبداع للألعاب	PR	Games
محل عبدالرزاق مرزوق الحربي للتجارة لبيع الأدوات الكهربائية	NONE	Logistics
لمسة حرير للعبايات والطرح	NONE	Clothing
شركة الأمين الماسية التجارية	NONE	Clothing
جازان الجديد للتجارة	NONE	Logistics
محل عقيلة ولي محمد حكيم للأحذية	NONE	Clothing
مؤسسة سعيد يحي محمد الزهراني للحلويات	NONE	Food & beverage
شركة روائع الميزان للذهب والمجوهرات	NONE	Jewelries
شركة وقت الطيب للعود والعطور والبخور	NONE	Beuaty
أناقة الجمال للعبايات	NONE	Beuaty
لمسات غير	NONE	Beuaty
شركة البديل للتجارة	NONE	Beuaty
محل لمسة غزالة للعبايات	NONE	Beuaty
همس للاتصالات	NONE	Electronics

بدون اسم	NONE	Beauty
مؤسسة زاوية اللؤلؤة	NONE	Electronics
روائع البازار للأقمشة	NONE	Beauty
وردة الخليج للعبايات	NONE	Beauty
شركة البسمة للذهب والمجوهرات	NONE	Jewelries
مطعم باب الجزيرة لتقديم الوجبات	NONE	Food & beverage
شركة جواهر لمار للذهب والمجوهرات	NONE	Jewelries
الشموخ للمعادن الثمينة والذهب والمجوهرات	NONE	Jewelries
مؤسسة جوهرة علاء للذهب والمجوهرات	NONE	Jewelries
شركة لؤلؤة الأسطورة	NONE	Jewelries
شركة جواهر العنود للذهب والمجوهرات	NONE	Jewelries
شركة روائع الميزان للذهب والمجوهرات	NONE	Jewelries
الأسطورة للذهب والمجوهرات	NONE	Jewelries
شركة ذهبيات الجنوب للتجارة للذهب والمجوهرات	NONE	Jewelries
خياطة الجيل الرائع للخياطة الرجالية	NONE	Clothing
مؤسسة عميد البلد التجارية	NONE	Appliances
محل مشهور	NONE	Clothing
محل للأقمشة محل بيان علي حسن صادق للتجارة	NONE	Clothing
مؤسسة الركن الداخلي للملابس	NONE	Clothing
محل سعيد يحيى الزهراني للحلويات والمكسرات	NONE	Candy
للخياطة الرجالية محل نسيم عبدالرحمن إبراهيم عبدالله	NONE	Clothing
مؤسسة سماء حلا للحلويات والمكسرات	NONE	Candy
شركة رجل أبيض للتجارة	NONE	Logistics
مؤسسة خالد محمد باعثن للمعدات الزراعية مولدات غطاسات - قطع غيار	NONE	Appliances
مؤسسة علي جابر عسوي للمولدات والمعدات الزراعية	NONE	Appliances
فرع مؤسسة عمانر لبيع الأقمشة	NONE	Clothing
مؤسسة ملمس حرير للتجارة	NONE	Clothing
مؤسسة محسن جابر شوعي هاشم التجارية	NONE	Appliances
خياط رهن حسن سعيد العمودي	NONE	Clothing
مؤسسة جود الذهبية للكماليات	NONE	Clothing
تموينات إبراهيم غيبين للمواد الغذائية 2	NONE	Grocery
شركة الأمين الماسية التجارية	NONE	Candy
مؤسسة سعيد يحيى محمد الزهراني للحلويات	NONE	Candy
أقمشة جازان الجديد للتجارة	NONE	Clothing
محل الراية البيضاء للأجهزة الإلكترونية الحكي للالكترونيات	NONE	Electronics
أقمشة مروة	NONE	Clothing
تموينات إبراهيم غيبين للمواد الغذائية 1	NONE	Grocery
محل ليلى الزيدان للتجارة	Z	Clothing
مقهى دلة شاي لتقديم المشروبات	NONE	Food & beverage
فرع شركة تحفة دبي التجارية	NONE	Clothing
مركز مكة	NONE	Clothing
محل تفاح النجوم للأجهزة المنزلية	NONE	Electronics
صالون الجيل الرائع للحلاقة الرجالية	NONE	Barbershop
مؤسسة العطاس للبسكويتات والحلويات	NONE	Candy
مطعم أصول الشواوية	NONE	Food & beverage
أبو عرب للكباب البلدي	NONE	Food & beverage
صالون نجم الوادي	NONE	Barbershop
مغسلة رفا لغسيل الملابس	NONE	Laundry
عمو وحيد	NONE	Food & beverage
صالون ركن النهضة لصاحبته رنا محمد	NONE	Barbershop

كنوز روز للذهب والمجوهرات	NONE	Jewelries
مؤسسة أسطورة للأقمشة	Alostora	Beauty
زمامي شركة عطور زمامي التجارية	Zamani	Beauty
أناقة زارا للعبايات	Zara	Clothing
NONE	Roses Princess	Logistics
مؤسسة لحظات العناية	Care Moments	Beauty
الأهلي	SNB	Finance
درعة	Deraah	Beauty
العسلي	Al-Assali	Beauty
نخبة العود	Oud Elite	Beauty
معرض دبي	Dubai	Clothing
أجمل	Ajmal	Beauty

Appendix C (Romanization symbols used in this paper)

symbol	Arabic	Phonetic description
‘	ع	Voiced pharyngeal fricative
’	ء	Voiceless glottal stop
ā	آ	Long low front unrounded vowel
ū	و	Long high back rounded vowel
ī	ي	Long high front unrounded vowel
ḥ	ح	Voiceless pharyngeal fricative
ṭ	ط	Voiceless emphatic alveolar stop
ṣ	ص	Voiceless emphatic alveolar stop
ḍ	ض	Voiced emphatic dental stop
ẓ	ظ	Voiced emphatic interdental fricative

Saudi Female EFL Learners' Use of Self-Regulation and Language-Learning Strategies: A Comparative Study

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الملخص

الهدف من هذه الدراسة هو مقارنة استخدام استراتيجيات تعلم اللغة (LLS) و استراتيجيات التعلم المنظم ذاتيًا (SRL) من قبل متعلمات اللغة الإنجليزية كلغة أجنبية (EFL) السعوديات من مستويات تعليمية ومستويات إتقان لغة إنجليزية مختلفة. لقد قامت اغلب الدراسات بفحص استخدام استراتيجيات تعلم اللغة (LLS) واستراتيجيات التعلم المنظم ذاتيًا (SRL) بناءً على مستويات إتقان اللغة. في هذه الدراسة نبحث في كيفية استخدام متعلمات اللغة الانجليزية كلغة أجنبية السعوديات من مستويات تعليمية ومستويات إتقان اللغة مختلفة لهذه الاستراتيجيات. لبلوغ هذه الغاية، تم توزيع اختبار أكسفورد السريع لتحديد المستوى و استبيانين للتأكد من مدى استخدام استراتيجيات تعلم اللغة (LLS) واستراتيجيات التعلم المنظم ذاتيًا (SRL) على مئة و ثمانية عشر متعلمة سعودية للغة الإنجليزية كلغة أجنبية لديهن مستويات إتقان مختلفة و هي: A1 و A2 و B1 و B2 عبر مستويات تعليمية مختلفة: المتوسطة والثانوية وبرنامج السنة التحضيرية بالكلية. وقد كشفت النتائج عن عدم وجود فروق ذات دلالة إحصائية في استخدام استراتيجيات تعلم اللغة (LLS) بين متعلمات اللغة الإنجليزية كلغة أجنبية السعوديات عبر مستويات التعليم وإتقان اللغة المختلفة. وعلى الرغم من عدم وجود فروق ذات دلالة إحصائية في استخدام استراتيجيات التعلم المنظم ذاتيًا (SRL) عبر المستويات التعليمية، فقد وجد فرق كبير بين المتعلمين في المستوى B2 وأولئك في المستويين A2 و B1، حيث أظهر المتعلمون في المستوى B2 بأقل استخدام لاستراتيجيات التعلم المنظم ذاتيًا. ووفقًا لنتائج هذه الدراسة، فإن متعلمات اللغة الإنجليزية كلغة أجنبية السعوديات يستخدمن استراتيجيات تعلم اللغة (LLS) بشكل متشابه، وإلى حد ما، يستخدمن استراتيجيات التعلم المنظم ذاتيًا (SRL) بشكل متشابه عبر مختلف المستويات التعليمية وإتقان اللغة. ومن الممكن أن توفر هذه النتائج للمدرسين والأكاديميين رؤية قيمة حول استخدام SRL و LLS من قبل متعلمات اللغة الإنجليزية كلغة أجنبية في المملكة العربية السعودية.

Saudi Female EFL Learners' Use of Self-Regulation and Language-Learning Strategies: A Comparative Study

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Abstract

The aim of this study is to compare the implementations of language-learning strategies (LLS) and self-regulated learning (SRL) strategies by female Saudi learners of English as a foreign language (EFL) with different educational and proficiency levels. Most studies have examined the use of LLS or SRL strategies based on proficiency levels. In this study, we investigate how Saudi female EFL learners with varying language proficiency and educational levels employ these strategies. To accomplish this aim, Oxford Quick Placement Test and two questionnaires investigating the implementation of SRL and LLS strategies were administered to (118) female Saudi EFL learners who have various proficiency levels; that is, levels A1, A2, B1, and B2 across different educational levels: intermediate, secondary, and preparatory-year college program. The findings revealed no significant differences in the implementation of LLS among female Saudi EFL learners across educational and proficiency levels. Although there were no significant differences in SRL usage across educational levels, a significant difference was found between learners at the B2 level and those at the A2 and B1 levels, as learners at the B2 level reported the lowest use of SRL. According to the results of this study, Saudi EFL learners employ similar LLS strategies and, to some extent, similar SRL strategies across various educational and proficiency levels. These findings can provide instructors, and academics with valuable insights into the implementation of SRL and LLS by female EFL learners in Saudi Arabia.

Keywords *language-learning strategies; language proficiency; Saudi EFL learners; self-regulated learning*

Introduction

Self-regulated learning (SRL) and language-learning strategies (LLS) are two approaches that help learners of English as a foreign language (EFL) to achieve higher proficiency levels. SRL refers to an individual's ability to monitor, control, and manage their thoughts, emotions, and behaviors to achieve specific goals (Zimmerman, 2000). It is expected to empower learners to become lifelong learners and supports independent learning. LLS, on the other hand, refers to mental processes and practices that are intended to improve learners' language proficiency; more specifically, LLS is expected to enhance proficiency and performances in languages over time (Oxford, 2017). It implies that the learner's mind determines and controls the tools, techniques, or methods that are appropriate for the current purpose of the language-learning process, ultimately leading to improved language outcomes.

A recent model developed by Oxford (2017), entitled the Strategic Self-Regulation (S²R) model, integrates SRL and LLS. In this model, both SRL and LLS involve the application of strategies that assist learners to achieve better outcomes in the target language. While SRL mainly focuses on setting goals and controlling and monitoring one's learning process, LLS refers to the specific techniques and approaches that learners use to acquire, store, and retrieve information.

The S²R model, which integrates LLS and SRL, highlights the importance of learners' active participation in the language-learning process. To foster greater involvement, The Ministry of Education in Saudi Arabia adopt teaching approaches that encourage active learner participation, such as the communicative approach. A clear example of this shift can be seen in the assigned English textbooks, which aim to promote the communicative approach and to encourage Saudi EFL learners to become active participants in their learning processes (Alqahtani, 2018). According to this approach, Saudi EFL learners are expected to play a crucial role in the learning process rather than simply being recipients of teacher-designed curricula. A student-centered approach requires Saudi EFL learners to be active participants and to take control of their learning. It predicts that learners who take control of their learning processes will achieve higher levels of language proficiency compared to their peers. In other words, learners with higher proficiency levels are expected to use learning strategies more often than those with lower proficiency levels (Fukuda, 2017; Machimana & Genis, 2022). Additionally, Alzahrani (2024) concluded that when learners' native language and second language do not belong to the same family—as is the case for Saudi EFL learners—they are privileged to use more learning strategies to enhance the acquisition of their second language.

Alahmari (2021) stated that self-regulatory research is a relatively understudied area and that there is a lack of research examining the relationship between SRL and linguistic competence. The majority of studies in this field in Saudi Arabia have focused on comparing the differences between using LLS or SRL strategies among different proficiency levels but within the same educational level. Therefore, the aim of the current study is to extend the existing research by comparing the use of LLS and SRL strategies across different educational and proficiency levels by investigating how female Saudi EFL learners with different educational levels (intermediate, secondary, and preparatory college year) and proficiency levels (A1, A2, B1, and B2) implement these strategies. To collect the data for this study, an Oxford

placement test and two questionnaires that examine the use of LLS and SRL strategies were used. The results of this study may provide a more thorough understanding of Saudi EFL learners' varied use of LLS and SRL strategies and their correlation with proficiency and educational levels.

This study is guided by two main research questions (RQs):

RQ1. To what extent do female Saudi EFL learners with different levels of education and language proficiency differ in their use of LLS strategies?

RQ2. To what extent do female Saudi EFL learners with different levels of education and language proficiency differ in their use of SRL strategies?

Background to the Study

Self-Regulation

Zimmerman et al. (2017) described SRL as a process that is directed and controlled by learners, stating that SRL is “the process whereby students activate and sustain behaviors, cognitions, and affects that are systematically oriented toward the attainment of their goals” (p. 313). It emphasizes the existence of a goal, in pursuit of which learners control and regulate their behaviors, cognitions, and emotions. This definition aligns with Oxford's (2017) S²R model, which is applied in this study. The S²R model refers to SRL as the process in which learners select specific strategies based on their learning goals and then monitor, evaluate, and reflect on their choices to ensure goal attainment.

Zimmerman's (2002) cyclical model is one of the most widely cited SRL models in the literature and is consistent with the S²R model. Based on the cyclical model, SRL strategies are divided into three phases, namely forethought, performance, and self-reflection, according to the sequence in which learners apply them when studying or completing a task. These phases have also been labeled ‘before task,’ ‘during task,’ and ‘after task’ by researchers such as Dent and Koenka (2015) and Erdogan (2016), and researchers such as Xiao and Yang (2019) and Hung (2022) have continued to use this model in recent SRL research. The cyclical model is applied in the present study by utilizing the SRL questionnaire that was developed and validated by Erdogan and Senemoglu (2016). See Table 1 (See Appendix A) for a description of the SRL strategies as defined by Zimmerman (2008).

Language Learning Strategies (LLS)

Oxford (2017) defines LLS as:

Complex, dynamic thoughts and actions, selected and used by learners with some degree of consciousness in specific contexts in order to regulate multiple aspects of themselves (such as cognitive, emotional, and social) for the purpose of (a) accomplishing language tasks; (b) improving language performance or use; and/or (c) enhancing long-term proficiency. Strategies are mentally guided but may also have physical and therefore observable manifestations. Learners often use strategies flexibly and creatively; combine them in various ways, such

as strategy clusters or strategy chains; and orchestrate them to meet learning needs. Strategies are teachable. Learners in their contexts decide which strategies to use. Appropriateness of strategies depends on multiple personal and contextual factors (p. 48).

This definition covers the major themes in LLS concepts, including diverse strategies, learners' intentions, creativity, and consciousness. It is the most relevant for the purposes of the present study because it correlates the use of strategies with language proficiency and is an important part of Oxford's (2017) S²R model that links SRL to LLS.

With regard to LLS classification, Oxford's (1990) taxonomy is one of the most frequently cited strategy classifications in the literature. According to Oxford's taxonomy, LLS can be classified according to the two main domains of direct and indirect strategies, and is applied in this study by using the Strategy Inventory for Language Learning (SILL) questionnaire that she developed see Table 2 (See Appendix A).

S²R Model

The integration of SRL and LLS in this study is based on Oxford's (2017) pioneering S²R model; this framework emphasizes the role of learners as active decision makers in the language-learning process, and suggests that language learners can become more successful by using a variety of learning strategies to manage and direct their learning.

The S²R model highlights the importance of SRL in the language-learning process. SRL involves the ability to apply, control, and regulate various strategies to achieve a specific goal, such as language proficiency in the present context. Learners rely on SRL to set goals for their learning processes or tasks, choose the strategies that are best suited to attain these goals, and then regulate their behavioral, emotional, or motivational strategies. In her S²R model, Oxford (2017) referred to Zimmerman's (2002) three-stage model, which includes the forethought phase, the performance phase, and the self-reflection phase.

According to the S²R model, learners are expected to take control of their learning processes, to set clear goals, to identify areas of weakness, and to use different strategies to overcome them. By doing so, learners can develop and improve their language skills, thus leading to increased proficiency.

Methodology

Participants

For this comparative study, 118 female participants with different language proficiency levels and three different educational levels were recruited. Twenty-eight participants were at the intermediate level, 41 were at the secondary level, and 49 were attending a preparatory year college program. The (118) participants are divided into four groups based on their proficiency levels (A1, A2, B1, and B2); 24 participants have A1, 42 have A2, 23 have B1, and 29 have B2 levels. Table 3 shows the classification of the participants according to their educational and proficiency levels. Due to time constraints, a nonprobability sampling method was used to

recruit female participants from one public university and one private school in Jeddah. The participants were recruited by using a convenience sampling method, and the data are collected during the middle of the 2023-2024 academic year. Since this study focuses on female Saudi EFL learners, future research will take gender into account.

Table 3

Participants' Demographics

Demographic		N	%
Educational level	Preparatory college year	49	23.7%
	Secondary	41	34.7%
	Intermediate	28	41.5%
Proficiency level	A1	24	20.3%
	A2	42	35.5%
	B1	23	19.4%
	B2	29	24.5%
Total		118	100%

Instruments and Procedure

A quantitative research design is used in this study. In order to gather data efficiently and quickly, self-reported data were collected. However, self-reported data have some limitations to consider. For instance, they can be influenced by the subjective judgments of individuals. Furthermore, the phrasing and formulation of the questions can affect the validity and reliability of the data collected through self-report measures. Thus, reliability and validity tests, as well as a pilot study, were conducted to minimize this potential negative effect. The three instruments used in this study were a standardized Oxford Quick Placement Test and two self-report questionnaires (See Appendix B); all the instruments were distributed to the participants in a paper-and-pencil format. The placement test consisted of 40 multiple-choice questions that focused on vocabulary, reading, and grammar.

The test results included four proficiency levels (A1, A2, B1, and B2), and the test was followed by two questionnaires regarding the use of LLS and SRL strategies. Both questionnaires were translated into Arabic, which was the participants' mother tongue language. A Likert scale ranging from 1 (never) to 5 (always) was used to respond to the items. Due to the number of items in both questionnaires, the items in each questionnaire were reduced by deleting similar or repeated concepts, as keeping the questionnaire as brief as possible could help to motivate the participants and encourage them to cooperate. The first questionnaire investigated

the use of LLS strategies via the SILL, which was adapted from Oxford (1990). It is usually considered one of the most frequently cited tools in the field.

The questionnaire initially contained 50 items, but was reduced to 29 items by deleting similar items and testing their validity using the Pearson correlation. The items covered two main constructs, which were direct (cognitive, memory, and compensation; 18 items) and indirect (metacognitive, affective, and social; 11 items) learning strategies. The second questionnaire investigated the participants' use of SRL strategies using the Scale on Self-Regulation in Learning (SSRL), which was developed and validated by Erdogan and Senemoglu (2016). It originally included 67 items but was reduced to 23 items after similar items were deleted and the Pearson correlation was used to evaluate the validity of the items. Furthermore, all the items were statistically significant, thus confirming the validity and correlation in both questionnaires. Cronbach's alpha was used to assess the internal consistency and reliability of the two questionnaires. The alpha value was greater than 0.8, which indicates that both questionnaires had good internal consistency.

Each instrument (the placement test, the LLS questionnaire, and the SRL questionnaire) used in this study had a cover sheet (in Arabic) on which the participants were asked to confirm that they were participating voluntarily before beginning to complete the instrument. The participants had the option to remain anonymous or to state their names. The administration departments of the public university and the private school provided authorization to conduct the study before the participants were recruited.

After translating the questionnaires into Arabic, a pilot study was conducted with (13) participants to ensure that the items in both questionnaires were clear and easy to answer. The instruments were then printed and compiled into a paper format; the participants began with the placement test, followed by the LLS questionnaire, and then the SRL questionnaire. The completion of the instruments was estimated to take approximately 30–40 minutes per participant. The researcher gave the participants the option of receiving their placement test results by providing their phone numbers, which could further motivate them to participate in the study.

Ethical approval was obtained from the preparatory year college program to conduct the study before the participants were recruited. Three classes in the Academic English track were informed of the research aim and invited to participate voluntarily. Fifty-three participants returned their papers; however, four participants' responses were eliminated because they were incomplete. With regard to the participants from the intermediate and secondary private school, the owner of the school was contacted and graciously consented to distribute the questionnaires. The teachers from the private school volunteered to distribute and collect the papers.

Review of the Related Literature

Due to the limited research conducted in the Saudi context, the literature review includes studies from various contexts on how EFL learners use LLS and SRL strategies in relation to language proficiency and educational levels. The existing literature reports various and

sometimes contradictory results with regard to the relationship between LLS and learners' proficiency levels. While Almoslamani (2022), Yaghi (2021), and Alrashidi (2022) found a significant and positive relationship between LLS and learners' proficiency levels, Ranjan et al. (2021) and Alhaysony (2017) concluded that no significant relationship existed. In terms of Saudi EFL learners' use of LLS and the impact on their academic performance, after surveying (365) Saudi university students, Almoslamani (2022) found that learning strategies and students' achievements are positively correlated.

Similarly, the questionnaire responses of (256) Saudi EFL learners in Alrashidi's (2022) study revealed a positive correlation between their proficiency levels and LLS. Conversely, in Alhaysony's (2017) study, a total of 134 Saudi university students completed a questionnaire about LLS; no significant differences were found in the Saudi EFL learners' use of LLS in relation to the duration of studying English. The evidence reviewed in this paper suggests that conflicting findings still exist regarding the relationship between LLS and language proficiency.

Many researchers have discussed the relationship between SRL and academic achievement/language proficiency, and have attempted to determine whether SRL has a positive or negative correlation with language proficiency. Most of the studies in the field have revealed a positive correlation between SRL and language proficiency; for example, Abbasian and Hartoonian (2014), Amini et al. (2020), and Wang et al. (2023) used SRL questionnaires and identified a statistically significant relationship among students' use of SRL strategies, their language proficiency levels, and their academic achievements. The researchers indicate that learners of foreign languages can achieve better learning outcomes when applying SRL, including improved language proficiency, while Adigüzel and Orhan (2017) found a small but significant correlation between students' SRL and their academic achievements.

However, researchers such as Hung (2022) have concluded that there is a negative correlation between SRL and learners' academic achievement. Despite some disagreements, most of the research in the field has shown that SRL assists foreign-language learners to improve their language proficiency. These findings indicate a difference in learners' uses of SRL strategies depending on their proficiency levels.

Research Hypotheses

The majority of the studies in the existing literature have concluded that learners with different educational and proficiency levels use LLS and SRL strategies differently. Thus, the hypotheses that were tested in this study are as follows:

- H1. There are differences in the overall LLS scores according to educational and language proficiency levels among female Saudi EFL learners.
- H2. There are differences in the overall SRL scores according to educational and language proficiency levels among female Saudi EFL learners.

Results

In the data analysis, the differences in the overall LLS and SRL scores according to the educational and language proficiency levels of the female Saudi EFL learners were investigated using a two-way ANOVA, as there were two categorical variables (educational level and proficiency level) and a continuous variable (LLS and SRL); the ANOVA assumptions were met.

Results for the First RQ

RQ1. To what extent do female Saudi EFL learners with different levels of education and language proficiency differ in their use of LLS strategies?

Descriptive Statistics

Table 4

Descriptive Statistics of LLS Scores According to Educational Level

<u>Education Level</u>	<u>LLS score</u>	
	<u>Mean</u>	<u>SD</u>
Preparatory	3.3617	.5045
Secondary	3.4668	.50161
Intermediate	3.4261	.73084

In Table 4, it can be seen that, on average, the highest LLS score of 3.46 ($SD = .50$) was observed when the educational level was the secondary level, and the lowest LLS score of 3.36 ($SD = .50$) was observed when the educational level was the preparatory level.

Table 5

Descriptive Statistics of LLS Scores According to Proficiency Level

<u>Proficiency Level</u>	<u>LLS score</u>	
	<u>Mean</u>	<u>SD</u>
A1	3.3664	.57994
A2	3.3087	.60889
B1	3.6147	.43377
B2	3.4447	.54797

Table 5 above illustrates that, on average, the highest LLS score of 3.61 ($SD = .43$) was observed when the proficiency level was the B1 level, and the lowest LLS score of 3.30 ($SD = .60$) was observed when the proficiency level was the A2 level.

Hypotheses Testing

As the LLS scores for educational levels and proficiency levels followed normality assumptions, a two-way ANOVA was used to determine the mean difference.

Table 6

Two-way ANOVA Test for LLS Scores According to Educational and Proficiency Levels

Tests of Between-Subjects Effects					
LLS Score					
Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	2442.303 ^a	11	222.028	.822	.618
Intercept	814600.186	1	814600.186	3015.069	<.001
Education Level	38.238	2	19.119	.071	.932
Proficiency Level	1175.545	3	391.848	1.450	.232
Error	28638.688	106	270.176		
Total	1187401.000	118			
Corrected Total	31080.992	117			

a. R Squared = .079 (Adjusted R Squared = -.017)

The above two-way ANOVA output showed that the p -value for the educational level was 0.932, which is greater than 0.05. Therefore, at the 5% level of significance, there is insufficient evidence to reject the null hypothesis regarding the educational level. It can also be seen that the p -value for the proficiency level was 0.232, which is also greater than 0.05. Therefore, at the 5% level of significance, there is insufficient evidence to reject the null hypothesis regarding the proficiency level. Overall, there were no differences in the LLS scores according to the educational and language proficiency levels among female Saudi EFL learners.

Results for RQ2

RQ2. To what extent do female Saudi EFL learners with different levels of education and language proficiency differ in their use of SRL strategies?

Descriptive Statistics

Table 7

Descriptive Statistics for SRL Scores According to Educational Level

SRL Score		
Education Level	Mean	SD
Preparatory	3.5200	.62724
Secondary	3.4443	.52746
Intermediate	3.3261	.80244

As Table 7 shows, on average, the highest SRL score of 3.52 ($SD = .62$) was observed when the educational level was the preparatory level, and the lowest SRL score of 3.32 ($SD = .80$) was observed when the educational level was the intermediate level.

Table 8

Descriptive Statistics of SRL Scores According to the Proficiency Level

<u>Proficiency Level</u>	<u>SRL Score</u>	
	<u>Mean</u>	<u>SD</u>
A1	3.4891	.73375
A2	3.5269	.53666
B1	3.5955	.60251
B2	3.1814	.68213

Table 8 shows that, on average, the highest SRL score of 3.59 (SD =.60) was observed when the proficiency level was the B1 level, and the lowest SRL score of 3.18 (SD =.68) was observed when the proficiency level was the B2 level.

Hypotheses Testing

As the SRL scores for education levels and proficiency levels followed normality assumptions, a two-way ANOVA can be used to check the mean difference.

Table 9

Two-way ANOVA Test for SRL Scores According to Educational and Proficiency Levels

<u>Tests of Between-Subjects Effects</u>						
<u>Source</u>	<u>SRL Score</u>		<u>Mean Square</u>	<u>F</u>	<u>Sig.</u>	<u>Partial Eta Squared</u>
	<u>Type III Sum of Squares</u>	<u>df</u>				
Corrected Model	3998.923 ^a	11	363.538	1.798	.063	.157
Intercept	497640.959	1	497640.959	2461.535	<.001	.959
Education Level	98.019	2	49.010	.242	.785	.005
Proficiency Level	2609.874	3	869.958	4.303	.007	.109
Error	21429.696	106	202.167			
Total	767407.000	118				
Corrected Total	25428.619	117				

a. R Squared = .157 (Adjusted R Squared = .070)

The above two-way ANOVA output shows that the *p*-value for the educational level was 0.785, which is greater than 0.05. Therefore, at the 5% level of significance, there is insufficient evidence to reject the null hypothesis for educational level. Thus, it can be concluded that there are no significant differences in the SRL scores for the different educational levels. It can also be seen that the *p*-value for the proficiency level was 0.007, which is less than 0.05. Therefore, at the 5% level of significance, there is sufficient evidence to reject the null hypothesis regarding

the proficiency level, and it can be concluded that there was at least one significant difference in the SRL scores for the different proficiency levels. The effect size was measured using partial eta-squared (η^2), with values of 0.01 considered small, 0.06 medium, and 0.14 large (Richardson, 2011), in light of the significant difference in proficiency level. The effect size for proficiency level was 0.10, which is regarded as medium.

Pairwise comparisons for different proficiency levels were then performed to identify pairs that had significant differences in terms of SRL scores.

Table 10

Pairwise Comparisons of SRL Scores According to Proficiency Level

Pairwise Comparisons				
(I) Proficiency Level	(J) Proficiency Level	SRL Score	Std. Error	Sig. ^b
		Mean Difference (I-J)		
A1	A2	-4.885	4.253	1.000
	B1	-6.626	4.621	.927
	B2	8.163	4.787	.546
A2	A1	4.885	4.253	1.000
	B1	-1.741	4.028	1.000
	B2	13.048*	4.217	.015
B1	A1	6.626	4.621	.927
	A2	1.741	4.028	1.000
	B2	14.789*	4.588	.010
B2	A1	-8.163	4.787	.546
	A2	-13.048*	4.217	.015
	B1	-14.789*	4.588	.010

Note: Based on estimated marginal means

*. The mean difference is significant at the .05 level.

b. Adjustment for multiple comparisons: Bonferroni.

It is apparent from Table 10 that the p -values for each pair of proficiency levels were identified. Of these pairs, the significantly different pairs were B2-A2 and B2-B1 because the p -values for these pairs were less than 0.05. Therefore, at the 5% level of significance, it can be concluded that the SRL scores were significantly different between the proficiency levels of B2-A2 and B2-B1. Overall, the hypothesis regarding SRL can be partially accepted.

Discussion

In this section, the results in the previous section are discussed, explained, and compared to those of previous studies in the field based on the two RQs.

The Differences in the Use of LLS

With regard to RQ1, there were no significant differences in the overall LLS scores according to educational and language proficiency levels among the Saudi female EFL learners in this study. Based on this finding, it appeared that participants' use of LLS was relatively consistent across various educational and proficiency levels, which implied that Saudi female EFL learners with higher educational and proficiency levels employed strategies that were comparable to the strategies that others with lower educational and proficiency levels used. The result in this study indicated that there was no relationship between the use of LLS strategies and learners' educational and proficiency levels. This result is in line with that of Alhaysony (2017), who concluded that there were no significant differences in the use of LLS in terms of the duration of studying English, despite the fact that students who studied English for a longer period reported using LLS more frequently.

However, this finding is partially similar to that of Alrashidi (2022), who concluded that there were no significant differences in the use of LLS according to the year of study, although Alrashidi did state that LLS was correlated positively with proficiency levels; the positive correlation with proficiency levels suggested that students employed these strategies more frequently as their proficiency levels increased. In contrast to the findings of this study, Erdogan (2018) found a statistically significant difference regarding first-, second-, third-, and fourth-year university EFL students' use of LLS, which indicated that students' use of LLS varied as their level of education increased. Moreover, Eken and Gundogdu (2021) concluded that there was a significant difference in the use of LLS according to different proficiency levels.

A possible explanation for the results of the present study is that many Saudi EFL teachers do not follow the suggested teaching methods in textbooks that aim to encourage learners to be active participants in the learning process. The lack of application of these methods may be due to limited access to resources, insufficient training and confidence, time constraints, and overcrowded classrooms (Alqahtani, 2018). If the suggested teaching methods are not applied, Saudi female EFL learners with different educational and proficiency levels may be exposed to traditional instructional methods, which could encourage them to adopt similar learning strategies. According to the S²R model, learners must be decision makers and have control over their learning in order to choose and apply the techniques that are most effective for them. Therefore, the results of the present study draw attention to the importance of enabling Saudi female EFL learners to become better active learners and decision makers.

With regard to the highest and lowest use of LLS according to the different educational and proficiency levels, the highest LLS score was observed at the secondary level and the lowest at the preparatory level. The results in this study suggest that students in their preparatory college year are the least likely to incorporate LLS into their learning process. In terms of proficiency, the highest LLS score was observed at the B1 level and the lowest at the A2 level. This result could be explained by the fact that most of the secondary-year participants in this study had B1 and B2 levels, while most of the preparatory college year participants had A1 and A2 levels. In summary, the current findings suggest that the application of LLS in this study is more closely associated with the proficiency level than it is with the educational level.

The Differences in the Use of SRL Strategies

With regard to RQ2, no significant differences were found in the SRL scores for the different educational levels, which implies that the educational level does not have a significant impact on SRL. The highest SRL score in this study was observed for the preparatory level and the lowest for the intermediate level, which suggests that, the higher the educational level, the more the learners applied SRL. This finding indicates that Saudi female EFL learners recognize the importance of SRL and apply it more frequently as they progress in their education. Even though Erdogan's (2018) study is from a different context, its results are similar to those of the present study, revealing an increase in students' SRL levels from their first to fourth year of study. According to this finding, students at higher educational levels are required to be more independent and self-reflective, thus necessitating a greater use of SRL.

There was at least one significant difference in the SRL scores for the different proficiency levels, as the SRL scores were significantly different between the proficiency levels B2-A2 and B2-B1. According to the results, the B2-level proficiency group demonstrated the least use of SRL compared to the other proficiency level groups. This finding contradicts those of Erdogan (2018) and Saito (2020), who concluded that learners with higher proficiency levels used SRL more often compared to those with lower proficiency levels. Erdogan (2018) stated that high achievers outperformed low achievers in terms of SRL, while Saito (2020) concluded that the frequent use of SRL was correlated with higher levels of proficiency. This contradiction suggests that the relationship between SRL and proficiency levels is more complex than was initially thought.

With regard to the highest and lowest use of SRL based on proficiency levels, the highest SRL score was observed for the B1 and A2 levels, and the lowest for the B2 level. This finding indicates that Saudi female EFL learners at the B1 and A2 levels were more interested in managing their learning processes. Since Saudi female EFL learners at the B1 and A2 levels are still developing their language skills, they may be more motivated to manage their learning process by using strategies such as organization and self-evaluation. The low usage of SRL strategies by Saudi female EFL learners at the B2 level may be caused by the fact that learners at this level encounter more challenging language skills, which may cause them to focus on mastering these skills rather than on utilizing a variety of strategies. Moreover, learners at the B2 level may encounter greater difficulty in setting specific, manageable goals that motivate them to use a variety of strategies to achieve them, in contrast to learners at lower levels, whose objectives may be simpler and clearer. In addition, once Saudi female EFL learners reach the B2 level, they may refine their strategies to focus on those that are most effective. The findings of this study do not support the notion that proficiency levels are positively correlated with the use of SRL strategies. Furthermore, it is not always the case that the utilization of SRL strategies increases as proficiency levels improve.

Limitations of the Study and Future Research

As with any research, the present study has certain limitations that do not undermine the validity of the results. The following issues are considered to be limitations, but can also suggest potential areas for future research. First, this study focused entirely on female participants, as they were more easily accessible to the researcher. Therefore, a study comparing the

implementation of SRL and LLS strategies across genders, based on educational and proficiency levels, is highly recommended.

Second, the results of this study were based on two self-reported questionnaires. Future studies can implement qualitative methodologies, such as observation and focus groups. Another potential limitation is that the scope of this study may have been overly broad, as it covered both SRL and LLS in relation to different educational and proficiency levels. Future research should focus on a single domain, such as SRL or LLS, to facilitate a more in-depth analysis and more specific conclusions.

Conclusion and Pedagogical Implications

This study was conducted to compare the implementation of LLS and SRL strategies among female Saudi EFL learners with varying educational and proficiency levels. The results of this study indicated that there were generally no significant differences in the participants' LLS scores; thus, the use of similar LLS by Saudi female EFL learners across various educational and proficiency levels suggests that there is no relationship between the use of LLS and learners' educational and proficiency levels. Furthermore, the frequent use of LLS was not necessarily correlated with high levels of proficiency or education. The second major finding was that no significant differences were found in the participants' SRL scores in relation to the educational level. However, one significant difference was found in relation to the proficiency level, as B2-level participants reported the lowest use of SRL strategies. This finding suggests that the implementation of SRL strategies does not necessarily increase as proficiency levels increase. Overall, the findings suggest that Saudi female EFL learners with various educational and proficiency levels use similar LLS and SRL strategies.

The major finding of this study is that there has not been significant progress in Saudi female EFL learners' applications of LLS and SRL strategies across various educational and proficiency levels. The data highlight the importance of allowing Saudi female EFL learners to play a more active role in and to take control of their learning processes in order to choose and apply strategies that are suitable for their educational and proficiency levels. Based on the S²R model, learners must be active and in control of their learning in order to select and apply the strategies that best suit their current learning needs.

These findings are relevant to practitioners in the field of teaching English in Saudi Arabia. Saudi EFL teachers should recognize the importance of implementing teaching methodologies that encourage learners to be more active in the learning process, ultimately enabling them to take control of their learning. Oxford (2017) indicated that strategies can be taught to learners, while Su et al. (2023) concluded that targeted SRL strategies could be learned through training sessions that included feedback and practical guidance to improve specific skills, and Griffiths (2014) stated that learners could acquire LLS either explicitly or implicitly by increasing their awareness and allowing them to practice these strategies. Oxford (2017) suggested that educators should recognize their students' existing level of strategy use to provide engaging activities that incorporate necessary strategies or assign students with higher strategy

usage to support those with lower usage. Therefore, Saudi female EFL learners should be provided with practical training sessions under their teachers' guidance and should be given feedback about how to implement LLS and SRL strategies effectively.

Bio

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Appendix A

Table 1

SRL Strategy Classification as Described by Zimmerman (2008, p. 178)

Main classification	Strategies	Definition
Before task (Forethought phase)	Goal setting and planning	The process of identifying learning goals, including subgoals, scheduling, and performing the related tasks.
	Environmental structuring	Selecting or setting up the environment in order to facilitate learning.
During task (Performance phase)	Organizing and transforming	Learners rearrange the course materials to enhance their learning.
	Seeking social assistance	Asking for assistance from adults, teachers, or peers.
	Seeking information	Students use nonsocial sources to obtain additional information.
	Keeping records and self-monitoring	Student-led attempts to document incidents or outcomes.
	Rehearsing and memorizing	Student-led practices to help them to memorize the content.
After task (Self-reflection phase)	Self-evaluation	Students' assessments of the quality or improvements in their work.
	Self-consequence	Students determine rewards or punishments for their achievements or failures.

Table 2
Oxford's Taxonomy (1990, pp. 16–17)

Main categories	Meaning	Subcategories	Meaning	Examples
Direct Strategies	Related directly to how the target language is used and mentally processed.	Cognitive strategies	Assisting learners to interact cognitively and directly with the target language material.	Reasoning, note taking, summarizing, synthesizing, and organizing information.
		Memory strategies	Facilitating the connection among items or concepts without gaining a deep understanding of them.	Acronyms, rhyming, mental pictures, and body movements.
		Compensation strategies	Assisting in compensating for knowledge gaps.	Synonyms, gestures, or guessing based on the context.
Indirect Strategies	Mainly used to indirectly support and manage the learning process.	Metacognitive strategies	Responsibility for controlling the learning process.	Identifying learning needs, planning, organizing materials, arranging study times and places, monitoring and evaluating task performance.
		Affective strategies	Assessing the learner's mood and their level of anxiety.	Discussing feelings, praising oneself for accomplishments.
		Social strategies	Seeking social assistance	Asking for clarification or seeking assistance.

Appendix B

Data Collection Instruments

The Proficiency Test:

اختبار سريع لتحديد المستوى باللغة الإنجليزية

عزيزتي الطالبة/

هذا الاختبار هو جزء من رسالة ماجستير بعنوان استخدام متعلمي اللغة الإنجليزية كلغة أجنبية في السعودية لاستراتيجيات التنظيم الذاتي وتعلم اللغة: دراسة مقارنة

أرجو مشاركتك في اكمال هذا الاختبار السريع

ملاحظة:

جميع الإجابات ستعامل بسرية ولن يطلع عليها سوى الباحثة

أوافق على المشاركة تطوعيا في هذا الاختبار:

نعم لا

الاسم (اختياري)

.....

ارغب بالحصول على درجة الاختبار

نعم لا

في حال الرغبة بالحصول على الدرجة الرجاء اضافة رقم الجوال:

.....

شاكرا ومقدرة لوقتكم ومجهودكم .

Questions 1 – 5

- Where can you see these notices?
- For questions 1 to 5, mark **one** letter **A**, **B** or **C** on your Answer Sheet.

1 You can look, but don't
touch the pictures.

- A** in an office
B in a cinema
C in a museum

2 Please give the right
money to the driver.

- A** in a bank
B on a bus
C in a cinema

3

**NO
PARKING
PLEASE**

- A**
in a
street
B on a book
C on a table

4 CROSS BRIDGE FOR TRAINS TO
EDINBURGH

- A** in a bank
B in a garage
C in a station

5

**KEEP IN A
COLD PLACE**

- A** on clothes
B on furniture
C on food

Questions 6 – 10

- In this section you must choose the word which best fits each space in the text below.
- For questions 6 to 10, mark **one** letter **A**, **B** or **C** on your Answer Sheet.

THE STARS

There are millions of stars in the sky. If you look (6).....the sky on a clear night, it is possible to see about 3000 stars. They look small, but they are really (7).....big hot balls of burning gas. Some of them are huge, but others are much smaller, like our planet Earth. The biggest stars are very bright, but they only live for a short time. Every day new stars (8) born and old stars die. All the stars are very far away. The light from the nearest star takes more (9) four years to reach Earth. Hundreds of years ago, people (10).....stars, like the North star, to know which direction to travel in. Today you can still see that star.

6 A at

B up

C on

7 A very

B too

C much

8 A is

B be

C are

9 A that

B of

C than

10 A use

B used

C using

Questions 11 – 20

- In this section you must choose the word which best fits each space in the texts.
- For questions **11** to **20**, mark **one** letter **A**, **B**, **C** or **D** on your Answer Sheet.

Good smiles ahead for young teeth

Older Britons are the worst in Europe when it comes to keeping their teeth. But British youngsters

(11) more to smile about because (12) teeth are among the best. Almost 80% of Britons over 65 have lost all or some (13) their teeth according to a World Health Organisation survey. Eating too (14).....sugar is part of the problem. Among (15)..... , 12-year olds have on average only three missing, decayed or filled teeth.

- | | | | |
|--------------|----------|------------|-----------|
| 11 A getting | B got | C have | D having |
| 12 A their | B his | C them | D theirs |
| 13 A from | B of | C among | D between |
| 14 A much | B lot | C many | D deal |
| 15 A person | B people | C children | D family |

Christopher Columbus and the New World

On August 3, 1492, Christopher Columbus set sail from Spain to find a new route to India, China and Japan. At this time most people thought you would fall off the edge of the world if you sailed too far. Yet sailors such as Columbus had seen how a ship appeared to get lower and lower on the horizon as it sailed away. For Columbus this (16) that the world was round. He (17)..... to his men about the distance travelled each day. He did not want them to think that he did not (18) exactly where they were going. (19), on October 12, 1492, Columbus and his men landed on a small island he named San Salvador. Columbus believed he was in Asia, (20) he was actually in the Caribbean.

- | | | | | |
|----|--------|------------|-----------|----------|
| 16 | A made | B pointed | C was | D proved |
| 17 | A lied | B told | C cheated | D asked |
| 18 | A find | B know | C think | D expect |
| 19 | A Next | B Secondly | C Finally | D Once |
| 20 | A as | B but | C because | D if |

Questions 21 – 40

- In this section you must choose the word or phrase which best completes each sentence.
- For questions **21** to **40**, mark **one** letter **A**, **B**, **C** or **D** on your Answer Sheet.

21 The children won't go to sleep we leave a light on outside their bedroom.

- A** except **B** otherwise **C** unless **D** but

22 I'll give you my spare keys in case you.....home before me.

- A** would get **B** got **C** will get **D** get

23 My holiday in Paris gave me a great.....to improve my French accent.

- A** occasion **B** chance **C** hope **D** possibility

24 The singer ended the concert her most popular song.

- A** by **B** with **C** in **D** as

25 Because it had not rained for several months, there was a of water.

- A** shortage **B** drop **C** scarce **D** waste

26 I've always.....you as my best friend.

- A** regarded **B** thought **C** meant **D** supposed

27 She came to live here a month ago.

- A** quite **B** beyond **C** already **D** almost

28 Don't make such a! The dentist is only going to look at your teeth.

- A** fuss **B** trouble **C** worry **D** reaction

29 He spent a long time looking for a tie which.....with his new shirt.

A fixed B made C went D wore

30 Fortunately, ...from a bump on the head, she suffered no serious injuries from her fall.

A other B except C besides D apart

31 She had changed so much that anyone recognised her.

A almost B hardly C not D nearly

32 teaching English, she also writes children's books.

A Apart Moreover B As well as C In addition D

33 It was clear that the young couple were of taking charge of the restaurant.

A responsible B reliable C capable D able

34 The book of ten chapters, each one covering a different topic.

A comprises B includes C consists D contains

35 Mary was disappointed with her new shirt as the colour very quickly.

A bleached B died C vanished D faded

36 National leaders from all over the world are expected to attend the meeting.

A peak B summit C top D apex

37 Jane remained calm when she won the lottery and about her business as if nothing had happened.

A came B brought C went D moved

38 I suggest we outside the stadium tomorrow at 8.30.

A meeting B meet C met D will meet

39 My remarks were as a joke, but she was offended by them.

A pretended B thought C meant D
supposed

40 You ought to take up swimming for the of your health.

A concern B relief C sake D cause

1. the Strategy Inventory for Language Learning (SILL)Scale:

استبيان استراتيجيات تعلم اللغة الإنجليزية

عزيزتي الطالبة/

هذا الاستبيان هو جزء من رسالة ماجستير بعنوان استخدام متعلمي اللغة الإنجليزية كلغة أجنبية في السعودية لاستراتيجيات التنظيم الذاتي وتعلم اللغة: دراسة مقارنة

أرجو مشاركتك في اكمال هذا الاستبيان.

ملاحظة:

جميع الإجابات ستعامل بسرية ولن يطلع عليها سوى الباحثة لذلك أرجو المصادقية التامة في الإجابة

أوافق على المشاركة تطوعيا في هذا الاستبيان:

☐

لا

☐

نعم

الاسم (اختياري)

.....

شاكراً ومقدرة لوقتكم ومجهودكم

عزيزتي الطالبة/

اقرئي العبارات التالية واختاري الإجابة المناسبة التي تصف مدى مصداقية العبارة بالنسبة لك حالياً.

1- أفكر في العلاقات بين ما أعرفه بالفعل والأشياء الجديدة التي أتعلمها باللغة الإنجليزية.

☐ أبداً	☐ نادراً	☐ أحياناً	☐ غالباً	☐ دائماً
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2- أستخدم الكلمات الإنجليزية الجديدة في جملة حتى أستطيع تذكرها.

☐ أبداً	☐ نادراً	☐ أحياناً	☐ غالباً	☐ دائماً
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3- أتذكر كلمة إنجليزية جديدة من خلال تخيلي لموقف يمكن أن تستخدم فيه الكلمة.

☐ أبداً	☐ نادراً	☐ أحياناً	☐ غالباً	☐ دائماً
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4- أستخدم البطاقات التعليمية لتذكر الكلمات الإنجليزية الجديدة.

☐ أبداً	☐ نادراً	☐ أحياناً	☐ غالباً	☐ دائماً
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5- أنا أمثل بحركات اليد والجسد الكلمات الإنجليزية الجديدة.

☐ أبداً	☐ نادراً	☐ أحياناً	☐ غالباً	☐ دائماً
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6- أراجع دروس اللغة الإنجليزية كثيراً.

☐ أبداً	☐ نادراً	☐ أحياناً	☐ غالباً	☐ دائماً
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7- أقول أو أكتب الكلمات الإنجليزية الجديدة عدة مرات.

☐ أبداً	☐ نادراً	☐ أحياناً	☐ غالباً	☐ دائماً
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8- أحاول أن أتحدث مثل المتحدثين الأصليين للغة الإنجليزية.

☐ أبداً	☐ نادراً	☐ أحياناً	☐ غالباً	☐ دائماً
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9- أستخدم الكلمات الإنجليزية التي أعرفها بطرق مختلفة.

☐ أبداً	☐ نادراً	☐ أحياناً	☐ غالباً	☐ دائماً
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10- أحاول أن أبدأ محادثات باللغة الإنجليزية في مواقف مختلفة.

☐ أبداً	☐ نادراً	☐ أحياناً	☐ غالباً	☐ دائماً
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11- أشاهد البرامج التلفزيونية باللغة الإنجليزية أو أذهب إلى الأفلام الناطقة باللغة الإنجليزية.

☐ أبداً	☐ نادراً	☐ أحياناً	☐ غالباً	☐ دائماً
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12- أقرأ لأجل المتعة باللغة الإنجليزية.

☐ أبداً	☐ نادراً	☐ أحياناً	☐ غالباً	☐ دائماً
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13- أكتب ملاحظات أو رسائل أو خطابات أو تقارير باللغة الإنجليزية.

☐ أبداً	☐ نادراً	☐ أحياناً	☐ غالباً	☐ دائماً
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14- أقوم أولاً بقراءة مقطع باللغة الإنجليزية بسرعة ثم أعود وأقرأه بعناية.

☐ أبدا	☐ نادرا	☐ أحيانا	☐ غالبا	☐ دائما
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15- أبحث عن كلمات في لغتي العربية تشابه الكلمات الجديدة في اللغة الإنجليزية.

☐ أبدا	☐ نادرا	☐ أحيانا	☐ غالبا	☐ دائما
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16- أحاول أن أجد أنماطا متشابهة لكلمات اللغة الإنجليزية.

☐ أبدا	☐ نادرا	☐ أحيانا	☐ غالبا	☐ دائما
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17- أقوم بإعداد ملخصات للمعلومات التي أسمعها أو أقرأها باللغة الإنجليزية.

☐ أبدا	☐ نادرا	☐ أحيانا	☐ غالبا	☐ دائما
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18- عندما لا أستطيع التفكير في كلمة ما أثناء محادثة باللغة الإنجليزية، أستخدم حركات اليد والجسد.

☐ أبدا	☐ نادرا	☐ أحيانا	☐ غالبا	☐ دائما
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19- ألاحظ أخطائي في اللغة الإنجليزية وأستخدم هذه المعرفة لمساعدتي في تحسين أدائي.

☐ أبدا	☐ نادرا	☐ أحيانا	☐ غالبا	☐ دائما
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20- أحاول أن أعرف كيف أصبح متعلما أفضل للغة الإنجليزية.

☐ أبدا	☐ نادرا	☐ أحيانا	☐ غالبا	☐ دائما
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21- أرتب جدولتي بحيث يكون لدي الوقت الكافي لدراسة اللغة الإنجليزية.

☐ أبدا	☐ نادرا	☐ أحيانا	☐ غالبا	☐ دائما
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22- لدي أهداف واضحة لتحسين مهاراتي في اللغة الإنجليزية.

☐ أبدا	☐ نادرا	☐ أحيانا	☐ غالبا	☐ دائما
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23- أفكر في مدى تقدمي في تعلم اللغة الإنجليزية.

☐ أبدا	☐ نادرا	☐ أحيانا	☐ غالبا	☐ دائما
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24- أحاول الاسترخاء كلما شعرت بالخوف من استخدام اللغة الإنجليزية.

☐ أبدا	☐ نادرا	☐ أحيانا	☐ غالبا	☐ دائما
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25- أشجع نفسي على التحدث باللغة الإنجليزية حتى عندما أخشى ارتكاب الأخطاء.

☐ أبدا	☐ نادرا	☐ أحيانا	☐ غالبا	☐ دائما
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26- أمنح نفسي مكافأة عندما أتقن شيء في اللغة الإنجليزية.

☐ أبدا	☐ نادرا	☐ أحيانا	☐ غالبا	☐ دائما
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27- أكتب مشاعري في مذكرة (دفتر يوميات) خاصة بتعلم اللغة.

☐ أبدا	☐ نادرا	☐ أحيانا	☐ غالبا	☐ دائما
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28- أتحدث مع شخص آخر حول ما أشعر به عندما أتعلم اللغة الإنجليزية.

☐ دائما	☐ غالبا	☐ أحيانا	☐ نادرا	☐ أبدا
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29- إذا لم أفهم شيئا ما باللغة الإنجليزية، أطلب من الشخص الآخر أن يبطئ أو يقوله مرة أخرى.

☐ دائما	☐ غالبا	☐ أحيانا	☐ نادرا	☐ أبدا
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2. The Scale on Self-Regulation in Learning (SSRL):

استبيان التنظيم الذاتي

عزيزتي الطالبة/

هذا الاستبيان هو جزء من رسالة ماجستير بعنوان استخدام متعلمي اللغة الإنجليزية كلغة أجنبية في السعودية لاستراتيجيات التنظيم الذاتي وتعلم اللغة: دراسة مقارنة

أرجو مشاركتك في اكمال هذا الاستبيان

ملاحظة:

جميع الإجابات ستعامل بسرية ولن يطلع عليها سوى الباحثة لذلك أرجو المصادقية التامة بالإجابة.

أوافق على المشاركة تطوعيا في هذا الاستبيان:

☐

لا

☐

نعم

الاسم (اختياري)

.....

شاكرة ومقدرة لوقتكم ومجهودكم.

عزيزتي الطالبة/

اقرني العبارات التالية واختاري الإجابة المناسبة التي تصف مدى مصداقية العبارة بالنسبة لك حالياً.

- قبل البدء بالواجب:

1- أتأكد من وجود جميع الكتب والمذكرات والمراجع في متناول يدي قبل أن أبدأ المذاكرة.

أبداً ☐	نادرًا ☐	أحيانًا ☐	غالبًا ☐	دائمًا ☐
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2- أتحدث مع معلّمتي عن الدورات التي يجب أن أحصل عليها والتي قد تكون مفيدة لي على المدى البعيد.

أبداً ☐	نادرًا ☐	أحيانًا ☐	غالبًا ☐	دائمًا ☐
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3- عادةً ما أذاكر في مكان يساعدني على التركيز

أبداً ☐	نادرًا ☐	أحيانًا ☐	غالبًا ☐	دائمًا ☐
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4- أضع قائمة للمهام الدراسية التي أحتاج إلى القيام بها أسبوعيًا في دفتر ملاحظاتي.

أبداً ☐	نادرًا ☐	أحيانًا ☐	غالبًا ☐	دائمًا ☐
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5- أقوم بتنظيم العروض التقديمية والواجبات التي أحتاج إلى تحضيرها والمواد التي سأقرأها والوقت الذي سأخصصه لها مع مراعاة الجدول الزمني للدرس.

أبداً ☐	نادرًا ☐	أحيانًا ☐	غالبًا ☐	دائمًا ☐
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6- قبل أن أبدأ بحل واجب، أخصص بعض الوقت للتوقف ووضع خطة.

أبداً ☐	نادرًا ☐	أحيانًا ☐	غالبًا ☐	دائمًا ☐
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7- أخطط عادةً في بداية الفصل الدراسي لكل واجب واختبار ومتى يجب أن أفعل ذلك

أبداً ☐	نادرًا ☐	أحيانًا ☐	غالبًا ☐	دائمًا ☐
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- خلال القيام بالواجب:

8- أقوم بوضع خط تحت الكلمات الرئيسية في النص أو أضع علامة عليها بلون مختلف لمساعدتي في تعلم المواضيع

أبداً ☐	نادرًا ☐	أحيانًا ☐	غالبًا ☐	دائمًا ☐
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9- عندما يكون هناك موضوع لا أفهمه في الدرس، أطلب المساعدة من معلّمتي وزميلاتي

أبداً ☐	نادرًا ☐	أحيانًا ☐	غالبًا ☐	دائمًا ☐
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10- أحدد النقاط الرئيسية في الموضوع وأقوم بالربط بين النقاط الرئيسية والنقاط الفرعية.

أبداً ☐	نادرًا ☐	أحيانًا ☐	غالبًا ☐	دائمًا ☐
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11- أقوم بالتلخيص، وتدوين الملاحظات، ورسم الأشكال والجدول (أستخدم واحدة أو أكثر من هذه) لمساعدتي في فهم المواضيع المهمة

أبدا ☐	نادرًا ☐	أحيانًا ☐	غالبًا ☐	دائمًا ☐
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12- أبحث عن طرق وموارد سواء كتب أو على الإنترنت لإكمال الواجبات بأسهل طريقة ممكنة

أبدا ☐	نادرًا ☐	أحيانًا ☐	غالبًا ☐	دائمًا ☐
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13- أثناء قراءة كتاب أو مراجعة ملاحظاتي، أتوقف أحيانًا وأسأل نفسي: "هل أفهم ما يقال هنا؟"

أبدا ☐	نادرًا ☐	أحيانًا ☐	غالبًا ☐	دائمًا ☐
----------------------------	------------------------------	-------------------------------	------------------------------	------------------------------

14- للحصول على مزيد من المعلومات التفصيلية، آخذ كُتُبًا من المكتبة وأقرأها بعمق.

أبدا ☐	نادرًا ☐	أحيانًا ☐	غالبًا ☐	دائمًا ☐
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15- أغلق النص بعد الانتهاء من قراءته وأكرر المعلومات المهمة في ذهني

أبدا ☐	نادرًا ☐	أحيانًا ☐	غالبًا ☐	دائمًا ☐
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16- أبحث في الإنترنت للحصول على واجب مشابه للواجب المطلوب مني.

أبدا ☐	نادرًا ☐	أحيانًا ☐	غالبًا ☐	دائمًا ☐
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17- أنا أسأل نفسي: "هل أستخدم استراتيجيات الدراسة المناسبة؟"

أبدا ☐	نادرًا ☐	أحيانًا ☐	غالبًا ☐	دائمًا ☐
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18- أحدد وقت لأذاكر مع الطالبات في الفصل كمجموعة دراسية.

أبدا ☐	نادرًا ☐	أحيانًا ☐	غالبًا ☐	دائمًا ☐
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- بعد القيام بالواجب:

19- عندما أقوم بحل أسئلة واجباتي المنزلية، أتأكد من إجاباتي للتأكد من صحتها.

أبدا ☐	نادرًا ☐	أحيانًا ☐	غالبًا ☐	دائمًا ☐
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20- أعد نفسي بمكافأة عندما أحصل على درجات جيدة في الاختبارات أو الواجبات

أبدا ☐	نادرًا ☐	أحيانًا ☐	غالبًا ☐	دائمًا ☐
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21- أتأكد مما إذا كان الواجب الذي قمت بحله يتوافق مع المعايير التي طلبتها المعلمة.

أبدا ☐	نادرًا ☐	أحيانًا ☐	غالبًا ☐	دائمًا ☐
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22- بعد أن أنتهي من حل واجباتي، أقرأها مرة أخرى وأجري تصحيحات عليها

أبدا ☐	نادرًا ☐	أحيانًا ☐	غالبًا ☐	دائمًا ☐
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23- أقارن واجباتي بالواجبات المماثلة.

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Supporting Learners' Participation in Collaborative Writing through Google Docs and Mobile Instant Messaging

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المخلص

على الرغم من المزايا المتعددة للتقنية في مجال الكتابة التعاونية، إلا أن استخدام أداة واحدة قد تقيد المشاركة الفاعلة للطلبة، لذا تهدف هذه الدراسة إلى المزج بين استخدام مستندات جوجل والمراسلة الفورية عبر الهاتف المحمول (MIM) في الكتابة التعاونية لـ ٢٢ طالباً من طلاب المرحلة الجامعية الأولى في تخصص اللغة الإنجليزية، وتبسيط الضوء على أبرز المزايا والتحديات الناتجة عن الجمع بينهما، وتشير نتائج تحليل تفاعلات المتعلمين ومسودات الواجبات والمقابلات إلى أنه بينما يسهل تطبيق واتساب الكتابة المسبقة للمتعلمين، فإن محرر مستندات جوجل يسهل الكتابة المشتركة للمتعلمين وتحريرها. وعلى الرغم من أن الطلبة ينظرون إلى واتساب كمنصة تتيح لهم التواصل مع مدرس المقرر الدراسي وإمكانية الوصول إليه، وإلى مستندات جوجل كأداة ملائمة وتفاعلية للكتابة التعاونية وتحرير النصوص، إلا أن مشاركتهم واجهت تحديات بسبب المشكلات المتمثلة في طبيعة واتساب المشتتة للانتباه وكيفية الحفاظ على المناقشات الجماعية، والمشكلات المتعلقة بمستندات غوغل مثل انقطاع الاتصال بالإنترنت، والعمل الذي يستهلك جهداً كبيراً، والخبرة السابقة في استخدامه في الكتابة بين الأقران. تؤكد نتائج هذه الدراسة أهمية مواكبة مستجدات التقنية وتطبيقاتها في دعم المتعلمين في الكتابة التعاونية.

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Abstract

Despite evidence on the affordances of Web 2.0 tools in collaborative writing, a single Web 2.0 technology may restrict students' active engagement in collaborative writing. The current study, therefore, aimed to explore the affordances and challenges involved in a combination of Google Docs and mobile instant messaging (MIM) in collaborative writing among 11 pairs of undergraduate students of English. Analysis of learners' interactions, drafts of assignments and follow-up interviews highlight effective practices for leveraging technology and feedback to support and enhance collaborative writing experiences. Findings from the analysis of empirical evidence suggest that while WhatsApp facilitates learners' pre-writing, Google Docs facilitates learners' joint writing and edits. From students' perspectives, although the learners perceived WhatsApp as a platform that affords their connections to the task and accessibility of the course instructor and Google Docs as a convenient and interactive tool for collaborative writing and text editing, their engagement was challenged by WhatsApp-related issues: its distractive nature and how to maintain group discussions and Google Docs-related issues: internet disconnection, effort-consuming work and previous experience in using it in peer writing. These findings underscore the importance of continued innovation in the implementation of technology in supporting learners towards more fluency in collaborative writing.

Keywords: *collaborative writing; feedback; Google docs; mobile instant messaging; technology*

Introduction

Over the past decade, instructors and researchers of English as Second/Foreign Language (ESL/EFL) have displayed a great interest in integrating Web 2.0 technological tools, such as Wikis and Google Docs in collaborative writing. These Web 2.0 tools support students' peer interactions (Elola & Oskoz, 2010; Cho, 2017; Li and Zhu, 2017) and joint text revisions (Kessler, 2009; Kessler et al., 2012; Li & Zhu, 2017; Elola & Oskoz, 2010) through peer (Chang, 2012; Bradley, 2014) and teacher feedback (Neumann & Kopcha, 2019). Yet, most of these studies have focused on the opportunities afforded by Web 2.0 tools alone, which may not allow learners to adequately plan and revise their jointly written texts (Zhang & Zou, 2021). Therefore, additional synchronous chats are suggested to engage learners in elaborate peer interaction (Chong, 2019; Green, 2019; Guasch et al., 2019). In this regard, mobile instant messaging (MIM) through WhatsApp can serve this purpose (Allagui, 2014; Andujar, 2016; Pedro et al., 2018; Tang & Hew, 2017; Tyrer, 2019). However, teacher's support and feedback (Zhang, 2021) are needed to foster learners' engagement in collaborative writing (Chen & Yu, 2019; Zhang, 2021). Therefore, this study attempted to answer the following research questions:

1. How does the combination of Google Docs and MIM facilitate/support the teacher-guided approach to engaging learners in peer writing of assignments?
2. How do the students perceive the affordances of the combination of Google Docs and MIM for collaborative writing?

Literature

Theoretical Perspectives

The current study is grounded on three theoretical perspectives on language in general and processing of feedback in collaborative writing in particular. The first approach is the cognitive approach that emphasizes learners' processing of feedback information (Bitchener & Storch, 2016; Storch, 2021). Feedback is regarded as a form of input (Schmidt, 1990) that helps ESL/EFL learners to notice their erroneous language forms and see the difference between accurate language forms and that of their own interlanguage. It pushes learners to pay attention to their language use (Swain, 1995, 1998) and fosters their cognitive processing of the feedback information (Hattie & Gan, 2011). As defined by Swain (2006, p.68), languaging is "the process of making meaning and shaping knowledge and experience through language". Languaging occurs when learners interact with each other and exchange questions, explanations and suggestions, which will probably lead to their understanding and resolving of linguistic errors

in writing (Storch, 2021). This means that engaging learners in collaborative writing tasks through feedback will provide them more language learning opportunities, resolving issues through negotiations, deliberations and explanations (Brooks & Swain, 2009; Storch, 2021) as well as producing modified output (Li & Zhang, 2021; Zhang, Gibbons & Li, 2021).

From the sociocultural theory (Vygotsky, 1978), language is seen as a tool that mediates learners' cognitive development. In collaborative writing, paired learners exchange scaffolding-assistance or support to learners within their Zone of Proximal Development (ZPD) (Li & Zhang, 2021; Su & Zou, 2022; Tian & Zhou, 2020). Similarly, collaborative dialogue can occur as a result of paired learners' engagement with and interpretation of teacher feedback on their texts (Mohammed & Alharbi, 2022). As put by Storch (2021), unlike individual or solitary processing of feedback, collaborative processing of feedback is more likely to maximize the language learning potentials and help learners to resolve difficulties encountered in understanding the feedback information through collaborative dialogue.

Another theory pertinent to the investigation of the current study is the social constructivist view. In particular, constructivist research has conceptualized feedback as a dialogic and interpretive process of communication between a provider and a receiver. It is, therefore, a 'social and constructed phenomenon' (Ajjawi & Boud 2017, p. 253). As learners engage in feedback dialogue, they are likely to construct their knowledge (Ajjawi & Boud, 2017; Carless, 2020; Su & Zou, 2022). Feedback dialogue plays a role in developing learners' shared and individual interpretations (Price et al., 2011; O'Donovan, et al., 2016). From this view, learners are active agents who construct their understanding of feedback (Ajjawi & Boud, 2017; Carless, 2006; Carless & Winstone, 2020). Social constructivist research also provided evidence on the role of feedback dialogue in cultivating paired learners' understanding of its meaning through question-response exchanges, meaning negotiations and error interpretations (Mohammed & Alharbi, 2022).

Affordances of Web 2.0-Facilitated Peer/Collaborative Writing

Research has highlighted certain affordances of Web 2.0 tools such as Google Docs, Wikis and Writeboard, including their interactive features that allow learners to construct their texts jointly (Elola, 2010; Elola & Oskoz, 2010; Kessler et al., 2012; Ishtaiwa & Aburezeq, 2015; Oskoz & Elola, 2014; Strobl, 2013). Moreover, Web 2.0 tools, specifically Google Docs afford learners the opportunity to contribute to their joint text (Abrams, 2016; Chu & Kennedy,

2011; Gillow-Wiles & Niess, 2017; Elola & Oskoz, 2010; Oskoz & Elola, 2014) anytime and at their comfort (Brodahl et al., 2011; Godwin-Jones, 2008; Kessler et al., 2012; Wheeler, 2009).

Web 2.0 tools are facilitators of learner-learner interactions in collaborative writing (Ishtaiwa & Aburezeq, 2015; Elola & Oskoz, 2010) through its combination of both asynchronous (written comments on the texts) and synchronous (chat rooms). Learners can exchange feedback in the form of written comments that are linked to the specific part of the text where an issue/error is detected in the written (Ebadi & Rahimi, 2017; Semeraro & Moore, 2016; Woodard & Babcock, 2014; Neumann & Kopcha, 2019). For instance, Google Docs allows learners to engage in dialogue around peer and teacher feedback. In addition, editing/revising is one of the affordances rendering Web 2.0 technologies resilient, flexible and facilitative of collaborative writing (Oskoz & Elola, 2014; Strobl, 2013).

What also makes Google Docs distinguished from other Web 2.0 tools is that it facilitates synchronous and asynchronous writing and editing (Yang, 2010; Yeh, 2014) as well as direct editing, where instructors make instructions make corrections directly on the student's written work, and indirect editing, wherein instructors point out errors without making the correction (Oskoz & Elola, 2014), which can be easily tracked by teachers (Semeraro & Moore, 2016; Woodard & Babcock, 2014). It is an interactive platform that fosters learners' engagement and experience in collaborative writing (Irshad, 2022). Yet, students' use of Google Docs for collaborative writing is challenged by learners' preference for mobile applications for interactions, increasing workload, technical problems (Ishtaiwa & Aburezeq, 2015) as well as lack of in-person interaction (Irshad, 2022). Google Docs-based interactions seem less successful for effective editing (Woodard & Babcock, 2014).

MIM in Writing

In recent year, the opportunities for learners in learning activities outside the classroom through MIM have been on the rise (Andujar, 2016; Pedro et al., 2018; Tang & Hew, 2017; Tyrer, 2019). MIM supports synchronous and asynchronous communication (Andujar, 2016). For example, learners can engage in immediate, real-time interactions through both written and voice/audio IMs, which encourage quick responses (Cameron & Webster, 2005). MIM promotes active learners' interaction by enabling real-time communication which helps students engage more deeply with the language. This constant exchange not only boosts their

awareness of English is used in different contexts but also offers a flexible learning environment and facilitates personalized learning experiences (Rambe & Bere, 2013).

WhatsApp groups can serve as an educational platform where learners share ideas and exchange immediate error corrections (Bouhnik & Deshen, 2014). Learners' active participation is even promoted by the anonymity of their message exchanges in the group (Rambe & Bere, 2013). When applied in writing courses, WhatsApp encourages learners' question-response exchanges (Allagui, 2014), engages them in writing process (Fattah, 2015), increases their participation (Awada, 2016) and enhances their writing (Allagui, 2014; Awada, 2016; Fattah, 2015). Yet, there are several challenging issues arising from its use in writing courses such as imposing additional responsibilities on instructors and students, being disruptive of family time and frustrating due to the campus WiFi slow connectivity (Rambe & Bere, 2013). Other challenges are technical ones including message flooding, group maintaining, time-consuming and instructional such as expectations of highly available teachers online, use of inaccurate language and lacking efforts from students (Allagui, 2014; Bouhnik & Deshen, 2014).

Teacher's Role in Promoting Students' Collaborative Writing

Several studies have pointed at the teacher's facilitative role in students' collaborative writing. For instance, Webb (2009) argued that teachers do not only facilitate learners' interaction in collaborative tasks, but influence their interaction by engaging them in reciprocal question-response exchanges. Despite the emphasis, only a few studies have examined teacher's role in promoting students' engagement in collaborative writing. According to Zhang (2021), the teacher adopted a collaborative approach to facilitating collaborative writing of three groups of EFL learners that engaged them in planning, brainstorming and reviewing of their written texts. He also provided feedback on their first drafts, which promoted learners' engagement with their tasks. As a result of his feedback at the reviewing stage, the learners exchanged peer support in accomplishing their tasks. Similarly, Mohammed and Alharbi (2022) reported that teacher feedback highlights of errors in peer writing through Google Docs helped 28 pairs of EFL learners to discuss their errors through the Blackboard Collaborate Ultra and revise their essays accordingly. In addition, their synchronous interaction revealed how these pairs of learners engaged in error interpretation, negotiations and clarifications, which promoted their understanding of such errors and resulted into improving their texts.

Method

Research Design

The current study used a qualitative case study, particularly an exploratory case study, which is one of the most commonly used methodological approaches in educational research. It suits the purpose of the current study: answering research questions seeking to identify ways and practices in peer writing facilitated by combined technological tools.

Study Setting

The current study was carried out among 22 undergraduate students (10 males and 12 females) joining a course in English Linguistics during the academic year 2017-2018. The students were native speakers of Malay and their English proficiency was placed at B1 level based on the results of the admission test they completed before joining the department. They were taking this course as one of the compulsory courses during their first year/level at the undergraduate program. The course, being taught by one of the paper authors, introduces learners to general background about linguistics, particularly morphology and syntax (See the printscreen on the left). The lectures/classes were delivered face-to-face, using PowerPoints (See the printscreen on the left) and electronic materials and aids, such as videos (See the printscreen on the right) were used in the course.

The students' performance in the courses was assessed using both formative (written assignments) and summative (final test) assessments. The current study focuses on the written task as a formative assessment. Specifically, the students were assigned to write a report on certain morphological and syntactic features of a written text of their own choice. The report was needed to be written by each two students (pair work) based on their morphological and syntactic analyses of the written text. The written report included: introduction, literature review, method, finding and conclusion.

The Procedure

The study procedure consisted of four main stages. The first stage was preparation of students for the peer writing activities. This included informing learners of the purpose of the peer writing activities (to write the assignment in pairs as part of the assessment of their performance in the course and to conduct a study on their practices in peer writing facilitated by our combination of Google Docs and mobile applications). They were also asked to sign written

consent on their agreement about using their practices in the activities for the purpose of research after confirming them that their participation would be confidential. Moreover, to protect their anonymity, we used a combination of the initial letters of the words: pair and students followed by the serial numbers of the pair and that of students in each pair (e.g., P1S1 standing for student 1 in pair 1) when used sample excerpts of interactions, messages and follow-up interviews. During this stage, students were also divided into 11 pairs based on their choice of their peers and instructed on the assignment and its requirements as well as on the use of Google Docs for peer writing.

The second stage, the start of the actual data collection, focused on engaging students in several steps: planning their tasks, analyzing the linguistic features of the written texts for the peer assignments, writing the first drafts and revising the first drafts, the first, third and fourth steps are the constituents of the process writing. In each stage, all pairs were instructed and guided by the course instructor on what should be done or completed. The instructor used the last few minutes of the initial classes of the course, but due to the time limitation, he used the course WhatsApp group for this purpose. Students in each pair were also asked to discuss their tasks using the WhatsApp group and were also given the freedom to choose other mobile applications for this purpose. However, they were required to provide or share their discussions with the course instructor as evidence on their engagement in the above steps.

In writing the first drafts, each pair used their Google Docs created earlier and shared with the instructor. While writing the drafts, the instructor was also checking the pages almost daily to track their progress. During this stage, students were also encouraged to interact with each other and with the instructor. They had to revise the first drafts. This continued till the 11th week when all pairs finished revising the first drafts and were ready to check the format and submit the final drafts for assessment.

Based on the above procedure, the data was collected from four different sources: (1) learners' discussions on their tasks, (2) written comments and interactions through Google Docs and WhatsApp, (3) edits/changes made to their texts and (4) follow-up interviews. The first three types of data were archived and organized in separate word files from the start of the study procedure. Students' discussions on their tasks, especially in the pre-writing stage include both Face-to-Face discussions recorded by mobile audio and video records as well as electronic discussions in WhatsApp. Moreover, the online interactions and comments in the writing and

revision stages include written and audio messages through Google Docs and WhatsApp were also constantly archived in word files. The edits/changes to the first drafts made by students in the revision stage were visible as students used highlights and suggested edits through Google Docs. Therefore, the first and final draft of the essay for each pair was downloaded in the form of word file with the highlighted changes and saved in the name of the pair with the number assigned to it (pair1-pair11).

The last type of data was collected via follow-up interviews which were conducted at the 12th week of the semester. The interviews were conducted by an external assistant at five sessions (each session lasted for almost an hour) on different days during the week. It was a semi-structured interview that initially consisted of several questions prepared by the researchers based on the literature review and within the second research question to explore the role and challenges involved in our Google Docs-MIM combination.

Data Analysis

The data analysis procedure was performed in line with the collaborative writing approach implemented in this study described above: (1) planning and writing the first drafts of assignments, (2) instructor feedback-giving and (3) post-writing or reviewing. In order to answer the first research question addressing the paired learners' engagement in collaborative writing practices, we focused on Stage 1 and Stage 3 where learners collaborated in planning and writing their first drafts and revising them respectively. In this regard, a macro-level analysis focused on what the learners did, how they did it and what technology did they use in planning and writing their first drafts. A micro-level analysis of paired learners' interactions in the forms of Google Docs text chats, Google Docs comments and WhatsApp messages and text changes or edits was also used to identify the patterns of interactions in terms of its direction (learner-learner and learner-instructor interactions), the mode of interactions (synchronous and asynchronous interactions), the patterns of feedback (teacher feedback and peer feedback) and the patterns of students' responses to feedback on their assignments (commenting on the feedback, interacting over the feedback and editing their texts). The micro-level analysis was performed based on codes in different previous studies on learners' interaction in collaborative writing (e.g., Zeng & Takatsuka, 2009), teacher feedback patterns (e.g., Webb, 2009) and learners' responses to teacher feedback (e.g., Alharbi, 2019).

From this iterative analysis, we found a range of types of interactions at various modes

and with different directions (e.g., from learner to learner and from learner to instructor) and a wide variety of actions and contributions of learners to the texts prompted by interactions, which are all presented in the finding section with samples.

In addition, since learners' performance in writing is part of their collaborative writing practices, especially in the reviewing stage, the paired learners' first drafts and final versions of assignments were compared and scores were given based on a rubric and assessment required in the course. Then, these scores were calculated and compared using a paired t test to determine whether there were significant differences in assignment writing prior and after the instructor's feedback-giving.

The follow-up recorded interviews were listened to carefully and transcribed verbatim. Then, the transcripts were read and analyzed qualitatively and iteratively based on an open thematic coding outline on the basis of open thematic coding to find the most important themes about the students' perception of the Google Docs and MIM combination in their peer writing according to the second research question. In this regard, the segments from the interviews were underlined and assigned to codes. Following this, the codes were categorized and clustered under themes. This involved the researcher and an external research assistant in discussions and comparisons of their coding as well as negotiation of their agreements on meaningful themes. This resulted into several themes that are discussed in the findings under the affordances of MIM and Google Docs as well as the challenges involved in using these two tools in peer writing.

Findings

This section presents the findings of the current study according to the two research questions:

Planning and Writing through Interaction

In this stage, the instructor encouraged the paired learners to plan their tasks by using WhatsApp as a platform for their online discussions where they were observed to interact synchronously and asynchronously using both written and audio/voice messages. Each pair of students collaboratively worked on their outline that would be later developed into the first draft of their assignment. The following excerpt illustrates the paired learners' engagement in the task planning stage through WhatsApp:

[4:44 PM, 2/15/2018] P1S1: Hi I suggest to choose a short story for our task.

[4:45 PM, 2/15/2018] P1S2: Great but what in particular? What type of story? Or media

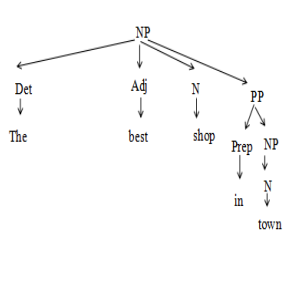
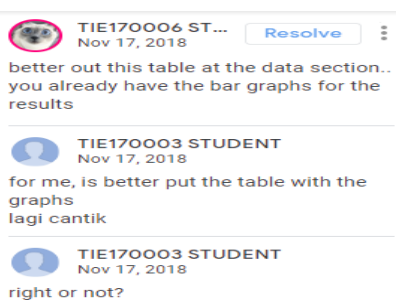
discourse or what? I mean what are you going to focus on?

[4:47 PM, 2/15/2018] P1S1: I was not in the class last time but does the topic/title has to do with language particularly English or can delve on another interesting topic? And do we start it from now?

[4:48 PM, 2/15/2018] P1S2: Hi: You are in a language and linguistic course so whatever topic you seem interested in should have that part which we call language or linguistic features. But can you explain your area of interest a little here please?

[4:50 PM, 2/16/2018] P1S1: Planning is quite challenging, but me and you need to decide and select articles for this assignment about newspaper reports.

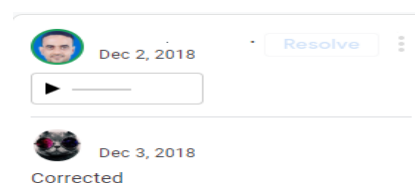
The students could carry out a morphosyntactic analysis of their stories through Google Docs color highlights (Screenshot 1), drew tree diagrams (Screenshot 2) and wrote their first drafts through interactions using Google Docs commenting boxes (Screenshot 3).

Receiving and Responding to Feedback

The students received text and voice feedback on their first drafts. While each written feedback targets a single issue, the voice/audio feedback addresses more than one issue (See the transcript of one voice note below).

Voice note transcript: A great introduction of your assignments. I will just point at some highlighted parts.
Why should these words be capitalized? I see you change the adjective valid as it looks inappropriate in this sentence. This this part seems repetitive. Can you



So the feedback served as questions, statements, suggestions, imperatives, evaluation and direct corrections (Table 1).

Table 1

Sample Discourse Functions of Feedback

Discourse functions	Sample
Question	Sure clause here? What do u think? Why will? You already performed the analysis right? Can you identify the different types of phrases: NP, VP, AP, AdvP & PP using a table just with the number of each type? What do you mean by the location here?
Suggestion	This table should be placed after the paragraph that explains it. You should not use only instrumental, regulatory etc without a noun after it.
Evaluation	I do not think your introduction is coherent.
Statement	In grammar, we call it a subordinating conjunction since it is used to introduce subordinating adverbial clauses. However, in syntax especially in tree diagrams, we call them compartmentalizers (COMP).
Imperative	So delete the word clause as it is a PP and keep consistent in using the tense.
Correction	is rather than being.

Overall, the instructor's feedback in both modes conveyed 970 and 435 discourse functions, respectively (Table 2) which varied in the text and voice modes with imperatives and questions as the most frequently occurring functions in the text mode and with corrections dominating the voice mode.

Table 2

Number of Feedback Discourse Functions in the Text and Voice Modes

Discourse functions	Mode			
	Written/Text Comments		Voice Notes	
Question	248	18%	73	5%

Suggestion	117	8%	64	5%
Evaluation	88	6%	60	4%
Statement	88	6%	58	4%
Imperative	264	19%	81	6%
Correction	165	12%	99	7%
Total	970	69%	435	31%

The learners were able to respond to the instructor's written and voice feedback through Google Docs by composing single text comments as shown in the following example extracted from Pair 1's Google Docs:

Instructor: My question here: Why did not you inform them at the initial stage? Just I need your short answer.

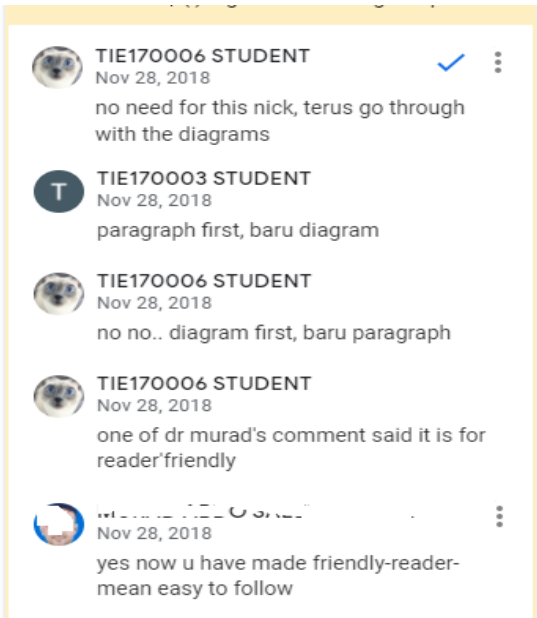
P1S1: Because the decision to conduct this study was made after their final exam.
Instructor: Oh! You mean you were afraid if you told the students early that they might have done their best not to make such errors?

P1S2: Not exactly. It's just that when the final exam was going on, this research wasn't initiated at all. So when we decided to conduct this research, I happened to have the existing data of my students' essays and decided to use them. That was when I told the students that I'll be using their essays. Just for ethical purpose, to let them know.

The students also replied to the feedback by asynchronously and synchronously interacting using comments and text chat boxes of Google Docs, respectively (Excerpts 1-2 in Table 3). However, due to the failures of some pairs to understand the meaning of some feedback, they extended the interactions to the course instructor through threads of comments in Google Docs and the WhatsApp chat (Excerpts 3-4). Both cases of student-initiated interactions are illustrative of students' roles as initiators of interactions (Excerpt 5). Learner-teacher interaction also occurred as a result of some pairs' questions seeking feedback on certain aspects of the jointly written texts (Excerpt 6).

Table 3

Sample Peer Interaction Practices around Feedback

Asynchronous Google Docs-Based	Synchronous Google Docs-Based
P3S2: SELECTED TEXT: We'd, She's, don't. Hi, don't you think these are contractions rather than clipping? if you give out some examples, do explain the process of that word being clipped and vice versa. Google Docs extended interaction  Seeking feedback re-formulation	P8S2: I guess you can just key in all the data into the empty table. P8S1: Better do a new table? P8S2: You just did it. P8S1: I think it's best if you put the table with the data under the DATA section. WhatsApp extended interaction [00:36, 5/18/2018] P5S2: Dr, I got a question to ask about your feedback in Google docs. [00:39, 5/18/2018] Instructor Hi I replied to your question in the Google Docs. [00:40, 5/18/2018]P5S2 But Dr. could you explain it to me here? [00:42, 5/18/2018] Instructor Hi listen to me I would suggest that first you identify: NP, VP, PP, AP & AdvP. You may put percentage of each and then samples. Then, you choose few simple sentences and draw the tree structures. This is my suggestion. It would be easy and accurate for you. [00:46, 5/18/2018] P5S2 Thank you Seeking feedback

 TOA180009 STUDENT Dec 10, 2018 i did the changes Dr. Thank you for the feedback:) TOA180009 STUDENT Dec 10, 2018 but Dr., i don't understand your feedback on "distinct situations.." It's not clear in the audio what i need to add...could u please type here? thank you:) TOA180009 STUDENT Dec 10, 2018 hi asked u to add " social" after distinct TOA180009 STUDENT Dec 10, 2018 ok done Dr. thank you:)	P11S2: Dr, can 'quicker than' be an adjP? Should 'than' be included? Instructor: Could u please check it again? P11S2: Sir, I have asked for many's opinions regarding this question, and I decided to exclude 'than' in the adjP afterwards, so I have corrected this adjP where I have changed it from 'quicker than' to 'quicker' only Instructor: Great now.
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In general, the pairs exchanged peer interaction that served as elicitation, evaluation, confirmation, clarification, justification or reasoning, suggestions, questions and error admission as well as confusions and disagreements (Table 4). These types of peer interactional exchanges served as scaffolds within the ZPD. Moreover, Table (5) presents the numbers of these different strategies in responding to feedback across the pairs.

Table 4

Patterns of Peer Interactional Exchanges

Language functions	Example
Elicitation	P3S1: I've changed the diagram. How is it now?
Evaluation	P10S2: I think this sentence is grammatically wrong.
Confirmation	P5S1: It is better now after I rephrased it with clearer meanings.
Question	Got what I mean?
	P11S2:I have a question about this one. Can a sentence consist of only VP?
	P4S1: If the phrase is started with an adverb, then is it considered an adverbial phrase?
Clarification checks	P13S1: What do you mean?
	P13S2:I mean in this example, it seems like 'who shared their dormitory...' is another sentence. And it only consists of the conj who and VP, I can't find any NP.
Justification	P7S2: I personally think that it is an AdvP because it describes and modifies the main verb 'flew'.
	P5S1: Just itself is an adverb, so it is an AdvP though it is attached to the NP "a girl"
Confusion	P2S1: I am not sure about this one. Because there are 2 verbs I am very confused.

Suggestion	P9S2: We should put a comma here.
Agreement vs disagreement	P1S1: I agree it's unnecessary. P3S2: I can't agree with this analysis.
Error admission	P11S1: I have just realized that I made those silly mistakes, haha, I have made the correction,
Understanding vs misunderstanding	P8S2: Oh. I understand dr, so we need to find words that can be divided into both stem and root. P6S2: I am sorry but I don't understand what you mean by think to after proceeding.

Revising and Improving their Texts

Another important technology-facilitated collaborative writing practice is editing of the first drafts using suggest edits and color highlights (See the snapshot), which are counted for each pair (Table 5).

All three articles on children with speech-sound disorder (SSD) have attracted my attention as an interesting topic in my area of linguistic programme. The title of article 1 has clearly stated what the research is about by stating all three variables early literacy skills, children with SSD, and



In addition, our evaluation of students' first drafts and final drafts through scores given to them based on the rubrics used in the classroom illustrates that the mean value for the revised or final drafts of assignments ($M = 16.4439$) was higher than that of the first drafts ($M = 12.2300$). The sample paired t test illustrates a statistically significant difference ($t = -10.716$; $p = .000 < .05$).

Table 5

Number of Commenting, Interacting around Feedback and Text Revisions

Pairs	Commenting on feedback only via Google Docs	Interacting on the feedback				Number of revisions
		Learner-learner interactions		Learner-instructor interactions		
		Google Docs	Whats App	Google Docs	WhatsApp	
Pair1	31	8	13	67	14	63
Pair2	22	9	19	37	11	34
Pair3	21	6	21	121	18	124

Pair4	17	11	11	78	4	77
Pair5	29	14	23	72	9	68
Pair6	36	7	12	72	5	67
Pair7	33	8	17	31	12	31
Pair8	22	12	31	2	7	34
Pair9	34	16	18	2	14	53
Pair10	21	19	16	3	6	60
Pair 11	27	8	15	19	3	62
Total	293	118	196	432	103	673

Students' Perspectives on Technology-Facilitated Collaborative Writing

The follow-up interview (Appendix 1) shows the perceived role of MIM and Google Docs as interactive and complementary platforms in collaborative writing. First, the students perceived the positive role of WhatsApp in connecting them to each other, discussing their assignments, interacting and sharing information. It also helped them to contact the instructor to ask questions, seek clarifications and communicate with him regarding the task.

The students also perceived the potential of Google Docs in facilitating their collaborative writing because it served as a space where they jointly wrote their tasks, received both written and audio feedback, linked the feedback to the erroneous part of texts and jointly edited their texts anytime and anywhere. Moreover, Google Docs is an interactive tool that allowed them to respond to the feedback and interact around it in a flexible manner. Another feature of Google Docs is that it encouraged synchronicity and asynchronicity of interaction and allowed learners to view the instructor's comments on them while they were still available online and to get notified of his comments given at a delayed time through emails. Finally, Google Docs is perceived as a convenient tool for editing texts where the learners could simultaneously edit their texts and also make such edits visible through suggest edits and color highlights both of which were saved automatically and were easily tracked by the instructor.

Despite these potentials, our combined technology implementation was not without challenges including viewing WhatsApp as distractive for some learners' free time and the focus of a few learners, who were infrequent checkers of WhatsApp because of the difficulty involved

in following the messages in order to reply to them. This could be due to the anonymity of students especially at the start of the semester before adding each other's mobile numbers to their contacts.

Moreover, using Google Docs for peer writing and editing was challenging for some learners. This is because of the Internet disconnection or weak connection issues, which sometimes rendered some individual students unable to access it and synchronously discuss and write with their peers. Other challenges are the effort-consuming nature of working through Google Docs and students' experience in using the tool for peer writing and text editing.

Discussion

In this study, combining Web 2.0 tools and mobile applications facilitated learners' engagement in collaborative writing. Due to the restricted time and opportunities for interactions in the classroom setting, the role of MIM, specifically WhatsApp comes into play as it was found to help learners vary their choices of where, when and how to interact during the pre-writing stage (Allagui, 2014; Awada, 2016; Fattah, 2015).

This study supports the evidence on Google Docs as a collaborative tool that enables paired learners to jointly write the text at their comfort (Abrams, 2016; Chu & Kennedy, 2011; Gillow-Wiles & Niess, 2017; Elola & Oskoz, 2010; Oskoz & Elola, 2014). Moreover, the learners were observed to write the first drafts over a period of time since they could refer to the automatically saved drafts in their pages and continue working on it at any time (Brodahl et al., 2011; Kessler et al. , 2012; Wheeler, 2009). They could work on the text simultaneously as displayed by their synchronous interactions and simultaneous text changes. What is interesting is that Google Docs facilitates the presence of scaffolds. In this study, peer and teacher feedback interactions played a crucial role in facilitating learners' revisions within the ZPD. Both teacher and peers provided assistance through collaborative discussions and guided problem-solving, thus allowing students to engage with the writing tasks beyond their independent capabilities. The teacher also facilitated students' revisions by employing strategies such as comments varying from explicit to implicit ones, ensuring that students progressed toward autonomy over time. These interactions align with Vygotsky's sociocultural theory, which demonstrates how social interactions and structured guidance improve students' cognitive development within the ZPD (Li & Zhang, 2021; Su & Zou, 2022; Tian & Zhou, 2020).

Since text revision requires effective feedback, in this study, the paired learners received

written and audio/voice feedback from the instructor. This result adds to earlier studies on the potential of Google Docs in exchanging feedback (e.g., Ishtaiwa & Aburezeq, 2015; Neumann & Kopcha, 2019). Inserting audio comments allows writing instructors to give asynchronous audio feedback on students' writing.

The above finding on Google Docs is not new given that several studies have shown how Google Docs enables providing and receiving peer (Semeraro & Moore, 2016; Woodard & Babcock, 2014) and instructor feedback (Ishtaiwa & Aburezeq, 2015; Neumann & Kopcha, 2019). Yet, will learners interact over the feedback before using it in revising their writing? This question as the current issue in today's research (Carless, 2012; Green, 2019; Guasch et al. , 2019) is partially answered by the current study as the learners actively responded to and interacted around the feedback before using it in editing their texts. This supports the value of our technology combination in collaborative writing where the teacher facilitates and promotes learners' active roles in the feedback processes in the context of collaborative writing (Zhang, 2021). This is exemplified through posting single comments on the feedback (Alharbi, 2019), synchronously and asynchronously interacting around it and expanding feedback interactions through WhatsApp messages. Such interactions enable learners to resolve issues around feedback (Guasch et al., 2019).

Despite the synchronicity of interaction afforded by Google Docs, in this study, some learners shifted to WhatsApp instant messaging for seeking the instructor's timely and detailed clarifications on some Google Docs-based feedback. This is probably due to the synchronicity of WhatsApp messages (Cameron & Webster, 2005). Although this result supports the role of technology combination in overcoming the restrictions of one single technology use in collaborative writing, technology alone may not be effective (Zhang & Zou, 2021), and therefore, teachers need to guide their learners through effective feedback (Chen & Yu, 2019; Zhang, 2021). In this regard, the way teachers give feedback might carry negative effects (e.g., closing down the opportunities for learners' dialogue around feedback) (Winstone & Carless, 2019). However, this study supports the argument that giving feedback in the forms of questions seems more effective in enticing learners' interaction around feedback Winstone & Carless, 2019).

In using Google Docs, the learners edited their texts through different color highlights and suggested edits. This result underlies the affordances of Google Docs as resilient, flexible

and facilitative tools for peer editing (Oskoz & Elola, 2014; Strobl, 2013). Moreover, as authors of texts, the learners became autonomous to accept or reject their peers' suggested edits through the acceptance versus rejection function of Google Docs (Oskoz & Elola, 2014; Yang, 2010). Google Docs also provided the learners and the instructor the opportunity to track what was contributed to the texts, whose contribution it was and when these contributions were made to the texts (Yeh, 2014).

Most of the above findings on the role of technology combination in facilitating learners' practices in collaborative writing were also supported by learners' views. First, the WhatsApp group served as an online platform that connected learners to each other despite their physical distance. They used it for planning their assignments and interacting with each other and with the instructor (Bouhnik & Deshen, 2014; Rambe & Bere, 2013). As a result of the easiness in contacting the instructor outside the classroom time, the learners were able to seek clarifications and even his feedback on their assignments. However, this workload may not be convenient for all university instructors since this might place pressure on instructors. Yet, regardless of the time pressure and workload, our technology combination could maximize the opportunity for learners to collaborate, interact and communicate beyond the classroom time limit.

In this study, the students perceived the positive role of Google Docs and its affordances in facilitating their collaborative practices which are convenient, interactive, visible and automatically saved (Irshad, 2022; Lee & Hassell, 2021). Yet, there are several challenging issues and concerns arising from our implementation of technology in this study including the distraction of WhatsApp group discussions especially among learners with busy family time (Rambe & Bere, 2013), inability of a few learners to follow the WhatsApp group discussions and the huge mass of text and voice messages. WhatsApp is known for its message flooding (Bouhnik & Deshen, 2014), so teachers should allow learners to shift to asynchronous discussions where they read the messages and respond to them in an organized manner. For Google Docs, learners were disturbed by internet issues, such as slow net connections and failure to access the network. Moreover, working through Google Docs is effort-consuming since learners had to re-do the messed-up format after downloading the final drafts in MS word files and had to delete all comments attached to it. A few learners initially found it difficult to deal with the instructor's comments on their work owing to their lacking previous experience in using Google Docs. Therefore, instructors should ensure that learners are well trained on how to use technology prior to using it in collaborative work because this will enable learners to well focus

on the tasks. To address the challenges associated with WhatsApp and Google Docs, teachers can implement structured guidelines for effective interactions and collaborative work, such as setting designated discussion times and clear participation expectations, thus minimizing any occurrence of miscommunication and overload. Additionally, explicit training on effective digital collaboration will assist students to navigate technical difficulties. Pedagogically, these strategies are likely to promote meaningful interaction, ensuring that technology enhances, rather than hinders, collaborative writing.

Conclusion

The findings of the current study have shown that although WhatsApp and Google Docs are distinctly different in their applications in peer writing, there is evidence that WhatsApp is complementary for Google Docs in peer writing. In other words, while WhatsApp was mainly used as an interactive platform for group discussions and sharing information in the pre-writing stage, Google Docs was used a tool for jointly writing the first drafts and revising or editing them. Nevertheless, students also used WhatsApp in the latter two stages of peer writing to interact with the course instructor and seek immediate responses that clarify his feedback and clarify their intentions in the Google Docs pages.

Despite the interesting results of this study on the affordances of technology combination in facilitating peer writing, there are several limitations that should be addressed for future research. First, although the different data in this study yielded rich insights into the role of WhatsApp and Google Docs combination in peer writing, our micro-analysis was not intended to delve into the different moves of learner-learner interactions, the different features (e.g., questions, statements, imperatives, etc) and modes of teacher feedback (written and audio/voice comments in Google Docs and WhatsApp), the different types of students' responses to and interactions over the feedback (e.g., clarifying, questioning, providing a correction, etc) and different kinds of their edits (content, language, etc). Additionally, several feature enhancements and improved collaboration features have been introduced to Whatsapp and Google Docs, respectively, since the time of data collection. Therefore, future research may look at these micro-level patterns using the updated versions of the two platforms. Another limitation is that this study looked at the practices within the process of peer writing rather than evaluation of the end-products of writing. Future studies can evaluate students' writing by comparing the first jointly written drafts and the final drafts.

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Verb-subject gender agreement in Standard Arabic: L2 acquisition by Arabic heritage speakers and French-speaking learners of Arabic

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المخلص

تتناول هذه الدراسة المطابقة في الجندر (التذكير والتأنيث) بين الفعل والفاعل المفرد الغائب في سياق اكتساب اللغة العربية الفصحى، وذلك من خلال مقارنة الأداء اللغوي للناطقين بالعربية من أصول تراثية (ثنائي اللغة في العربية العامية والفرنسية) ومتعلمي العربية الناطقين بالفرنسية. كما تبحث في التأثيرات الدلالية لفئة الاسم — وخاصة الأسماء البشرية والحيوانية، وكلاهما يعبر عن الجندر الطبيعي — على اكتساب المطابقة في الجندر على الأفعال. وقد استُخدمت أداة الحكم النحوي ضمن منهج كمي تجريبي لتقييم قدرة المتعلمين على التمييز بين حالات المطابقة الصحيحة وغير الصحيحة بين الفعل والفاعل. شملت عينة الدراسة 12 متحدثاً تراثياً بالعربية، و15 متعلماً فرنسياً للغة العربية الفصحى كلغة ثانية، و25 مشاركاً من الناطقين الأصليين بالعربية (أحادي اللغة) كمجموعة ضابطة. أظهرت النتائج تفوق المتحدثين التراثيين على متعلمي العربية من الناطقين بالفرنسية. وقد فسّر هذا التفوق بالرجوع إلى خصائص اللغة الأم، إذ إن الفعل يتطلب المطابقة في الجندر مع الفاعل المفرد في كلٍّ من العربية العامية والفصحى، بخلاف اللغة الفرنسية التي لا تُلزم بهذه المطابقة. بالتالي، يستفيد المتحدثون التراثيون من النقل الإيجابي من العامية إلى الفصحى، فجاءت أحكامهم النحوية مماثلة لأحكام المجموعة الضابطة. كما أظهرت كلٌّ من المجموعتين — التراثية والضابطة — دقة أعلى في الجمل التي تحتوي على فاعل بشري مقارنةً بالجمل التي تحتوي على فاعل حيواني. في المقابل، لم يُظهر المتعلمون الفرنسيون للفصحى نفس التأثير المرتبط بفئة الاسم، بل أظهروا تأثيراً عاماً للجندر تفاعل مع السلامة النحوية، حيث تم قبول الصيغة المؤنثة للفعل مع الفاعل المذكر والمؤنث على حد سواء. تشير هذه النتائج إلى أن اكتساب الفصحى قد يشبه اكتساب لغة جديدة، إلا أن وجود خصائص لغوية مشتركة بين الفصحى والعامية يساهم في تسهيل عملية الاكتساب. كما تُظهر الدراسة أن الأسماء البشرية والحيوانية، رغم اشتراكها في التعبير عن الجندر الطبيعي، تختلف في تأثيرها الدلالي على المطابقة بين الفعل والفاعل، مما يشير إلى دور محتمل لعوامل إضافية، مثل التشابه الصرفي بين الصيغ المذكورة والمؤنثة، وهو ما يستدعي مزيداً من البحث.

Verb–subject gender agreement in Standard Arabic: L2 acquisition by Arabic heritage speakers and French-speaking learners of Arabic

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Abstract

This study investigates second language (L2) acquisition of gender agreement on verbs with third-person singular subjects in Standard Arabic by comparing the linguistic performance of Arabic heritage speakers (bilingual in Colloquial Arabic and French) and French-speaking L2 learners. It also examines the semantic effects of noun class —specifically, human and animal nouns, both of which encode natural gender—on the acquisition of gender agreement. A quantitative, experimental design using a grammaticality judgment task was employed to assess the participants’ sensitivity to verb–subject gender agreement violations. The sample included 12 Arabic heritage speakers, 15 L2 learners, and 25 monolingual native speakers of Arabic as the control group. The results showed that heritage speakers outperformed L2 learners. Unlike in French, gender agreement on verbs with third-person singular subjects is similarly inflected in both Colloquial and Standard Arabic, allowing heritage speakers to benefit from positive transfer. Their judgments were comparable to those of native speakers. Both heritage and native speakers demonstrated significantly higher accuracy for sentences with human subjects compared to those with animal subjects. In contrast, L2 learners did not show a noun class effect, but instead exhibited a gender effect that interacted with grammaticality: the feminine verbal form was accepted in both masculine and feminine contexts. These findings suggest that acquiring a standard variety resembles acquiring a new language. However, when linguistic properties overlap between the standard and colloquial varieties, acquisition is facilitated. The study also reveals that, although both human and animal nouns encode natural gender, they differ in their semantic effects on verb–subject gender agreement. This indicates the role of additional factors, such as the morphological similarity between masculine and feminine forms, which merits further investigation.

Keywords: *Arabic heritage; verb–subject gender agreement; noun class; French, Standard Arabic*

Introduction

Arabic is one of the most widely studied second languages (L2)¹ globally. Its rich and complex² morphological system presents considerable challenges to both heritage speakers and L2 learners. This study examines Arabic heritage speakers (bilingual in Colloquial Arabic and French) and French-speaking L2 learners. Colloquial Arabic refers to regional spoken varieties that are distinct from Standard Arabic, the formal variety used in writing and official contexts. Arabic heritage speakers are bilingual individuals who have limited proficiency in their first language (L1) due to being raised in a foreign country (France), where exposure to the heritage language is typically confined to the home environment. In contrast, French-speaking L2 learners are typically students of Arabic as a foreign language. Both groups commonly make up the student population in classrooms where Standard Arabic is taught as an additional language or distinct variety. This study investigates whether acquiring a standard variety is comparable to acquiring a new language when there is a partial overlap with a colloquial variety.

Arabic varieties, both standard and colloquial, exhibit a complex morphological system of gender agreement across nominal and verbal domains. Studies on Arabic heritage speakers (Albirini et al., 2013) and L2 learners of Standard Arabic (Al-Hamad, 2003; Alamry, 2019; Alhawary, 2019) have consistently reported that gender agreement is a challenging grammatical feature to acquire. These studies have shown that gender agreement tends to be acquired earlier in verb–subject constructions than in noun–adjective constructions, and that the masculine form is acquired before the feminine form, likely due to its simpler morphology. The complexity of gender agreement increases when inanimate and plural nouns are used.

Given these challenges, this study examines L2 acquisition of verb–subject gender agreement in Standard Arabic. Gender marking on verbs is determined by both the morphological form (imperfective or perfective) and the subject’s agreement features (person, number, and gender). For instance, with third-person singular subjects, gender is marked in the imperfective through prefixes (*j-* for masculine and *t-* for feminine), as in (1a–b), and in the perfective through suffixes (*-a* for masculine and *-at* for feminine), as in (2a–b):³

1. Imperfective

(a) *ja-ktub* *ʔat^s-t^sa:lib*

¹ The term second language (L2) is used generically to refer to any language acquired after the first language (L1), regardless of the context of exposure (e.g., classroom instruction or naturalistic setting) (Ortega, 2013). In second language acquisition (SLA) research, L2 is typically preferred as a cover term unless the learning context itself is the focus of investigation, which is not the case in this study. Here, Arabic heritage speakers are acquiring Standard Arabic as a third language or variety, while French-speaking learners are acquiring it as a foreign language. Consistent with this approach, contemporary SLA does not distinguish between *learning* and *acquisition* (Ortega, 2013).

² The term ‘complex’ is used in its technical linguistic sense, referring to the structural richness and interaction of morphological features (e.g., gender, number, person), without implying difficulty or deficiency.

³ Arabic examples are transliterated using IPA, except in cited examples, where the original transliteration from the source is retained. The following abbreviations are used: F = feminine, M = masculine, S = singular, P = plural, 3 = 3rd person, and AUX = auxiliary.

3MS-write the-student.MS

‘The (male) student writes.’

(b) *ta-ktub* $\text{ʔat}^{\text{ʕ}}\text{-t}^{\text{ʕ}}\text{a:lib-a}$

3FS-write the-student-FS

‘The (female) student writes.’

2. Perfective

(a) *katab-a* $\text{ʔat}^{\text{ʕ}}\text{-t}^{\text{ʕ}}\text{a:lib}$

wrote-3MS the-student.MS

‘The (male) student wrote.’

(b) *katab-at* $\text{ʔat}^{\text{ʕ}}\text{-t}^{\text{ʕ}}\text{a:lib-a}$

wrote-3FS the-student-FS

‘The (female) student wrote.’

When all combinations of person (first, second, third), number (singular, dual, plural), and gender (masculine and feminine) are considered, the verb–subject agreement paradigm in Standard Arabic includes 13 distinct affixal forms for the imperfective and another set for the perfective (see Alhawary, 2011; Ryding, 2005, for full paradigms). Mastery of these forms is essential, as gender agreement on verbs is obligatorily marked regardless of word order (subject–verb or verb–subject). The only cases in which the verb does not exhibit gender agreement occur with first-person singular and plural subjects, and second-person dual subjects (Aoun et al., 2010).

This study investigates whether Arabic heritage speakers and L2 learners differ in their sensitivity to violations of verb–subject gender agreement in Standard Arabic. Despite extensive research on Arabic morphology (Albirini et al., 2011; Albirini et al., 2013; Albirini, 2015; Alhawary, 2002, 2005, 2009; Benmamoun & Albirini, 2018), there is a lack of comparative studies that directly examine Arabic heritage speakers and L2 learners in their acquisition of grammatical gender in Standard Arabic. To address this gap, we conduct a comparative study of the acquisition of verb–subject gender agreement in Standard Arabic among two learner groups: Arabic heritage speakers and French-speaking L2 learners of Arabic. The heritage speakers are bilingual individuals who speak a local Arabic variety (Moroccan, Tunisian, or Algerian Arabic) as their home language and use French as their dominant language. The L2 learners are monolingual native speakers of French. Both groups study Standard Arabic as an additional language—or a distinct variety—at a language institute in Paris. A grammaticality judgment (GJ) task was used to test their sensitivity to agreement violations on imperfective verbs with third-person singular subjects, as shown earlier in (1a–b), while examining the semantic effects of two types of nouns (human and animal) that bear natural gender and the gender categories (masculine and feminine).

The remainder of this paper is organized as follows. First, we describe the gender agreement systems in Arabic (standard and colloquial) and French. Next, we review prior research on gender acquisition in Arabic with particular attention to nominal properties (gender and animacy) and L1 effects. We then present the research questions, describe the method, and report the results. Finally, we conclude with a discussion of the findings in light of the research questions.

The gender agreement systems in Arabic and French

Arabic varieties require gender agreement in both nominal and verbal domains, while French requires gender agreement in the nominal domain and, to a limited extent, in the verbal domain. This section provides an overview of the gender systems in Arabic and French.

Gender agreement in Arabic

Arabic varieties, including Standard Arabic, distinguish between two gender categories for nouns: masculine and feminine. The gender of a noun is determined by either biological sex or linguistic conventions. Inanimate nouns that refer to objects are assigned grammatical gender arbitrarily, while nouns referring to humans and animals are typically assigned a natural gender corresponding to the biological sex of the referent.

Markers of nominal gender are illustrated using Standard Arabic, the target variety in this study. Masculine nouns typically lack a gender affix, as shown in (3), while feminine nouns are marked by one of the feminine suffixes (-a, -aa, -aʔ), as shown in (4)–(6).

3. *maktab*
office.MS (Alhawary, 2011, p. 38)
4. *maktab-a*
library-FS (Alhawary, 2011, p. 38)
5. *ḥumm-aa*
fever-FS (Alhawary, 2011, p. 40)
6. *sʿaḥr-aʔ*
desert-FS (Alhawary, 2011, p. 40)

Although most nouns in Standard Arabic follow this affixal pattern, some exceptions exist. A few masculine nouns may carry a feminine suffix, as in (7), while some feminine nouns may lack it, as in (8). In other cases, certain nouns can be treated as either masculine or feminine, as in (9).

7. *ḫali:f-a*
caliph.MS (Ryding, 2005, p. 120)
8. *ḡams*

sun.FS

(Ryding, 2005, p. 124)

9. *suug*

market.F/MS

(Ryding, 2005, p. 125)

Despite these exceptions, most feminine nouns in Standard Arabic are marked with (-a) in the singular (Alhawary, 2011; Ryding, 2005).

Most nouns referring to humans or animals have both masculine and feminine forms, derived from the same root. The masculine form, which refers to males, typically serves as the base form, while the feminine form is derived by adding the feminine suffix, as illustrated in (10) and (11).

10. (a) *malik*

(b) *malik-a*

king.MS

queen-FS

(Ryding, 2005, p. 124)

11. (a) *qit^ʕt^ʕ*

(b) *qit^ʕt^ʕ-a*

cat.MS

cat.FS

(Ryding, 2005, p. 125)

As shown in (10)–(11), masculine and feminine nouns share the same roots (e.g., *mlk* and *qt^ʕt^ʕ*). However, not all feminine animal names are morphologically derived from a masculine base. In some cases, masculine and feminine forms are distinct lexical items, as in (12) and (13). The feminine form still carries the suffix (-a), while the corresponding masculine form lacks gender marking.

12. (a) *θawr*

(b) *baqar-a*

bull.MS

cow-FS

13. (a) *zamāl*

(b) *na:q-a*

camel.MS

camel-FS

(Alhawary, 2011, p. 39)

For inanimate object nouns, gender is assigned by convention, as shown in (14) and (15).

14. *t^ʕa:wil-a*

table-FS

15. *kursiyy*

chair-MS

(Alhawary, 2011, p. 39)

In Standard Arabic, grammatical gender is marked on demonstratives, relative pronouns, adjectives, and verbs (Alhawary, 2011; Ryding, 2005). In the nominal domain, demonstratives and adjectives agree in gender with the head noun, as shown in (16) and (17). Feminine agreement is marked on the demonstrative by the suffix (-*hi*) and on the adjective by (-*a*).

16. *ha:ða:*
maktab
kabi:r

this.MS

office.MS

big.MS

‘This is a big office.’

17. *ha:ði:hi* *maktab-a* *kabi:r-a*
this.FS library.FS big.FS

‘This is a big library.’

In the verbal domain, Arabic nouns typically require gender agreement with verbs at the Tense-Phrase (TP) level regardless of word order (Aoun et al., 2010; Benmamoun, 2000). Table 1 presents the full subject–verb agreement paradigm for the imperfective form in Standard Arabic and Moroccan Arabic, based on Aoun et al. (2010, pp. 74-75). Gender agreement on the imperfective verbal form is realized in either number or person affixes (Benmamoun, 2000). In Standard Arabic, verbal gender agreement appears in the prefix with third-person singular and dual subjects (*j-* for masculine, *t-* for feminine) and in the suffix for second- and third-person plural subjects (*-u:n* for masculine, *-na* for feminine) and second-person singular feminine subjects (*-i:n*). Moroccan Arabic diverges from Standard Arabic “with respect to the absence of the dual and gender distinctions in the plural” (Benmamoun, 2000, p. 23). However, it maintains gender agreement with third-person singular subjects (*j-* for masculine, *t-* for feminine), as highlighted in the shaded rows of Table 1.

Table 1

Agreement marking on Standard Arabic (SA) and Moroccan Arabic (MA) imperfective verbs.

Person	Number	Gender	SA	MA	Translation
1	Singular	-	ʔa-ktub	n-əktəb	I write.
	Plural	-	na-ktub	n-kətb-u	We write.
2	Singular	M	ta-ktub	t-əktəb	You write.
	Singular	F	ta-ktub- i:n	t-kətb-i	You write.
	Dual	-	ta-ktub-a:n	-	You both write.
	Plural	M	ta-ktub- u:n	t-kətb-u	You all write.
	Plural	F	ta-ktub- na	t-kətb-u	You all write.
3	Singular	M	ja -ktub 3MS-write	j -əktəb 3MS-write	He writes.
	Singular	F	ta -ktub 3FS-write	t -əktəb 3FS-write	She writes.
	Dual	M	ja -ktub-a:n	-	They both write.
	Dual	F	ta -ktub-a:n	-	They both write.
	Plural	M	ja-ktub- u:n	j-kətb-u	They all write.
	Plural	F	ja-ktub- na	j-kətb-u	They all write.

Note. For simplicity, inflectional endings were omitted. Affixes in bold mark gender, in addition to person or number. Shaded rows represent the forms tested in this study.

Gender agreement in French

Similar to Arabic, French categorizes nouns as either masculine or feminine, with gender determined either by biological sex or linguistic convention. According to Ayoun (2007), certain

animate nouns are naturally assigned a gender that corresponds to the biological sex of the referent, as demonstrated in (18) and (19). However, most nouns, whether animate or inanimate, are arbitrarily assigned gender, as shown in (20) and (21). The cited examples are from Ayoun (2007, p. 131).

18. *neveu*
nephew.MS

19. *nièce*
niece.FS

20. *vélo*
bicycle.MS

21. *coccinelle*
ladybug.FS

Predicting the gender of French nouns based on form or meaning is generally not possible due to numerous exceptions to morphological or semantic patterns (Ayoun, 2007, 2018; Hawkins & Towell, 2015).

The assignment of gender to animal nouns in French differs from that in Standard Arabic. French typically uses a single grammatical gender to refer to both male and female animals. To specify the biological sex, the modifiers *mâle* ‘male’ or *femelle* ‘female’ are added. For example, the noun *abeille* ‘bee’ is feminine; to indicate a male bee, the word *mâle* ‘male’ is appended, as shown in (22). Conversely, *singe* ‘monkey’ is masculine, and a female monkey is specified by adding *femelle* ‘female,’ as illustrated in (23). The cited examples are from Ayoun (2018, p. 119).

22. *une* *abeille* *mâle*
a.FS bee.FS male
‘a male bee’

23. *un* *singe* *femelle*
a.MS monkey.MS female
‘a female monkey’

French marks gender agreement on adjectives, determiners (such as articles and demonstratives), and possessives (Hawkins & Towell, 2015). As illustrated in (24) and (25), French uses distinct masculine and feminine forms for definite (*le*_(MS) vs. *la*_(FS)) and indefinite articles (*un*_(MS) vs. *une*_(FS)) with singular nouns. Adjective forms also vary depending on the gender of the noun or pronoun with which they agree. Masculine adjectives usually lack a gender suffix, while feminine adjectives often end in (-e) in both singular and plural forms (Hawkins & Towell, 2015).

24. *le / un* *petit* *garçon.*
the.MS / a.MS little.MS boy.MS

‘The/A little boy’

25. *la / une* *petite* *fille.*
the.FS / a.FS little.FS girl.FS

‘The/A little girl’

Unlike Standard Arabic, French typically marks subject–verb agreement only for person and number and not for gender. This is illustrated in (26) and (27), adapted from Hawkins and Towell (2015, p. 222), with gender-paired subjects added. In both examples, the imperfect tense form of *vouloir* ‘to want’ agrees with the subject in person and number but does not change according to gender, whether singular (*elle* ‘she’ vs. *il* ‘he’) or plural (*garçons* ‘boys’ vs. *filles* ‘girls’).

26. *elle / il* *voulait* *partir* *en* *vacances.*
She / he wanted to.3S go on holiday

‘She/He wanted to go on holiday.’

27. *les garçons / les filles* *voulaient* *tous* *participer* *au match.*
The.P boys / The.P girls wanted to.3P all take part in match

‘The boys/The girls all wanted to take part in the match.’

However, French shows limited cases of subject–verb gender agreement, specifically with past participles following *être* ‘to be’ in compound tenses and in passive constructions. This is illustrated in (28)–(31), drawn from Hawkins and Towell (2015, pp. 226–227), with the addition of gender-paired subjects. In these cases, feminine agreement is marked on the verb via the suffix (-e), while the masculine form lacks overt gender marking.

28. *Suzanne* *est* *sortie.*
Suzanne.F is.AUX went out.FS

‘Suzanne went out.’

29. *John* *est* *sorti.*
John.M is.AUX went out.MS

‘John went out.’

30. *la* *guerre* *a* *été* *déclenchée* *par* *un* *malentendu.*
the.FS war.FS has been started.FS by a.MS misunderstanding.MS

‘The war was started by a misunderstanding.’

31. *le* *combat* *a* *été* *déclenché* *par* *un* *malentendu.*

the.MS fight.MS has been started.MS by a.MS misunderstanding.MS

‘The fight was started by a misunderstanding.’

Unlike Standard Arabic, French does not consistently require gender agreement on verbs. As a result, French-speaking L2 learners of Standard Arabic encounter a new grammatical pattern: third-person singular subjects that require gender agreement on the verb, a feature not marked in their L1 grammar. Conversely, Arabic heritage speakers acquiring Standard Arabic are already familiar with this type of verb–subject gender agreement from their colloquial variety, particularly with third-person singular subjects.

Previous studies

Gender and animacy in Arabic acquisition

Arabic-speaking children generally acquire gender morphology by the age of three, though some errors in gender agreement may persist until around age four. Initially, children tend to use the singular masculine form as the default (Aljenaie, 2009; Omar, 2007). In contrast, Arabic heritage speakers and L2 learners often struggle to correctly apply gender agreement (Al-Hamad, 2003; Alamry, 2019; Albirini et al., 2013; Alhawary, 2019).

Research consistently shows that gender agreement is acquired earlier in subject–verb constructions than in noun–adjective constructions, and that masculine forms are acquired before feminine forms (Albirini et al., 2013; Alhawary, 2002, 2005, 2009). In a study of Arabic heritage speakers who spoke Palestinian and Egyptian varieties, Albirini et al. (2013) found that participants were more accurate in subject–verb agreement (82.78%) than in noun–adjective agreement (63.92%). Notably, the singular masculine form was overused in 80.14% of the verb agreement errors and 74.62% of the adjective agreement errors. According to Albirini et al. (2013), this reflects the relative robustness of the singular masculine form in the grammar of Arabic heritage speakers.

This pattern of overgeneralizing a singular masculine morphology is not unique to Arabic. Similar tendencies have been observed among heritage speakers of other languages with rich agreement systems, including Spanish, Armenian, Lithuanian, Polish, and Russian (Montrul, 2008; Polinsky, 1995). As Albirini et al. (2013, p. 9) note, these forms “are less marked in the acquisition of inflectional morphology.” Supporting this finding, Alhawary (2002, 2005, 2009, 2019) reported that L2 learners of Standard Arabic from diverse L1 backgrounds (English, French, Japanese, Mandarin Chinese, and Russian) were consistently more accurate in producing masculine than feminine singular forms across both nominal and verbal agreement contexts. These learners also tended to overgeneralize the masculine form with third-person singular feminine subjects. Taken together, the oral production data suggest that the singular masculine form functions as a default in both nominal and verbal domains for Arabic heritage speakers and L2 learners.

Another important factor in the acquisition of gender agreement is the effect of noun animacy. Studies show that both Arabic heritage speakers and L2 learners perform better in

gender-agreement tasks when the noun's gender is biologically determined (Alamry, 2019; Albirini et al., 2013; Alhawary, 2005, 2009, 2019). For instance, Albirini et al. (2013) found that Arabic heritage speakers had particular difficulty assigning correct verbal gender agreement when the subject was a non-human noun. The researchers attributed this to the absence of a natural gender in such nouns. However, the classification of non-human nouns is complex as it includes both inanimate objects and animate animals. Since animals have biological sex, the human/non-human classification presents challenges for this explanation.

Nouns with a biologically based gender are often grouped as 'animate,' encompassing both animal and human referents. Alamry (2019) examined this distinction by testing L2 learners' sensitivity to verb–subject gender agreement violations, using both self-paced reading and grammaticality judgment tasks. In his stimuli, human and animal nouns were grouped as animate, while non-living objects were classified as inanimate. His results revealed a clear animacy effect: learners, regardless of L1 background, were more accurate in their judgments and faster in their reading times when processing sentences with animate subjects compared to inanimate ones. Examples (32) and (33), adapted from Alamry's stimuli (2019, p. 121), illustrate this difference. The asterisk (*) indicates ungrammatical gender agreement due to a mismatched verb–subject gender.

- | | | | | |
|---------------------------------------|------------------|--------------------------|-----------|-------------|
| 32. * s ^ʕ anaʕ-at | ʔan-naʕʒaru | ʔbwaaban | ʒamiilah | (animate) |
| make.past-3FS | the-carpenter.MS | doors | beautiful | |
| 'The carpenter made beautiful doors.' | | | | |
| 33. * ʔis ^t fadam-a | ʔas-sayyar-tu | bir-ras ⁱ iif | | (inanimate) |
| collide.past.3MS | the-car-FS | with-the-sidewalk | | |
| 'The car collided with the sidewalk.' | | | | |

Alamry (2019) explains this effect by suggesting that L2 learners rely more heavily on the semantics of a noun, particularly its natural gender, than on its morphological form when determining grammatical gender. As such, animate nouns with semantic transparency are easier to process than inanimate nouns whose gender is assigned arbitrarily.

However, Almary's (2019) study did not separate animal and human nouns as independent categories, nor did it balance the number of each type of stimuli. For example, in the self-paced reading task, eight animate items were animal nouns, while thirty-two were human nouns (names and professions). Thus, the reported animacy effect may have been driven by the semantic salience of the human referents. At present, there is insufficient evidence to determine whether animal nouns, which also carry a natural gender, facilitate gender agreement processing in the same way as human nouns.

If semantic gender plays a key role in learners' judgments of noun gender, then both human and animal nouns should yield similar effects on the detection of verb–subject gender agreement violations. The current study investigates this prediction.

L1 transfer effects in the L2 acquisition of Arabic gender

In addition to nominal effects (gender and animacy), L1 transfer offers another crucial perspective on the acquisition of verb–subject gender agreement. The effect of L1 transfer (positive or negative) is more evident in the accurate use of gender agreement on adjectives than on verbs in Standard Arabic (Alhawary, 2005, 2009, 2019). Previous research has tested L2 learners from different L1 backgrounds for their knowledge of grammatical gender. These participants spoke L1s that either marked grammatical gender (e.g., French and Russian) or did not (e.g., English, Japanese, and Mandarin Chinese).

Alhawary (2009, p. 80) found that, after three years of instruction, French speakers achieved a significantly higher accuracy rate (93%) in feminine marking on adjectives than English (78%) and Japanese (69%) speakers at the same level of proficiency. Conversely, the same French speakers did not demonstrate significantly higher accuracy in feminine verbal marking (93%) compared to English (86%) or Japanese (79%) speakers (p. 78). Alhawary (2019) also found that the oral production of Russian and Mandarin Chinese speakers showed comparable rates of correct gender agreement on verbs across past and present tenses, indicating no L1 transfer effects in the verbal domain.

Furthermore, Alamry (2019) found no L1 effects on L2 learners' accuracy or processing of ungrammatical sentences involving mismatched subject–verb gender agreements. However, his findings showed that gender effects varied depending on the task type and L1 gender system. The participants in his study spoke various L1s (e.g., Filipino, Chinese, English, Tajik, Urdu, French), which he grouped into gender-marked and non-gender-marked L1 groups. In the GJ task, learners whose L1s marked gender performed more accurately with masculine nouns than with feminine nouns. In contrast, learners whose L1s did not mark gender performed similarly with both masculine and feminine nouns. Interestingly, the results from the self-paced reading task revealed the opposite pattern: learners with gender-marked L1s showed comparable reading times for masculine and feminine nouns, while those whose L1s lacked grammatical gender showed slower reading times for feminine nouns than for masculine nouns.

Al-Thubaiti (2024a, 2024b) reported similar findings, showing no L1 effect on L2 acquisition of gender agreement on imperfective verbs in Standard Arabic. One study (2024a) examined L1 speakers of English, Urdu, Filipino, and Romance languages, whereas the other (2024b) examined L1 speakers of French and English. Both studies consistently found no significant performance differences between the L1 groups, suggesting a lack of transfer effects from the L1 gender system.

Research on Arabic has also examined L1 transfer effects at the level of informal varieties, though this area remains underexplored. Two studies (Albirini, 2014; Benmamoun & Albirini, 2018) focused on how heritage speakers and L2 learners use negation in Standard Arabic. The rules governing sentential negation differ between Standard Arabic and colloquial varieties such as Egyptian and Palestinian Arabic. Based on oral assessments, these studies found no significant performance differences between heritage speakers and L2 learners in terms

of the use of negation. Because negation differs between the source and target language variety, no positive transfer was expected, which may explain the lack of observed differences.

To date, no studies have directly compared Arabic heritage speakers and L2 learners to examine the effect of Colloquial Arabic on sensitivity to gender agreement violations on verbs in Standard Arabic. Existing research has focused either on Arabic heritage speakers (e.g., Albirini et al., 2013) or on L2 learners from different L1 backgrounds (e.g., Alamry, 2019; Alhawary, 2005, 2009, 2019), but without direct comparison between the two groups. In contrast, an extensive body of research has been conducted on Spanish heritage speakers. Studies by Montrul and colleagues (Montrul, 2008; Montrul et al., 2008; Montrul, 2010) found that heritage speakers often outperform L2 learners in core linguistic properties, particularly in oral rather than written performance.

Building on this body of research, the present study compares Arabic heritage speakers and French-speaking L2 learners in their sensitivity to verb–subject gender agreement violations in Standard Arabic, with a particular focus on the role of animacy and natural gender.

Research aims and questions

Previous literature on the L2 acquisition of gender agreement on verbs reveals two main gaps: (a) the absence of comparative studies that directly examine the linguistic performance of Arabic heritage speakers and L2 learners, and (b) a lack of empirical evidence regarding the semantic effects of noun type, particularly the distinction between human and animal nouns, both of which carry natural gender. Based on these gaps and the cross-linguistic differences between French and Standard Arabic, the present study investigates the following research questions:

RQ1. Do Arabic heritage speakers show an advantage over native French speakers in detecting gender agreement violations in verb–subject constructions with imperfective verbs?

RQ2. Do human and animal nouns—both of which carry natural gender—exhibit similar semantic effects on the detection of mismatched verb–subject gender agreement?

To address these questions, this study employed a GJ task designed to test participants' sensitivity to gender agreement violations in verb–subject constructions. The sample, materials, procedures, and data analysis are described in the Method section.

Method

Participants

The study included three groups: two experimental and one control. The experimental groups consisted of 12 Arabic heritage speakers (10 females, 2 males) and 15 French-speaking L2 learners (8 females, 7 males). The control group comprised 25 L1 Arabic speakers (21 females, 4 males). The average age at the time of testing was 24 years for the heritage speakers, 30 years for the L2 learners, and 27 years for the L1 controls.

The Arabic heritage speakers were second-generation immigrants in France. They spoke a Western Arabic variety (Moroccan, Algerian, or Tunisian) and used it to communicate with their parents, with French being the dominant language. They were all identified as Arabic–French bilinguals based on their language background. In contrast, the L2 learners were monolingual French speakers residing in France, none of whom had Arab ancestry. At the time of testing, both heritage speakers and L2 learners were enrolled in Standard Arabic classes at a language institute in Paris. Their motivation for studying Arabic was either career-related or religious. The learning experiences of both experimental groups are summarized in Table 2.

Table 2

Learning experience of Standard Arabic (SA) among experimental groups

	Arabic heritage speakers (<i>n</i> = 12)		French-speaking L2 learners (<i>n</i> = 15)	
	Mean (SD)	Min-Max	Mean (SD)	Min-Max
Age at testing	24.4 (5.0)	20–39	30.1 (6.1)	21–42
Age of Arabic learning (years)	14.7 (9.9)	5–37	22.1 (5.9)	8–34
Arabic program (weeks)	86 (32)	44–180	63 (27)	16–100
Self-rating of SA (general)	2.6 (0.6)	1.5–3.25	2.2 (0.5)	1–3
Self-rating of SA (speaking)	2.5 (0.6)	1–3	2.3 (0.6)	1–3
Self-rating of SA (listening)	2.9 (0.8)	2–4	2.1 (0.5)	1–3
Self-rating of SA (reading)	2.7 (0.6)	2–4	2.3 (0.6)	1–3
Self-rating of SA (writing)	2.3 (0.6)	1–3	2.2 (0.7)	1–3

Note. Self-ratings were on a 4-point ordinal scale (1= Novice, 2= Intermediate, 3= Advanced, 4= Superior).

The Arabic L1 control group was composed of monolingual speakers recruited from an Arabic-speaking population in Saudi Arabia. All participants held a bachelor’s degree and had studied Standard Arabic continuously since childhood, as part of their formal schooling and university education.

Material

The GJ task was adapted from the version used in a previous study (Al-Thubaiti, 2024a). It included 16 sets of target items and 32 filler sentences. All sentences were six words in length to maintain uniformity across conditions. The target items were designed to assess participants’ sensitivity to correct and incorrect verb–subject gender agreement.

Each target item was constructed as part of four minimal pairs using 16 masculine-feminine subject noun forms (eight human and eight animal nouns) and 16 imperfective verb forms (see the Appendix for the full list of nouns and verbs). The design manipulated three factors: grammaticality (grammatical vs. ungrammatical), gender (masculine vs. feminine), and noun class (human vs. animal). Each item appeared in four versions, yielding 64 target sentences

(32 with human nouns and 32 with animal nouns). Two representative sets of target items are shown in Examples (34) and (35). An asterisk (*) marks verb–subject gender mismatches.

34. Human nouns (8 items x 4 versions)

(a) grammatical, masculine

ja _[3MS] -ʃtari:	az-zawʒ _[MS]	al-χudʕrawa:t	atʕ-tʕa:ziʒa	min	as-su:q
buys	the-husband	the-vegetables	the-fresh	from	the-market

يشترى الزوج الخضروات الطازجة من السوق.

(b) ungrammatical, masculine

*ta _[3F3] -ʃtari:	az-zawʒ _[MS]	al-χudʕrawa:t	atʕ-tʕa:ziʒa	min	as-su:q
buys	the-husband	the-vegetables	the-fresh	from	the-market

*تشتري الزوج الخضروات الطازجة من السوق.

(c) grammatical, feminine

ta _[3FS] -ʃtari:	az-zawʒ-a _[FS]	al-χudʕrawa:t	atʕ-tʕa:ziʒa	min	as-su:q
buys	the-wife	the-vegetables	the-fresh	from	the-market

تشتري الزوجة الخضروات الطازجة من السوق.

(d) ungrammatical, feminine

*ja _[3MS] -ʃtari:	az-zawʒ-a _[FS]	al-χudʕrawa:t	atʕ-tʕa:ziʒa	min	as-su:q
buys	the-wife	the-vegetables	the-fresh	from	the-market

*يشترى الزوجة الخضروات الطازجة من السوق.

35. Animal nouns (8 items x 4 versions)

(a) grammatical, masculine

ja _[3MS] -hrub	al-qitʕ _[MS]	min	ʕala:	su:r	al-manzil
escapes	the-cat	from	top-of	fence	the-house

يهرب القط من على سور المنزل.

(b) ungrammatical, masculine

*ta _[3FS] -hrub	al-qitʕ _[MS]	min	ʕala:	su:r	al-manzil
escapes	the-cat	from	top-of	fence	the-house

*تهرب القط من على سور المنزل.

(c) grammatical, feminine

ta _[3FS] -hrub	al-qitʕ-a _[FS]	min	ʕala:	su:r	al-manzil
escapes	the-cat	from	top-of	fence	the-house

تهرب القطّة من على سور المنزل.

(d) ungrammatical, feminine

*ja[3MS]-hrub al-qitʕ-a[FS] min ʕala: su:r al-manzil
escapes the-cat from top-of fence the-house

*يهرب القطّة من على سور المنزل.

All subject nouns were singular and took third-person verbal agreement. Feminine subjects consistently ended in the suffix (-a), whereas masculine subjects carried no overt gender marker. Verbs appeared with either feminine or masculine third-person singular prefixes (*t-*, *j-*), which had two phonological realizations (*ta-*, *tu-* and *ja-*, *ju-*), depending on the lexical root. All verbs in the stimuli followed the (*ta-*, *ja-*) pattern, except for two: *ju-ha:ʕim* ‘he attacks’ and *ju-sa:ʕid* ‘he helps.’ Lexical items were selected from the Arabic learners’ dictionary for core vocabulary by Buckwalter and Parkinson (2011). All verbs and nouns were drawn from the 5,000 most frequently used Arabic lemmas.

The GJ materials were divided into four lists. Each list contained 16 target and 32 filler items. The target items appeared in one of the four versions (a, b, c, or d). The items were equally distributed across three categories: grammaticality (grammatical vs. ungrammatical), gender (masculine vs. feminine), and noun class (human vs. animal). The order of the items within each list was pseudorandomized to prevent consecutive occurrences of the same condition.

The 32 filler items (16 grammatical and 16 ungrammatical) were unrelated to gender agreement. Because the gender mismatch in the target items occurred on the first word (the verb), the ungrammatical element in the filler sentences was placed from the second word onward, in order to balance the position of ungrammaticality across the full set of materials.

Procedure

The GJ task was administered using the Gorilla Experiment Builder (www.gorilla.sc). After providing initial consent, participants received a link via email that included the informed consent form, a language background questionnaire, and the GJ task. Participation was voluntary, and the participants were informed of their right to withdraw at any time. As compensation, they were offered one hour of online Arabic practice. All necessary measures were taken to ensure the confidentiality of the participant information, and no personal data were stored in the dataset. Each participant was assigned a unique identifier code to ensure complete anonymity.

The language background questionnaire included 33 items addressing Arabic language exposure and learning history. Participants were asked to rate their overall proficiency in Standard Arabic, as well as their proficiency by skill (speaking, listening, reading, and writing), using a 4-point ordinal scale (1= Novice, 2= Intermediate, 3= Advanced, 4= Superior). Prior to beginning the GJ task, the participants received detailed instructions and completed a brief

practice session. The researcher was available to answer any questions, and participants were allowed to take breaks during the task as needed.

The participants were instructed to judge the grammatical accuracy of each sentence as quickly and accurately as possible. They responded using three clickable options: *صحيحة* (correct), *غير صحيحة* (incorrect), and *غير متأكد* (not sure), which appeared below each sentence on the screen. Sentences were presented one at a time, following a fixation cross displayed for 250 ms. Each sentence remained on the screen until the participant responded. No time pressure was imposed. Upon completing the task, participants were shown the total number of correct responses on a final ‘Thank you’ screen.

Data Analysis

Reliability analyses of the GJ items were conducted using the *psych* package (Version 2.5.3) in R (Revelle, 2025). Internal consistency was assessed using Cronbach’s alpha, which was calculated separately for the grammatical and ungrammatical conditions. One version of each item was randomly selected from each participant to ensure independent responses. The ungrammatical condition showed good internal consistency ($\alpha = 0.76$), whereas the grammatical condition showed moderate reliability ($\alpha = 0.52$). These findings indicate that participants were more consistent in detecting mismatched verb–subject gender agreement than matched constructions. This pattern is commonly observed in GJ tasks.

In subsequent mixed-effects modeling, all items were retained to preserve the experimental structure, including the paired design of grammatical and ungrammatical items. Although some grammatical items contributed less to internal consistency, random effects modeling accounted for this variability at the item level.

GJ responses (correct, incorrect, and not sure) were coded as binary accuracy judgments (correct = 1, incorrect = 0). The proportion of ‘not sure’ responses was low across the dataset (5.65%), and even lower in L1 groups (Arabic controls = 1.32%, heritage speakers = 1.20%, L2 learners = 3.12%). Accordingly, ‘not sure’ responses were excluded from all analyses.

The analysis proceeded in two stages. First, between-group analyses were conducted on accuracy judgments, comparing performance by the L1 group and grammaticality (grammatical vs. ungrammatical). Second, separate within-group analyses were carried out for each L1 group, examining how the nouns’ semantic properties—gender (masculine vs. feminine) and noun class (human vs. animal)—interacted with grammaticality.

Results

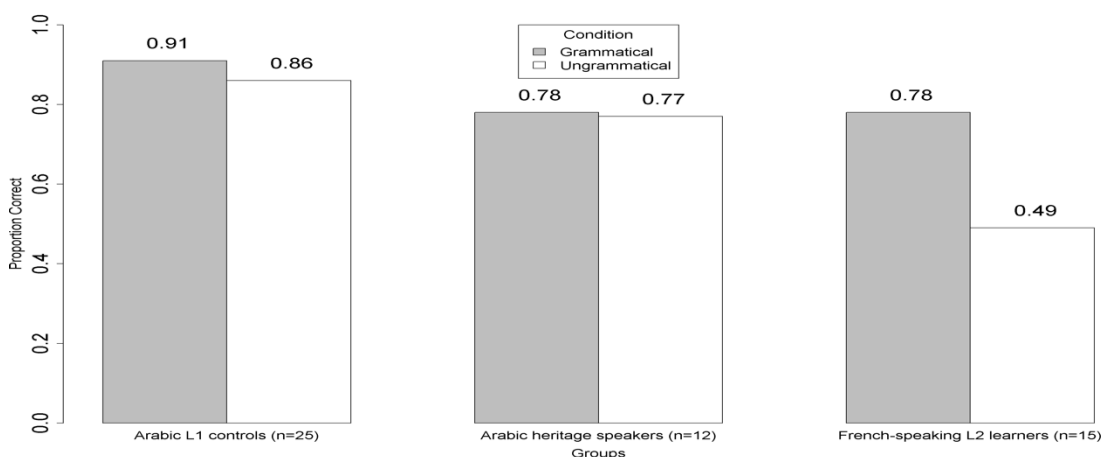
Between-group accuracy judgments

As shown in Figure 1, descriptive statistics revealed differences in accuracy across the L1 groups and grammaticality conditions. To statistically assess these differences, a binomial generalized linear mixed-effects model (GLMM) was fitted using the *glmer()* function from the *lme4* package (Version 1.1-31) (Bates et al., 2015). Post hoc pairwise comparisons were

conducted using the function *emmeans()* from the *emmeans* package (Version 1.10.6) (Lenth, 2024). The model examined the proportion of correct judgments of grammatical and ungrammatical sentences across three groups: Arabic L1 controls ($n = 25$), Arabic heritage speakers ($n = 12$), and French-speaking L2 learners ($n = 15$).

Figure 1

Group accuracy judgments for grammatical and ungrammatical conditions.



The GLMM model included two fixed effects for grammaticality (grammatical vs. ungrammatical) and L1 group, as well as their interaction. Fixed effects were sum-coded to allow for an ANOVA-style interpretation. The L1 group factor was analyzed using two planned contrasts: Contrast 1 (C1) compared Arabic controls and Arabic heritage speakers, and Contrast 2 (C2) compared French-speaking L2 learners and Arabic heritage speakers. Random intercepts were included for participants ($N = 52$) and items ($k = 16$), along with a random slope for grammaticality by participant. The model output is presented in Table 3.

Table 3

GLMM: Accuracy in judging verb–subject gender agreement across L1 groups

Fixed effects	Estimate	SE	z	OR	p
(Intercept)	1.68	0.26	6.39	5.36	<0.001
L1 group.C1 (Controls vs. Heritage)	-0.96	0.24	-4.01	0.38	<0.001
L1 group.C2 (L2 vs. Heritage)	-0.88	0.25	-3.53	0.42	<0.001
Grammaticality (g vs. ug)	0.30	0.15	1.99	1.36	0.046
Grammaticality × L1 group.C1	0.11	0.19	0.58	1.12	0.561
Grammaticality × L1 group.C2	0.49	0.20	2.50	1.63	0.013
Random effects	Variance	SD			
Participant	0.90	0.95			
Grammaticality	0.36	0.60			

Item	0.51	0.71
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Note. Model formula: $\text{Correct} \sim \text{L1} * \text{Grammaticality} + (1 + \text{Grammaticality} | \text{Participant}) + (1 | \text{Item})$.
Number of observations = 832; Participants = 52; Items = 16. OR= odds ratio.

The model revealed a significant main effect of grammaticality, indicating that participants were more accurate in the grammatical than in the ungrammatical condition. Significant between-group effects showed that Arabic heritage speakers were less accurate than Arabic controls, but more accurate than French-speaking L2 learners. Crucially, there was a significant interaction between grammaticality and L1 group for the L2 vs. heritage contrast (C2), suggesting that French-speaking L2 learners were particularly affected by ungrammatical conditions. In contrast, no significant interaction was found between heritage speakers and Arabic controls (C1), suggesting similar accuracy patterns across the conditions (as illustrated in Figure 1). Pairwise comparisons using the *emmeans()* function support these findings. A significant difference between grammatical and ungrammatical conditions was found only for French-speaking L2 learners (*estimate* = 1.59, *SE* = 0.48, *z*-ratio = 3.32, *p* = 0.0009), but not for Arabic controls (*estimate* = 0.39, *SE* = 0.49, *z*-ratio = 0.80, *p* = 0.424) or Arabic heritage speakers (*estimate* = -0.146, *SE* = 0.54, *z*-ratio = -0.27, *p* = 0.788).

Within-group accuracy judgments

Separate GLMMs were fitted for each L1 group to examine the effects of noun class (human vs. animal) and gender (masculine vs. feminine) on grammaticality judgment accuracy. All models included three fixed effects (grammaticality, gender, and noun class) using contrast coding, along with all possible interactions among these factors. The models also incorporated two random intercepts (by participant and item) and a random slope for grammaticality by participant. The results for each group (GLMM-1, GLMM-2, and GLMM-3) are presented in Tables (4)–(6), respectively.

Arabic L1 controls

As shown in Table 4, the GLMM-1 model for Arabic L1 controls revealed no significant effects of grammaticality or gender but showed a significant main effect of noun class. Participants gave statistically comparable judgments for grammatical and ungrammatical sentences across both the masculine and feminine conditions. However, they were significantly more accurate in judging sentences with human subjects compared to animal subjects. The odds of making a correct judgment for human nouns were 0.56 times higher than for animal nouns, suggesting that native Arabic speakers may be less familiar with certain animal names, which may have impacted their performance.

Table 4

GLMM-1: Arabic L1 controls' accuracy in judging verb–subject gender agreement

Fixed effects	Estimate	SE	z	OR	p
(Intercept)	2.95	0.48	6.16	19.08	<0.001

Grammaticality (g vs.ug)	0.62	0.34	1.81	1.87	0.070
Gender (masc. vs. fem.)	0.04	0.20	0.20	1.04	0.845
Noun Class (human vs. animal)	-0.57	0.29	-1.99	0.56	0.047
Grammaticality × Gender	0.10	0.20	0.50	1.11	0.620
Grammaticality × Noun Class	-0.12	0.20	-0.59	0.89	0.557
Gender × Noun Class	0.03	0.20	0.14	1.03	0.890
Grammaticality × Gender × Noun Class	-0.16	0.20	-0.81	0.85	0.421
Random effects	Variance	SD			
Participant	1.27	1.13			
Grammaticality	0.43	0.65			
Item	0.61	0.78			

Note. Model formula: Correct ~ Grammaticality * Gender * NounClass + (1 + Grammaticality | Participant) + (1 | Item). Number of observations = 400; Participants = 25; Items = 16. OR= odds ratio.

Arabic heritage speakers

As shown in Table 5, the GLMM-2 model for Arabic heritage speakers revealed a significant main effect of noun class, and a significant three-way interaction among grammaticality, gender, and noun class. While the main effect of noun class indicated reduced accuracy for animal nouns, this effect was qualified by the interaction, which showed that accuracy patterns varied across gender and grammatical conditions (see Figure 2). To unpack this interaction, pairwise comparisons were performed using the *emmeans()* function. For grammatical sentences, heritage speakers were more accurate with human subjects than animal subjects across both gender categories. The accuracy gap between human and animal subjects was larger in feminine conditions than masculine ones; however, this difference did not reach significance in either case (feminine: *estimate* = -1.53, *SE* = 0.87, *z*-ratio = -1.75, *p* = 0.08; masculine: *estimate* = -0.48, *SE* = 0.88, *z*-ratio = -0.55, *p* = 0.58). For ungrammatical sentences, participants showed significantly lower accuracy in the masculine condition for animal subjects compared to human subjects (*estimate* = -2.62, *SE* = 1.08, *z*-ratio = -2.42, *p* = 0.016). In contrast, accuracy in the feminine condition did not differ between animal and human subjects (*estimate* = 0.03, *SE* = 0.90, *z*-ratio = 0.04, *p* = 0.971).

These findings suggest that Arabic heritage speakers experience specific difficulties with masculine animal nouns, particularly in identifying ungrammatical sentences. They were more likely to incorrectly accept feminine verbal forms with masculine animal names (42% of the time) than masculine verbal forms with feminine animal names (21% of the time).

Table 5

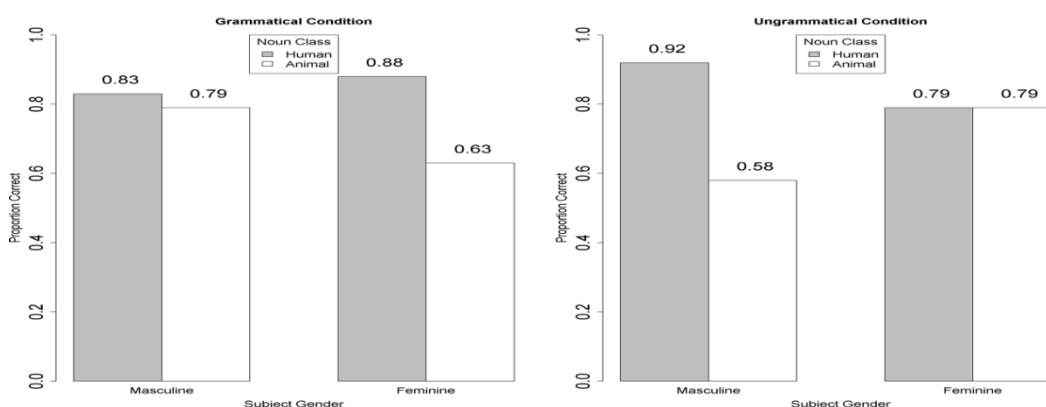
GLMM-2: Arabic heritage speakers' accuracy in judging verb–subject gender agreement

Fixed effects	Estimate	SE	z	OR	p
(Intercept)	1.63	0.37	4.37	5.13	<0.001
Grammaticality (g vs.ug)	-0.21	0.26	-0.80	0.81	0.426
Gender (masc. vs. fem.)	-0.10	0.22	-0.45	0.91	0.656
Noun Class (human vs. animal)	-0.57	0.28	-2.05	0.56	0.041
Grammaticality × Gender	-0.04	0.21	-0.20	0.96	0.843
Grammaticality × Noun Class	0.07	0.22	0.34	1.07	0.738
Gender × Noun Class	0.20	0.22	0.92	1.22	0.357
Grammaticality × Gender × Noun Class	-0.46	0.22	-2.14	0.63	0.033
Random effects	Variance	SD			
Participant	0.51	0.72			
Grammaticality	0.15	0.38			
Item	0.49	0.70			

Note. Model formula: Correct ~ Grammaticality * Gender * NounClass + (1 + Grammaticality | Participant) + (1 | Item). Number of observations =192; Participants=12; Items=16. OR= odds ratio.

Figure 2

Three-way interaction of grammaticality, gender, noun class in Arabic heritage speakers



French-speaking L2 learners

Table 6 shows that the GLMM-3 model for French-speaking L2 learners revealed a significant two-way interaction between grammaticality and gender, with no significant main or interaction effects for noun class. Pairwise comparisons were conducted using *emmeans()* to explore this interaction. The results showed that in the masculine condition, accuracy was significantly higher for grammatical than for ungrammatical sentences (*estimate* = 2.564, *SE* = 0.86, *z*-ratio = 2.99, *p* = 0.003). However, in the feminine condition, there was no significant

difference between grammatical and ungrammatical sentences ($estimate = 0.086$, $SE = 0.83$, z -ratio = 0.103, $p = 0.918$). Additionally, in the ungrammatical condition, L2 learners showed higher accuracy when masculine verbal forms were incorrectly used with feminine subjects (0.58) compared to the reverse pattern (feminine verbal forms with masculine subjects (0.4) (see Figure 3). This difference was marginally significant ($estimate = 1.08$, $SE = 0.59$, z -ratio = 1.834, $p = 0.067$). These findings suggest that L2 learners were more likely to incorrectly accept feminine verbal forms with masculine subjects (regardless of noun class), indicating a possible asymmetry in sensitivity to gender agreement violations.

Table 6

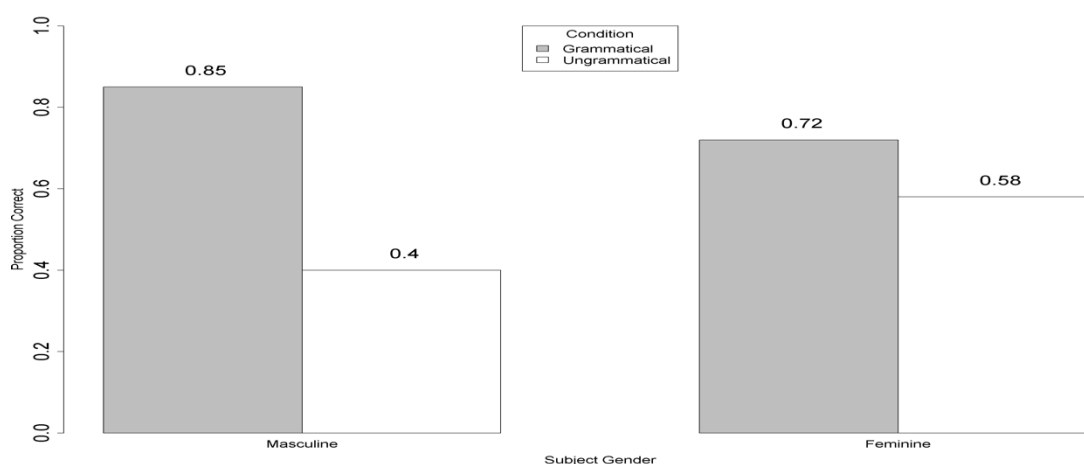
GLMM-3: French-speaking L2 learners' accuracy in judging verb–subject gender agreement

Fixed effects	Estimate	SE	z	OR	p
(Intercept)	0.92	0.50	1.83	2.50	0.068
Grammaticality (g vs.ug)	0.66	0.37	1.78	1.94	0.076
Gender (masc. vs. fem.)	-0.08	0.22	-0.37	0.92	0.713
Noun Class (human vs. animal)	-0.34	0.32	-1.06	0.71	0.290
Grammaticality × Gender	-0.62	0.20	-3.10	0.54	0.002
Grammaticality × Noun Class	-0.12	0.20	-0.60	0.88	0.547
Gender × Noun Class	-0.11	0.21	-0.51	0.90	0.611
Grammaticality × Gender × Noun Class	0.01	0.19	0.05	1.01	0.957
Random effects	Variance	SD			
Participant	2.01	1.42			
Grammaticality	1.24	1.12			
Item	1.04	1.02			

Note. Model formula: Correct ~ Grammaticality * Gender * NounClass + (1+ Grammaticality | Participant) + (1 | Item). Number of observations = 240; Participants =15; Items =16. OR= odds ratio.

Figure 3

Two-way interaction between grammaticality and gender for French-speaking L2 learners.



Overall summary

The results revealed distinct patterns among the three groups. Arabic L1 controls showed consistently high accuracy in judging grammaticality, regardless of the subject's gender. However, they showed a noun class effect, with higher accuracy for human nouns. In contrast, Arabic heritage speakers exhibited lower overall accuracy, particularly in the ungrammatical condition, where performance was affected by gender and noun class. Accuracy was notably reduced when dealing with masculine animal subjects. French-speaking L2 learners, by comparison, did not exhibit a noun-class effect. Instead, their performance was influenced by gender, which interacted with grammaticality. In the ungrammatical condition, they showed reduced accuracy when feminine verbal forms were used with masculine subjects, suggesting difficulty in detecting certain gender agreement violations.

Discussion

The findings of this study contribute to the ongoing debate on whether acquiring a standard variety is comparable to acquiring a foreign language (addressing RQ1). The study examined sensitivity to grammatical violations of verb–subject gender agreement in two groups (French-speaking L2 learners and Arabic heritage speakers), both of whom were acquiring Standard Arabic as an additional language or variety. In the GJ task, Arabic heritage speakers demonstrated greater sensitivity to gender agreement violations than L2 learners. Similar to Arabic L1 controls, heritage speakers accurately rejected sentences with incorrect gender agreement and accepted sentences with correct agreement.

The superior performance of heritage speakers can be attributed to the structural similarities between their colloquial Arabic dialects (Moroccan, Tunisian, or Algerian Arabic) and Standard Arabic, particularly in the marking of third-person singular verb–subject gender agreement. This alignment likely facilitated positive L1 transfer. In contrast, French (the L1 of L2 learners) does not mark verbal gender agreement in the same way, resulting in negative transfer effects. For French-speaking L2 learners, gender agreement in the verbal domain is a novel grammatical feature that requires substantial exposure and practice to be fully acquired. According to their self-ratings, these learners are, on average, at the novice-to-intermediate proficiency level. In future research, proficiency should be measured objectively to better assess its influence on grammatical sensitivity.

These findings align with those of Montrul (2008, 2010) and Montrul et al. (2008), who found that Spanish heritage speakers outperformed L2 learners on grammatical gender tasks, particularly in oral rather than written performance. Montrul and colleagues attributed their findings to task effects, early language experience, and the nature of input. They argued that heritage speakers receive naturalistic input in the home from an early age, giving them an advantage over L2 learners, who are typically exposed to classroom-based input during adolescence or adulthood. This explanation is also applicable to Arabic heritage speakers, who acquire their native colloquial variety in early childhood at home. However, unlike Spanish heritage speakers, Arabic heritage speakers in this study outperformed L2 learners in a written

task. The GJ stimuli contained short, high-frequency vocabulary and simple sentences common to both colloquial and standard varieties, which likely facilitated positive L1 transfer. Their performance on the GJ task suggests a robust metalinguistic awareness of a core grammatical feature. At the same time, these results diverge from those reported by Albirini (2014) and Benmamoun and Albirini (2018), who examined knowledge of sentential negation in Standard Arabic, a linguistic property that differs more substantially between dialects and the standard variety. Their results, based on oral assessments, showed no advantage for heritage speakers who performed at the same level as the L2 learners. Together, these contrasting results suggest that acquiring a standard variety resembles the process of acquiring an additional language, with both positive and negative effects of L1 transfer depending on the specific linguistic domain under investigation.

Turning to RQ2, this study also examined the effects of nominal properties, specifically gender and noun class, on learners' sensitivity to correct and incorrect verb–subject gender agreement. Unlike Arabic controls, who exhibited no gender effects, Arabic heritage speakers showed effects only with animal nouns, whereas L2 learners showed effects with both human and animal nouns. Notably, ungrammatical sentences with masculine subjects were judged less accurately than those with feminine subjects, indicating a tendency to overgeneralize the feminine verbal form. This finding contrasts with previous research by Alhawary (2005, 2009, 2019) and Albirini et al. (2013), who identified the masculine form as the default in Arabic. It is important to note, however, that these studies focused on oral production, where the omission of feminine inflection is more likely due to real-time processing constraints.

The noun class results revealed that, although both human and animal nouns encode natural gender, they have different effects on the performance of Arabic heritage speakers and L1 controls, but not on that of L2 learners. The L1 controls and heritage speakers performed better on human subjects than on animal subjects, whereas L2 learners performed similarly across both noun categories. It is noteworthy that a noun class effect emerged among Arabic speakers (both controls and heritage), but not among L2 learners. One possible explanation for this group difference is that L2 learners are less proficient than Arabic speakers. As they are still in the process of acquiring gender agreement across all noun categories, L2 learners exhibit a general gender effect without sensitivity to noun-class distinctions. In contrast, L1 controls and heritage speakers may face challenges in identifying the correct gender for certain animal names (e.g., *female camel* and *female lion*), which are less frequently encountered. The divergent findings for human and animal nouns indicate that the semantic effects of natural gender alone are not sufficient to guide learners' judgments of gender agreement. If semantic gender were the primary factor in gender assignment, both human and animal nouns would be expected to yield similar effects on sensitivity to verb–subject gender agreement violations. This suggests that other factors, such as lexical familiarity, interact with the animacy dimension of the noun-class effects. Although the tested nouns are among the 5000 most frequent Arabic lemmas, it is possible that some, especially animal names, may occur less frequently in the input available to L1 controls and heritage speakers. According to the SAMER-leveled readability lexicon for Standard Arabic (Al Khalil et al., 2020), the masculine and feminine nouns used in the GJ stimuli

are generally appropriate for first-grade Arabic readers. However, only two feminine animal names (*female camel* and *female lion*) were rated as suitable for readers at the fourth- and fifth-grade levels, suggesting reduced early exposure and lexical familiarity.

Another contributing factor could be the gender form of human and animal nouns. Most animal noun pairs (e.g., na:q-a ‘female camel’ vs. zamal ‘male camel’) consist of distinct lexical items, whereas most human nouns share a common root (e.g., zadd-a ‘grandma’ vs. zadd ‘grandpa’). It could be argued that nouns with shared roots are generally easier to acquire because they require the addition of gender inflection to the same lexical base. In contrast, nouns with different lexical items are more complex, as learners must acquire both forms separately. In such cases, masculine and feminine forms are stored separately in the lexicon, with the feminine typically marked by the suffix (-a). This explanation, however, requires empirical validation in future studies. A further general factor that may influence these results is the number of irregularities and exceptions in the gender-marking system of Standard Arabic, which can slow acquisition. The specific factors contributing to this distinction between human and animal nouns still require further investigation, using stimuli designed to systematically measure the effects of root-sharing, familiarity, and morphological regularity. This study affirms that human and animal nouns should be tested as distinct constructs, laying the groundwork for future studies.

Conclusion and future research

In conclusion, this study provides new insights into the acquisition of grammatical gender in the verbal domain of Standard Arabic by Arabic heritage speakers and French-speaking L2 learners. The results demonstrated superior linguistic performance by heritage speakers compared to L2 learners. Unlike French, verbal gender agreement with singular subjects is similarly inflected in both Colloquial and Standard Arabic. However, before it can be claimed that acquiring the standard variety is similar to acquiring an additional language, empirical evidence is needed from heritage speakers’ performance on linguistic properties that differ substantially between the two varieties. Future research should investigate verbal gender agreement with plural subjects, as this is an area where notable differences exist between Colloquial and Standard Arabic.

The findings also raise important questions regarding the animacy effects of noun class (human and animal) and the morphological relatedness of gendered nominal forms (i.e., distinct forms vs. shared roots). The existing literature on grammatical gender acquisition in the verbal domain remains limited and would benefit from further research that systematically examines the nominal properties of the subject, particularly in terms of animacy, number, and gender features.

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Appendix

Full list of Nouns and Verbs Used in the Stimuli

	Noun Class	Subject Animate nouns		Translation	Verb Present		Translation
		Masculine	Feminine		Masculine	Feminine	
1	Human (x8)	الجَدّ	الجَدّة	grandfather-grandmother	يحكي	تحكي	tell
2		الولد	الفتاة	boy-girl	يجلس	تجلس	sit
3		الزوج	الزوجة	husband-wife	يشترى	تشتري	buy
4		الرجل	المرأة	woman-man	يساعد	تساعد	help
5		الطالب	الطالبة	student	يحلّ	تحلّ	solve
6		المذيع	المذيعة	broadcaster	يقرأ	تقرأ	read
7		المعلّم	المعلّمة	instructor	يكتب	تكتب	write
8		الطبيب	الطبيبة	physician	يذهب	تذهب	go
1	Animal (x8)	الجمال	الناقة	camel	يمشي	تمشي	walk
2		الثور	البقرة	cow	يسحب	تسحب	pull
3		الديك	الدجاجة	chicken	يأكل	تأكل	eat
4		الأسد	اللبوة	lion	يهاجم	تهاجم	attack
5		الثعبان	الحية	snake	يزحف	ترحف	crawl
6		القط	القطة	cat	يهرب	تهرب	escape
7		العصفور	العصفورة	bird	يقف	تقف	stand
8		الغزال	الغزالة	deer	يجري	تجري	run

Serial Verb Constructions in Hijazi Arabic: A Lexical-Functional Grammar Approach

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الملخص

تتناول هذه الدراسة تراكيب الأفعال المتسلسلة (SVCs) في اللهجة الحجازية المحكية في مدينة الطائف ضمن إطار النظرية الوظيفية المعجمية (LFG). فعلى الرغم من التوثيق الواسع لوجود هذه التراكيب في لغات متنوعة من الناحية النمطية كاللغات الأوربية، والتايلاندية، والماندرين الصينية، إلا أن دراساتها وتوثيقها في اللهجات العربية لا يزال قليل. تهدف هذه الدراسة إلى تحليل البنية الصرفية التركيبية وآليات تشارك المعاملات والاعتماد الوظيفي في تراكيب الأفعال المتسلسلة في اللهجة الحجازية. وتُظهر نتائج التحليل أن اللهجة الحجازية تُجسّد الخصائص النمطية الأساسية لهذه التراكيب، ومنها: الأحادية الجمالية (monoclausality)، وغياب أدوات العطف والموصولات، وأنماط قوية من تشارك الفاعل والمفعول به بين الأفعال المتسلسلة. ومن خلال الاستفادة من البنية المتوازية في النظرية الوظيفية المعجمية (LFG)، توضّح الدراسة كيف تُسهم آليات التحكم الوظيفي، وتركيب المسند، ورسم خريطة بنية المعاملات في تمثيل التكامل التركيبي والدلالي لهذه التراكيب. وتسهم هذه النتائج في إثراء الدراسات النمطية لتراكيب الأفعال المتسلسلة، كما تدعم تطوير النظرية في نظرية (LFG) من خلال إبراز قدرتها على تمثيل تعقيدات التراكيب متعددة الأفعال في اللهجات العربية.

Serial Verb Constructions in Hijazi Arabic: A Lexical-Functional Grammar Approach

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Abstract

This study investigates Serial Verb Constructions (SVCs) in the urban variety of Hijazi Arabic, specifically as spoken in Taif, within the framework of Lexical-Functional Grammar (LFG). Although SVCs are well-documented in typologically diverse languages such as Yoruba, Thai, and Mandarin, their presence in Arabic dialects has received comparatively limited formal analysis. This study examines the morphosyntactic structure and argument-sharing patterns of SVCs in Hijazi Arabic, focusing on their monoclausal behavior, lack of overt coordinators or complementizers, and consistent subject sharing. Drawing on LFG's parallel architecture, the analysis demonstrates how functional control, predicate composition, and argument structure mapping capture the syntactic and semantic integration of these constructions. The findings contribute both to the typology of SVCs and to the theoretical development of LFG by illustrating its applicability to multi-verb constructions in underexplored Arabic dialects.

Keywords: *Serial Verb Constructions (SVCs), Hijazi Arabic, Lexical-Functional Grammar (LFG), argument sharing*

Introduction

This study investigates Serial Verb Constructions (SVCs) in Hijazi Arabic, focusing on their syntactic and functional properties within the framework of Lexical Functional Grammar (LFG). It focuses on the urban variety of Hijazi Arabic spoken in Taif (see Alzaidi, 2014 for more information about the syntactic properties of this dialect). The term "Serial Verb Construction" was first introduced by Stewart (1963) to describe verb sequences in Akan, a Kwa language spoken in West Africa. While Stewart's definition was originally tailored to West African morphosyntax, the concept has since been typologically generalized to encompass structurally similar verb sequences across unrelated language families, including Creoles (Sebba, 1987), Southeast Asian languages (Bisang, 1992), and Oceanic languages (Crowley, 2002). This typological expansion has brought into focus constructions in languages such as Yoruba (Stahlke, 1970) and others across Africa, Asia, and the Pacific, highlighting the cross-linguistic diversity and functional convergence of SVCs (Lord, 1991).

SVCs are defined as constructions where two or more verbs occur within a single clause without overt coordination, subordination, or complementizers, sharing arguments and often expressing a single event (see Haspelmath, 2016 for an overview). While extensively studied in African, Asian, and Creole languages, Arabic dialects have received limited attention in formal syntactic analyses, with the exception of Jordanian Arabic (JA) (Altakhaineh & Zibin, 2018; Al Khalaf & Al-Khawaldeh, 2024), Palestinian Arabic (Hussein, 1990), Najdi Arabic (Alotaibi, 2023), and Modern Standard Arabic (MSA) (Alotaibi, 2021). Hijazi Arabic, with its bare verb sequences, flexible argument-sharing, and restrictions on tense/aspect marking, presents a compelling case for examining SVCs (Sieny, 1972). Unlike Classical Arabic, which relies heavily on coordination (Ryding, 2005; Alotaibi, 2021), Hijazi Arabic allows verb sequences in one clause without conjunctions, challenging the assumption that Arabic lacks genuine SVCs; an issue that will be elaborated in the section on Hijazi Arabic.

This study adopts the LFG framework to formally analyze Hijazi Arabic SVCs, focusing on monoclausality, argument-sharing mechanisms, and syntactic configurations. LFG's separation of constituent structure (c-structure) and functional structure (f-structure) effectively models the syntactic and functional integration characteristic of SVCs without resorting to transformational operations.

The objectives of this study are to (1) identify the structural properties of SVCs in Hijazi Arabic, distinguishing them from coordination and subordination, and explore the typological implications of Arabic SVCs within the broader landscape of multi-verb constructions, (2) develop an LFG-based analysis mapping the interaction between c-structure and f-structure, and finally (3) examine argument-sharing constraints, focusing on subject and object roles.

By providing empirical data and a formal syntactic account, this study contributes to Arabic linguistics and theoretical syntax, demonstrating that Arabic dialects can exhibit verb serialization patterns consistent with serializing languages, thereby expanding the empirical scope of LFG. The structure of the paper is as follows: the Background and Literature Review section surveys prior studies on SVCs across languages, including Arabic dialects, and outlines the principles of LFG used to analyze the Hijazi data. The section titled Hijazi Arabic describes key grammatical properties of the dialect, with a focus on the morphosyntactic behavior of SVCs. The LFG Analysis of Hijazi SVCs section provides a detailed syntactic treatment of the constructions, highlighting monoclausality and argument sharing. This is followed by the Discussion, which compares the present analysis with previous syntactic accounts of SVCs in other Arabic dialects. Finally, the Conclusion summarizes the findings and outlines directions for future research.

Background and Literature Review

Serial Verb Constructions: Cross-Linguistic Perspectives

SVCs have been documented extensively across typologically diverse languages, particularly in Creole, Niger-Congo, and Sino-Tibetan families (Sebba, 1987; Lord, 1991; Crowley, 2002). In these languages, SVCs represent a structurally entrenched strategy for expressing complex events within a single clause, often without overt markers of coordination or subordination. Their grammatical centrality in these systems, especially in encoding motion, causation, manner, and aspectual contours, has made them a central object of study in typological and syntactic theory.

In Creole languages, SVCs often arise through contact-induced simplification and the reanalysis of syntactic boundaries, resulting in paratactic structures that favor serialization over embedding (Sebba, 1987). In many Niger-Congo languages, including Yoruba and Akan, SVCs are structurally integral to the verbal system, functioning as a primary strategy for expressing complex predicate-argument relations, such as motion, causation, instrumentality, and sequencing, within a monoclausal domain (Givón, 1975). Similarly, in Southeast Asian languages such as Thai, SVCs play a productive role in encoding sequentiality, directionality, and complex event structure through tightly integrated verb sequences (Thepkanjana, 1986).

Despite their prevalence in these canonical domains, SVCs are not exclusive to them. Constructions exhibiting serialization-like properties have been noted in other languages, including English and various Arabic dialects. However, the extent to which such constructions conform to cross-linguistically motivated definitions of SVCs remains debated. Haspelmath (2016) proposes that SVCs should be approached as a comparative concept, rather than a rigid grammatical category. This framing allows for typological generalization while accommodating language-specific variation in morphosyntactic implementation.

Consideration of English shows that it represents a non-canonical illustrative case (Baker, 1989; Bauer & Renouf, 2001; Payne, 2011; Miller, 2014). While English is not generally classified as a serializing language, it does permit verb sequences, such as light verb constructions and resultatives, that superficially resemble serialization:

(1) John came running.

In this example, *came* encodes a motion predicate, while *running* contributes manner. Although this construction reflects event integration and surface adjacency, it fails to meet canonical criteria for serialization. The second verb is morphologically dependent (i.e., a participle), lacks full syntactic independence, and is embedded in a subordinate structure. As Haspelmath (2016) notes, canonical SVCs require each verb to retain autonomous predicational status and to contribute structurally and semantically as an independent verb within a single clause. The English example thus serves as a typological foil rather than a genuine instance of serialization.

In contrast, Thai provides prototypical SVCs that satisfy core diagnostic criteria (Thepkanjana, 1986; Bisang, 1992; Muansuwan, 2000; Sudmuk, 2005; Takahashi, 2009). Verbs in Thai SVCs occur in direct succession, share a single subject, and co-occur without

coordinators or complementizers. Furthermore, tense and aspect morphology is typically confined to the initial verb, a hallmark of monoclausal status:

- (2) /Kháw pay s ùu ʔahǎan/ Thai
 he go buy food
 "He went (and) bought food."

This construction illustrates not only argument sharing but also tense/aspect asymmetry and the absence of syntactic linkage, all indicative of serialization. To further clarify the distinction, compare the SVC in (2) with the coordinated structure below:

- (3) /Kháw pay sùu ʔahǎan/ Thai
 he go buy food
 "He went (and) bought food."

Here, the presence of the conjunction *léo* introduces clausal segmentation. Each verb may carry independent tense/aspect features, and argument sharing becomes optional. This exemplifies the structural and interpretive discontinuity that differentiates coordination from serialization.

Building on Haspelmath (2016), the following four features are widely accepted as definitional for SVCs:

1. **Argument Sharing:** At least one core argument, typically the subject, is shared across the serialized verbs.
(4) /Nákrian maa nǎŋ sùn/
student come sit garden
"The student came and sat in the garden."
2. **Monoclausality:** The verb sequence forms a single clause, lacking coordination subordination, and independent tense marking on non-initial verbs.
3. **Event Integration:** The verbs jointly contribute to a unified conceptual event, rather than expressing two temporally or semantically distinct actions.
(5) /Chǎn tǎaw kìn lûuk/
I travel eat fruit
"I traveled and ate fruit."
4. **Tense/Aspect Marking Asymmetry:** Tense and aspect are typically marked on the first verb only; subsequent verbs remain morphologically unmarked.
(6) /Nó kàp rót pây talàat/
he drive car go market
"He drove the car to the market."

This pattern, found across SVC languages such as Thai, Yoruba (*ó lẹ̀ rà* ‘he went and bought’), and Akan, supports the typological claim that SVCs operate within a unified tense-aspect domain (Givón, 1975, pp. 89–92).

Taken together, these features define the structural and functional cohesion that characterizes canonical serialization. Although surface configurations may vary, these core properties remain cross-linguistically robust and provide a principled basis for identifying and analyzing SVCs. The present study adopts this typological framework to assess whether Hijazi

Arabic exhibits constructions that qualify as true SVCs, and to explore how such constructions may be formally modeled within the architecture of LFG.

Serial Verb Constructions in Arabic Dialect

The phenomenon of SVCs in Arabic dialects has received sporadic descriptive attention, often limited to specific dialects without a unified theoretical framework. Studies on dialects such as Najdi Arabic (Ingham, 1994), Sudanese Arabic (Miller, 2003, 2009), and Moroccan Arabic (Benmamoun, 2000) have documented multi-verb constructions that typologically resemble SVCs. In Najdi Arabic, sequences like (*raḥ ʔakal*) ‘he went (and) ate’ exhibit hallmark properties of SVCs, including the absence of overt coordinators and the sharing of arguments across verbs. Ingham (1994) notes that such sequences often involve motion verbs followed by lexical verbs, suggesting a degree of event integration characteristic of canonical SVCs. Similarly, Miller (2003, 2009) identifies motion-resultative constructions in Sudanese Arabic, where verbs of motion precede action verbs without conjunctions, as in (*mša šrab*) ‘he walked (and) drank’. In Moroccan Arabic, Benmamoun (2000) observes causative constructions like (*xalla yktib*) ‘he made (him) write,’ where the causative verb governs another finite verb, reflecting argument-sharing properties typical of SVCs. However, these studies frequently refrain from explicitly labeling these constructions as SVCs, leaving their formal syntactic status underexplored.

The case of Jordanian Arabic (JA) provides compelling evidence for the productive nature of SVCs within Arabic dialects, challenging the prevailing view that Arabic lacks canonical serialization. Recent data from JA reveal robust SVC patterns characterized by monoclausality, where verbs within the series form a single predicate with no syntactic dependency or embedding between them. This monoclausality is confirmed by the ungrammaticality of inserting complementizers or relativizers between verbs, highlighting the absence of syntactic subordination. Additionally, JA SVCs exhibit the absence of overt coordinators or subordinators, a defining feature that distinguishes them from coordinated or subordinated structures. Inserting such linkers not only alters the intended meaning but often results in ungrammaticality, underscoring that coordination or subordination mechanisms are not operative in these constructions.

Moreover, JA SVCs demonstrate clear argument-sharing properties, where verbs share core arguments, typically the subject, without additional syntactic markers. This parallels argument-sharing patterns observed in well-documented SVC languages like Thai. Tense and aspect marking in JA further reinforce monoclausality. While tense is generally consistent across verbs within the construction, JA permits aspectual mismatches; a phenomenon observed in languages such as Khwe and Cantonese (Aikhenvald, 2005). This aspectual flexibility indicates that, despite morphological variation, the verbs function as part of a unified predication structure.

Interestingly, the investigation of SVCs in Modern Standard Arabic (MSA) reveals related yet distinct multi-verb structures. While MSA exhibits constructions that superficially resemble SVCs, such as those involving *kān* and its sisters, as well as appositional verb structures (*Al-Badal*), these often diverge from canonical SVCs. According to Alotaibi (2021, 2023), *kān* and its sisters function more as auxiliaries, providing tense or aspectual information without contributing to event integration, thus distinguishing them from true serial verbs. For example, in the sentence */kān-a yaʕṣbu/* ‘he was playing,’ *kān-a* provides tense information, while *yaʕmalu* carries the lexical content, with no event integration beyond the auxiliary-lexical

verb relationship. Conversely, Al-Badal constructions exhibit properties more closely aligned with SVCs when the verbs denote a single, complex event, share the same subject, and occur within a single clause. Consider the example */dakhala wa ʔaḥaḍ-a maḡṣad-an/* 'he entered and took a seat,' where the verbs share the subject and form a unified event without overt coordination. These constructions maintain unified tense and aspect markers, resist independent negation, and disallow the co-occurrence of pronouns with their antecedents within the same clause, reinforcing their monoclausal nature.

Furthermore, Alotaibi (2023), focusing on Najdi Arabic, a central Saudi dialect, identifies robust SVC characteristics, including single predicate behavior, single event semantics, monoclausality, shared arguments, and unified grammatical categories. In Najdi Arabic, verbs within SVCs cannot be separated by coordinators or subordinators without altering the intended meaning, and negation applies to the entire construction, not individual verbs. Additionally, serialized verbs maintain their lexical independence, supporting their classification as genuine SVCs rather than auxiliary-based constructions.

Despite these descriptive accounts, there remains a significant gap in formal syntactic analyses that situate these constructions within broader theoretical paradigms. Most existing studies either adopt a descriptive approach or apply transformational generative frameworks that often treat such constructions as biclausal, involving covert coordination or subordination. However, recent analyses, such as Alotaibi (2021) and Al Khalaf and Al-Khawaldeh (2024), offer compelling alternatives through the application of Lexical Functional Grammar (LFG) and the Cartographic Program, respectively. Alotaibi's LFG approach effectively captures the monoclausal nature of SVCs in Arabic by focusing on functional structure (f-structure) and complex predicate formation, demonstrating how serialized verbs in MSA share arguments, unify tense and aspect, and operate within a single clause without relying on syntactic movement or transformational operations. In contrast, Al Khalaf and Al-Khawaldeh (2024) employ the Cartographic Program to analyze SVCs in JA, arguing that these constructions are monoclausal, with verbs occupying distinct functional projections within an extended VP spine. Their analysis highlights how V1, often a motion verb, functions from a closed class in the little *v* position, while V2 occupies the main V head, enabling argument sharing and unified negation scope within a single clause. Together, these approaches highlight the potential of LFG and cartographic syntax to account for the syntactic and functional dependencies characteristic of SVCs in Arabic dialects, providing a more nuanced understanding of their structural properties.

Lexical Functional Grammar (LFG)

LFG, as originally proposed by Bresnan (1982) and further developed in subsequent work (Bresnan, 1982; Dalrymple, 2001; Dalrymple, Lowe, & Mycock, 2019), offers a robust theoretical framework for modeling complex predicates and argument-sharing constructions across languages. LFG adopts a non-derivational, constraint-based approach that separates the representation of constituent structure (c-structure) from functional structure (f-structure). This bifurcation enables nuanced analyses of constructions where surface syntax (word order and hierarchical phrase structure) does not straightforwardly correspond to underlying grammatical functions.

LFG is guided by key hypotheses, including the Lexical Integrity Hypothesis, which posits that the internal structure of words is inaccessible to syntactic rules, and the Parallel Correspondence Hypothesis, which maintains that different levels of syntactic representation (c-structure and f-structure) are interconnected through functional mappings. Additionally, the Functional Coherence Hypothesis ensures that all grammatical functions are consistently linked

within the functional structure, while the Functional Completeness Principle mandates that all required grammatical functions are present in the structure.

The c-structure captures the surface syntactic configuration of a sentence using context-free phrase structure rules, reflecting hierarchical relations among constituents. As for the f-structure, it encodes grammatical functions (e.g., SUBJECT, OBJECT), predicate-argument relations, and morphosyntactic features such as TENSE, ASPECT, and AGREEMENT. These structures are linked through functional annotations (e.g., $(\uparrow \text{SUBJ}) = \downarrow$), specifying how syntactic constituents correspond to grammatical functions.

A central mechanism in LFG is argument-sharing, where multiple predicates can share the same grammatical argument(s) within a single functional structure. This mechanism is particularly relevant for constructions where verbs function independently in terms of predicate structure but are functionally integrated through shared arguments. Additionally, LFG employs the concept of functional uncertainty to account for cases where the syntactic position of an argument is flexible or underspecified. Functional uncertainty allows the grammar to model relationships where an argument may occupy different syntactic positions without altering its functional role. This flexibility is crucial for capturing cross-linguistic variation, especially in languages with fluid word orders.

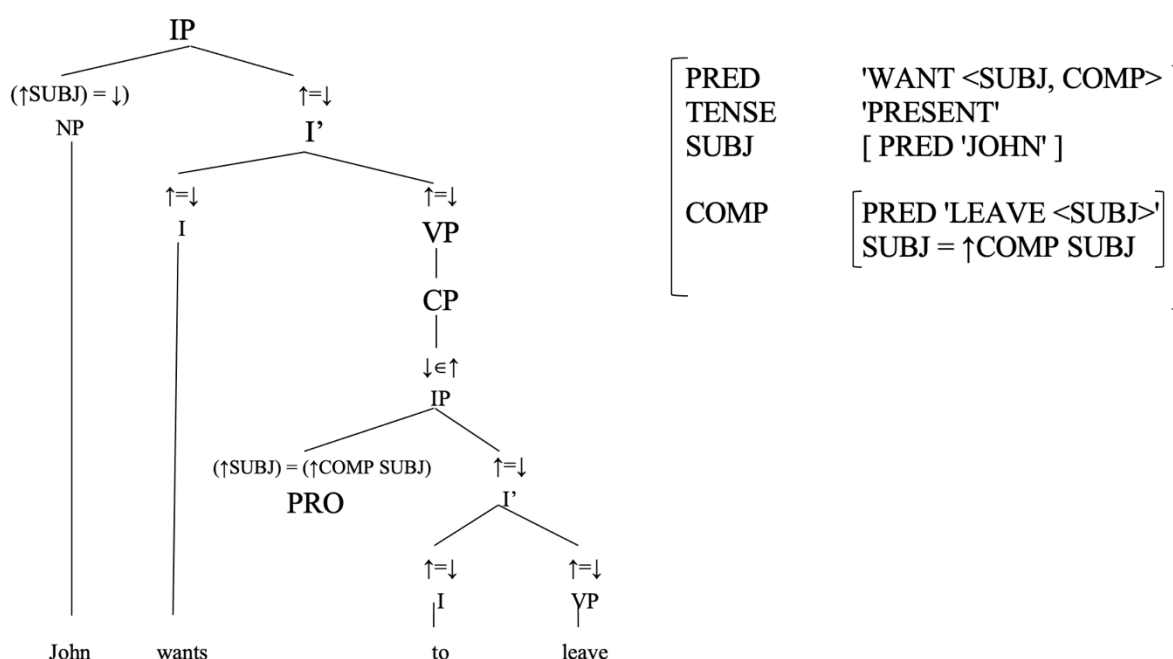
Unlike movement-based syntactic theories, such as the Minimalist Program, which rely on transformations to account for multi-verb constructions, LFG accommodates argument-sharing through functional structure mappings without assuming syntactic displacement. This is particularly advantageous when analyzing SVCs, where verbs maintain structural independence but functional integration. Consider the simple English sentence:

(7) John wants to leave.

In this example, we have two verbs (*wants* and *leave*), forming a control construction where *John* is both the subject of *wants* and the understood subject of *leave*.

c-structure:

f-structure



Functional annotations:

- ($\uparrow$ SUBJ) = $\downarrow$ links *John* to the SUBJ in the f-structure.
- ($\uparrow$ PRED) = '*WANT* <SUBJ, COMP>' indicates that *wants* is the matrix predicate.
- ($\uparrow$ COMP) = $\downarrow$ links the embedded IP (containing *to leave*) to the COMP function.
- ($\uparrow$ SUBJ) = ($\uparrow$ COMP SUBJ) represents functional control, where the subject of the matrix predicate (*John*) controls the subject of the embedded predicate (*leave*), which is syntactically realized as *PRO*.

The c-structure represents the hierarchical arrangement of words and phrases. *John* is the subject (NP), *wants* is the matrix verb (V), and *leave* functions as the embedded infinitival clause. In the f-structure, *wants* and *leave* are distinct predicates, and the subject of the embedded verb (*leave*) is represented as *PRO*, functionally controlled by the subject of the matrix verb (*John*). This control relation is formalized as ($\uparrow$ SUBJ) = ($\uparrow$ COMP SUBJ), which ensures functional identification between the two grammatical functions without implying syntactic identity or movement.

This framework captures the syntactic independence of the predicates while modeling their semantic and functional integration. LFG's ability to represent control structures without resorting to transformations makes it well-suited for analyzing complex predicate phenomena.

LFG's architecture has been successfully applied to a wide range of syntactic patterns, from complex predicates in Bantu languages (Alsina, 1996) to light verb constructions in South Asian languages (Butt, 1995). Its principles of functional completeness and coherence ensure robust and consistent grammatical representations.

Furthermore, LFG's typological flexibility provides the necessary tools for cross-linguistic analysis, positioning Hijazi Arabic within the broader landscape of languages exhibiting serial verb constructions. The theory thus offers a well-motivated framework for capturing both structural independence and functional integration in multi-verb constructions.

Hijazi Arabic

Introduction

Hijazi Arabic exhibits a range of syntactic properties that distinguish it from both Classical Arabic (CA) and MSA. The canonical word order is SVO (Subject-Verb-Object), though VSO (Verb-Subject-Object) is also attested, especially in focus constructions and topicalization contexts (see Alzaidi, 2014; Alzaidi et al., 2019 for an overview of how information structure is reflected in Hijazi-Arabic syntax). For example:

- | | | | |
|-----|----------------------|-----------|-------|
| (8) | /Zayd ʔakal | il-khubz/ | (SVO) |
| | Zayd eat.PST | the-bread | |
| | "Zayd ate the bread" | | |
| (9) | /ʔakal Zayd | il-khubz/ | (VSO) |
| | eat.PST Zayd | the-bread | |
| | "Zayd ate the bread" | | |

Both structures are grammatical, with subtle pragmatic distinctions reflecting focus and discourse prominence.

Unlike MSA, Hijazi Arabic does not make extensive use of case morphology. Instead, it relies on word order and verbal agreement to encode grammatical relations. It also allows flexible constituent ordering, especially in *wh*-questions and focus environments, where discourse-motivated fronting replaces formal movement. This syntactic flexibility contributes to the viability of SVCs, permitting sequences of bare verbs within a single clause; an uncommon property in Semitic syntax.

Tense and aspect in Hijazi Arabic are marked via inflection, distinguishing perfective and imperfective aspects. Consider the following examples:

- (10) /huw yiktib risāla/
he write.PRS letter
"He is writing a letter."

- (11) /ʔana katabt risāla/
I write.PST letter
"I wrote a letter."

In (12), the imperfective *yiktib* denotes ongoing action, whereas the perfective *katabt* in (13) indicates completion. This distinction is central to temporal interpretation.

- (12) /humma rāyihīn yisāfirūn/
they go.PTCP travel.PRS
"They are going to travel."

The participial *rāyihīn* ("going") and imperfective *yisāfirūn* ("travel") together form a near-future expression, reflecting aspectual layering, a construction highly relevant for SVC analysis.

Properties of Serial Verb Constructions (SVCs)

Morphosyntactic Constraints

SVCs in Hijazi Arabic show clear monoclausal behavior. One defining trait is the absence of overt coordination (e.g., *wa* 'and') or subordination (e.g., *ʔinna*). Instead, multiple verbs are linearly juxtaposed within a single clause:

- (13) /hu:w ra:h ʔakal/
he go.PST eat.PST
"He went (and) ate."
- (14) /ʔana ji:t ʃaribt ma:ʔ/
I come.PST drink.PST water
"I came (and) drank water."

In both examples, the verbs occur in sequence without any overt coordinator (e.g., *wa* 'and') or complementizer, and both verbs share a single overt subject. This surface pattern suggests serial verb behavior, but a more robust argument for monoclausality can be made by applying standard SVC diagnostics (Haspelmath, 2016). First, tense is marked only on the first verb (*ra:h*, *ji:t*), while the subsequent verb(s) occur in the default perfective form (*ʔakal*, *ʃaribt*) without independent tense marking. This tense asymmetry is typical of monoclausal serial constructions. Second, the sequence resists independent negation of each verb; rather, a single

negation operator (e.g., *ma*) scopes over the entire verb string (e.g., *ma ra:h ʔakal* ‘he didn’t go and eat’), reinforcing a unified clause domain. Third, insertion of a conjunction between the verbs (*ra:h wa ʔakal*) alters the pragmatic or temporal structure, indicating that the two events are less tightly integrated. Together, these diagnostics support the conclusion that the constructions in (15) and (16) are indeed monoclausal SVCs in Hijazi Arabic.

Moreover, these constructions show tense/aspect asymmetry. Typically, only the first verb bears overt tense marking.

- (15) /hu:w ra:h yiktib risa:la/
he go.PST write.PRS letter
"He went (and) wrote a letter."

Here, *ra:h* is marked for past tense, while *yiktib* remains in the present. Such asymmetry aligns with cross-linguistic diagnostics for monoclausality and distinguishes these constructions from coordinated or biclausal structures.

Verb ordering in SVCs is not arbitrary. The first verb often functions as a motion, light, or causative verb, introducing an event frame:

- (16) /hu:w ʔa:wal yiftaḥ ilba:b/
he try.PST open.PRS the-door
"He tried to open the door."
(17) /ʔana ʔilt ilba:b rama:itu/
I carry.PST the-door throw.PST-it
"I carried the door (and) threw it."

Reversing this order often results in ungrammaticality due to violations of event sequencing constraints:

- (18) */ʔana rama:itu ʔilt ilba:b/
(Ungrammatical: intended "I carried it (and) threw the door.")

These constraints support analyzing the verb series as functionally integrated rather than loosely conjoined.

As discussed in the section on cross-linguistic perspectives, four key properties define canonical SVCs: argument sharing, monoclausality, event integration, and tense/aspect unification (Haspelmath, 2016). The Hijazi Arabic examples presented here exhibit all four. Verbs share a single overt subject (argument sharing), occur without coordination or subordination (monoclausality), represent a single complex event (event integration), and show tense/aspect asymmetry; where only the first verb is marked for tense. These features collectively support the classification of these constructions as SVCs in the typological sense.

Argument Structure and Functional Dependencies

A defining feature of Hijazi Arabic SVCs is subject sharing, where a single subject functions as the grammatical subject for multiple verbs within the same clause. This is central to maintaining the monoclausal nature of SVCs and aligns with cross-linguistic findings on argument-sharing SVCs (Lovstrand & Ross, 2021).

- (19) /hu:w ra:h ʔakal/
he go.PST eat.PST
"He went (and) ate."
- (20) /humma ra:hu ʔakalu/
they go.PST eat.PST
"They went (and) ate."

Hijazi Arabic exhibits both event-chaining and argument-sharing SVCs, which are integral to understanding the syntactic and semantic dynamics within the language. Event-chaining SVCs involve verbs that represent distinct but sequential events, maintaining a temporal progression where each action logically follows the other. Consider the following example:

- (21) /hu:w qa:m ʔaxaḍ ilkita:b/
he get-up.PST take.PST the-book
"He got up and took the book."

In this example, the sequence of actions is clearly delineated: the subject first performs the act of getting up, followed by the act of taking the book. This sequential relationship reflects how such constructions encode temporally ordered events within a single clause. Conversely, argument-sharing SVCs exhibit verbs that share core arguments, thereby forming a single complex event rather than a sequence of discrete actions. This is evident in the following example:

- (22) /ʔana ḥa:walt ʔaftaḥ ilba:b/
I try.PST open.PRS t he-door
"I tried to open the door."

Here, the subject *ʔana* is shared between the verbs *ḥa:walt* "tried" and *ʔaftaḥ* "open", illustrating how the two verbs operate within a unified argument structure to express a singular, cohesive event. This interplay of event sequencing and argument sharing underscores the syntactic versatility and semantic richness of SVCs in Hijazi Arabic.

In conclusion, SVCs in Hijazi Arabic exhibit key morphosyntactic constraints, such as monoclausality, tense asymmetry, and strict verb ordering, alongside argument structure properties like subject and object sharing. These features align with typological observations across serializing languages while reflecting unique syntactic and semantic properties inherent to Hijazi Arabic. This foundational analysis paves the way for the in-depth LFG analysis presented in the following section.

LFG Analysis of Hijazi SVCs

In this section, an in-depth LFG analysis of SVCs in Hijazi Arabic is presented. Building on the morphosyntactic properties and argument structures outlined in the previous section, this analysis focuses on how functional structure (f-structure) captures the syntactic and semantic properties of SVCs, particularly regarding argument sharing, functional dependencies, and the monoclausal nature of these constructions. The theoretical foundations of LFG (presented in the section on Lexical-Functional Grammar (LFG)) provide a robust framework for modeling both event-chaining and argument-sharing phenomena observed in Hijazi Arabic.

Subject Sharing in Hijazi Arabic SVCs

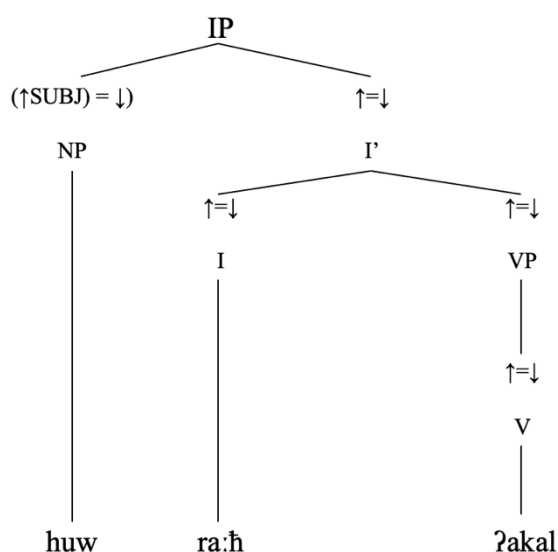
This section focuses on constructions where a single subject functions as the grammatical subject for multiple verbs within the same clause. Subject sharing is a fundamental property of SVCs in Hijazi Arabic, reinforcing their monoclausal nature. While subject sharing represents a specific type of argument-sharing, it differs from the broader scope discussed in the section on argument-sharing constructions, which considers the simultaneous sharing of multiple core arguments.

Subject sharing is a defining characteristic of SVCs in Hijazi Arabic. In these constructions, a single subject functions as the grammatical subject for multiple verbs within the same clause, reinforcing the monoclausal status. LFG models this through functional structure (f-structure) sharing, where both predicates map onto a unified SUBJ feature, satisfying functional completeness and ensuring functional coherence.

- (23) /hu:w ra:h ?akal/
 he go.PST eat.PST
 "He went (and) ate."

The c-structure tree with functional annotations:

c-structure



f-structure

PRED	'GO+EAT <SUBJ>'
TENSE	'PAST'
SUBJ	[PRED 'PRO']

Functional annotations:

- (↑SUBJ) = ↓ links huwa to the SUBJ in the f-structure.
- (↑PRED) = 'GO' and 'EAT' unified under a complex predicate.

This unified SUBJ node reflects functional completeness by maintaining a single subject that fulfills the grammatical requirements of both verbs. The complex predicate 'GO+EAT' highlights the integration of events.

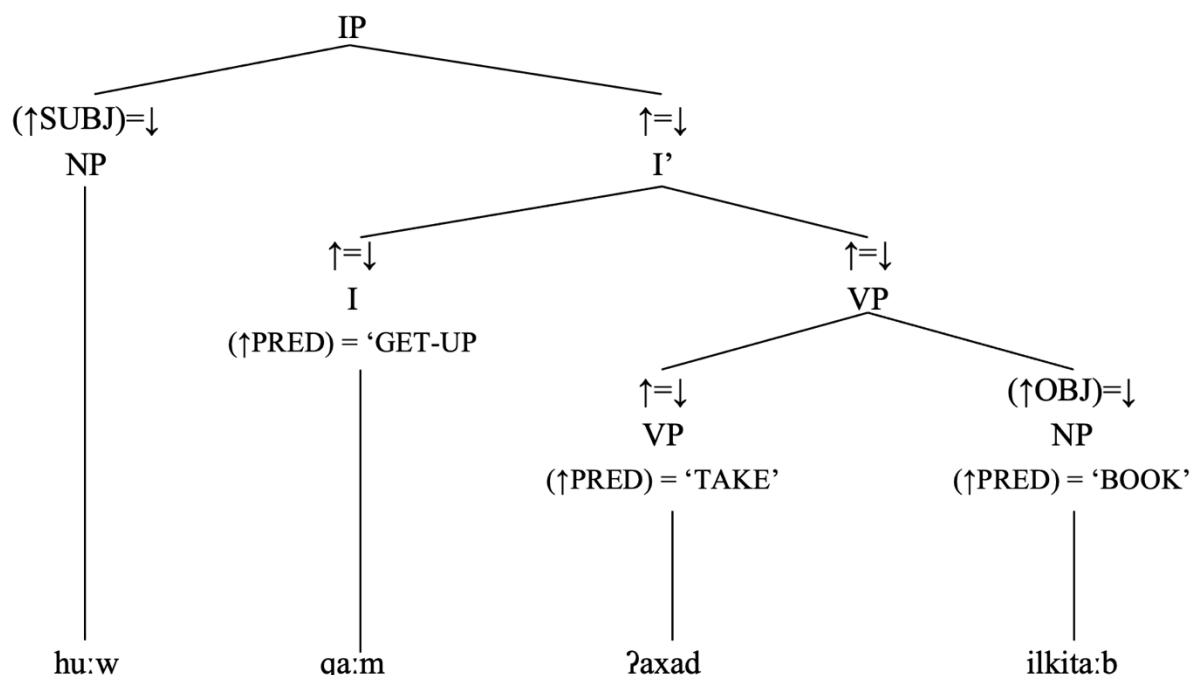
Event-Chaining SVCs

Event-chaining SVCs involve sequential events with shared or distinct arguments. These constructions are modeled in LFG by linking distinct predicates within the f-structure while maintaining shared arguments where applicable. The monoclausal status of such constructions is supported by the absence of overt coordination and the unified tense domain.

- (24) /hu:w qa:m ?axaɖ ilkita:b/
 he get-up.PST take.PST the-book
 "He got up and took the book."

The c-structure tree with functional annotations:

c-structure:



f-structure:

PRED ₁	'GET-UP <SUBJ>'
SUBJ	[PRED 'PRO' (hu:w)]
PRED ₂	'TAKE <SUBJ, OBJ>'
OBJ	[PRED 'BOOK']
TENSE	'PAST'

Functional annotations:

- (↑SUBJ) = ↓ links *hu:w* to SUBJ.
- (↑OBJ) = ↓ links *ilkita:b* to OBJ.

This construction represents an event-chaining Serial Verb Construction in which two predicates - *qa:m* 'got up' and *?axaḍ* 'took' - occur within a single clause, executed by the same subject (*hu:w*). In Lexical-Functional Grammar, both verbs contribute independent predicate-argument structures, but they are functionally unified by sharing the same SUBJ and occurring under a single TENSE domain. The f-structure reflects this by listing both predicates and associating them with the same SUBJ. While two predicates occur, they do not violate functional coherence, because they are part of a monoclausal construction with consistent subject reference and tense scope. This aligns with LFG analyses of SVCs in other languages (cf. Alsina 1996).

Argument-Sharing SVCs

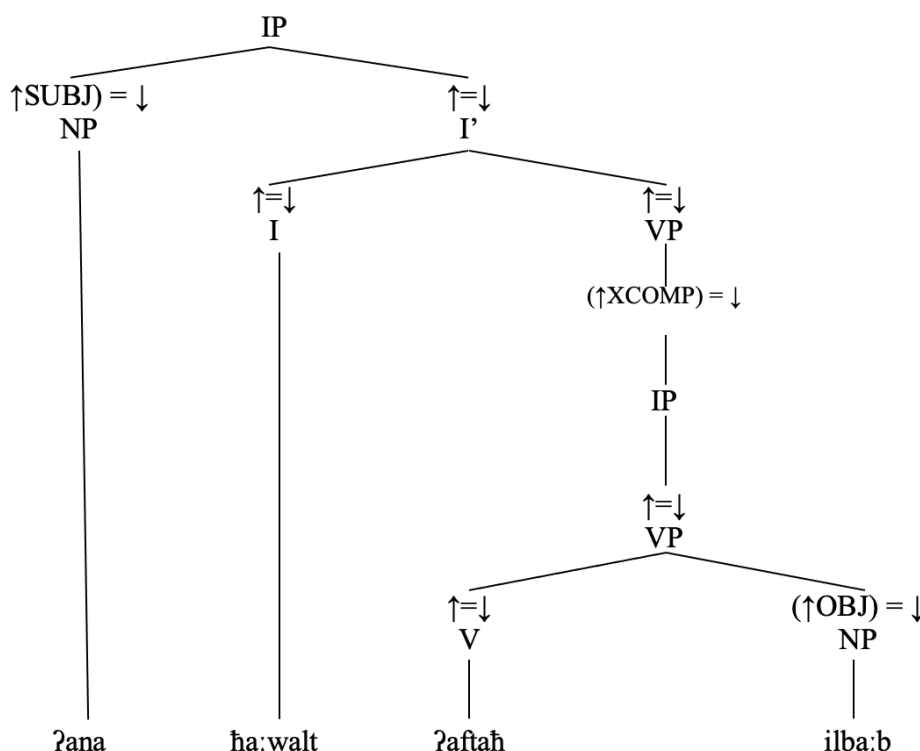
This section synthesizes the concepts of subject and object sharing discussed earlier in the analysis of subject-sharing and event-chaining constructions. Argument-sharing SVCs involve verbs that are tightly integrated, sharing multiple core arguments simultaneously (e.g., subjects and objects) to form a single complex event. Unlike the earlier analyses that focused separately on subject sharing and event chaining, this section highlights the interaction and co-

dependency of shared arguments, providing a comprehensive view of how argument structures operate within Hijazi Arabic SVCs.

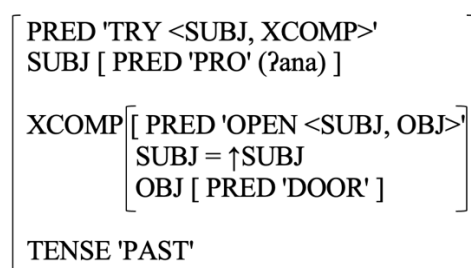
- (25) /ʔana ha:walt ʔaftaħ ilba:b/
I try.PST open.PRS the-door
"I tried to open the door."

The c-structure tree with functional annotations:

c-structure:



f-structure:



Functional annotations:

- (↑SUBJ) = ↓ links ʔana to the SUBJ in the f-structure.
- (↑PRED) = 'TRY <SUBJ, XCOMP>' indicates that ha:walt is the matrix predicate and selects an open complement.

- ($\uparrow$ XCOMP) = $\downarrow$ links the embedded IP (*ʔaftaḥ ilba:b*) to the XCOMP function, signaling a functionally controlled complement.
- ($\uparrow$ XCOMP OBJ) = $\downarrow$ links *ilba:b* to the OBJ of the embedded predicate.
- ($\uparrow$ XCOMP SUBJ) = $\downarrow$ SUBJ indicates functional control, where *ʔana* (the matrix subject) also functions as the understood subject of *ʔaftaḥ*.

This representation maintains the monoclausal nature of the construction within the LFG framework. The matrix verb *ḥa:walt* 'tried' selects a functionally open complement *ʔaftaḥ ilba:b*, forming a complex predicate. The subject *ʔana* is not structurally repeated but functions as the understood subject of the embedded verb via functional control, represented as ($\uparrow$ XCOMP SUBJ) = $\uparrow$ SUBJ. The noun *ilba:b* serves as the object of *ʔaftaḥ* alone. This structure captures both the argument-sharing dependency and the functional embedding characteristic of subject-control constructions in LFG.

Discussion

The LFG framework effectively captures the structural and functional properties of SVCs in Hijazi Arabic, providing a nuanced account of argument-sharing, event-chaining, and functional dependencies. LFG's architecture, particularly its separation of constituent structure (c-structure) and functional structure (f-structure), allows for precise modeling of predicate-argument relationships across languages without resorting to syntactic movement (Bresnan, 1982; Dalrymple, 2001; Dalrymple, Lowe & Mycock, 2019). This section systematically compares the LFG analysis of Hijazi Arabic SVCs with those proposed by Alotaibi (2021) for Modern Standard Arabic (MSA) and Al Khalaf and Al-Khawaldeh (2024) for Jordanian Arabic, highlighting both theoretical alignments and analytical divergences.

In the analysis of Hijazi Arabic, subject and object sharing are modeled through unified functional structures within the f-structure, with event-chaining and argument-sharing distinctions represented through separate but interconnected predicate structures. The application of functional equations allows for precise modeling of argument distribution, emphasizing the monoclausal nature of SVCs without syntactic transformation. This approach aligns with Alotaibi's (2021) LFG-based analysis of MSA, where complex predicate formation is similarly central. Both analyses underscore the role of argument-sharing, unified tense/aspect marking, and functional completeness in reinforcing monoclausality. However, while the Hijazi Arabic data highlight a broader range of SVC types, including event-chaining constructions, Alotaibi's focus remains more constrained, emphasizing auxiliary-lexical verb relationships and appositional structures in MSA (Benmamoun, 2000; Ouhalla, 2005), where tense and aspect agreement tend to be more rigid than in Hijazi Arabic.

In contrast, Al Khalaf and Al-Khawaldeh's (2024) analysis of JA diverges from the LFG framework by adopting principles from the Cartographic Program within Generative Syntax. Their approach posits a fine-grained syntactic hierarchy involving multiple functional projections to account for verb asymmetry, negation scope, and argument distribution. Unlike the LFG analyses for Hijazi Arabic and MSA, which rely on f-structure to model monoclausality and control, the cartographic analysis derives monoclausality through an extended VP spine enriched with projections such as AspP and ModP. This syntactic stratification enables a detailed account of asymmetrical SVCs, in which V1 typically serves as a light or motion verb from a closed class, and V2 as a core lexical verb from an open class (Aikhenvald, 2005; Bisang, 2009). By contrast, the Hijazi Arabic analysis treats both verbs as full lexical predicates without strict class-based asymmetry, unified under a single functional domain.

Despite these methodological differences, all three analyses converge on key findings regarding core SVC properties: monoclausality, argument sharing, tense/aspect unification, and resistance to syntactic coordination or subordination (Haspelmath, 2016; Aikhenvald, 2005; Crowley, 2002; Bisang, 2009). These shared properties suggest the potential for a synthetic theoretical model that integrates both functional and configurational insights. At the same time, the analytical differences reveal limitations within each framework; LFG's function-based model may underrepresent the fine-grained hierarchical structure of verb sequences, while cartographic models might overlook the role of functional control and predicate unification in explaining the semantics of SVCs.

The Hijazi Arabic data contribute significantly to the typology of SVCs and extend the empirical reach of LFG beyond well-documented languages. They also challenge long-held assumptions about the syntactic conservatism of Arabic, particularly as represented in Classical Arabic and MSA (Benmamoun, 2000; Ryding, 2005). Furthermore, the inclusion of tense, aspect, and semantic roles in the f-structure strengthens the explanatory scope of the analysis, in keeping with LFG's principles of functional completeness, coherence, and universality (Dalrymple, 2001; Dalrymple, Lowe & Mycock, 2019). In LFG, these features are modeled as attribute-value pairs associated with predicates, with semantic roles mapped onto argument functions like SUBJ and OBJ. This contrasts with the cartographic framework, in which tense, aspect, and role interpretation arise from the syntactic positioning of arguments within a layered clause structure.

Ultimately, while LFG emphasizes functional integration and non-transformational representation, and the Cartographic Program highlights configurational precision, both offer valuable perspectives on the nature of multi-verb constructions in Arabic. Together, they frame a cross-dialectal understanding of serialization that accommodates both syntactic and functional variation.

Conclusion

This study has presented a focused syntactic analysis of SVCs in Hijazi Arabic, specifically the urban variety spoken in Taif, within the framework of LFG. The findings reveal that this dialect exhibits robust SVC patterns marked by monoclausality, the absence of overt coordinators and complementizers, and consistent argument sharing across serialized verbs. The data confirm that Hijazi Arabic accommodates a range of SVC types, including motion-based, event-chaining, and argument-sharing constructions, all unified through shared syntactic subjects and asymmetrical tense/aspect marking.

The application of LFG has proven particularly effective in modeling these constructions without relying on transformational operations. Through mechanisms such as functional control, XCOMP mappings, and predicate-argument alignment, the analysis captures the syntactic and semantic integration characteristic of serialized verbs in Hijazi Arabic. This reinforces LFG's suitability for representing complex predicate structures in underexplored languages and dialects.

Future research should further investigate SVCs across other Arabic dialects using formal frameworks like LFG and the Cartographic Program to identify typological convergence or variation. In addition, psycholinguistic and corpus-based studies could offer insights into native speaker processing of serialized constructions, contributing to a more comprehensive understanding of multi-verb syntax in Arabic. By expanding both the empirical and theoretical dimensions of the field, such work will enrich the typology of serial verb constructions and refine our models of predicate composition in Arabic and beyond.

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The Representation of Children in Saudi Arabic Media: A Corpus-Based Critical Discourse Analysis

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الملخص

خلصت الدراسات السابقة التي تناولت خطاب وسائل الإعلام في السياقات العالمية إلى نتائج متكررة تشير إلى قلة تمثيل الأطفال أو تمثيلهم بشكل خاطئ في التقارير الإخبارية. إلا أن الأبحاث على الخطاب الإعلامي باللغة العربية لا تزال قليلة. ومن هنا، تناولت هذه الدراسة تحليل أكثر من 59 مليون كلمة من وسائل الإعلام المطبوعة السعودية - متضمنة الصحف ووكالات الأنباء - على مدى عشر سنوات (من العام 2009 وحتى العام 2019) لتقصي كيفية تمثيل الأطفال في الخطاب الإعلامي. تضمنت البيانات الكمية استخراج التكرارات والمتصاحبات اللفظية وسياق النص والمواضيع. ثم تم إجراء التحليل النوعي ضمن تحليل الخطاب النقدي (CDA) ومنهج الفاعلية الاجتماعية (SAA). أظهرت النتائج الكمية للمصطلح المركزي "طفل" أن معظم المتصاحبات اللفظية تعطي المعنى الوظيفي المرتبط بالتعريف وبلي ذلك بنسبة مقاربة المعنى الوظيفي المرتبط بتحديد الأدوار الاجتماعية. وعليه فقد وجدنا أن الأطفال في نصوص وكالات الأنباء السعودية تم تصويرهم في الغالب في دور الضحية، يلي ذلك دور المتلقي للتعاطف. وقد يساهم هذا التمثيل للطفل في تقليص فاعلية الأطفال، وربما إسكات أصواتهم في الخطاب الإعلامي. علاوة على ذلك، كانت غالبية المواضيع المصنفة مع المصطلح المركزي مرتبطة بالحوادث والحرب والعنف. كما أن التحليل المتعمق لسياق النصوص في موضوعات الرعاية الصحية والتعليم أظهر أيضاً تركيزاً على دور الأطفال كمتلقين للتعاطف. وتشير النتائج إلى تصاحب لفظي مرتفع بين صفات الجمال والبراءة والمصطلح المركزي الطفل عندما يكون بصيغة المؤنث فقط مما يدل على وجود تقييم ثقافي لهذه الفئة. هذه النتائج تؤيد عدداً من النتائج المماثلة في دراسات سابقة من بلدان متعددة. ولذلك، فإننا ندعو الخطاب الإعلامي إلى تقديم صورة دقيقة تعترف بقدرات الأطفال وأدوارهم المتنوعة تتجاوز تعريفهم من منظور الضعف.

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Abstract

Previous investigations of media discourse worldwide have repeatedly identified the underrepresentation and misrepresentation of children in news reporting. However, Arabic-language outlets remain largely unexplored. As such, this study analyzed more than 59 million words from Saudi print media—including newspapers and news agencies—over a ten-year span (2009–2019) to explore the portrayal of children in media discourse. The quantitative data included frequencies, collocations, concordances, and contexts. Further qualitative analysis was conducted within Critical Discourse Analysis (CDA) and the Social Actors Approach (SAA). The collocates of the keyword *child* were extracted and the results showed most collocates serve the identification function followed closely by functionalization which indicates their roles. We found that children in Saudi media were predominantly portrayed in the role of victims followed by being the objects of emotional appeal. This representation may have contributed to diminishing children's agency, potentially silencing their voices in the media discourse. Moreover, the majority of topics found in the categorization of themes were related to accidents, war, and violence. The concordances within topics of healthcare and education similarly reveal focus on children being objects of emotional appeal. The findings also indicate that descriptions of beauty and innocence collocate with the feminine suffix for female children only which indicates cultural evaluation. These findings corroborate results from other countries. Therefore, we advocate for a nuanced media discourse portrayal that acknowledges children's diverse capabilities and roles beyond their vulnerability.

Keywords: *children representation, corpus, critical discourse analysis, media discourse*

Introduction

The study of children's representation in discourse and its relationship to the social conceptualization of childhood through language has been examined from a Critical Discourse Analysis (CDA) perspective which assumes that language is a powerful tool that can shape and be shaped by the larger social structure in societies (Fairclough, 1989, 1995). A large number of studies have revealed that children are portrayed in limited roles and often their voices and opinions are excluded or spoken for by adults (e.g., Ashby, 2020; Atkinson & Gregory, 2017; Awan, 2022; Catalano & Mitchell-McCollough, 2019; Çobaner, 2021; Duanprakhon, 2012; Gordon, 2012; Gordon et al., 2015; Haig, 2008; Jurău, 2021; Kaziaj, 2016; Lahusen & Kiess, 2020; López, 2020; McAndrew et al., 2021; McLaren & Patil, 2016).

It is noted that the majority of those CDA studies on children's portrayal have been primarily conducted on English texts, with a clear lack of studies on discourses from non-Western countries (e.g., Awan, 2022). Since discourses are influenced by cultural and societal perceptions (Fairclough, 2006), local views of childhood might diverge from those commonly reported in Western contexts (Bisht, 2008). Given the importance of uncovering different cultural perspectives through discourse analysis, the current study will focus on children representation in Saudi media discourse; a less-examined language community in the CDA literature. This investigation aims to reveal how Arabic media discourse represents children, which could further support previous findings and/or capture new and culturally-unique perspectives.

Literature Review

The conceptualization of children in social studies of childhood

In order to contextualize what is meant by the representation of children in media discourse, we need to look at the broader theorization of the concept of childhood from a social perspective. In essence, addressing Van Leeuwen's (1996) key issue: "how are social practices transformed into discourses about social practices?" (p. 35). A good starting point is the adoption of the United Nations Conventions on Rights of the Child (UNCRC, 1989) which is considered by many as a turning point in childhood studies (Bisht, 2008). Since then, social studies of childhood challenged the rigid definitions in traditional developmental psychology by postulating that the concept of childhood is a complex social discursive construct (Robinson & Davies, 2008).

Those traditional definitions of childhood were related to the concepts of purity and primitiveness separating the innocent child from the world of adults, emphasizing power and dominance over children, depriving them of their voices and considering them imperfect until they develop into adulthood (James & Prout, 1997; Norozi & Moen, 2016). On the other hand, "the social construction of childhood" involves freeing children from a socially passive and dependent role to an active and constructive one that varies across classes, cultures, and time and expressed in different local narratives (Dahlberg, Moss & Pence, 2007; James, Jenks &

Prout 1998; Meynert, 2015; Robinson & Davies, 2008).

It is important to note, however, that definitions of when childhood ends and adulthood begins are not universal. In many Western legal systems and frameworks such as the UNCRC, adulthood is formally marked at the age of 18. In contrast, Islamic jurisprudence defines the onset of adulthood as occurring at puberty carrying moral significance of religious duties and legal accountability (Houmine & Loudghiri, 2023). These differing frameworks reflect the broader sociocultural and religious contexts in which childhood is constructed, and they might influence both policy and media representations of children in varying ways.

The social constructionist view of childhood offers researchers a theory of social practice to interpret current issues through investigating discourse practices of popular culture and media representations (Meynert, 2015). However, most of those social construction views of childhood are Western and far from the social realities of children in other cultures such as India where groups are valued more than individuals (Bisht, 2008). This lack of active current sociological discourse is also found in the Arab world as the dominant view based on 14th century Arabic sociology works of Islamic scholars such as Ibn Khaldoun, and Al Ghazali aligns with the more traditional Western perspectives (Shabshoob, 1990).

Khalifa (2001) noted that dominant social discourse in Saudi Arabia prior to the 1960s often positioned childhood as “an irrational stage of human life” (p. 164) which might reflect traditional sociocultural perceptions of children's dependency and immaturity. This view aligns with broader sociological critiques of childhood as a subordinate life stage (James & Prout, 1997). However, a new societal standpoint on children's needs emerged driven by the socio-economic changes in Saudi Arabia in the 70s and 80s and contact with other cultures (Al-Suwaigh, 1984). Family income, values, urban living, and modern schools are factors that led to changes in social discourses on childhood giving it more importance as a unique stage separate from adulthood (Khalifa, 2012).

However, Al-Drage (1990) believes that children's issues have become one of the major areas of clash between traditional Islamic values and Western culture and modernity producing conflicting discourses on childhood. It also made parents, schools and social institutions seek more control over children to preserve traditional values. The social view was also affected by class, education, and access to other cultures which resulted in what Khalifa (2012) describes as the realization of “different childhoods” (p. 169) in the Saudi society. This means that the conceptualization of childhood in Saudi Arabia is neither purely traditional nor following recent views of childhood agency. Hence, it is expected that mainstream media discourse might reflect this conflict between cultural values and modernity.

Language, discourse, and social identity

Sociolinguistic approaches attempted to describe the crucial role of language in the creation of social identities through different forms of communication (Gumperz & Cook-Gumperz, 1982). Ochs (1993) suggested that social identity is expressed by the language choices of society members at grammatical and discourse levels. However, Van Leeuwen (1996) points out that the relationship is a complex one requiring layers of analysis because social agency and

linguistic agency do not necessarily correspond.

Public discourse, especially officially produced public discourse, is a dominant form of knowledge dissemination (Fowler et al., 1979) and therefore plays a critical role in the portrayal of people, including those most vulnerable such as children (Gordon et al., 2015). As such, there has been growing interest in using CDA to examine the characterization of children in spoken and written public discourses including policies, official documents, school curriculums, and media content.

The representation of children in public discourse

Many studies have analyzed the representation of children in national-level educational and legal policies; mainly as these documents have the power to control children's behavior and those surrounding them like service providers and teachers (Açıkgöz et al., 2019; Antonsen, 2019; Bubikova-Moan, 2017; Callaghan et al., 2017).

A further common type of content investigated in CDA studies exploring children representation is official documents since they reflect the recommendations, and actions of international organizations (Abdul-Jabbar et al., 2022; Betz, 2013), governments (Alexander & Coveney, 2013; Kiersey & Hayes, 2010), and institutions (Betz, 2013; Spray & Samaniego, 2023; Vehkakoski, 2003), playing a key role in shaping discourse and constructing societal norms and values. Betz (2013) analyzed reports from three significant reporting systems: UNICEF (2007), OECD (2009), and KIDS COUNT (2011), and indicated that there remains a consensus in viewing children as becoming future adults. A similar picture emerged from a study that focused on children's representation in New Zealand's COVID-19 public health response (Spray & Samaniego, 2023). The study reported an exclusion of the child's voice, with a tendency to represent children as 'public-in-waiting' who need adult care and protection. Another study found that even when children's perspectives are included in public discourse, they are usually spoken for by adults (O'Sullivan, 2007). A consequence of this consistent behavior of adults working as spokespersons for children is the sustenance of asymmetrical power dynamics, as adults may misinterpret and shape children's perspectives to fit their own agendas or biases. For instance, a CDA study found that a report by Ireland presented to the UN Committee on children's rights tended to downplay the negative aspects of the country's record on children's rights and overemphasize the positive aspects (Kiersey & Hayes, 2010).

Most CDA research has focused on investigating the representation of children in media, as media serves as a powerful tool in shaping societal perceptions and expectations bearing in mind that media discourse represents certain ideologies (Fairclough, 2006; O'Keeffe, 2011). In this literature, most researchers have analyzed the portrayal of specific groups of children in media such as criminal children (Duanprakhon, 2012; Haig, 2008; Nurhidayah et al., 2023), Palestinian children (Aqtashi et al., 2004), detained children (Ashby, 2020), immigrant children (Catalano & Mitchell-McCollough, 2019; López, 2020; Strom & Alcock, 2017), children with disabilities (McAndrew et al., 2021; Vehkakoski, 2003), child refugees (Çobaner, 2021; Onay-

Coker, 2019), asylum seeker children (McLaren & Patil, 2016; Patil & McLaren, 2019), and children receiving welfare services (Atkinson & Gregory, 2017).

Two primary representations from this strand of research were identified: a predominantly negative depiction of children or one characterized by silence. One common finding is the absence of children's voices, their marginalization, and binary characterization. For instance, a comparative textual analysis of 22 European press councils' codes of ethics reported that the two most common representations of children in the media depict them as victims of criminal activity and/or as delinquents (Jurău, 2021). Moreover, Mustola et al (2019) found that children's views decreased and stories about them increased in an analysis of a 30-year corpus from Finnish newspapers which signals disregard of children's contribution to society. Another study examined the representation of children in relation to 'anti-social' and 'criminal' behavior in Irish media (Gordon, 2012). The findings suggest that the media amplifies a negative reputation to the children/young adults which might serve as a convenient scapegoat for the institutional problems that are inevitable in a society transitioning from conflict. Due to their interest in unveiling more nuanced depictions of children, most of these studies have focused on a limited set of texts or texts generated within a brief timeframe.

While many studies have explored the portrayal of specific groups of children in media, very few have taken a broader perspective on the overall representation of children in media across different contexts. Gordon et al. (2015) broadly explored the negative representations of children in Irish media and its impact on rights, public opinion, and policies. They summarize the representation of children in media as belonging to one of four major contexts: 1) children as victims of physical or emotional harm, abuse, poverty, bullying...etc., 2) children involved in crime, drug use, and antisocial behavior, 3) children with health issues: disabilities, obesity, mental disorders, and 4) children at risk from danger and in need of monitoring. They recommend giving children a voice by reporting their experiences and interests, acknowledging their contributions and achievements, focusing on positive issues, and recognizing their diversity. Kaziaj (2016) introduced a unique term: the "adult gaze" which summarizes the recurring issues highlighting that child related content is constructed from the perspective of adults for an adult audience while backgrounding children. They analyzed 4416 Albanian television news from three national channels over a period of three months and their findings confirmed that children are often portrayed in limited roles as objects of emotional appeal, victims, or performers which reinforces children's vulnerability and dependence and adults' dominance.

Focusing on youth representation, Lahusen & Kiess' (2020) study investigated 45 newspapers across nine European countries utilizing claims-making analysis. They found a gradual absence in discussions related to youth issues and marginalization. Finally, through use of a combined methodology of CL and CDA, Caldas-Coulthard & Moon (2010) looked at the representation of social actors in tabloid and quality UK newspapers. They investigated the age and gender variables looking at lexical modification choices and collocations with the keywords: men, women, boy, and girl. The analysis found systematic stereotyping and bias as men and young boys were found to be evaluated according to their status and function in society, while women and young girls are evaluated on appearance and sexuality.

The majority of the reviewed studies were conducted on English and European discourses. While their findings are valuable, the reported results may not directly apply to Arabic contexts due to cultural and linguistic differences that could fundamentally alter how children are represented in mainstream media. For instance, to our knowledge, only one study examined the portrayal of children in Arabic children's TV content (Awan, 2022). Using CDA, Awan's study explored the construction of childhood in three Arabic-language texts (two television programs, and one animated series) and examined whether screen content reinforces or challenges prevailing notions of childhood. Findings showed that although the shows generally shared characteristics on how they depicted children reflecting common assumptions about childhood, one animation challenged traditional definitions by presenting childhood as empowerment rather than passive dependence. Thus, investigating the representation of children in other Arabic media discourses might reveal a different picture. Therefore, investigating children's representation in Arabic and other non-English media is essential to develop a more comprehensive understanding of how childhood is constructed across different cultural contexts.

Critical discourse analysis and corpus linguistics

This study brings together CDA and Corpus Linguistics (CL) to yield data-informed conclusions that might uncover long-term recurring framing and discursive practices that could influence and sustain biased and negative representations (Baker et al, 2008; Fairclough & Wodak, 1997; McEnery & Hardie, 2011; O'Halloran, 2010; Orpin, 2005). By leveraging CL to uncover pervasive linguistic patterns, we were able to employ CDA to meticulously deconstruct the embedded ideological underpinnings. Together, this established a strong methodological framework. A CDA approach that probes representations of social actors in discourse is Van Leeuwen's (1996) Social Actors Approach (SAA) based on Halliday's Systematic Functional Linguistics (SFL) (1985) which incorporates meanings, choices and contexts in the use of language. We utilized several complementary frameworks: CDA, CL, SAA, and SFL. While CL and SFL were initially employed to identify the linguistic representation of children, CDA and SAA subsequently provided a critical lens through which to examine this representation.

To achieve the aim of this study, large CL quantitative data (frequencies, collocations, concordances, and contexts) from the Saudi media corpus will be cross-examined with the categories of the SAA. This aims to reveal the cultural concepts, evaluations, judgments, and ideologies attached to the words (Stefanowitsch, 2020; Stubbs, 2001). Stubbs (2001) identified a subcategory of "cultural keywords" which appear in certain types of discourse or what he defines as "discourse which expresses evaluative moral views about different groups of people" (p. 145). His seminal work on a 200-million-word English sub-corpus includes a case study showing that the most frequent co-occurrence of the adjective 'little' is with the noun 'girl'. Caldas-Coulthard & Moon (2010) found that this evaluative language is found in media corpus with the word 'girl' rather than 'boy'.

The Current Study

The provided literature review highlights a key gap: the overwhelming focus of CDA studies on children's portrayal in English texts, leading to a paucity of research on non-Western discourses. This exclusive focus on Western contexts is problematic because, as Fairclough (2006) and Bisht (2008) suggest, cultural and societal perceptions profoundly influence discourses. Given this, we argue that Western-centric findings may not adequately capture diverse understandings of childhood. The current study directly addresses this gap by focusing on children's representation in Saudi media discourse, a largely underexplored language community in CDA literature. By doing so, it aims to uncover how Arabic media discourse represents children, thereby either corroborating existing findings from Western contexts or revealing novel and culturally specific perspectives, which will enrich the broader understanding of childhood portrayal in media. Based on these objectives, the study addresses the following research questions:

1. How are children represented in Saudi mainstream news media discourse?
2. What social roles and identities are assigned to children through lexical patterns and collocational associations?
3. To what extent do these representations reflect or challenge dominant patterns found in previous CDA studies on media portrayals of children?

Methodology

Corpus Compilation

Since we want to understand how children are represented in Saudi mainstream news media discourse, we compiled a custom corpus. The corpus consisted of news articles published in official Saudi newspapers and news agencies over a 10-year period from 2009 to 2019. We analyzed data covering a 10-year range to capture a more comprehensive picture of children's representation in media. Using Ghawwas⁴ (Al-Thubaity & Al-Mazrui, 2015), we extracted relevant data from the subcorpora of the 'Saudi newspaper and news agency' corpus from the King Abdulaziz City for Science and Technology (KACST) Arabic corpus (Al-Thubaity, 2015). This corpus contains 1,182,515,633 words and 1,323,188 texts, but it does not include articles after the year 2015. As such, we used a second method to collect data for the remaining period (2016- 2019). A web-scraping technique was used to gather news articles from the webpages of Saudi newspapers and news agencies (for more details, Diouf et al., 2019). Only article titles and main body texts were retained; and images and metadata such as author names, gender, or professional roles were excluded. We included all the articles we found without any exclusion. As such, the articles were not excluded based on word length,

⁴ Ghawwas <https://sourceforge.net/projects/ghawwasv4/>

publication type or relevance. Consequently, the final dataset is composed almost exclusively of news reports, with opinion pieces or editorials present only when they contained one of the predefined search terms. The final corpus was composed of 59,289,013 words and 180,572 news articles and all texts were analyzed as manifestations of institutional media discourse, consistent with the aims and conventions of CDA.

Keyword Selection

To explore the portrayal of children in Saudi mainstream news media discourse, we first had to extract terms mentioning “children” in our corpus. To do this step, we started by consulting several Arab linguists ($N = 3$) on the lexical items used in Arabic to refer to the “child” to use as key search terms on the Saudi Arabic news corpus.

The initial stage included the lexical word *طفل* *tʔifl* “child” and all its derivations inflected for gender and number. More words were brought to our attention that indicate the meaning of a child in Arabic like *صغير* *sʕ yʔ:r* “small”, *ولد* *walad* “boy”, *بنت* *bint* “girl”, *فتى* *fata:* “young boy”, *فتاه* *fata:h* “young girl”. However, a preliminary extraction of the search terms revealed many other semantic and pragmatic uses of the words that do not mean children.

The only lexical items that referred only to children aged between 6 to 18 were the 11 derivations of the word *طفل* *tʔifl* “child”. All derivatives were analyzed, as the Arabic language inflects nouns for case, gender and number (in addition to Arabic typographical variations) and thus the same lexical item had different forms in different contexts (Alhawary, 2011).

The search from KACST returned 9260 occurrences in addition to 1844 from the additional web-scraping (years 2015-2019) making the total raw frequency occurrence of the Arabic word “child” and its derivations: 11,104, distributed as follows: *طفل* *child.SG.M*, *طفلة* *child.SG.F*, *طفله* *child.SG.F* (typological variation), *أطفال* *child.PL*, *اطفال* *child.PL* (typological variation), *طفولة* *childhood*, *طفلان* *child.DU.M*, *طفلين* *child.DU.M*, *طفلتان* *child.DU.F*, *طفلتين* *child.DU.F*, *طفلا* *child.DU*.

To contextualize the frequency of child-related terms in Saudi media discourse, we started with a comparison with the newspaper section of the Corpus of Contemporary American English (COCA) for the same time frame (2009–2019). This comparison was not intended as a full-scale cross-linguistic or cross-cultural analysis, but rather as a benchmark to assess the relative visibility of children in Saudi news discourse. The goal was to determine whether children are discursively present in media at a frequency consistent with other contexts or if they appear disproportionately more or less frequently, which is a common line of inquiry in corpus-based CDA studies (e.g., Stubbs, 2001; Caldas-Coulthard & Moon, 2010).

Analysis Tools

Three tools were employed to acquire the following three corpus measures: frequency lists, bigram lists, and concordances. These measures allowed us to scrutinize how children are portrayed in Saudi mainstream news media discourse. The analysis was inductive starting from the quantitative keyword frequencies and bigrams, then looking at the larger contextual themes

for patterns like many studies in the literature (Caldas-Coulthard & Moon, 2010; Enroth, 2022; Fenech & Wilkins, 2017).

First, we employed the corpus query tools provided by the KACST Saudi newspaper and news agency corpus. Second, we employed *Ghawwas*, an open-source tool for Arabic corpora processing (Al-Thubaity & Al-Mazrua, 2015). Third, we developed specific corpus analysis tools tailored for the purposes of this research. A frequency list was initially generated to determine the frequency of occurrences for each target lexical item within the corpus. Then, we compiled a list of bigrams to identify words immediately following the target lexical item. Finally, we conducted a concordance search by extracting the ten words that preceded and followed the target lexical item in the corpus to gain insights into the contexts.

Analytical Framework

We applied two complementary frameworks to analyze children's representation in Saudi mainstream news media discourse. The SAA provides a systematic framework for analyzing how different social groups are represented in discourse through specific linguistic choices, including whether actors are included or excluded, individualized or collectivized, and activated or passivated in the text. SFL complements this by examining the grammatical structures that realize these representational choices. Together, these analytical frameworks enabled us to answer our second research question: how social roles and identities are assigned to children in Saudi mainstream news media discourse.

The units of analysis are based on Halliday's (1985) definition of the nominal class in SFL (noun with adjective, numeral or determiner). SAA offers a rich set of analytical categories for discourse analysts. Relevant to our study is the subcategory "Categorization". This subcategory involves defining the identities of social actors through three key dimensions: what they do, i.e. "functionalization", who they are, i.e. "identification" and how they are evaluated, i.e. "appraisement" (Van Leeuwen, 1996. p. 66 for details).

For the functionalization dimension, we adapted Kaziaj's (2016) typology of children's roles in Albanian media, selecting four roles that emerged in our Saudi corpus: 1) children as objects of emotional appeal, 2) children as victims, 3) children as students, and 4) children as passive beneficiaries (p. 435). For the identification dimension, we examined how children were classified "in terms of the major categories by means of which a given society or institution differentiates between classes of people" (Van Leeuwen, 1996, p. 54). This involved analyzing discourse that identified children through group membership, relationships with others, or physical characteristics. Finally, for the appraisement dimension, we conducted concordance analysis to identify the most common themes and topics in which child-related keywords appeared, revealing evaluative patterns in the broader discursive context. This systematic approach enabled us to trace the connection between linguistic choices and the construction of children's social identities, directly addressing our research question.

Results and Discussion

We started by looking at the total occurrence of the word “child” **طفل** and all its derivations in the mainstream Saudi newspapers’ corpus in the period of ten years between 2009-2019 and compared the results with a reference corpus which is the newspaper section of the Corpus of Contemporary American English COCA for the same years 2009-2019. This comparison is included solely as a benchmark to contextualize the salience of children as a discursive topic within Saudi news media. It does not aim to provide a direct cultural or linguistic contrast, but rather to support our interpretation of frequency patterns by referencing a widely studied corpus of media discourse. This approach follows similar benchmark uses in prior corpus-based CDA research (Stubbs, 2001).

Table 1

Frequency Comparison of the Term "Child" In the Saudi Corpus and the Newspaper Section of COCA (2009-2019)

	Saudi corpus (N = 59,289,013)	COCA (N= 269,064,588)
Raw frequency	11,104	28,341
Normalized frequency	.18%	.10%

The normalized frequencies in Table 1 indicate that the lexical term *child* is a low frequent term in both corpora which is in line with previous observations in the media discourse literature (Fullertone, 2004).

Below, we examined lists of collocates which indicate the frequency of the co-occurrence of words by extracting bigrams from the data to shed light on the lexical associations. A combined list of all the derivations of the word *child* **طفل** was created and duplicates were filtered to arrive at the top 31 collocates of Arabic terms referring to children as shown in Table 2.

Table 2

Top 31 Collocates in the Corpus

Collocates			
	English translation	Original Arabic	Frequency
1	in	في	968
2	from	من	505
3	young	صغيرة/صغار	404
4	Palestine/Palestinian	فلسطين	358

5	tubes	الأنابيب	323
6	Iraq/Iraqi	العراق	283
7	street	الشوارع	227
8	and women	ونساء	186
9	the world	العالم	182
10	autism	التوحد	177
11	his/her age	عمره/عمرها	167
12	aged	تبلغ/يبلغ	155
13	The charity	الجمعية	143
14	stones	الحجارة	140
15	schools	المدارس	124
16	doesn't	لا	108
17	and a child.F	وطفلة	89
18	baby	رضيعة/رضيع	89
19	didn't	لم	87
20	or	أو	84
21	and others	آخر اخرين اخرى	83
22	Kingdom of Saudi	المملكة/السعودية	76
23	on	على	63
24	Gaza	غزة	59
25	day	اليوم	53
26	Injured	مصاب	42
27	Nursery	الروضة	40
28	Innocent.F	بريئة	35
29	Cloned	مستنسخة	22
30	and youth	وشباب	20
31	beautiful.F	جميلة	20

The top 31 collocates were further categorized manually through concordances into the three SAA themes (Table 3). Four collocates were grammatical words (in, from, or, on) that were not associated with specific events and were excluded from further analysis. The other two grammatical words (doesn't, didn't) were included as they demonstrated negated event-specific associations. Most collocates for the key term *child* (15 collocates) fall within the category of identification (who the children are). The category functionalization (what the children do i.e. roles) comes next with 11 collocates while appraisal was only found once.

Table 3

The Distribution of Collocates Across SAA Categories

Category	Collocates	Number of collocates
Functionalization (role)	Object of emotional appeal	World, doesn't, didn't, 3

	Victim	Palestine, Iraq, stones, Gaza, injured,	5
	Student	Schools, nursery	2
	Passive beneficiary	charity	1
Total			11
Identification	Classification	Young, street, autism, his/her age, aged, baby, Saudi, today,	8
	Relational	Tube, women, child, others, cloned, youth	6
	Physical	Beautiful.F	1
Total			15
Appraisement	evaluation	Innocent.F	1

Within the identified categories, the identification/classification category exhibits the highest frequency. Some high frequency collocates indicate the age of a child which is a common finding in collocates of people (Caldas-Coulthard & Moon, 2010). The highest frequent collocate after the grammatical words was the word *young/small* ($n=404$). Age is also expressed explicitly by collocates such as *his/her age* and *ages* or by collocates defining a child as a *baby* or referring to a generation like *today*. Other collocates such as *street* point to the social class and *autism* classifies children by mental condition. Those collocates serve a classification function which according to Van Leeuwen (1996) identifies people through societal categorization and classification. However, having the word *street* and the word *autism* in the list of words that comprise the top 31 collocates to classify children shows an interesting linguistic choice.

Street children refer to a phenomenon that is observed with poverty and begging allowing an overlap between categories as it places the children in the role of a victim of the actions of adults as this example shows: *Investigations and inquiries have reported that 10 street children were sexually assaulted*. The high frequency of the word *autism* with children - as in the example: *An autistic child who needs behavioral and psychological care and rehabilitation* - could indicate that the media discourse highlights this topic due to adult interest in children with this specific disability which-in turn- overlaps with the role of objects of emotional appeal as the issue is usually discussed among adults without the child's active voice similar to previous studies (McAndrew et al, 2021). It also reflects a negative standpoint on children's disability by highlighting it as a separate abnormal quality as discussed in the findings of Vehkakoski (2003). These findings corroborate previous CDA studies on Western media suggesting that children's issues are discussed from an adult perspective (Carter, 2014; O'Sullivan, 2007; Spray & Samaniego, 2023).

The contexts of the highest occurring collocate in the data show that many examples from the word *young* fall also between classification and functionalization (role of victim). This signals a pattern of high media reporting of children when they are victims of accidents, violence or abuse such as the following examples (1,2, &3):

1. treating a young child who was saved from a deadly snake...
2. Reports of rape or assault committed against young children, some as young as nine months old...
3. Many issues reported in the newspapers involve either the marriage of young children or elderly men marrying girls in the prime of youth, both scenarios raise concerns.

This tendency to report news of children as victims has been similarly observed in European media

(Jurău, 2021), indicating the limited variation in the social roles of children in media across countries. Again, this paints a passive image of children because they are typically represented as receivers of actions rather than competent individuals who initiate actions.

The second subcategory is relational identification which identifies a person by their relationship with others. The expected collocates in this category would be women, mothers or other children, and indeed the data showed the following collocates: *women*, *child*, *others*, and *youth*. Similar to the collocate *young*, the contexts of the examples also show a tendency to report women and children as victims as in the example: *Paris denied responsibility for the dire conditions experienced by French extremists, including children and women, detained in camps in northern Syria*.

The surprising finding is that the collocate that received the highest frequency was the word *tube*; referring not to children's relation to mothers but to the fertility medical procedure IVF which might fall under what Vehkakoski (2003) named the "medicalizing" rhetoric (p.180) that objectifies children in discourse. Another similar collocate is the word *cloned* also referring to a research procedure. The high frequency of this word in the corpus of this timeframe might be related to the cloning of the first baby in the world in 2002 and the subsequent controversial global ethical debates leading in 2014-2015 to a recommendation by the International Bioethics Committee (IBC) to ban human cloning which was followed by a Saudi law issued in 2015 naming human cloning as a punishable offense.

The only collocate in the physical classification subcategory is the word *beautiful* with a feminine suffix which indicates collocation with the word *child* when referring to females only. As in the following examples: *She was a beautiful child, her features from this homeland, despite the limited information* and *She gave birth in the desert to a beautiful girl and left her*. The collocate didn't receive a high frequency but pointed out a unique adjective grammatically marked for gender and used exclusively with female children identifying them through physical appearance which indicates evaluation of females based on physical appearance similar to Caldas-Coulthard & Moon's (2010) study.

Similarly, appraisal was found once in the collocates list with the word *innocent* accompanied by a feminine suffix indicating that the reference is only to a female child. This association between the word *innocent* and female children seems like a positive evaluation at first but a look at the concordances examples like the following examples: *your child is still beautiful and innocent so don't give people the chance to ruin them*, and *my heart ached for the fate of an innocent child, destined to be a victim due to a dispute between parents* reveals that this framing of female children as innocent in the world of adults implies that they need protection from the corrupted world.

Table 4

The Count and Percentage of Collocates Across SAA Categories

	Category	Count	% Role
Identification	Classification	1348	NA
Functionalization	Role: victim	882	56.32 %
Identification	Relational	723	NA
Functionalization	Role: object of emotional appeal	377	24.07 %
Functionalization	Role: student	164	10.48 %
Functionalization	Role: passive beneficiary	143	9.13 %

The analysis of the functionalization category revealed four roles assigned to children in the data: victims, objects of emotional appeal, students, and passive beneficiaries. Table 4 shows that the role of *victim* accounts for 56% of the total followed by being the *objects of emotional appeal* 24% which means that only 20% of the items indicated *students* and *passive beneficiaries* of charity. The collocates pointing to the role of victim received the highest frequencies in line with many studies (Gordon et al, 2015; Jurău, 2021; Kaziaj, 2016) reinforcing the vulnerability of children and the need to protect them (Carter, 2014). What is unique in this data is that the word *injured* which indicates injury in accidents or domestic violence is actually the lowest frequent collocate (example: *The deceased, the wounded, and the injured children, were evacuated and transferred to the Saud bin Jalawi Hospital in Al-Mubarraz*). Hence, the role of victim refers mainly to children who are victims of conflicts and wars by using the collocates: *Palestine, Iraq, and Gaza* as in the examples (4,5, & 6):

4. How can killing a child in Gaza today contribute to achieving peace?
5. In July 2006, a Palestinian child was martyred this evening by the gunfire of the Israeli occupation forces...
6. there are no prospects for a solution for the Syrian or Iraqi children in ISIS.

This major finding supports earlier claims by Aqtashi et al (2004) on the representation of Palestinian children and Çobaner (2021) on the representation of Syrian refugee children in media from different countries as victims of violence and wars.

The second most common role of children found is that they are *the objects of emotional appeal* which is defined as “news items where children appear, but they do not take any actions or do not have any say about the issue that is being discussed” (Kaziaj, 2016, p.434). The highest collocate in this category is the word *world* which involves contexts discussing global issues from an adult perspective without giving voice to children like for example: *Among every child in the world, totaling a billion children, one of the primary reasons for a decline in quality of life is recorded*. A careful examination of concordance contexts revealed that the words *doesn't* and *didn't* also indicate portrayal of children as objects as in: *It's a tragic social narrative, as she is a child who doesn't have control over her life*, and *the child's condition didn't get better*. Using linguistic negation to describe children's lack of agency may set up a strong contrast between an expected state and the actual reality. For example, describing the child's state using a negative clause ‘the child doesn't have control over her life’ rather than an affirmative clause ‘is under others' guardianship’ highlights a gap or problem and this contrast can evoke emotional responses such as sympathy, concern or outrage.

The role of students was displayed with the collocates: *schools* and *nursery* as in: *the campaign targets the neighborhood and adjacent schools, aiming to vaccinate more school children*. However, some overlap is found with contexts where the role of the student is conflated with the role of objects of emotional appeal as in: *deprivation has led to over a million school children being denied education*, and the role of victims as in: *In April of that year, 76 school children from a Nigerian school were abducted*. Finally, the role of passive beneficiaries is found with one collocate *charity* which appeared 143 times in the data and listed as the 13th most frequent collocate. The concordances showed contexts reporting work of children charities with children as in: *the charity organization "SANAD" for children's cancer treated children diagnosed with cancer*.

To further investigate the findings, the concordances data was classified to themes/contexts using the KACST ‘Ghawwas’ concordance tool filter for ‘topic’ which is one of three filters including ‘medium’ and ‘domain’ (for more details on the tool see Althubaity, 2015). This classification was done automatically using C 5.0, a decision-tree and a rule-based algorithm, which has an accuracy level of 84% (Al-Thubaity et al., 2008).

Table 5
Thematic Categories and frequencies

Thematic category	Frequency
Literature fiction stories	7770
Accidents and incidents	1296
Healthcare	955
War and terror	535
Crimes and violence	344
Education	197

The results, as shown in Table 5, reveal six major themes/topics in which the keywords referring to children appeared. Half of these topics involve accidents, war, terror, crime and violence. The other three contexts were categorized as literature, healthcare and education. However, the results of the concordances show that the mention of children in healthcare contexts fell under identification and classification (e.g. autism, tube, clone). Also, the role of student which is expected in educational contexts was repeatedly used to indicate problems that make the children objects of emotional appeal.

General Discussion

This study investigated three research questions about children's representation in Saudi mainstream news media discourse (2009-2019). Our corpus-based CDA analysis of 59 million words revealed three key findings. We found that children are predominantly represented as passive victims and objects of emotional appeal (RQ1), with gendered evaluative markers appearing exclusively for female children (RQ2), and these patterns reflect rather than challenge global Western findings (RQ3). These findings are explained in detail below.

The results suggest that children in Saudi media (years 2009-2019) are framed predominantly in two roles: victims and objects of emotional appeal. These roles are further highlighted among female children by the additional physical identification and appraisal collocates that link “beauty” and “innocence” to a female child as traits that make them susceptible -by nature- to harm which marks a cultural evaluative keyword (Stubbs, 2001). The results of the themes also reveal that three of the six contexts are related to accidents, wars and violence. The two other contexts that should include normal positive roles like healthcare and education were also found to be focusing on stories that relate to negative emotions.

From a CDA perspective, such recurring victim and passive-object representations are not merely reflections of journalistic norms but are discursively significant practices that construct and reinforce power dynamics (Van Leeuwen, 1996; Fairclough, 2006). Our findings show that even outside crime reporting, such as in education and healthcare contexts, children remain largely positioned as receivers of actions, with minimal agency or voice. This systemic pattern aligns with global CDA studies that document the marginalization of children’s perspectives across media genres (Kaziaj, 2016; Gordon et al., 2015; McAndrew et al., 2021), indicating that mainstream Saudi news discourse similarly perpetuates these limiting frameworks rather than challenging them.

The results could be an indication of societal views of children that fall within the traditional views enforcing adult power and dominance and underscoring children's vulnerability. This, in turn, diminishes children's agency and silences their voices (James & Prout, 1997). The analysis revealed that the controversy noted by many Saudi scholars (e.g. Al-Drage, 1990; Al-Suwaigh, 1984; Khalifa, 2001, 2012) in sociological discourses marking new attitudes and perspectives on childhood as an important and unique stage was not reflected in the mainstream media discourse. Instead, the analysis confirmed the results of worldwide studies on negative representation and/or silence (Caldas-Coulthard & Moon, 2010; Gordon, 2012; Jurău, 2021; Kaziaj, 2016; McAlister & Scraton, 2015; Mustola et al, 2019). Media could be a potential and strong venue to express the child's individuality, yet these findings indicate that media discourse in the investigated period, like media in other countries, seem to have limited interest in giving voice to children.

The corpus data, contexts and themes also show a familiar outline of children subgroups that were investigated in the previous studies reviewed above like refugees, immigrants, Palestinian, Iraqi, and children with disabilities. These findings indicate that the mainstream media focuses on children when they are broken, weak and helpless. Media organizations might be capitalizing on the heightened emotional responses such depictions evoke, thereby increasing viewership and potential revenue streams (Goldstein et al., 2011). While our methodology explains that we focused solely on derivatives of the Arabic word *طفل* ("child") to avoid ambiguity in corpus retrieval, this choice may have excluded relevant instances where other lexemes (e.g., *ولد* "boy," *بنت* "girl") were used. As a result, some representations of children in Saudi media may not have been captured. Future research should find ways to broaden the keyword selection to include additional child-referencing terms for a more comprehensive analysis.

Given that this is one of the first studies in Saudi Arabic media, a critical implication is to follow this line of research and gather more data noting that the data for this paper ended in 2019 which was close to the start of the "Saudi Vision 2030" in 2017. Hence, it would be fruitful to compare the results with more recent data from Saudi mainstream media after the Saudi vision and economic and social reforms which has affected societal views and future aspirations especially among the younger generations (Thompson, 2017). It is also suggested to further explore the depiction of female children in light of the recent changes in the Saudi media discourse on women empowerment as found by Afzal & Omar (2021). Moreover, this study focused on mainstream news media, however, we acknowledge that children may appear in other media formats such as TV programs or online platforms. Future research could explore such genres although these venues often involve adult mediation and do not necessarily reflect authentic child agency (Awan, 2022). Yet it would be interesting to investigate whether more empowering representations emerge outside official news discourse.

Drawing from CDA, SAA and the sociological frameworks presented above, we advocate enhanced representation of children's agency in media discourse to balance off the currently tipped scales by having them 'seen' and 'heard' for their wonderful participation in daily life, the joy they bring and their dreams and aspirations. Justified by the need to protect children from harm, media discourse could be reflecting and/or influencing society's fears, power struggles, and hierarchical structures.

Hence, a balanced approach is essential to prevent the overprotection of children from overshadowing their active participation. For instance, to enhance children's media representation, media organizations may prioritize including children's direct quotes, establish child consultation protocols, and set quotas for positive coverage of their achievements. Likewise, policymakers could consider integrating media literacy into curricula, develop regulatory frameworks encouraging balanced coverage, and fund youth-perspective journalism initiatives. These steps could help in emphasizing the positive roles and abilities of children instead of recognizing them solely when they are vulnerable and voiceless.

Although our study revealed crucial findings about the representation of children in Saudi mainstream media, it remains limited in several ways. First, keyword selection limited to **طفل** derivatives may have missed alternative child-referencing terms. Second, the corpus coverage was incomplete, possibly excluding some regional Saudi publications. Third, automated topic classification achieved 84% accuracy, potentially affecting thematic analysis. Finally, the corpus utilized in the study only included news published up to the year 2019. This could have missed early impacts of Saudi Vision 2030 reforms on children representation in Saudi Mainstream media.

Conclusion

This CDA-based examination of a 59-million-word corpus of Saudi newspapers and news agencies reveals a concerning pattern in mainstream media's representation of children. Our findings demonstrate that Saudi media in the targeted timeframe of the study (from 2009 until 2019) systematically constructed children as victims and objects of emotional appeal, stripping them of agency and authentic voice in public discourse. Furthermore, the study demonstrates that children were predominantly portrayed in contexts of violence, accidents, and war, with female children additionally marked by beauty and innocence descriptors that emphasized their vulnerability. These findings align with global CDA studies documenting children's marginalization in media discourse, suggesting that despite Saudi Arabia's unique cultural and linguistic context, mainstream media perpetuates similar limiting frameworks that reinforce adult dominance and children's dependency. The absence of empowering representations or authentic child voices in educational and healthcare contexts further indicates that traditional conceptualizations of childhood persist in Saudi media discourse, contradicting sociological shifts toward recognizing children's agency. This research contributes to the limited body of Arabic CDA literature while highlighting the need for more balanced media representations that acknowledge children's diverse capabilities and active participation in society.

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Data availability statement

The data that support the findings of this study was accessed from [the open Arabic corpus provided by King Abdulaziz City for Science and Technology KACST] at [<http://corpus.kaest.edu.sa/>], which was available online at the time the data was gathered. The corpus is now moved to [Falak platform] which is one of the initiatives of the King Salman International Academy for Arabic Language at [<https://falak.ksaa.gov.sa/corpora/arabiccorpus>]

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A Comparative Transitivity Analysis of Human vs. Artificial Intelligence-Based Translations: An Evaluation of Abstracts from Humanities and Social Science Studies

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المخلص

تهدف هذه الدراسة إلى مقارنة وتقييم أنظمة الترجمة البشرية و الترجمة القائمة على الذكاء الاصطناعي المتمثلة ب (ChatGPT & Google Translate) من خلال تحليل العملية التعددية النحوية والدقة اللغوية في أربعة نصوص مترجمة من العربية إلى الإنجليزية. ولتحديد العملية التعددية، تم اعتماد نموذج نظام التعددية لدى هاليداي (Halliday)، مع التركيز على تحليل الخطاب النقدي. ونظرًا لطبيعة البيانات، تم استخدام المنهج الكمي. تظهر النتائج أن العمليات المادية هي الأكثر شيوعًا بنسبة (52.63% - 75.71%)، تليها العمليات العلاقية بنسبة (10% - 31.57%). وأظهرت الترجمات البشرية اتساقًا أكبر في العمليات المادية، بينما اختلفت الترجمات الآلية بشكل ملحوظ. أما العمليات الوجودية والسلوكية فكانت نادرة أو غائبة في نصوص محددة. كما أظهرت النتائج وجود اختلافات متباينة في منهجية الترجمة، حيث التزمت الترجمات البشرية بأنماط لغوية متوقعة بشكل أكبر. بالإضافة إلى ذلك، كشفت الدقة اللغوية - التي قيس باستخدام درجات BLEU أن ترجمة ChatGPT حققت درجة 0.77، متفوقةً على Google Translate التي حصلت على 0.69، مما يشير إلى توافق أفضل مع الترجمة المرجعية. يوصي البحث إلى إمكانية إجراء مزيد من الدراسات المستقبلية لاستكشاف نطاق أوسع من أنواع النصوص واللغات، وتقييم تأثير التنقيحات اللاحقة على مخرجات الترجمة الآلية للتحقق من هذه النتائج.

الكلمات المفتاحية: الترجمة بالذكاء الاصطناعي، شات جي بي تي، ترجمة جوجل، الترجمة البشرية، ملخص البحث، العلوم الاجتماعية

A Comparative Transitivity Analysis of Human vs. Artificial Intelligence-Based Translations: An Evaluation of Abstracts from Humanities and Social Science Studies

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Abstract

This study aims to compare and assess human and AI-based translation systems (ChatGPT and Google Translate) by analyzing transitivity processes and linguistic accuracy in four Arabic-to-English translated abstracts. To identify the transitivity process, Halliday's transitivity system model was adopted, highlighting critical discourse analysis. Due to the nature of data, a quantitative method was employed. The analysis reveals that material processes are the most frequent (52.63%–75.71%), followed by relational processes (10%–31.57%). Human translations show greater consistency in Material processes, while machine translations exhibit more variation. Existential and behavioral processes are rare or absent in specific abstracts. Also, the results showed the existence of systematic differences in translation approaches, with human translations adhering more closely to expected linguistic patterns. In addition, linguistic accuracy, measured using BLEU scores, shows that ChatGPT Translation achieved a BLEU score of 0.77, outperforming Google Translate, which scored 0.69, indicating better alignment with the reference translation. Further studies could explore a broader range of text genres and languages and evaluate how post-editing impacts machine-translated outputs to validate these findings.

Keywords: *AI-based translation, ChatGPT, Google Translate, human translation, research abstract, social sciences*

Introduction

Technology has a major role in shaping and directing modern life as Federspiel et al. (2023) highlights the substantial impact of artificial intelligence on human life. This impact spans a wide range of advanced artificial intelligence (henceforth AI) applications, some of which have already made challenges to humans at performing different operational and administrative duties (Kembaren et al., 2023; Moneus & Sahari, 2024). Nevertheless, the same superiority of human cognition that has consistently guaranteed human supremacy in the natural world also explains why humans continue to do exceptionally well in jobs requiring intelligence and thought (Moneus & Sahari, 2024). This potentially serves communication skills between nations in this digital era. For example, as globalization accelerates and information technology rapidly advances, international communication has become a vital bridge between cultures and languages, highlighting the crucial role translation plays in this process (Dai, 2024; Kembaren et al., 2023). Moreover, technology helps make the trend of international communication easier and faster. In such settings, translation becomes a crucial component to guarantee correct comprehension, encourage cross-border cooperation, and facilitate cross-cultural exchanges. (Kembaren et al., 2023; Muhdi, 2019; Supriatnaningsih et al., 2019). This substantially has led to the widespread availability of translation software models based on AI, such as Google Translate, Amazon Translate, Bing, DeepL, Microsoft Translator, and Systran Translate. There are also a number of computer-aided translation (CAT) tools available, including Lokalise, Memoq, Memsource, Trados, TextUnited, Smartling, Crowdin, and Smartcat. Recently, artificial intelligence has been used to create programs like ChatGPT, ChatSonic, GPT-3 Playground, Chat GPT 4, and YouChat that more closely resemble human interactions by simulating conversational answers to scholars' questions (Moneus & Sahari, 2024). However, AI translation is increasingly competing with traditional human translation methods, driven by ongoing advancements in AI technology (Zagood et al., 2021). Some even predict that AI may eventually replace human translators in the industry. Still, human translation offers unique advantages, particularly when it comes to literary works, sparking ongoing debate and scrutiny over the role of AI in this field (Dai, 2024).

Evaluating machine translation, particularly in AI-based translation systems, poses outstanding challenges related to the vast and unpredictable nature of the corpus of studies, which compromise the reliability of automated metrics (Ghassemiazghandi, 2024). In response to these challenges, Papineni et al. (2002) introduced the Bilingual Evaluation Understudy (BLEU) metric, which quantifies translation quality by counting the shared words and n-grams between machine-generated and reference translations. Additionally, Han (2016) emphasized that automated metrics assess a machine translation system's performance by comparing its outputs to one or more human-produced translations. Nevertheless, given the limited studies on this approach, integrating human evaluations or alternative methods of translation quality assessment would provide a more detailed and comprehensive understanding of translation system performance, addressing a key gap in current research (Son & Kim, 2023).

For this research, a comparison of the system of transitivity analysis in translations produced by AI-based translation systems (ChatGPT and Google Translate) and human translation was conducted for the sake of examining their performance in translating a research abstract. Significantly, English abstracts are becoming increasingly essential when searching for academic papers. The quality of the English abstract has a direct impact on the dissemination of scientific research which is a key factor in determining whether an article will be accepted by international indexing systems (Lin et al., 2024). In order to find the aspects of transitivity in a research abstract, transitivity analysis was employed. Based on transitivity model adopted by Halliday's Systemic-Functional Grammar (Halliday & Webster, 2014), this study assesses and compares translations made by AI-based translation systems and human translation of four research abstracts. Specifically, identifying transitivity characteristics in abstracts and providing researchers with relevant transitivity verbs and phrases in academic writing potentially serve as references when submitting to prestigious publications. This would also measure the effectiveness of AI-based translation systems compared to human translation.

All in all, it is important to note that generative artificial intelligence advances machine translation to a new phase. Through the generative AI translation framework, source texts are translated and deeply modified by entering instructions into an AI system such as ChatGPT (Fu & Liu, 2024). Nevertheless, recently, the linguistic characteristics of generative AI translation and its benefits and drawbacks in comparison to human translation remain insufficiently explored (Fu & Liu, 2024). To address this gap, the current paper aims to compare and evaluate the system of transitivity analysis in translations produced by AI-based translation systems (ChatGPT and Google Translate) and human translation by assessing and examining their performance in translating four research abstracts using BLEU tool.

Literature Review

Linguistic characteristics between AI translation and human translation

In terms of comparing AI-based translation systems to human translation, linguistic analysis research has covered a wider range of subjects, such as lexical analysis (Frankenberg-Garcia, 2022; Vanmassenhove et al., 2019), cohesion (Niu et al., 2020), complex morphological terms (Passban et al., 2018) and syntactic aspects (Sianipar & Sajarwa, 2021). It has been found that lexical analysis is of interest to many academics. For example, Klebanov and Flor (2013) noted that human translation has a higher lexical tightness (a measure of how lexical items are related within a text) than machine translation. Current machine translation methods fall short of translation conducted by humans in terms of lexical variation when compared to human translation in the setting of English-French and English-Spanish language pairings (Vanmassenhove et al., 2019).

Furthermore, Frankenberg-Garcia (2022) claimed that machine translations have issues such as lexical inconsistency as revealed in their corpus-driven keyword study. In order to improve neural machine translation's performance when translating morphologically complicated terms, Passban et al. (2018) suggested a double-attentive decoder structure and

double-channel encoder. In terms of coherence, machine translation shows less coherence than human translation (Niu et al., 2020), while Wong and Kit (2012) noted that human translation typically employs more coherent devices. Also, Syntactic elements in Indonesian-English language pairs vary between machine translation and human translation in terms of voice conversion, sentence structure, tense, and passive voice usage (Sianipar & Sajarwa, 2021). In case of style and figurative language, Mehawesh's (2023) research revealed that emotive words are interpreted better when translated by human translators.

Despite the large number of prior studies on the linguistic comparison between machine translation and human translation, there are still some significant gaps. First of all, there is a dearth of research on comparing the system of transitivity analysis in translations produced by AI-based translation systems (ChatGPT and Google Translate) and human translation, examining their performance in translating a research abstract, whereas there have been prior and remarkable studies on comparing the language features of generative AI translation and human translation in literary (Zagood et al., 2021), linguistic distinctions between generative AI translation and human translation in scientific publications (Fu & Liu, 2024), and legal materials (Moneus & Sahari, 2024). Second, the focus of previous research is primarily on Indo-European languages, such as English, French, and Portuguese, on one hand and East Asian languages such as Chinese on the other, with comparatively little attention paid to Arabic. Given the large number of Arabic speakers worldwide and the potential for large language models like ChatGPT to provide alternatives to neural machine translation (Fu & Liu, 2024), it is crucial to investigate the linguistic characteristics of the system of transitivity in translations produced by AI-based translation systems (ChatGPT and Google Translate) and human translation through examining their performance in translating a research abstract in the context of Arabic-English scientific translation. Besides, few studies examined transitivity in research abstracts (Sari & Sari, 2016).

Research article abstracts and transitivity analysis

An abstract, which is a concise synopsis of the original work, is crucial to the article's effective dissemination (Lin et al., 2024). Vathanalaotha and Tangkiengsirisin (2018) contended that abstracts of research articles serve as publishers' initial means of assessing the caliber of research. Although numerous studies have examined the genre of abstracts in a variety of fields and languages in this context, few research has made an effort to identify the differences they might observe in a single domain (El-Dakhs, 2018; Saidi & Talebi, 2021). This is why the focus of the paper was on one domain which is Humanities and Social Science Studies.

In a very recent study, Lin et al. (2024) analyzed English for Science and Technology article abstracts using Halliday's transitivity model. Thirty abstracts are chosen at random from the most recent issue of Science to serve as the original data. The results show that only five transitivity processes are used in those 30 abstracts. Also, the constituent ratio differentiation of a subset of transitivity processes is statistically significant. It should be noted that their study examined high-frequency verbs of transitivity processes in order to provide guidelines for writing research article abstracts for English non-native scholars. However, their paper did not tackle human or AI based translation.

To highlight the importance of research abstracts in scientific and literary works, Saidi and Talebi (2021) confirmed that research article abstracts are crucial in determining the future of scholarly publications. Within the field of applied linguistics, their paper made an effort to investigate the constituent moves and move patterns of research article abstracts published in two international and local journals, namely, the Journal of English for Academic Purposes (international) and the Iranian Journal of English for Academic Purposes (local). Nevertheless, transitivity analysis was not applied in Saidi and Talebi's (2021) research. Using Hyland's (2000) five-move model, the abstracts of research articles were examined. According to the findings, the abstracts that were published in the two journals had standard moves. Additionally, in the two corpora, the product, purpose, and techniques were the most frequently used moves. Their study also revealed differences in the move patterns between the two sets of articles, even if the chi-square test findings indicated no significant difference in the frequency of the moves in the abstracts.

In another study, Vathanalaoha and Tangkiengsirisin (2018) compared the tonal styles of each rhetorical moves between Thai and international dentistry research abstracts using a corpus-based transitivity analysis. The datasets were built using 120 abstracts of dental research articles that were chosen at random from the top five international dental journals according to Impact Factors and six Thai recognized dentistry publications. The datasets were examined using verbal choices of transitivity proposed by Thompson (2000) and six process kinds based on Halliday and Matthiessen (2014). The results revealed that verbal and existential processes were exclusively present in the Methodology moves of Thai refereed dental journals, despite the fact that both datasets had similarities in terms of the transitivity types present in each of the rhetorical moves. International dental journals' discussion moves also emphasized verbal processes.

According to Sari and Sari (2016), transitivity is frequently employed in the linguistic field to evaluate novels, short stories, newspapers, and other discourses in order to deduce the discourses' ideologies. Analyzing transitivity processes in abstracts was the goal of their study. Since the research offers a descriptive analysis based on the findings' percentage of occurrence, both qualitative and quantitative methodologies are used to analyze the data. Out of twenty linguistics abstracts, five were selected at random. Materials (62.4%), relational (24.7%), verbal (5.4%), mental (4.3%), behavior (3.2%), and existential (1.1%) are the six transitivity processes that were examined. There are also thirteen circumstantial elements, with place having the highest percentage (54.4%) and frequency, commutative, and matter having the lowest (1.3% each).

In sum, the investigation drawn from prior studies has revealed a dearth of research on the transitivity analysis of translating abstracts of social science research articles using both human translation and AI-based translation systems. In order to address this gap, the current study compared the transitivity analysis system in translations generated by human translation and AI-based translation systems (ChatGPT and Google Translate) in order to assess how well each performed when translating a research abstract.

Machine translation evaluation (BLEU as an example)

Machine translation evaluation can be conducted through manual or automatic methods (Zakraoui et al., 2021). Manual evaluation, though providing a thorough assessment, is resource-intensive and time-consuming, whereas automatic evaluation offers less costs and efficient alternative, albeit with reduced comprehensiveness (Hadla et al., 2014). Despite its limitations, automatic evaluation is commonly preferred by researchers for its speed and affordability, with metrics such as Bilingual Evaluation Understudy (BLEU) frequently employed by large number of scholars (Papineni et al., 2002; Zakraoui et al., 2021) to assess and optimize the output and performance of machine translation systems (Zakraoui et al., 2021). Thus, BLEU is a leading statistical metric used to measure the similarity between machine-generated translations and human-produced translations (Ghassemiazghandi, 2024; Reiter, 2018). In addition, Zakraoui et al. (2021) described BLEU as a method for assessing the quality of machine translation by measuring the similarity between the machine translation system's output and a reference translation, typically provided by a professional human translator.

Numerous studies in literature have introduced improved versions of the BLEU metric, such as those presented in the study conducted by Chen and Kuhn (2011). Researchers also employed various other metrics relying on different factors; these metrics include METEOR and Word Error Rate (Sai et al., 2020), and the AL-BLEU metric (Bouamor et al., 2014) with the latter that extends BLEU to accommodate the complex morphology of the Arabic language. Specifically, in an attempt to evaluate a range of automatic metrics, no conclusive evidence, however, emerged to suggest that any single metric outperforms the others among those analyzed in the studies conducted by Hadla, (2014) and Sai et al. (2020). Whereas automatic metrics such as BLEU offer an overall indication of a Machine Translation model's translation accuracy, these researchers do not provide detailed insights into the specific linguistic aspects that pose challenges for models in generating fluent and coherent output in relation to transitivity analysis. Besides, several studies have examined machine translation samples with native speakers to assess the linguistic aspects of MT errors (Almahasees, 2020; Marouani et al., 2020), while other research has employed neural networks to identify errors (Madi & Al-Khalifa, 2020) or correct these errors (Watson et al., 2018).

Types of machine translation

Machine Translation (MT) has undergone substantial advancements, progressing from early rule-based systems to modern data-driven approaches such as statistical and neural methods (Wang, 2024). Each paradigm employs distinct techniques, offering varying levels of accuracy, fluency, and adaptability.

Rule-Based Machine Translation (RBMT)

The earliest MT systems relied on Rule-Based Machine Translation (RBMT), which utilized predefined linguistic rules and bilingual dictionaries to convert text between languages. These systems typically involved analyzing the source sentence, applying syntactic and semantic transformations, and generating the target output (Abercrombie, 2016; Wang, 2024). While RBMT could achieve grammatically precise translations in controlled scenarios, Rule-

based MT systems frequently struggle to handle complicated syntactic patterns and ambiguous words effectively (Wang, 2024).

Statistical Machine Translation (SMT)

Statistical Machine Translation (SMT) emerged as a data-driven alternative, leveraging probabilistic models derived from large bilingual text corpora (Brown et al., 1993; Wang, 2024). Unlike RBMT, SMT systems translated by identifying the most probable target phrases or sentences based on statistical patterns. Phrase-based SMT, for instance, segmented input into chunks and reassembled them using probability estimations (Wang, 2024). It is interesting to indicate that SMT improved translation fluency and reduced dependency on linguistic rules. Nevertheless, statistical machine translation systems are constrained by both the quantity and quality of available training data, necessitating large-scale corpora to produce satisfactory translations (Abercrombie, 2016; Wang, 2024).

Neural Machine Translation (NMT)

Neural Machine Translation (NMT) revolutionized the field by adopting deep learning architectures, particularly sequence-to-sequence (Seq2Seq) models with attention mechanisms (Bahdanau et al., 2015). Unlike SMT, which processed translations in fragments, NMT encoded entire sentences into continuous representations and generated outputs holistically (Wang, 2024). Despite its advantages, NMT demands significant computational resources and large datasets, posing challenges for low-resource languages (Ranathunga et al., 2023).

Theoretical background of the article

A linguistic tool for clause-level text analysis can be identified as transitivity analysis (Alhumsi & Alsaedi, 2023). It is based on Halliday's Systemic Functional Linguistics and is used to determine the verbal, existential, relational, material, mental, and behavioral processes that are used in a text (Halliday & Matthiessen, 2014) (see Table 1). This analysis is essential to understand how the verb, subject, and object interact with one another and how each contributes to the ideologies and meanings expressed in the text (Alhumsi & Alsaedi, 2023). It is interesting to note that process, participants, and circumstances are the three main parts of a sentence based on Halliday's transitivity model (Halliday & Matthiessen, 2014). According to their model, "process" refers to the core experiential event or state of being realized by clausal construction being carried out, "participants" refers to the entities engaging in the process, and "circumstances" refers to the setting in which the process is taking place. To get an illustrated image, types of processes, roles of participants, and circumstances indicated by the transitivity system are shown in Table 1.

Table 1
Types of Processes, Participants' Roles, and Circumstances

Process Types	Participants' Roles	Circumstances
Material	Actor + Goal	Extent,
Mental	Senser + Phenomenon	Location (time, place),
Verbal	Sayer + Target	Cause,
Relational	Carrier + Attribute	Manner,
Existential	Existent	Matter, and
Behavioural	Behaver	Accompaniment

An actor and a goal are the main components in material processes; they are distinguished by occurrence and action. Mental processes are linked to mental states, and the participant's role is usually that of a sensor or perceiver and the role of phenomenon. Relational processes define the relationship between the subject and complement. Verbal processes are also connected to speech and communication. Existing procedures serve as indicators of something's existence or presence. Finally, behavior or physiological activities are described using behavioral processes (Halliday & Matthiessen, 2014). Significantly, transitivity analysis has its own reputable position in literature.

Specifically, in reviewing literature, numerous studies have used transitivity analysis to examine a wide range of aspects related to language and meaning in various fields. For example, such fields involve academic documents (Alhumsi et al., 2024), research articles (Lin et al., 2024), political writings (Alhumsi & Alsaedi, 2023), and text news (Alhumsi & Alshagrawi, 2022). However, those studies did not address evaluating the performance of human translation and AI-based translation systems (ChatGPT and Google Translate) in translating a research abstract by comparing the transitivity analysis system in their translations. Hence, the aim of this paper is to address such comparison and evaluation, and the research questions that the paper poses are as follows:

1. Which transitivity processes are most frequently employed in research abstracts translated by human and AI-based translations?
2. To what extent do AI-based translations differ from human translation in terms of evaluation?

Methods

Research design and instruments

Based on the research questions, a quantitative research approach was used in this investigation. The main purpose of the quantitative approach is to ascertain how frequently different transitivity process types occur within a clause. Additionally, a quantitative approach is necessary to improve the precision of evaluating textual data (Köhler, 2012). For the current

paper, human translation and AI-based translation systems, namely ChatGPT and Google Translator, together represent the research tools in this inquiry.

Sample of the study

Four abstracts from multiple disciplines published by different peer-reviewed scientific journals selected randomly served as the study's sample. These fields represent the area of humanities and social sciences, encompassing language, law, economic, and security sciences. Interestingly, the source text of the randomly selected abstracts is written in Arabic. Therefore, it is crucial to note that all published abstracts in these journals are mandatorily translated by professional, qualified and expert scholars from English to Arabic and vice versa. In addition, the abstract should be written in Arabic and English as a crucial requirement of the regulations of these journals.

To ensure consistency and homogeneity, the decision was made to focus on these four Arabic abstracts and translate them three times into English, using a combination of AI and human translation. This approach aligns with the idea presented by Palinkas et al. (2015), who highlighted the importance of homogeneity in research, which often calls for smaller sample sizes to achieve uniformity. Thus, by selecting only four abstracts randomly, one can ensure that the source content remains constant across all three distinct translations; all three translation outputs (human translation, ChatGPT translation, and Google translate) derive from identical source content. This eliminates the potential variability that could arise from using large number of abstracts, which might introduce uncontrolled factors such as genre effect into the analysis since these abstracts belong to social sciences.

Data collection procedure and data analysis

Paragraphs The data of the current study was collected from 4 abstracts from different Saudi journals publishing articles specialized in humanities and social sciences. Therefore, the selection of those abstracts from those journals forming as the study's sample is grounded in the journals' specialized focus and scope within the Arab world, making them highly relevant for the purpose of the study. Additionally, those journals, namely University of Tabuk Journal for Humanities and Social Sciences, Jazan University Journal of Human Sciences, Journal of Economic Studies, and Arab Journal for Security Studies, are well-respected institutions in Saudi Arabia known for producing research that is both academically rigorous and regionally significant. Using the randomly selected four abstracts ensures that the study draws from authoritative, peer-reviewed, and contextually appropriate articles in the Arab world since the language of the selected abstracts serving as the source text is written in Arabic. Specifically, Abstract 1 that discussed language issues was adopted from Alqahtani (2024). Abstract 2, which focused on security sciences, was adopted from Almoibed (2024). Abstract 3, which covered economic issues, was adopted from Hassan and Amin (2023). Finally, the last abstract (Abstract 4) addressed the field of law and was adopted from Alshahrani's (2024) study.

The four abstracts were translated into English using professional human translation and AI based translation systems such as ChatGPT and Google translation. Hence, three distinct English versions of translations for each abstract were employed as the data of the current study.

For the sake of data analysis, Microsoft Office Word is used to divide the text of the three English translated versions of each abstract into clauses. To identify the transitivity patterns employed, the clauses were grouped according to Halliday and Matthiessen's (2014) transitivity system. Microsoft Office Excel was also used to determine the overall number of processes and how frequently they occurred in the three distinct English versions of the four abstracts.

Results

A comparative analysis of abstract 1 translated by human and AI-based translation systems

As expressed in Table 2, out of a total of 70 ranking clauses recognized in the three versions of the abstract 1 translated by using AI based translation systems and human translation, only behavioral process type did not exist in this abstract tackling language issues.

Table 2

A Comparative Analysis of Process Types for Abstract 1 Using Human and AI-Based Translation Systems

Translation Version/ Process Type	Human Translation	ChatGPT Translation	Google Translate	Total
Material	17 73.91%	18 78.26%	18 75%	53 75.71%
Relational	3 13.04%	2 8.70%	2 8.33%	7 10%
Verbal	1 4.35%	1 4.34%	1 4.17%	3 4.29%
Mental	1 4.35%	2 8.70%	2 8.33%	5 7.14%
Behavioural	----	----	----	----
Existential	1 4.35%	----	1 4.17%	2 2.86%
TOTAL	23 100%	23 100%	24 100%	70 100%

In the material category, human translation accounted for 17 clauses, which is 73.91% of the total. ChatGPT translation and Google Translate both had 18 clauses each, which represent 78.26% and 75% of the total, respectively. This category had the highest number of clauses compared to the other categories, with a total of 53 instances. For the relational category, human translation had 3 clauses, making up 13.04% of the total. Both ChatGPT translation and

Google Translate each contributed 2 clauses, which represent 8.70% and 8.33% of the total, respectively. This category showed fewer instances than material but still contributed a significant proportion to the total.

In the verbal category, all three translation methods contributed equally, with 1 clause each. human translation represented 4.35% of the total, ChatGPT translation represented 4.34%, and Google Translate accounted for 4.17%. This category had the fewest clauses overall, making up a small portion of the total. As for the mental category, human translation contributed 1 clause (4.35% of the total), while both ChatGPT translation and Google Translate each contributed 2 clauses (8.70% and 8.33%, respectively). This category, like verbal, had a relatively low number of instances, but ChatGPT translation and Google Translate slightly outperformed human translation. The behavioral category showed no clauses recorded across any of the translation methods, indicating that no data was available or applicable for this category. Finally, in the existential category, human translation contributed 1 clause, representing 4.35% of the total, and Google Translate had also one clause (4.17%). ChatGPT translation did not contribute any clauses in this category. However, this category had a small but noteworthy presence in the whole count. All in all, despite some variations between the methods, the totals show an almost equal distribution of clauses across the three translation methods, with Google Translate slightly surpassing the others in total sum.

A comparative analysis of abstract 2 translated by human and AI-based translation systems

As illustrated in Table 3, out of a total of 94 ranking clauses identified in the three versions of the abstract 2 translated by using AI based translation systems and human translation, all process types, as classified by Halliday and Webster (2014), were determined to occur in this specific abstract that is related to security science issues.

Table 3

A Comparative Analysis of Process Types for Abstract 2 Using Human and AI-Based Translation Systems

Translation Version/ Process Type	Human Translation	ChatGPT Translation	Google Translate	Total
Material	20 71.4%	20 64.5%	24 68.6%	64 68.1%
Relational	3 10.7%	8 25.8%	4 11.5%	15 15.9%
Verbal	2 7.2%	2 6.4%	3 8.5%	7 7.5%
Mental	1 3.5%	---	2 5.7%	3 3.2%
Behavioural	---	1 3.3%	---	1 1.1%
Existential	2 7.2%	---	2 5.7%	4 4.2%
TOTAL	28 100%	31 100%	35 100%	94 100%

It is important to note that Table 3 offers a comparative analysis of three translation methods—Human Translation, ChatGPT Translation, and Google Translate—across various process categories derived from abstract 2. Specifically, human translation demonstrates a strong focus on material aspects, accounting for 71.4% of its output, which suggests a preference for concrete, factual content. This is complemented by smaller proportions in relational (10.7%), verbal (7.2%), mental (3.5%), and existential (7.2%) categories, indicating a balanced but limited engagement with abstract or interpersonal elements. Notably, human translation entirely neglects behavioral processes, reflecting prioritization of content over interactional nuances. In contrast, ChatGPT translation shows a higher emphasis on relational processes (25.8%), nearly double that of human translation, suggesting a greater inclination toward interactional or communicative functions. However, its material focus (64.5%) remains dominant, though slightly reduced compared to human translation. ChatGPT also introduces a minor behavioral component (3.3%), absent in human translation, while entirely excluding mental and existential processes. Furthermore, Google Translate, like human translation, prioritizes material processes (68.6%) but includes marginally higher verbal (8.5%) and mental (5.7%) proportions than both human and ChatGPT translations. Its relational focus (11.5%) is closer to human translation, but it retains existential processes (5.7%), unlike ChatGPT. Nevertheless, it completely neglects behavioral elements, aligning more closely with human translation in structure but differing slightly in distribution. Overall, human translation maintains a more balanced and abstract-inclusive approach, while ChatGPT leans toward relational interaction, and Google Translate offers a middle ground with a stronger material focus and minor variations in verbal and mental processes. The absence of behavioral and existential elements in some systems highlights key distinctions in their functional priorities.

A comparative analysis of abstract 3 translated by human and AI-based translation systems

Table 4 shows that out of a total of 38 ranking clauses, three versions of the abstract 3 translated by using AI based translation systems and human translation were expressed. In this abstract tackling the field of administration and economics, behavioral and existential process types were not recorded.

Table 4

A Comparative Analysis of Process Types for Abstract 3 Using Human and AI-Based Translation Systems

Translation Version/ Process Type	Human Translation	ChatGPT Translation	Google Translate	Total
Material	5 41.67%	8 61.54%	7 53.85 %	20 52.63%
Relational	5 41.67%	3 23.08%	4 30.77%	12 31.57%
Verbal	1 8.33%	1 7.69%	1 7.69%	3 7.90%
Mental	1 8.33%	1 7.69%	1 7.69%	3 7.90%
Behavioural	----	----	----	----
Existential	----	----	----	----

TOTAL	12 100%	13 100%	13 100%	38 100%
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Significantly, Table 4 compares the performance of three translation methods—human translation, ChatGPT translation, and Google Translate—across various process types. It presents the number of clauses translated in each category along with the corresponding percentage of the total clauses for each method. In the material category, ChatGPT translation outperforms the other two methods, translating 8 items, which accounts for 61.54% of its total processes. Google Translate follows with 7 items (53.85%), while human translation records 5 clauses, representing 41.67%. This suggests that ChatGPT Translation is more heavily utilized for material-related processes compared to the other methods. For the relational category, human translation and Google Translate each record 5 and 4 items, respectively, comprising 41.67% and 30.77% of their total translations. However, ChatGPT translation only handles 3 items, which amount to 23.08%. This shows that human translation and Google Translate are more engaged with relational-type process than ChatGPT Translation.

The verbal category is uniformly translated by all three methods, with each method providing one clause, which makes up around 7.69% of the total for ChatGPT and Google Translate, and 8.33% for human translation. This category represents a relatively minor part of the overall translation workload across all methods. As for the mental category, each method has one item, representing 7.69% for both ChatGPT translation and Google Translate, and 8.33% for human translation. There is no significant difference in how these three methods address mental-type process. Lastly, the behavioral and existential categories have no translations recorded across all methods, which means that no translations were made in these categories during the process. The overall distribution reflects the different strengths of each translation method in various process types, showing a marked preference for ChatGPT-generated translations in rendering material processes, while human translations and Google Translate outputs demonstrate comparable frequency distributions for relational processes.

A comparative analysis of abstract 4 translated by human and AI-based translation systems

As illustrated in Table 5, out of a total of 113 ranking clauses, three versions of the abstract 4 translated by using AI based translation systems and human translation were described. Like abstract 1, only behavioral process type was not recorded in this specific abstract tackling the field of law.

Table 5

A Comparative Analysis of Process Types for Abstract 4 Using Human and AI-Based Translation Systems

Translation Version/ Process Type	Human Translation	ChatGPT Translation	Google Translate	Total
Material	25 69.44%	25 67.57%	26 65%	76 67.26%
Relational	7 19.44%	7 18.92%	8 20%	22 19.47%
Verbal	2 5.56%	2 5.40%	3 7.5%	7 6.19%
Mental	1 2.78%	3 8.11%	3 7.5%	7 6.19%
Behavioural	----	----	----	----
Existential	1 2.78%	----	----	1 0.89%
TOTAL	36 100%	37 100%	40 100%	113 100%

The above table compares how the three different methods—human translation, ChatGPT translation, and Google Translate—perform across various types of the five process types. From Table 5, the material category shows the largest proportion of process types, with human translation providing 25 processes (69.44%), ChatGPT translation delivering 25 processes (67.57%), and Google Translate providing 26 processes (65%). This category represents the majority of the total process types, indicating that all methods are relatively balanced in their handling of material-type processes. The relational category ranks second, with human translation and ChatGPT translation both having 7 clauses (19.44% and 18.92%, respectively), while Google Translate has 8 clauses, making up 20% of the total process types in this category. This reflects a slightly higher output for Google Translate in relation to the other two methods.

Regarding the verbal category, all three methods show a decrease in the number of items translated. Human translation and ChatGPT translation record 2 items or clauses (5.56% and 5.40%, respectively), while Google Translate has 3 clauses, making up 7.5% of the total process. The mental category shows an even clearer difference, with human translation providing only one clause (2.78%), and ChatGPT and Google Translate both provide 3 items (8.11% and 7.5%, respectively). These numbers reflect a stronger performance in mental-type processes for

ChatGPT and Google Translate compared to human translation. It is crucial that the existential category is present only in human translation with one clause (2.78%), and neither ChatGPT translation nor Google Translate contributed any clauses to this category. The overall comparison reveals the differences in translation output across different process categories, providing insight into the strengths and limitations of each translation process.

The evaluation of translation from Arabic to English using BLEU method tool

Four Arabic abstracts from various fields were used as the source text for this study, and the reference text was their human translations. The accuracy and BLEU score of the Arabic-to-English translations was assessed using the translations from ChatGPT and Google Translate. Hence, to evaluate the three versions of the four selected abstracts involving human translation and AI-based translation systems, Bilingual Evaluation Understudy (BLEU) method tool was adopted, and these versions were tested by employing this tool in the current study. It should be noted that the n-grams of the machine-generated translations to human translation were usually compared in order to determine the precision value for each translation. It is interesting to indicate that Uni-gram refers to individual words, Bi-gram refers to pairs of consecutive words, Tri-gram refers to triples of consecutive words, and Tetra-gram refers to quadruples of consecutive words. For example, to explain this technique, the following consequences show the work of n-gram:

1-gram: “This,” “study,” “aims”,

2-gram: “This study,” “study aims,” “aims to”,

3-gram: “This study aims,” “study aims to,” “aims to investigate”,

4-gram: “This study aims to,” “study aims to investigate,” “aims to investigate the”.

Moreover, the percentage of n-grams from the machine translations that are also present in the human translation is known as precision in this context. Given the n-grams counts from the analysis (where each machine translation had identical n-gram counts to the human translation), the precision value can be calculated by determining the number of matching n-grams for each type (1-gram, 2-gram, 3-gram, and 4-gram). Since the n-gram counts are identical for all three versions of the translation (Human, ChatGPT, and Google Translate) in this study, the precision values will be the same as illustrated in Table 6. The formula for precision is as follows:

$$\text{Precision} = \frac{\text{Number of matching n-grams}}{\text{Total number of n-grams in machine translation}}$$

The evaluation of translation of abstract 1 using BLEU method tool

To get a clear image, Table 6 depicts the precision values for different n-grams (Uni-gram, Bi-gram, Tri-gram, and Tetra-gram) measuring the quality of ChatGPT translation, and Google Translate in relation to Abstract 1.

Table 6

Precision Values for AI- Methods of Translations of Abstract 1

N-grams / Methods of translations	ChatGPT translation	Google translate
Uni-gram	0.93	0.89
Precision (P1)		
Bi-gram	0.86	0.82
Precision (P2)		
Tri-gram	0.79	0.75
Precision (P3)		
Tetra-gram	0.72	0.68
Precision (P4)		

To calculate the BLEU score for Table 6, here are the steps for calculating the BLEU score based on the updated precision values for each n-gram (Uni-gram, Bi-gram, Tri-gram, Tetra-gram):

BLEU Score Formula:

$$\text{BLEU} = \text{BP} \cdot \exp \left(\sum_{n=1}^N w_n \log p_n \right).$$

This formula includes *BP* (Brevity Penalty), *P_n* (the precision for each n-gram), *W_n* (the weight for each n-gram, which is $1/N$ for $N=4$ n-grams), and $\text{Log}(P_n)$ representing the natural logarithm of the n-gram precision.

From Table 6, for ChatGPT Translation, the precision values for each n-gram are as follows: the unigram precision (p1) is 0.93, the bigram precision (p2) is 0.86, the trigram precision (p3) is 0.79, and the tetra-gram precision (p4) is 0.72. On the other hand, for Google Translate, the precision values are slightly lower: the unigram precision (p1) is 0.89, the bigram precision (p2) is 0.82, the trigram precision (p3) is 0.75, and the tetra-gram precision (p4) is 0.68. These precision values reflect the accuracy of each method in matching n-grams with reference translations, with ChatGPT Translation consistently achieving higher precision across all n-gram levels compared to Google Translate. In short, the results indicate that ChatGPT translation achieved a BLEU score of 0.82, while Google Translate achieved a BLEU score of 0.78. This means that ChatGPT translation performed slightly better than Google Translate in terms of matching the reference translation, as reflected by the higher BLEU score. The BLEU score, which ranges from 0 to 1, measures the similarity between the machine-generated translation and the reference translation, with values closer to 1 indicating higher accuracy. In this case, both methods performed well, but ChatGPT Translation demonstrated a small but notable advantage in translation quality. Furthermore, Precision measures the accuracy of the

translations by evaluating how well the n-grams in the machine-generated translations match those in the reference translations.

The evaluation of translation of abstract 2 using BLEU method tool

Regarding Abstract 2, Table 7 compares the precision values of two translation methods, ChatGPT translation and Google Translate.

Table 7

Precision Values for AI- Methods of Translations of Abstract 2

N-grams / Methods of translations	ChatGPT translation	Google translate
Uni-gram	0.92	0.85
Precision (P1)		
Bi-gram	0.87	0.76
Precision (P2)		
Tri-gram	0.82	0.68
Precision (P3)		
Tetra-gram	0.75	0.62
Precision (P4)		

For unigram precision (P1), ChatGPT Translation achieved a precision of 0.92, while Google Translate scored slightly lower with 0.85. This indicates that ChatGPT Translation was more accurate in matching single words (unigrams) compared to Google Translate. Moving to bigram precision (P2), ChatGPT Translation maintained a higher precision of 0.87, whereas Google Translate scored 0.76, showing that ChatGPT Translation also performed better in matching pairs of consecutive words (bigrams). For trigram precision (P3), the trend continued, with ChatGPT Translation achieving a precision of 0.82 compared to Google Translate (0.68), demonstrating its superior ability to match sequences of three words (trigrams). Finally, for tetra-gram precision (P4), ChatGPT translation again outperformed Google Translate with a precision of 0.75, while Google Translate scored 0.62, indicating better performance in matching four-word sequences (tetra-grams). Overall, the table shows that ChatGPT translation consistently achieved higher precision values across all n-gram levels compared to Google Translate, suggesting that it produces translations that align more closely with the reference text. However, both methods produced reasonably accurate outputs. Thus, marking the results, ChatGPT Translation achieved a BLEU score of 0.84, slightly outperforming Google Translate, which scored 0.72, indicating better alignment with the reference translations.

The evaluation of translation of abstract 3 using BLEU method tool

Again, concerning this specific abstract, Table 8 compares the precision values of two translation methods, ChatGPT Translation and Google Translate.

Table 8
Precision Values for AI- Methods of Translations of Abstract 3

N-grams / Methods of translations	ChatGPT translation	Google translate
Uni-gram	0.91	0.85
Precision (P1)		
Bi-gram	0.84	0.77
Precision (P2)		
Tri-gram	0.78	0.70
Precision (P3)		
Tetra-gram	0.71	0.63
Precision (P4)		

As for unigram precision (P1), ChatGPT Translation achieved a precision of 0.91, while Google Translate scored slightly lower with 0.85. This indicates that ChatGPT Translation was more accurate in matching single words (unigrams) compared to Google Translate. Moving to bigram precision (P2), ChatGPT translation maintained a higher precision of 0.84, whereas Google Translate scored 0.77, showing that ChatGPT Translation also performed better in matching pairs of consecutive words (bigrams). For trigram precision (P3), the trend continued, with ChatGPT Translation achieving a precision of 0.78 compared to Google Translate recording 0.70, demonstrating its superior ability to match sequences of three words (trigrams). Finally, for tetra-gram precision (P4), ChatGPT Translation again outperformed Google Translate with a precision of 0.71, while Google Translate scored 0.63, indicating better performance in matching four-word sequences (tetra-grams). All in all, Table 8 shows that ChatGPT Translation consistently achieved higher precision values across all n-gram levels compared to Google Translate, suggesting that it produces translations that align more closely with the reference text. However, the results showed that ChatGPT Translation achieved a BLEU score of 0.81, outperforming Google Translate, which scored 0.72, indicating better alignment with the reference translations.

The evaluation of translation of abstract 4 using BLEU method tool

Finally, Table 9 displays the precision values of two translation methods, ChatGPT Translation and Google Translate.

Table 9
Precision Values for AI- Methods of Translations of Abstract 4

N-grams / Methods of translations	ChatGPT translation	Google translate
Uni-gram	0.88	0.82
Precision (P1)		
Bi-gram	0.80	0.74
Precision (P2)		
Tri-gram	0.72	0.65
Precision (P3)		
Tetra-gram	0.65	0.58
Precision (P4)		

For unigram precision (P1), ChatGPT translation achieved a precision of 0.88, while Google Translate scored slightly lower with 0.82. This indicates that ChatGPT Translation was more accurate in matching single words (unigrams) compared to Google Translate. Moving to bigram precision (P2), ChatGPT Translation maintained a higher precision of 0.80, whereas Google Translate scored 0.74, showing that ChatGPT Translation also performed better in matching pairs of consecutive words (bigrams). For trigram precision (P3), the trend continued, with ChatGPT Translation achieving a precision of 0.72 compared to Google Translate (0.65), showing its superior ability to match sequences of three words (trigrams). Finally, for tetra-gram precision (P4), ChatGPT Translation again outperformed Google Translate with a precision of 0.65, while Google Translate scored 0.58, indicating better performance in matching four-word sequences (tetra-grams). Overall, the table shows that ChatGPT Translation consistently achieved higher precision values across all n-gram levels compared to Google Translate, suggesting that it produces translations that align more closely with the reference text. All in all, based on the below equation, ChatGPT Translation achieved a BLEU score of 0.77, outperforming Google Translate, which scored 0.69, highlighting better alignment with the reference translations.

Final BLEU Score:

$$BLEU = BP \times \exp \left(\sum_{n=1}^4 w_n \log(p_n) \right)$$

ChatGPT Translation:

$$BLEU = 1 \times \exp(-0.063375) \approx 0.9386$$

Google Translate:

$$BLEU = 1 \times \exp(-0.077525) \approx 0.9254$$

Discussion

The results from the translation analysis reveal varying performance across three translation methods—Human Translation, ChatGPT Translation, and Google Translate—on different types of content. The data, presented in terms of both raw counts and percentages, provides insight into the effectiveness and accuracy of these translation approaches across multiple categories, including material, relational, verbal, mental, behavioral and existential processes. It is important to note that the comparative analysis of process types across four abstracts, as presented in Tables 2 to 5, provides a detailed examination of human and AI-based translation systems (ChatGPT and Google Translate). Table 2, focusing on Abstract 1, shows that material processes dominate all translation methods, with human translation at 73.91%, ChatGPT at 78.26%, and Google Translate at 75%. Relational processes are less frequent, with human translation maintaining a higher proportion (13.04%) compared to AI systems (8.70% for ChatGPT and 8.33% for Google Translate). Mental and existential processes appear

minimally, with AI systems slightly overrepresenting mental processes. Behavioral processes are entirely absent. As for Table 3, the analysis of translation process types across human, ChatGPT, and Google Translate outputs reveals distinct patterns in how each method approaches linguistic transformation. Human translation demonstrates a strong preference for material processes (71.4%), which focus on concrete actions and events, reflecting a direct and pragmatic rendering of the source text. This contrasts with ChatGPT and Google Translate, which also prioritize material processes (64.5% and 68.6%, respectively) but exhibit a higher frequency of relational processes (25.8% for ChatGPT vs. 11.5% for Google Translate). Relational processes, which describe states or attributes, suggest that ChatGPT is more likely to rephrase or interpret relationships between concepts, potentially introducing subtle shifts in meaning. Notably, human translation includes existential processes (7.2%), which highlight the mere existence of entities, a feature that is entirely absent in ChatGPT's output. Google Translate, however, retains some existential elements (5.7%), indicating partial preservation of the source text's philosophical or abstract nuances. The presence of a behavioral process (3.3%) in ChatGPT's translation, a category missing in both human and Google Translate versions, suggests an occasional tendency to anthropomorphize or emphasize human-like actions, possibly due to its training on diverse linguistic data. Moreover, verbal processes, which pertain to communication, are marginally higher in Google Translate (8.5%) compared to human (7.2%) and ChatGPT (6.4%), hinting at a slight bias toward framing content as reported speech or dialogue. Mental processes, involving cognition or perception, are minimal across all versions but appear only in human (3.5%) and Google Translate (5.7%), implying that AI translations may overlook introspective or subjective elements present in the original text. Thus, this result suggests that Abstract 2, like Abstract 1, is primarily action-oriented, with AI systems performing well in translating material processes. Nevertheless, Table 4, examining Abstract 3, reveals a shift in the distribution of process types. Material processes, while still dominant, are less prevalent, with human translation at 41.67%, ChatGPT at 61.54%, and Google Translate at 53.85%. Relational processes are more prominent, particularly in human translation (41.67%), compared to ChatGPT (23.08%) and Google Translate (30.77%). This indicates that Abstract 3 contains more relational content, which human translators handle more effectively. Mental processes appear in small proportions across all systems, while behavioral and existential processes remain absent. A return to the dominance of material categories is highlighted in Table 5 that focuses on Abstract 4. It shows this trait of dominance of material processes, with human translation at 69.44%, ChatGPT at 67.57%, and Google Translate at 65%. Relational processes are more frequent than in Abstracts 1 and 2, with human translation at 19.44%, ChatGPT at 18.92%, and Google Translate at 20%. Mental processes are slightly overrepresented in AI translations, while existential processes appear minimally in human translation. Behavioral processes are noticeably absent, consistent with the other abstracts except abstract 2.

Overall, the tables highlight that material processes are the most common across all abstracts, with AI systems performing well in translating them. This finding is consistent with other studies (see: Alhumsi & Alsaedi, 2023; Alhumsi et al., 2024). However, human translators excel in handling relational and mental processes, which require greater contextual understanding. AI systems, particularly ChatGPT and Google Translate, occasionally overrepresent mental processes, suggesting limitations in their ability to capture nuanced linguistic elements. These findings underscore the strengths of AI systems in handling

straightforward, action-oriented content while emphasizing the continued importance of human expertise for more complex translation tasks. In conclusion, the comparative analysis reveals that AI-based translation systems are highly effective for translating material processes but may struggle with more nuanced process types such as relational and mental processes. Human translators remain superior in handling these complex processes, underscoring the importance of human expertise in translation tasks. These findings have significant implications for the use of AI in translation, particularly in contexts where nuanced understanding and contextual accuracy are critical. This provides more support to Lu's (2024) study that argued that human translation still holds an advantage in some areas. This is because humans possess nuanced understanding, cultural knowledge, and context awareness that machines can't fully replicate.

As for the second research question, the results from the four abstracts provide a comparative analysis of the precision scores for two translation methods—ChatGPT and Google Translate—across different n-gram levels, including uni-grams, bi-grams, tri-grams, and tetra-grams. These precision scores reflect the accuracy of the translations when compared to a human reference translation. The findings reveal several important trends and insights into the performance of these two translation tools. Thus, across all four abstracts, ChatGPT consistently outperforms Google Translate in terms of precision. For instance, in Abstract 1, ChatGPT achieves a uni-gram precision (P1) of 0.93, while Google Translate scores 0.89. This pattern holds true for bi-grams, tri-grams, and tetra-grams, with ChatGPT maintaining a slight but consistent lead over Google Translate. This suggests that ChatGPT's advanced language modeling capabilities may enable it to better capture the context and nuances of the source text, resulting in higher accuracy.

However, both translation methods exhibit a decline in precision as the n-gram size increases. For example, in Abstract 1, ChatGPT's precision drops from 0.93 for uni-grams to 0.72 for tetra-grams, while Google Translate's precision decreases from 0.89 to 0.68 over the same range. This trend is consistent across all four abstracts, indicating that translating longer and more complex sequences of text poses a greater challenge for both tools. The decline in precision with higher n-grams may be attributed to the increased likelihood of errors compounding in longer text segments. Moreover, the results are highly consistent across the four abstracts, demonstrating that the observed trends are not specific to a single dataset or context. For instance, ChatGPT uni-gram precision ranges between 0.88 and 0.93 across the abstracts, while Google Translate uni-gram precision ranges between 0.82 and 0.89. This consistency reinforces the reliability of the findings and suggests that both tools perform predictably across different texts.

Despite ChatGPT's superior performance, the differences in precision between the two methods are relatively small. This indicates that while ChatGPT has a slight edge in accuracy, Google Translate remains a strong and competitive alternative, particularly for shorter texts or less critical applications. The marginal differences also highlight the advancements in machine translation technology, as both tools achieve high levels of precision. The implications of these findings are significant for practical applications. For tasks requiring high precision, such as legal or medical translations, ChatGPT may be the preferred choice due to its slightly better performance. On the other hand, Google Translate remains a viable option for general use, especially when dealing with shorter texts or less complex translation tasks. The decline in precision with higher n-grams underscores the importance of considering the complexity of the

source text when selecting a translation tool. It is important to note that the study is based solely on precision scores and does not account for other metrics such as recall, fluency, or semantic accuracy. Additionally, the source text is in Arabic, and the findings may not generalize to other languages or translation tasks

Conclusion

The transmission of information across languages has undergone significant transformation due to the advancements in translation technologies, whether facilitated by human translators or artificial intelligence (AI). This study aims to compare the efficacy of AI-based translation systems, such as ChatGPT and Google Translate, with that of human translators in rendering research abstracts. To evaluate their performance, Halliday's transitivity system model, with a focus on critical discourse analysis, was employed to examine the transitivity processes involved in each translation.

The comparative analysis of four abstracts across human and machine translations reveals consistent patterns in process type distributions, with notable variations in how each translation method handles linguistic representation. Human translations maintain the highest fidelity to source text intentionality, particularly in preserving existential processes (absent in most AI outputs) and demonstrating more balanced distributions between material and relational processes. Both ChatGPT and Google Translate show a strong preference for material processes often at the expense of relational and mental processes, suggesting a tendency toward action-oriented, concrete renditions. Relational processes, critical for expressing abstract connections, are consistently reduced in AI translations, indicating a limitation in capturing nuanced semantic relationships. Google Translate occasionally aligns more closely with human translations in mental processes but both AI systems inconsistently neglect existential elements.

On the other hand, this study employed BLEU (Bilingual Evaluation Understudy) to assess the linguistic accuracy of the three translation versions, namely Human Translation, ChatGPT Translation, and Google Translation. Based on the analysis of BLEU, it has been found that both ChatGPT and Google Translate relatively achieve high precision values, with ChatGPT consistently outperforming Google Translate in all n-grams precision measures. This trend persists across all abstracts and n-gram levels. However, precision values decrease as the n-gram size increases, with tetra-gram precision (P4) being the lowest for both systems (e.g., 0.72 for ChatGPT and 0.68 for Google Translate in Abstract 1). This pattern indicates that while both systems excel at capturing simpler, shorter phrases, they face greater challenges in accurately translating longer and more complex linguistic structures. This inference suggests that AI translation systems like ChatGPT and Google Translate are highly effective at handling straightforward, word-level translations but struggle to maintain the same level of accuracy for more intricate, context-dependent phrases. The consistent superiority of ChatGPT across all levels of n-grams further highlights its advanced capability in aligning with human reference translations, making it a slightly more reliable choice for producing linguistically accurate translations. Nonetheless, the decreasing precision with larger n-grams underscores the ongoing need for improvements in AI systems to better handle complex linguistic patterns.

This paper has several limitations that should be acknowledged. Firstly, the analysis is limited to a small sample size of four abstracts. Secondly, the evaluation of translation quality

relies heavily on BLEU scores, which, while useful for measuring n-gram precision, do not account for semantic accuracy, cultural nuances, or contextual appropriateness. This means that while the translations may be linguistically precise, they may not always convey the intended meaning effectively. Thirdly, the study focuses only on Arabic-to-English translations, limiting its applicability to other language pairs that may present unique challenges. Additionally, the analysis of transitivity processes is confined to a specific linguistic framework, which may not capture holistic translation quality assessment. Finally, the study does not explore the impact of post-editing or hybrid human-AI approaches, which could significantly influence translation outcomes. Thus, further studies could explore a broader range of text genres and languages, examine error patterns and stylistic variations, and evaluate how post-editing impacts machine-translated outputs to validate these findings.

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Conflict of Interest:

The author declares that there is no conflict of interest.

Bio

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The Interplay of Globalization, Localization, and Translation in Shaping the Linguistic Landscape of Saudi Arabia

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المخلص

تبحث هذه الدراسة في التفاعل الديناميكي بين العولمة والتوطين والترجمة في المشهد اللغوي في المملكة العربية السعودية، مع التركيز على اللافتات التجارية في مدن مثل الرياض وجدة وأبها. وتهدف الدراسة إلى استكشاف كيفية تأثير ممارسات الترجمة على استخدام اللغة في الفضاءات العامة، مما يؤثر على التمثيل الثقافي وسهولة الوصول. تبرز الدراسة كيف أن المملكة العربية السعودية توازن بين التأثيرات العالمية وهويتها الثقافية بما يتماشى مع رؤية السعودية 2030 من خلال تحليل أنماط الترجمة مثل الترجمة الحرفية، والتمثيل الصوتي (transliteration)، واللافتات اللغوية الهجينة. تعتمد المنهجية على توظيف نظرية المشهد اللغوي إلى جانب التحليل السيميائي والموضوعي لتقييم أكثر من 300 لافتة تجارية. تم تصنيف بيانات اللافتات إلى خمسة أنماط ترجمة: الترجمة الحرفية، التمثيل الصوتي من الإنجليزية إلى العربية، التمثيل الصوتي من العربية إلى الإنجليزية، اللافتات باللغة الإنجليزية فقط، واللافتات متعددة اللغات. كما تقيم الدراسة السياسات اللغوية ذات الصلة، بما في ذلك الإرشادات الواردة ضمن رؤية السعودية 2030، لوضع النتائج في سياق الأهداف الأشمل للسعودية في الحفاظ على الثقافة وتحديثها. تشير النتائج إلى أن التمثيل الصوتي من الإنجليزية إلى العربية والترجمة الحرفية هما أكثر الأنماط شيوعاً في لافتات المحلات، حيث تشكلان أكثر من 70٪ من الإجمالي. أما الفئات الثلاث الأخرى، فتظهر بوتيرة أقل بكثير. وتحدد الدراسة التمثيل الصوتي من الإنجليزية إلى العربية كأداة رئيسية لتحقيق التوازن بين العولمة والمحلية، حيث يسمح للعلامات التجارية العالمية بالحفاظ على هويتها الصوتية مع جعلها في متناول المتحدثين بالعربية. تعكس هذه الممارسة نهج المملكة العربية السعودية في التحديث دون المساس بإرثها الثقافي. علاوة على ذلك، توفر الدراسة رؤى حول كيفية خدمة ممارسات الترجمة في المشهد اللغوي لأغراض وظيفية وأيديولوجية على حد سواء، حيث تجسد هوية سعودية تتبنى الانخراط العالمي مع الحفاظ على جذورها المحلية. يمكن أن تسهم هذه النتائج في توجيه صانعي السياسات وأصحاب الأعمال والباحثين نحو تطوير استراتيجيات تدعم التكامل الثقافي وإمكانية الوصول العالمي في الفضاءات العامة السعودية.

The Interplay of Globalization, Localization, and Translation in Shaping the Linguistic Landscape of Saudi Arabia

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Abstract

This study investigates the dynamic interplay of globalization, localization, and translation within Saudi Arabia's linguistic landscape (LL), focusing on commercial signage in cities like Riyadh, Jeddah, and Abha. It aims to explore how translation practices influence language use in public spaces, affecting cultural representation and accessibility. The study highlights how Saudi Arabia balances global influences with its cultural identity in alignment with Saudi Vision 2030. This is demonstrated through the analysis of translation patterns such as direct translations, transliterations, and hybrid language signs. The methodology combines an LL approach with semiotic and thematic analysis to assess over 300 shop signs. Shop sign data were categorized into five translation patterns: direct translation, English-to-Arabic transliteration, Arabic-to-English transliteration, English-only signage, and mixed-language signs. The study also evaluates relevant language policies, including the guidelines under Saudi Vision 2030, to contextualize the findings within Saudi Arabia's broader goals of cultural preservation and modernization. The findings indicate that English-to-Arabic transliteration and direct translation are the most commonly used patterns in shop signs, comprising over 70% of the total. The other three categories appear far less common. English-to-Arabic transliteration is identified as a key tool for reconciling globalization and localization, allowing international brands to retain their phonetic identity while making them accessible to Arabic speakers. This practice reflects Saudi Arabia's approach to modernizing without compromising its cultural heritage. Moreover, the research offers insights into how translational practices in the LL serve not only functional purposes but also ideological ones, symbolizing a Saudi identity that embraces global engagement while preserving its local roots. These findings can inform policymakers, business stakeholders, and researchers in developing strategies that support both cultural integrity and global accessibility in Saudi public spaces.

Keywords: *linguistic landscape; globalization; localization; translation/transliteration; Saudi Arabia*

Introduction

Over the past two decades, linguistic landscape (LL) studies have grown significantly, driven by an increasing interest in how language use in public spaces reflects cultural, social, and political dynamics. Foundational research by Landry and Bourhis (1997) introduced LL as “the language of public road signs, advertising billboards, street names, place names, commercial shop signs, and public signs on government buildings” (p. 25). These displays mirror a region's linguistic diversity and sociopolitical context. Today, LL is recognized as a site shaped by global, local, and translational forces.

Global influences on LLs are evident in the visibility of dominant languages like English and symbols linked to international brands. Multinational corporations, tourism, and cultural exchange contribute to this trend, highlighting global interconnectedness (Cronin, 2003; Rodríguez, 2016). At the same time, local languages, dialects, and scripts reflect cultural identity and heritage (Jiménez-Crespo, 2020; 2024). Local businesses often use LL to assert their identity and resist homogenizing global trends.

Globalization and localization are intertwined processes, particularly in how local communities sustain their native languages in an increasingly globalized world. Buchstaller (2008) notes that globalization enables creative adaptations of language, resulting in localized linguistic practices. Furthermore, Chang et al. (2022) emphasize that both local and global LLs elicit emotional engagement, with “tourists' perception consistency and understanding playing a mediating and moderating effect” (p. 618).

Building on this dynamic, localization serves as a translation-oriented process. It involves adaptation to cultural and linguistic norms, focusing on user-centered communication, and plays a key role in global marketing and software development. According to Kristensen (2002), localization is a novel form of linguistic transfer that combines new procedures and ethics with traditional ones, requiring a reconsideration of translation and culture. This process, often termed “translocalization” (Han & Wu, 2020, p. 27), involves the movement of linguistic resources from one locality to another, adapting to new norms and customs, and resulting in distinct LLs. This phenomenon highlights the dynamic interplay between language, space, and identity, as seen in various urban environments. Translators should stay attuned to developments in technology and culture as they navigate the opportunities and challenges posed by localization.

Translation, in this context, bridges global and local influences. Translational practices in LL facilitate communication across language barriers, making spaces accessible and inclusive for both locals and visitors. Transliterated and translated signs allow for the inclusion of multiple languages, enabling people of diverse linguistic backgrounds to navigate and connect with public spaces (Koskinen, 2012; Malinowski, 2019). This enhances accessibility while respecting local norms, helping communities navigate shared spaces.

Translation significantly shapes a city's identity and reflects its cultural priorities. Cities are inherently multilingual, with signs and scripts contributing to the sensory experience of urban life. As Simon (2021, p. 15) explains, cities are not just places where multiple languages coexist; they are also sites of translation that reveal language hierarchies and participation in public discourse. Thus, translation practices affect the formation of groups, communities, and identities, such as national cultures, genders, social/political movements, and linguistic minorities (Dizdar & Rozmysłowicz, 2023), and the choice between translation and transliteration in LLs often reflects broader sociopolitical and demographic trends, such as globalization and immigration patterns (Gu & Almann, 2023).

In Saudi Arabia's LL, translation and transliteration play crucial roles in making global content both accessible and culturally relevant. This research explores how these translation practices influence the interplay between globalization and localization in Saudi LLs, producing a landscape that reflects both modernity and tradition. Translation appears across various platforms such as advertising, foreign media, private and public signage, and educational materials, helping stakeholders engage with global trends while maintaining cultural identity. This balancing act is essential, particularly in light of Saudi Vision 2030, a transformative national initiative that seeks to position Saudi Arabia as a forward-looking, globalized nation without compromising its cultural roots. Using Arabic alongside English and other foreign languages enables an inclusive LL that appeals to both local and international audiences. This study, therefore, aims to demonstrate the dynamic interaction between local, global, and translational forces in commercial and private shop signage across Saudi cities.

Review of Literature

Theoretical background

Although still considered a relatively young field of research, there have been a tremendous number of studies conducted on the various aspects of LL around the world.

One major area explored in the literature is multilingualism and language visibility in public spaces. These studies investigate how languages appear and interact in the LL, reflecting social hierarchies and language identities (Al-Athwary, 2017; Backhaus, 2007; Gu & Coluzzi, 2024). Another principal focus is the role of translation and transliteration in navigating global and local influences. These studies show how translation practices and script adaptation, such as rendering English into Arabic, serve as tools for cultural negotiation and linguistic innovation (Gu & Almann, 2023; Gu & Manan, 2024; Malinowski, 2019). Transliteration, in particular, reveals how global languages are reshaped to fit local norms and scripts. Language use in commercial signage and its commodification also receives attention. Research in this area explores how linguistic choices in shop signs and advertisements project modernity and prestige, with English often used for symbolic value (Al-Kharabsheh et al., 2014; Buckingham & Al-Athwary, 2016; Han & Shang, 2024). Some studies also examine localization, glocalization, and identity construction in the LL. They show how global languages are adapted to local contexts, negotiating global influence with cultural identity (Kim, 2022; Manan et al., 2017; Sabaté-Dalmau, 2022). These works further highlight the role of LLs in promoting critical awareness of language and multilingualism, particularly in educational settings. Some other LL studies, influenced by critical sociolinguistics, analyze public spaces as arenas of contestation, resistance, and negotiation, where marginalized or minority languages assert their presence against dominant linguistic norms (Al-Athwary, 2022; Karolak, 2020; Yuan, 2019; 2022). Finally, an inherent aspect of LL refers to the notion of semiotics and the understanding of signs and symbols in public spaces where LL functions as a semiotic resource, conveying social, cultural, and political meanings (Banda & Jimaima, 2015; Chang et al., 2022; Hopkyns & Al-Athwary, 2023).

The recent development in LLs is the increasing use of transliteration on public signage. Transliteration by definition involves rendering the writing system of a source language using the letters or symbols of a different script (Beesley, 1998; Halpern, 2007). In the LL context, this process allows speakers of different languages to pronounce and recognize place names, instructions, and other text on signs more easily. This approach not only broadens accessibility for non-native speakers but also reflects the multilingual and multicultural dynamics of modern public spaces.

Gu and Manan (2024) proposed a theoretical framework suggesting that English is increasingly represented in non-Latin scripts, such as Perso-Arabic and Devanagari, raising questions about whether such instances constitute new varieties of local languages or new forms of World Englishes. They called for expanding the scope of World Englishes research to include how English is indigenized and integrated into local LLs through phonetic transliteration. Their study analyzed authentic signs from South Asian communities, illustrating how English is adapted into local scripts in everyday contexts. Central to their argument is the concept of “transliterated globalization” (p. 1187), which explains how English adapts to non-Latin scripts in multilingual societies like those in South Asia. This practice results in a hybrid form that reflects both global and local identities. Examples from Pakistan, India, and Nepal demonstrate a preference for transliteration over translation, even when local equivalents are available; a phenomenon they describe as “self-colonization,” where English symbolizes both modernity and cultural adaptation. An examination of these signs allowed the paper to explore several ways in which transliteration may influence local identities. First, transliteration facilitates the integration of English into local languages and scripts. This enhances cultural identity by allowing speakers to express their linguistic heritage while engaging with global English. This blending fosters a sense of belonging and cultural pride among individuals who navigate multiple languages. Second, the use of transliterated English contributes to the formation of hybrid identities. It enables individuals to align with both their local culture and the global culture represented by English. This dual identification reflects the complexities of globalization. Third, transliteration increases the visibility of English in non-Latin script contexts. It challenges traditional notions of language dominance and promotes English as an integrated component of local LLs. Finally, transliteration can serve as a form of resistance against linguistic dominance. It empowers speakers to assert their agency by adopting English in ways that reflect their own linguistic norms. In doing so, they renegotiate power dynamics between dominant and non-dominant languages. These factors collectively illustrate how transliteration can reshape the LL and influence individual and collective identities in multilingual societies.

Similarly, Han and Shang's (2024) study on Hong Kong's LL provided relevant insights for understanding the dynamics of globalization and localization. In Hong Kong, globalization has led to a noticeable increase in English usage within commercial areas, symbolizing the city's international connectivity and its role as a hub for business and tourism. Simultaneously, Cantonese remains prevalent in government signage and local businesses, reinforcing Hong Kong's cultural identity and solidarity within the local population. This dual presence of English and Cantonese reflects a careful balance between global engagement and local identity—an idea that connects with Saudi Arabia's approach to its LL under Saudi Vision 2030.

In the context of Gulf States, Gu and Almann (2023) is a significant study that examined Dubai's LL from a bilingual translation perspective, focusing on Arabic-English interactions in public signage. In Dubai, English often dominates, with Arabic transliterations that prioritize phonetics over meaning. This trend underscores Dubai's superdiversity and status as a global city. Their research highlighted the symbolic use of Arabized English, which enhances Dubai's image as a global hub. However, it did not show how localization strategies and translation practices shape broader sociolinguistic trends. Jamoussi and Roche (2017) is another important contribution to applied linguistics and language planning in multilingual contexts. The author provided a detailed and methodologically rigorous analysis of inconsistencies in the romanization of Arabic road signs in Oman. The study effectively highlighted the tension between transcription and transliteration, arguing for a phoneme-based transcription system to improve clarity and usability. A major strength of the paper is its extensive dataset and clear identification

of structural, phonetic, and policy-driven factors contributing to variation. However, while the study offered practical guidelines, it lacked engagement with the sociolinguistic implications of romanization, particularly issues related to identity and power dynamics.

Previous Research on the Saudi LL

In the Saudi context, several studies have examined the LL in Saudi Arabia, focusing on language use in public spaces. This section highlights their key findings and identifies gaps relevant to the present research. The studies by Al-Athwary (2022), Al-Hussami et al. (2020), Alotaibi and Alamri (2022), Alsaif and Starks (2019; 2021), Hazaea et al. (2024), and Lacsina and Yeh (2022) offered valuable insights into specific aspects of Saudi Arabia's LL, yet they left a significant gap regarding the interplay of globalization, localization, and translation practices on a national scale.

Alsaif and Starks (2019; 2021) focused on the Grand Mosque in Mecca, a unique religious and cultural space where Arabic dominates across functional domains. While this emphasized the role of Arabic in a sacred context, it did not investigate the broader dynamics between Arabic and English or the influence of transliteration in commercial and public areas outside of religious sites.

Al-Athwary's (2022) research on Najran's LL illuminated the influence of expatriate languages. However, it mainly reflected multilingualism and the role of Arabic as a symbolic marker, without examining how global branding or localization trends might shape these linguistic choices. Similarly, Alotaibi and Alamri (2022) analyzed bilingual shop signs in Saudi Arabia, focusing on transliteration errors and inconsistencies. While they suggested standardization measures, the study did not address the broader implications of these transliteration practices in the context of localization and globalization within the country.

Lacsina and Yeh's (2022) study of Jeddah's malls during the pandemic touched upon the bilingual use of Arabic and English, connecting with Jeddah's vision of becoming a cosmopolitan center. However, their research is limited to a particular time frame and setting, missing the broader impact of globalization and localization over time across different Saudi cities. In the same way, Hazaea et al. (2024) conducted a qualitative study examining the multilingual composition of public signs in the High City, a newly developed tourist site in Abha, Saudi Arabia. Their analysis, based on purposively sampled bottom-up signage, highlighted the predominance of monolingual (Arabic or English) and bilingual (Arabic-English) signs, with no instances of multilingual signage. The study identified several linguistic strategies, including transliteration, hybrid representation, politeness, personification, and fragmentary usage, while noting the absence of more globally oriented strategies such as crisis communication. Findings suggest that the destination primarily caters to local and regional tourists, with limited attention to international audiences. As a result of its limited scope, the study was unable to explore the connection between global influences and local practices.

Finally, Al-Hussami et al. (2020) is the only study directly relevant to the current research. The authors conducted a semiotic analysis of coffee shop signage in Abha, Saudi Arabia, examining how coffee shop names reflect both cultural memory and modern influences on Arabic coffee. In Saudi society, coffee symbolizes more than just a drink; it is deeply linked to traditions and social values. The study pointed out the competition between traditional Arabic coffee and globally influenced coffee, a rivalry visible in the LL of coffee shops. The research focused on how coffee shop names express this competition and its linguistic and cultural implications, contributing to an understanding of how globalization affects local traditions in Saudi Arabia's LL. However, the study left a gap by primarily

focusing on the semiotics of coffee shop names without deeply addressing how translation practices, particularly the influence of multilingualism and cross-cultural communication, shape the overall LL in a broader urban context.

Based on the discussion above, it is evident that none of the studies conducted on the LL of Saudi cities have highlighted the transformative role of translation and transliteration in negotiating global and local identities, a process which forms the backbone of this research. The studies, though well-conducted, miss their target in perceiving the impact of globalization, localization, and particularly translation concerning shop sign localization and its sociocultural implications. Therefore, this study will analyze in detail LL globalization, localization as well as translation practices in several Saudi cities and how these forces mold public signage to sustain local identity and cultural heritage within a linguistically conservative setting.

The study has also evolved in the light of Gu and Manan's (2024) framework, especially its discussion on matters of translation and transliteration. It becomes particularly useful for exploring Saudi Arabia's LL, where English acts as a global lingua franca with Arabic, a place of great value for investigating transliterated multilingualism. This perspective helps us better understand how Saudi LL works while fulfilling the task set forth by Saudi Vision 2030 about balancing global integration with the preservation of national identity and linguistic heritage.

Research Questions

Saudi Arabia, with its rich cultural heritage and increasingly globalized society, provides a compelling case study for analyzing the localization and globalization trends evident in shop signage and other LL components. The Kingdom's LL demonstrates a nuanced mix of local and global linguistic elements, creating a space where language functions both as a cultural symbol and a practical tool for communication. This study aims to investigate the translation and transliteration practices employed by Saudi businesses and to analyze the localization and globalization trends observed in shop signs across various cities in Saudi Arabia. This research analyzes Saudi Arabia's LL translation and transliteration patterns to highlight the intersections of globalization, localization, and translation. It will also demonstrate how Saudi Arabia navigates cultural preservation alongside international engagement. The LL in Saudi Arabia thus becomes a dynamic site of negotiation, where global and local forces intersect and interact, reflecting the nation's aspirations and identity.

The study, therefore, attempts to address the following research questions:

1. How does localization preserve linguistic diversity and assert local cultural identities in Saudi Arabia's LL?
2. How does globalization affect language use and identity in public spaces of the country?
3. What is the impact of LL's translation practices on communication, inclusivity, and cultural representation?

This study will provide valuable insights into the relationship between language, culture, and advertising in Saudi Arabia. Moreover, businesses seeking to enter the Saudi market will benefit from understanding the localization process, ensuring that their shop signs resonate with local consumers. Finally, this research will contribute to the growing body of literature on translation studies, particularly in the field of advertising and branding.

Methodology

Data Collection

This research adopted an LL approach to collect and analyze data. Systematic procedures were followed to gather a large sample of shop signs from three cities in Saudi Arabia. A random sampling method was used to photograph these signs across all three targeted cities: Riyadh, Jeddah, and Abha. In each city, various commercial areas such as streets, markets, and shopping malls were selected without prior bias. Within these locations, signs were photographed at regular intervals or as they appeared, without targeting specific businesses or language uses. This approach ensured that the collected data reflected a broad and representative sample of the LL, minimizing researcher bias and enhancing the reliability of the findings (cf. Gu & Almann, 2023).

Shop sign data were collected from three Saudi cities, Riyadh, Jeddah, and Abha, resulting in a sample of over 300 linguistic signs. The rationale behind selecting these three cities can be explained as follows. First, the selected cities represent diverse geographic regions of Saudi Arabia: Riyadh in the central region, and relatively close to the eastern region, Jeddah in the western region, and Abha in the southern region. Second, these selected cities differ in their levels of exposure to global influences. Jeddah, as a port city, has a long-standing history of international interaction. Riyadh reflects centralized development and rapid modernization, while Abha presents a relatively more localized and traditional linguistic environment. Finally, the number of shop sign photographs taken in each city was roughly the same, as shown in Table 1. Thus, the sample was representative enough to reflect the different aspects of Saudi LL. This selection of cities provides a diverse cultural and regional backdrop, allowing for an in-depth analysis of language use, translation practices, and how global and local forces shape the LL differently across urban settings.

Public or top-down signs, such as road signs and official governmental signage, were excluded from the study. The sample focused exclusively on private or bottom-up signs, specifically commercial signs. From a content perspective, data collection was restricted to specific types of shop signs that reflect diverse language practices within the LL. These included: (1) bilingual or multilingual signs that display two or more languages, showcasing the coexistence of local and foreign languages; (2) signs featuring transliteration, where text is converted between Arabic and foreign languages, facilitating pronunciation and comprehension across language groups; and (3) English-only or other foreign language-only signs, which reflect the influence of globalization and the prominence of international languages in commercial contexts. These categories were chosen to capture a comprehensive view of language use and the dynamics of translation and transliteration in Saudi shop signage

Table 1

Data Sampling

City	No. of signs	Percentage
Riyadh	126	38.65%
Jeddah	103	31.60%
Abha	97	29.75%
Total	326	100%

Language Policy

An additional methodological procedure involved analyzing official documents, and government policies such as the Council of Economic and Development Affairs (CEDA) (2016), and the Ministry of Municipal and Rural Affairs and Housing (MMRAH) (2022) pertaining to the vision of national and cultural identity and the regulations of shop signage visibility and promotion. This approach offered valuable insights into the official stance on language policies, the preservation, and promotion of local culture, as well as the integration of global influences.

CEDA (2016, pp. 13, 17) emphasized the importance of national identity by encouraging pride in Saudi Arabia's rich cultural heritage and adherence to Islamic principles of moderation. It also placed a strong emphasis on upholding and promoting the Arabic language as a core element of national identity. By restoring and promoting national, Arab, and Islamic cultural sites, the vision sought to balance globalization and localization, a translation-oriented approach to international recognition and visitors. This approach integrated global engagement with the preservation of local traditions, ensuring that cultural identity remained a guiding force amid modernization.

The other official document was issued by MMRAH. The document mandated that all signs in Saudi Arabia be licensed and approved before installation, with specific spatial regulations to ensure they did not obstruct roads or buildings. Signs had to adhere to design standards, including size, height, and alignment with urban identity, and were categorized based on their location and type. Safety was a priority, with requirements for structural integrity, non-obstruction of emergency exits, and use of durable materials. Regular maintenance was mandated to keep signs in good condition and promptly repair any damage.

Thus, the primary goal of these procedures was to enhance the visual image of cities across Saudi Arabia. On the other hand, the content of shop signs is a dynamic and flexible domain, shaped by the contributions of shop owners, sign designers, and translators. It is significantly influenced by the cultural, social, and linguistic backgrounds of these stakeholders, which results in diverse expressions and interpretations. Therefore, the focus of this study is to explore the extent to which these factors affect the content and messaging of commercial signage, identifying their impact on the overall communicative and translational effectiveness and visual coherence in different cultural contexts.

Data Analysis

The shop sign data were analyzed using thematic and semiotic analysis, with a focus on identifying recurring patterns of translation, cultural references, and linguistic markers. Key themes such as cultural identity, brand identity, and linguistic adaptation were explored to understand how businesses communicated their identity and values within both global and local contexts. For instance, cultural identity examined how signs incorporated local language, symbols, or traditional motifs to reflect respect for the local culture and audience. Brand identity focused on how signage choices, such as language, transliteration styles, and imagery, helped businesses fit themselves with global branding trends or maintain a strong local presence. Moreover, linguistic adaptation revealed how businesses navigated bilingual or multilingual contexts by using translation/transliteration strategies that were culturally and commercially appropriate.

A comparative analysis was conducted across various LL elements, such as the use of English versus local languages, cultural references, and branding styles, to reveal trends or divergences in how

businesses approached globalization and localization. This analysis looked at whether businesses prioritized a global identity, using internationally recognized language and symbols, or focused on a local identity by emphasizing traditional or community-specific elements. Signs that adopted a hybrid approach, combining both global and local strategies, were also examined to understand how businesses balanced international appeal with local cultural resonance.

Results and Discussion

The collected dataset was primarily analyzed according to the translation practices on the shop signs. Table 2 reveals the role of five translation categories within the LL of Saudi Arabia: direct (semantic) translation (mainly from Arabic to English), English-to-Arabic transliteration, Arabic-to-English transliteration, English-only signage, and hybrid or mixed language signs. The most common practices are English-to-Arabic transliteration (36.20%) and translation (34.97%), reflecting the dual forces of localization and globalization. Direct translation from Arabic to English reflects Saudi Arabia's intent to make local content accessible to international audiences, aligning with global engagement goals like those in Saudi Vision 2030. The high occurrence of bilingual signs in the first category illustrates the mediation between local culture and global accessibility. This strategic bilingualism is not merely functional; it is also ideological, symbolizing a Saudi identity that is open to the world but rooted firmly in its own linguistic and cultural traditions. By maintaining the visual and symbolic prominence of Arabic, these signs communicate that while Saudi Arabia may embrace global modernity, it does so on its own terms. Arabic-to-English translation in public signage not only helps tourists and expatriates navigate but also enables local brands and cultural concepts to resonate internationally, blending Saudi identity with a global reach. Meanwhile, English-to-Arabic transliteration allows for a phonetic representation of English terms in Arabic, preserving brand identity and appeal while still making them legible to Arabic speakers as detailed in the analysis below.

Arabic-to-English transliteration, English-only signs, and hybrid signs serve different purposes, but all indicate the influence of global forces on local identity. English-only signage, often associated with international brands, emphasizes a modern, cosmopolitan image in urban centers, catering to tourists and expatriates and signaling Saudi Arabia's openness to global culture. In contrast, Arabic-to-English transliteration adapts local concepts for a wider audience, projecting Saudi cultural elements internationally. Mixed language signs balance both Arabic and English, symbolizing the hybridization of Saudi identity in public spaces. Together, these translation practices demonstrate how Saudi Arabia negotiates global and local forces, accommodating global influence while upholding and projecting national identity in its public and dynamic LL.

Table 2

Classification of Shop Signs by Translation Patterns

No.	Category	Number of occurrences	Percentage
1.	Translation	114	34.97%
2.	English to Arabic transliteration	118	36.20%
3.	Arabic to English Transliteration	33	10.12%
4.	English only	36	11.04%
5.	Language mix/ Hybridity	25	7.67%
Total		326	100%

The collected data were analyzed using qualitative content analysis to identify patterns, trends, and effects. The illustrative examples below will be analyzed to show how translation/transliteration practices facilitate the localization and globalization processes in Saudi advertising shop signs.

Globalization Trends

Transliteration as a Globalization Agent

Transliteration is a common practice in the public space of urban areas and cities (Gu and Almann, 2023; Gu and Manan, 2024; Lee, 2020). Transliteration, especially from English into Arabic, plays a significant role in the public space of Saudi Arabia, which is indicated clearly by the highest occurrence as shown in Table 2. Examples of English-to-Arabic transliterations are illustrated in Table 3 and Figure 1.

Gu and Manan's (2024) study on transliterated multilingualism in LLs provides a framework to examine how English integrates into local language environments through transliteration. They argue that transliterated globalization in the LL refers to the phenomenon where English, as a dominant global language, is represented in non-Latin scripts through phonetic transliteration. This trend is particularly evident in multilingual urban settings, where local languages and scripts intermingle with English, often leading to a complex interplay of identity and cultural representation. Applying this concept to the shop signs in Saudi Arabia's LL reveals a nuanced relationship between global brand identity and local adaptation. This adaptation is evident in the transliteration of brand names into Arabic script while retaining their original English phonetic quality, suggesting a deliberate negotiation between global presence and cultural familiarity.

Table 3

Examples of English-to-Arabic Transliteration

No.	The English content of Shop signs	The Arabic transliteration
1.	American Eagle Outfitters	أمريكان إيغل أوتفترز
2.	Bath & Body Works	باث & بودي وركس
3.	Pinkberry frozen yogurt	بنكبيري فروزن يوغرت
4.	dip n pie	ديب ن باي
5.	Brands For Less	براندز فور لس
6.	Monkey Cookies Cafe	مونكي كوكيز كافيه
7.	Women'Secret	ومن'سيكريت
8.	Black Velvet	بلاك فلفيت
9.	Back Comfort	باك كمفورت
10.	Polar Colors	بولار كلرز
11.	Happy Chicken	هابي تشكن
12.	Kahve Duniyasi (Turkish)	كافيه دنياسي
13.	La Vie en Rose (French)	لا في إن روز

The first shop sign in Figure 1, “American Eagle Outfitters” (أمريكان إيغل أوتفترز), exemplifies this process. Phonetic rendering of the English name in Arabic script allows the brand to retain its distinctive sound, making it familiar to both English and Arabic speakers. This combination of phonetic

representation and Arabic script allows English to “pass off” as part of the Saudi LL without overtly disrupting local language norms, a phenomenon Gu and Manan describe as “transliterated multilingualism.” Here, English adopts a locally intelligible form while retaining a distinctly foreign association, subtly reinforcing English’s global status in the cultural fabric of Saudi Arabia’s LL.

The LL of Saudi Arabia also demonstrates transliteration as a bridge between diverse linguistic heritages. For instance, the last two examples in Table 2 (see also the last sign in Figure 1), “La Vie en Rose” (لا في إن روز) and “Kahve Duniyasi” (كافيه دنياسي) integrate elements of French and Turkish through Arabic script, subtly signaling the brands’ multicultural appeal. The retention of French and Turkish phonetic identities allows these brands to embrace their linguistic origins while adapting to a script familiar to Arabic-speaking audiences. This strategy reinforces the idea of “transliterated globalization” as a pathway to cosmopolitan inclusivity within Saudi Arabia’s LL, where foreign cultural elements are visually translated into local forms. This form of hybridization allows global brands to resonate with Saudi consumers while attracting a sense of international sophistication associated with foreign names.

Brands like “Pinkberry Frozen Yogurt” (بنكبري فروزن يوغرت) and “dip n pie” (ديب ن باي) in the second and third signs in Figure 1 further illustrate how transliteration can prioritize phonetic fidelity to English sounds over semantic translation, embedding these brands in the local LL without full linguistic adaptation. The choice to transliterate “frozen yogurt”, “dip,” and “bie” instead of using descriptive Arabic phrases reflects a deliberate preference for the sounds of English words, evoking a sense of global brand identity rather than direct communication of the product’s nature. This approach appeals to younger, cosmopolitan consumers who associate English with modernity, novelty, and Western lifestyle trends. In this way, transliteration operates as a subtle yet powerful tool for constructing Saudi Arabia’s urban identity as globally oriented yet locally anchored.

Figure 1

The Use of English-to-Arabic Transliteration



A notable feature of the transliteration process is the meticulous effort to preserve the exact pronunciation of the English terms on shop signs. Rather than assimilating certain English sounds into more common Arabic equivalents, the process introduces characters that better represent the original English phonetics. For example, instead of replacing the English voiceless /p/ with the Arabic /ب/ or the English voiced /v/ with /ف/, the less common characters /پ/ and /ڤ/ are used to approximate /p/ and /v/ accurately, as seen in examples 3, 8, and 13 in Table 3 and the second and fifth signs in Figure 1. This choice signifies an intentional effort to maintain the phonetic integrity of the original English sounds, which may enhance brand recognition and phonetic fidelity for bilingual speakers. Another instance of this commitment to exact duplication is the incorporation of the English genitive case marker /'/ in the transliterated Arabic phrase (ومن سيكريت), derived from “Women’(s) Secrets”, as shown in the fourth sign in Figure 1. The inclusion of the apostrophe represents a nuanced approach to transliteration that goes beyond simple phonetic adaptation, capturing grammatical elements from English that do not traditionally exist in Arabic script. This approach not only preserves the original structure and sound of

the English brand but also signals adherence to the branding conventions associated with English. Through the application of phonetic and grammatical elements, the transliteration process mediates between global branding and local linguistic norms.

Ultimately, these transliterated signs demonstrate a nuanced LL where English visually integrates with Arabic script, forming a hybridized language that reflects the dynamics of global influence and local adaptation. Gu and Manan's (2024) framework of transliterated multilingualism reveals how English asserts itself in the Saudi LL not by displacing Arabic but by embedding its phonetic essence within the local script. This linguistic blending highlights the intricate interplay of globalization and localization, as Saudi cities shape a landscape where English's global prestige and Arabic's cultural resonance coexist. Transliteration thus emerges as a powerful strategy for linguistic and cultural convergence, allowing Saudi Arabia's LL to reflect both its connection to global trends and its dedication to cultural authenticity.

Although fewer in number (see Table 2), Arabic-English transliterations and English-only shop signs nonetheless have a distinct impact on the LL of Saudi Arabia. These signs contribute to a visual and linguistic environment that reflects global influence and local adaptation. By featuring English or English-inspired transliterations, the two shop signs in Figure 2 introduce elements of international branding and modernity, which can shape perceptions of urban spaces and influence cultural interactions.

The "Albaik" sign in Figure 2 (top) combines Arabic and English, demonstrating a bilingual approach that appeals to both local and international audiences. The Arabic script on the right reads "البيك" (Albaik), which translates to 'the chef' or 'the master' in English and goes along with the brand's identity as a local fast-food icon in Saudi Arabia. The English transliteration, "Albaik", is displayed in bold letters, making the brand recognizable to non-Arabic speakers while preserving its original Arabic pronunciation. This dual-language design reinforces the brand's local heritage and its adaptability in a globalized market. The bright red and yellow color scheme is visually striking and likely chosen to evoke feelings of energy and excitement, typical in fast-food branding. In the "Chuck E Cheese's" sign in Figure 2 (bottom), only English is used, indicating a direct import of the American brand without linguistic localization. This English-only choice may reflect the brand's association with American culture, aiming to attract customers seeking an international or Western experience. The red and purple colors, combined with the large, playful font, connect with "Chuck E. Cheese's" image as an entertainment venue for children.

Figure 2

Arabic to English Transliteration and English-Only Signs



Semiotically, the images of the duck and mouse serve as mascots that embody the brand's identity and appeal. The duck in the “Albaik” logo, dressed in a chef’s hat and waving with a welcoming smile, symbolizes hospitality and culinary expertise, harmonizing with the restaurant’s focus on friendly service and food quality. The cartoonish style softens the brand's image, making it approachable and family-friendly, particularly appealing to younger customers and families. The mouse mascot in “Chuck E. Cheese's” is also playful, depicted in a fun, approachable cartoon style with a cap and a big smile. This character adds an element of fun and excitement, which is key to the brand’s identity as a destination for children’s entertainment and family gatherings. The mouse’s expression and posture convey enthusiasm, suggesting an inviting and engaging environment inside the venue.

Together, these semiotic elements, language choices, color schemes, and mascots create distinct brand images. “Albaik” emphasizes cultural authenticity and bilingual accessibility, while “Chuck E. Cheese's” relies on its American identity and a universally enticing mascot, aiming to attract a diverse audience interested in a global brand experience.

New Trends: Cinema Signage

Entertainment in Saudi Arabia has rapidly evolved since the establishment of the General Entertainment Authority in 2016, reflecting the goals of Vision 2030 to diversify the economy and embrace globalization through initiatives like cinema reopenings and major cultural events.

Figure 3 shows the signs of two popular cinema chains in Saudi Arabia. In the left-hand side sign and the bottom sign of Figure 3, English is undeniably the dominant language, reflecting the influence of globalization in Saudi Arabia’s public spaces. Nearly all the content in these signs is presented in English, except for the names of the cinema chains, which are displayed in both English and Arabic. This choice indicates an intentional harmony with international norms and makes the signage accessible to non-Arabic speakers. By using English terms like “IMAX,” “GOLD,” “KIDS,” “SUITES,” and phrases like “VOX Cinemas is now open,” the signs signal an alignment with international cinema branding standards. It suggests that these cinemas are positioning themselves within a global market, attracting tourists and expatriates as well as locals who are familiar with English. At the same time, the inclusion of Arabic in the cinema names ensures that local audiences still feel connected to the brand, bridging between global appeal and cultural sensitivity.

Figure 3

Cinema Chain Signage



The right (top) bilingual age rating notice ensures that both locals and foreigners are informed about content appropriateness, catering to the diverse linguistic needs of Saudi society while honoring cultural expectations around media consumption.

In contexts like cinema signage, English helps project a modern, international image that is in line with Saudi Arabia's Vision 2030 goals, aiming to attract more global tourists. At the same time, Arabic usage asserts the country's linguistic identity and cultural heritage.

Cultural Localization Practices

Localization in LLs refers to the adaptation and representation of languages and linguistic resources within a specific local context (Trinch & Snajdr, 2020). The concept involves the strategic use of local languages and symbols to create a sense of place and identity and tailoring language use in public spaces to be meaningful and accessible to the community residing in that territory. It impacts emotional experiences, reflects globalization through translocalization, and plays a significant role in educational and urban contexts (Chang et al., 2022; Han et al., 2020; Sabaté-Dalmau, 2022). Understanding localization in LL helps in appreciating the balance between local identity and global influences.

Shop signs, like those in Figures 4 to 6, provide valuable insight into how language, imagery, and symbols reflect the local identity, often creating a space that is both culturally unique and globally accessible. Through elements such as local icons, culture-specific phrases, artistic calligraphy, and bilingualism, these signs convey a sense of belonging and cultural pride while adapting to the broader forces of globalization.

Figure 4

The Use of Culture-Specific Markers (1)



In the Saudi LL, phrases such as “هلا والله بزوارنا” (halā wa-Allāh bizwārna) (top) and “بسم الله ما شاء الله” (bi-smi Allāh mā shā'a Allāh) (bottom) in Figure 4 serve as strong markers of local culture and identity. They convey values, religious beliefs, and social norms distinctive to Saudi society, embedding culturally specific meanings into public and commercial spaces (cf. Al-Athwary, 2022).

“هلا والله” (halā wa-Allāh) is a warm, informal greeting in Saudi Arabic, roughly translating to ‘Welcome indeed!’ Its use conveys hospitality, friendliness, and an authentic Saudi tone. When featured on a business sign, this phrase not only welcomes customers but also fosters a sense of belonging and familiarity, reinforcing cultural expectations of Saudi hospitality. Widely recognized and appreciated, it puts customers at ease upon entering the establishment.

Likewise, “بسم الله ما شاء الله” (bi-smi Allāh mā shā'a Allāh), meaning ‘In the name of Allah, as He wills,’ is a religious phrase commonly used by Muslims to invoke blessings and protection. On signage, it serves both as a spiritual expression and a cultural anchor. Its presence signals that the establishment aligns with Islamic values, creating an environment that respects and reflects the spiritual dimensions of Saudi life. The phrase evokes faith and humility, resonating deeply with local religious and cultural sentiments.

Language serves as a primary vehicle for cultural expression, and in Saudi shop signs, Arabic phrases often convey specific cultural meanings. For example, the store directory in Figure 5 (left) features the phrase “للعائلات فقط” (lil-‘ā'ilāt faqat) ‘families only’, which reflects cultural norms by designating certain areas exclusively for families. This practice connects with local values of privacy and gender segregation, subtly regulating social behavior in public settings. The bilingual presentation

in Arabic and English emphasizes cultural localization within a globalized mall environment, balancing modern commercial spaces with traditional social expectations.

Figure 5

The Use of Culture-Specific Markers (2)



When brands in Saudi Arabia incorporate local language, symbols, and expressions, they engage in what can be called “cultural branding”. They project an identity that is both commercially strategic and culturally resonant, appealing to consumers not only through products but also through shared values and traditions. A store like “Burger Here” in Figure 5 (right), for instance, uses Arabic phrases such as “لحوم مدخنة” (luḥūm mudakhanah) ‘smoked meat’ and “عوائل” (‘awā’il) ‘families’ to signal its connection to local preferences, despite offering a globally familiar item like burgers. Adapting the brand message to local cultural norms allows the company to establish a more familiar and relevant identity for Saudi consumers.

This localization strategy serves a dual purpose: it builds brand loyalty among Saudi consumers and differentiates local businesses from global competitors. Signage indicating “عوائل” not only communicates expected social conduct but also helps structure public space in line with cultural practices, allowing individuals to navigate environments that reflect and respect their social norms.

Let us now move to the shop sign in Figure 6. The inclusion of cultural symbols such as the Oud incense burner, as seen in the “Almajed Oud” storefront, is more than decorative; it’s a powerful statement of cultural identity. Oud, a traditional scent derived from agarwood, holds deep cultural and historical significance in Saudi and broader Arab society. It is often used in religious, social, and ceremonial contexts, making it a symbol of Arab heritage and hospitality. By integrating this symbol directly into brand identity, “Almajed Oud” not only markets a product but also reinforces the cultural importance of this traditional item. In a globalized market where Western fragrances dominate, the choice to center a traditional Arabian scent suggests an intentional act of cultural preservation. It is an assertion of local identity within a global marketplace, ensuring that local consumers see their culture represented and valued in everyday public spaces.

Figure 6

The Use of Culture-Specific Markers (3)



Another aspect of localization in Saudi LL is the employment of Arabic calligraphy potential. Arabic calligraphy holds a special place in Islamic and Arab culture. The use of artistic calligraphy on commercial signs, like in “ريف العطور” (rīf al-‘uṭūr) ‘Reef Perfumes’ (top), or “قصر المضياف” (qaṣr al-miḍyāf) (Qaser Almedyaf Restaurant) (bottom) in Figure 7, serves as both an aesthetic and a cultural marker. Styles of Arabic calligraphy transform words into visual art, symbolizing elegance, tradition, and spiritual significance (Gu and Coluzzi, 2024). The stylized script provides visual attractiveness and reinforces a sense of heritage and authenticity. For instance, the flowing lines and symmetrical forms in “ريف”, meaning ‘the countryside’, create an impression of elegance and simplicity, echoing the traditional values of modesty and beauty inherent in the region’s art and design. Similarly, the calligraphic style of “قصر المضياف”, meaning ‘the host’s palace’, in the form of a big cooking pot, suggests a sense of hospitality and grandeur, which is culturally significant in Saudi society, where hospitality is a valued trait. In the context of signage, calligraphy does more than communicate; it elevates the linguistic content to a level of art, reinforcing the value placed on the Arabic language itself. Incorporating Arabic calligraphy also signifies pride in linguistic heritage amidst a multilingual landscape, marking these businesses as distinctly local while fostering cultural continuity.

Figure 7

The Use of Arabic Calligraphy Potential



All these signs presented in Figures 4 to 7 contribute to a form of localized social order, subtly guiding behavior in a way that feels familiar and culturally respectful to Saudi nationals.

Linguistic Hybridity

Linguistic hybridity is a multifaceted phenomenon that reflects the interaction of multiple languages and semiotic resources in public spaces. It involves the merging of English with local languages, creating a unique linguistic and cultural expression that indicates the multicultural aspect of society. Hybridity in language signifies not only the fusion of languages but also an interaction of cultural symbols, where English takes on localized forms to fit the communicative and cultural needs of local speakers. According to Rubdy (2014), this adaptation challenges the traditional norms of “pure” language use, promoting a more inclusive and democratized form of English that resonates with the local population’s identities and social contexts. The analysis and discussion of some examples below will reflect this phenomenon, which represents 7.67% of the collected data, as shown in Table 2.

From a semiotic perspective, the shop sign “كبسة ليشز” (Kabsalicious) on a restaurant in Riyadh (Figure 8) embodies a fusion of linguistic and cultural elements, reflecting the dynamics of globalization and localization within the LL. It blends Arabic-to-English and English-to-Arabic transliterations, illustrating a hybrid linguistic approach. “Kabsa” is the English transliteration of the Arabic word “كبسة,” referring to a traditional Saudi dish, while “ليشز” is the Arabic transliteration of “licious,” a fragment from the English word “delicious.” The name merges local culinary culture with a trendy global appeal. This fusion seeks to attract both local customers familiar with kabsa and international audiences through the recognizable term “delicious.” The use of “licious” in an Arabic context signals the influence of globalized culture, while the inclusion of “kabsa” reflects a localized adaptation rooted in regional identity.

The sign communicates quality, taste, and cultural familiarity. The association of “delicious” with food quality, combined with the local reference to kabsa, creates a message that appeals to diverse audiences. The integration of Arabic and English also suggests cultural inclusivity and openness to varied linguistic and culinary experiences.

Figure 8

A Name of a Restaurant in Riyadh



The image of a pot with traditional inscriptions and motifs above the sign adds visual and symbolic depth. It represents cultural heritage and authenticity, evoking traditional cooking methods and

reinforcing the dish's cultural significance. This visual cue strengthens the contrast and connection between the trendy appeal of "licious" and the traditional roots of kabsa, creating a unified and culturally rich message. Beyond language, the image enhances the sign's appeal, capturing attention and communicating the essence of the restaurant's offerings: traditional cuisine prepared using time-honored methods.

The café sign in Figure 9 is another interesting example of linguistic hybridity and semiotic creativity, blending global and local cultural symbols to attract a diverse audience. Before analyzing the sign, it is worth noting that restaurants and cafes are a prominent feature throughout Saudi Arabia, lining streets and filling malls, reflecting the community's strong affinity for food, coffee, and drinks. The diverse names of cafes and the growing number of coffee shops also serve as distinct markers of local culture (cf. Al-Hussami et al., 2020).

The café's name "BUN" demonstrates linguistic hybridity by combining Arabic and English in a single concept. The Arabic word "بن", meaning 'coffee', is transliterated into "BUN" using Roman letters, which makes the term more accessible to non-Arabic speakers while maintaining its Arabic origin. This blending represents local identity and global readability, catering to both Arabic-speaking locals and international customers. Moreover, the word "كافيه" is an Arabic transliteration of the English word 'café.' This reverse transliteration is a common strategy in the Arab world to evoke modernity and global appeal while maintaining linguistic familiarity.

Figure 9

A Name of a Café Shop in Abha



The sign's design is visually innovative, merging Arabic and Roman elements to attract bilingual audiences. The Arabic letters ب and ن for "بن" are embedded in the Romanized form "BUN," with the letter "U" stylized so the entire form resembles its Arabic counterpart. Two coffee bean illustrations replace the diacritical marks (dots) placed below and above the Arabic letters, reinforcing the coffee theme and linking the two scripts. This is a sophisticated example of typographic fusion, where script and imagery merge to convey a multi-layered message. The playful design invites viewers to decode the name while connecting with familiar coffee imagery.

The café structure, shaped like a giant coffee cup, reinforces the theme through a universally recognized symbol. This visual metaphor transcends language barriers, instantly communicating the café's purpose and enhancing its brand identity.

This sign and structure demonstrate a clever use of linguistic and semiotic hybridity. By blending Arabic and English elements with familiar symbols, the café creates a welcoming space that unites local traditions with global coffee culture. The design celebrates the richness of the Arabic language and invites a diverse community of customers. Its combined linguistic and visual strategies reflect a café that is both locally grounded and globally oriented. The use of Roman characters and a universally recognized coffee cup icon enhances accessibility for international visitors and those drawn to Western coffee culture. Through transliteration and typographic fusion, the café effectively communicates across linguistic boundaries.

The last notable instance of linguistic hybridity is the sign for “SAUDCONSULT” in Figure 10. The design, from the fusion of languages to the visual emphasis on the acronym, reflects a strategy to communicate across cultural lines. The name “SAUDCONSULT” combines the Arabic personal name “سعود” (Saud) with the English word “consult.” This linguistic fusion is a sophisticated choice that carries multiple layers of meaning. “Saud” grounds the company in Arabic culture, symbolizing a local identity, while “consult” signals the firm's specialization in consultation, agreeing with international business identity terminology. The Arabic script, “سعود كونسلت,” reinforces the brand's bilingual identity, demonstrating respect for Arabic-speaking clients while attracting a global audience.

Figure 10

A Name of an Engineering Firm in Riyadh



A major element is the bright, green “SC” letters, which serve as a visual anchor and a known sign. Designed to show strength, trustworthiness, and modernity, it implies qualities such as stability and professionalism, important attributes in architecture and consulting. The green color may represent growth, sustainability or new ideas while the strong typography and simple design show confidence and trustworthiness. Adding the director's name gives credibility to the brand it personalizes; an approach that works well in Arab cultures where personal standing has a great deal of weight in business.

The use of Arabic and English languages, along with the “SC” logo, makes the brand very accessible and aspirational. The Arabic elements ensure that the brand maintains a strong local identity and culture connection, while English and the look it gives to the brand ensure a global standard perception. This hybrid identity suggests a firm rooted in local tradition yet open to international collaboration, likely

catering to both domestic and global clients. Together, these elements form a cohesive brand that allures tradition with modernity in line with the firm's architectural and consultative expertise.

The shop signs in Figures 8 to 10 serve as a fascinating example of semiotic fusion, indicating how linguistic and cultural elements intertwine to engage local and global audiences. They reflect the complexities of contemporary LL in Saudi Arabia.

In summary, this study reveals that the LL of Saudi Arabia is a complex and dynamic semiotic space, characterized by a sophisticated interplay of globalizing and localizing forces. This is primarily manifested through three key practices: the extensive use of English-to-Arabic transliteration to integrate global brands phonetically into the local script, the strategic deployment of cultural branding through religious phrases, traditional symbols, and Arabic calligraphy to assert local identity, and the emergence of innovative linguistic hybridity that creatively merges Arabic and English to form new, culturally resonant expressions. These practices do not occur in isolation but represent a deliberate and nuanced negotiation between global economic influences and the preservation of a distinct Saudi cultural and linguistic identity. This careful balancing act aligns with the broader national objectives of initiatives like Saudi Vision 2030, which seeks to modernize and open the economy to the world while simultaneously strengthening and promoting its unique cultural heritage.

The findings imply that transliteration is not merely a linguistic process but a sociocultural strategy that facilitates global integration without erasing local distinctiveness. For policymakers, this highlights the need for standardized transliteration guidelines to ensure consistency and professionalism in public signage. For researchers, it highlights the importance of semiotic and sociolinguistic approaches in understanding how urban spaces express broader cultural and economic shifts. This study ultimately contributes to a deeper understanding of how LLs serve as visible markers of identity, modernity, and belonging in an increasingly globalized world.

Conclusion

This study on the LL of Saudi Arabia offers a comprehensive view of how globalization and localization coexist and shape public signage in Saudi Arabia. The findings revealed that transliteration and translation strategies play a central role in negotiating global and local identities. The most frequently observed patterns included English-to-Arabic transliteration and direct translation, with businesses strategically selecting these modes to appeal to both international and local consumers. The signs often demonstrated a hybrid identity, combining global branding trends with culturally resonant elements such as Arabic script, Islamic motifs, and local references. These findings indicated that the Saudi LL functions not merely as a space of communication but also as a site where cultural pride and international visibility are actively negotiated.

The findings have significant theoretical and practical implications for understanding how language can influence cultural identity in a dynamically globalizing society. In theory, this research extends the globalization model of transliterated English by showing how English is adopted into the non-Latin script languages of Saudi Arabia's LL, stressing the reinforcement of global brand identities while accommodating local linguistic norms. Such a phenomenon can be described as "transliterated multilingualism," which therefore stresses the dynamic negotiation between the global and local forces that create linguistic hybridity, attracting a diverse cultural and commercial audience. The study resonates with Saudi Vision 2030, showing how translational practices in public spaces modernize

without compromising cultural traditions. In practice, these findings should guide policymakers and companies in designing signage to achieve a balance between global legibility and local identity.

The paper acknowledges several minor limitations. First, the study deals only with commercial signage and does not include governmental, educational, or religious signage, which presumably function on different linguistic ideologies. Second, the analysis was carried out through visual and semiotic methods; however, stakeholder perspectives and audience reception data were not incorporated. The lack of such information severely restricts insight into motivations for and interpretations of language choices. Third, though diverse, the sample may still fall short in adequately representing regional variations and the more dynamic trends. Therein lies also a possible trade-off in terms of its somewhat random sampling method: while it reduces researcher bias, it could be missing out on some niche or even recently developing linguistic practices.

Given the scope and focus of the current study, several areas remain open for further research. Future work could expand beyond commercial signage to explore other forms of public signage, such as governmental, educational, and informational signs, which would contribute to a richer understanding of Saudi Arabia's LL across various sectors. Integrating input from stakeholders such as business owners, designers, and policymakers would reveal motivations behind specific language and design choices, offering a deeper perspective on the decision-making processes shaping the LL. Furthermore, exploring audience perceptions could uncover how locals, expatriates, and tourists interpret bilingual and culturally embedded signage, fostering a more comprehensive understanding of its communicative and cultural impact. Focused research on transliteration strategies can also aid international brands in culturally aligning with the Saudi market by identifying approaches that resonate effectively with local consumers. Finally, conducting a comparative analysis of shop signs across different Saudi cities could explore how regional sociolinguistic dynamics shape the use of language, script, and translation strategies within localized LLs.

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Bio

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Morphophonological Patterns of Diminutive Nouns in Modern Standard Arabic: A Templatic and Moraic Analysis

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الملخص

تناولت هذه الدراسة البنى الصرفية والصوتية لأسماء التصغير في اللغة العربية الفصحى الحديثة، محللةً تصنيفها وآليات صياغتها وتبعاتها النظرية. وكشفت الدراسة، بناءً على بيانات حقيقية، عن ستة قوالب مقطعية (moraic templates) رئيسية (منها: ثنائي المقاطع، وثلاثي المقاطع، ورباعي المقاطع)، مؤكدةً أن صرف التصغير يتبع قواعد صوتية وصرفية يمكن توقعها. ويتطبيق نظرية الصوتيات التلقائية (autosegmental) والنظرية المقطعية (moraic theory) والصرف القالبي (templatic morphology)، أثبت البحث أن التصغير لا يتم بالإلحاق البسيط (prefixation, infixation, and suffixation)، بل عبر التبديل الداخلي/التخلل (transfixation)، حيث يتم تداخل الحركات (مثل [u] كالحركة الأولى في الكلمة [aj] كالحركة اللاحقة المتبعة بحرف العلة) والحروف الساكنة بشكل متسق لإعادة هيكلة جذر الكلمة. وتُبرز هذه العملية غير التجميعية (nonconcatenative) الهيمنة التراتبية لصرف التصغير وقدرته على تجاوز العمليات الصرفية الأخرى كالجمع. كما وثق البحث بُنى جديدة لم تُفحص سابقاً، مثل القوالب رباعية المقاطع للجذور الأطول، مما يعزز قواعد استخدام التصغير في اللغة العربية الفصحى ويُفدّ وجهات النظر القائلة بعشوائيته، ويفتح آفاقاً للدراسات المقارنة في اللغات السامية غير التجميعية كالعبرية والمالطية.

Morphophonological Patterns of Diminutive Nouns in Modern Standard Arabic: A Templatic and Moraic Analysis

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Abstract

This study examined the morphological and phonological structures of diminutive nouns in Modern Standard Arabic (MSA), focusing on their classification, formation processes, and theoretical implications. Based on naturally occurring data, six primary moraic templates were identified: disyllabic iambic; trisyllabic amphibrachic (with and without feminine markers); trisyllabic anapaestic; tetrasyllabic quartus paeonic; and tetrasyllabic secundus paeonic. The consistent reliance on these patterns demonstrates that diminutive morphology in Arabic follows predictable phonological and morphological rules. Using autosegmental phonology, moraic theory, and templatic morphology, the study shows that diminutives are not formed through simple affixation but through transfixation, whereby vowels and consonants are interleaved to restructure the base word. This nonconcatenative process underscores the hierarchical dominance of diminutive morphology, which can override other morphemic processes, such as pluralization. Key patterns include the consistent use of [u] as the initial vowel and [aj] as the subsequent vowel sequence. Extending previous work, the research documents previously unexamined structures such as tetrasyllabic templates for longer roots, highlighting the systematic nature of Arabic diminutives and countering views of their arbitrariness. Beyond Arabic, the findings hold significance for comparative studies of other nonconcatenative languages, such as Hebrew and Maltese, and suggest avenues for future research into whether similar morphological processes operate across the Semitic family, thereby contributing to broader discussions in linguistic theory.

Keywords: *Modern Standard Arabic, diminutives, nonconcatenative morphology, autosegmental phonology, moraic structure, templatic morphology, transfixation*

Introduction

Linguistic diminutives are devices used to express smallness in quantity, size, or intensity (Booij, 2018). They are typically formed either by attaching an affix or by altering the base form of a word (Lieber, 2021). For instance, in languages such as German and Italian, diminutives are created through affixation (Iverson and Salmons, 1992; Eddington, 2002). In others, such as Czech, Russian, and Polish, they may arise through a combination of morphological processes, including affixation alongside segmental modification (Chamonikolasová and Rambousek, 2007; Arkadiev, 2015; Kraska-Szlenk and Wójtowicz, 2023). Diminutives function as both inflectional and derivational elements, as they modify grammatical features and lexical meanings. Their interaction with other inflectional and derivational components in nonconcatenative systems produces intriguing structures. The term ‘nonconcatenative morphology’ refers to languages in which morphemes are not attached linearly to the right or left edge of the base but are instead interwoven within it. In such systems, morphemes are distributed across the word, and certain segments may simultaneously belong to more than one morpheme. Modern Standard Arabic (MSA), which exemplifies nonconcatenative morphology, is a structurally rich language and thus merits close examination.

Arabic diminutives have been extensively studied for decades (McCarthy and Prince, 1990; McCarthy, 2000; Watson, 2006; Al-Hamlaawi, 1999; Abdul-Ghani, 2001; Al-Samarrai, 2013; Jaradat and Alkhawaja, 2024). Research has shown that the moraic structure of the diminutive takes precedence over other structural considerations, such as grammatical rules (Watson, 2006). A mora, defined as “a minimal unit of metrical time or weight...used in some models of non-linear phonology” (Crystal, 2008, p. 312), is central to this analysis. Notably, diminutive formation reorganizes the moraic structure of the entire word (McCarthy and Prince, 1990). Since the moraic framework provides the foundation for defining both syllable weight and foot type, it is essential to understanding Arabic phonology. These insights underscore the significance of diminutive morphology as a productive area for further investigation.

Arabic diminutives exhibit various moraic structures; however, not all of these structures have been previously investigated. The structures can be summarized in the list below.

- **Disyllabic Iambic Diminutive Structure:** $Cu\sigma CajC$ as in قَلْب → قُلَيْب [qalb → qulajb]
- **Trisyllabic Amphibrachic Diminutive (Tripartite Root with Feminine Marker):** $Cu\sigma Caj\sigma Cah$ as in حُبْلَى → حُبَيْلَه [ħubla → ħubajla]
- **Trisyllabic Amphibrachic Diminutive (Quadripartite Root):** $Cu\sigma Caj\sigma CVC$ as in جَعْفَر → جَعْفِير [ʒaʕfar → ʒuʕajfir]
- **Trisyllabic Anapaestic Diminutive (Five-Segment Root):** $Cu\sigma Caj\sigma CV:C$ as in سُلْطَان → سُلْطَانِين [sulTa:n → sulajTi:n]

- **Tetrasyllabic Quartus Paeonic Diminutive (Six-Segment Root):** CuσCajσCiσCa:C as in قُرْفِصَاء → قُرْفِصَاء [qurfuSa:ʔ → qurajfiSa:ʔ]
- **Tetrasyllabic Secundus Paeonic Diminutive (Three-Segment with Feminine Marker or Four-Segment Without):** CuσCajσCVσCV(h) as in عُبْقَرِي → عُبْقَرِي [ʕabqari → ʕubajqiri] and أُسُورَة → أُسُورَة [ʔuswarah → ʔusajwirah]

Metrical stress patterns are foundational to phonological analysis, with a variety of feet defined by their syllable count and stress placement. A **disyllabic iambic** foot, for instance, consists of a two-syllable unit with a weak-strong stress pattern, exemplified by the word "parade" (pa-RADE). Extending to three-syllable structures, a **trisyllabic amphibrachic** foot follows a weak-strong-weak rhythm, as in "tomorrow" (to-MOR-row), whereas a **trisyllabic anapaestic** foot exhibits a weak-weak-strong pattern, with the stress falling on the final syllable, such as in "understand" (un-der-STAND). Four-syllable patterns, or paeonic feet, also demonstrate distinct variations. The **tetrasyllabic quartus paeonic** foot has a weak-weak-weak-strong pattern, as exemplified by "overreact" (o-ver-re-ACT). In contrast, the **tetrasyllabic secundus paeonic** foot presents a weak-strong-weak-weak rhythm, with the stress on the second syllable, as in "paternity" (pa-TER-ni-ty). Beyond prosodic analysis, the structure of morphemes is also critical. A **tripartite root** is defined as a root comprising three original segments, and similarly, a **quadripartite root** contains four original segments. It is important to note that, for both, any segment representing derivation or inflection is considered non-original. In the present study, these moraic patterns were identified and analyzed using naturally occurring examples from the published literature.

Morphological analysis may be conducted within a *templatic* framework, in which morphological components are organized into templates that capture recurring structural patterns (Watson, 2006; Eisle and Biesle, 2002). In this context, Crystal (2008, p. 479) defines a *template* as "an abstract tree structure which defines the basic structural possibilities of syllables in a language." This approach is advantageous for illustrating how patterns manifest within a language and for highlighting the contrasts between different patterns. Additionally, morphological analysis can utilize the autosegmental approach, as described by McCarthy (1981). The autosegmental method clarifies how diminutive morphemes are distributed across word forms. In the present analysis, the diminutive morpheme is treated as the central unit, with the argument hinging on the claim that [u] and [aj] function as specific morphemes whose distribution is systematically traced. This distribution creates a distinct layer of morphemes, which exists only when needed. McCarthy's (1981) approach was a response to the theoretical challenges facing the generative morphology framework, as it was unable to account for languages with a nonconcatenative structure.

The present study attempted to answer the following research questions:

1. How many distinct diminutive structures are attested in Arabic?
2. What linguistic or morphological factors account for the inflection of diminutive structures in Arabic?
3. How can it be explained that a variety of root or stem structures yield a limited number of diminutive forms?

The present study is significant because it provides a comprehensive list of moraic structures, which has been absent from previous research. Additionally, it highlights how the diminutive morpheme interacts with other morphemes within these various structures.

Literature Review

A previous model of generative morphology was challenged by the nonconcatenative structure of some languages, where morphemes do not attach neatly before or after the base form. These challenges called for an alternative approach to generating structure. McCarthy (1981) introduced a method for accommodating such nonconcatenative morphology by placing different morphemes on separate tiers. This approach effectively addressed the issues posed by nonconcatenative structures.

In some languages, such as German (Iverson and Salmons, 1992) and Italian (Eddington, 2002), diminutives are formed primarily through affixation. In others, the formation of diminutives involves a combination of morphological processes, including affixation along with segment modification, as observed in Czech (Chamonikolasová and Rambousek, 2007), Russian (Arkadiev, 2015), and Polish (Kraska-Szlenk and Wójtowicz, 2023). Interestingly, in Igbo, a language spoken in West Africa, the diminutive morpheme /-tɔ/ is productively used to express notions such as spatial smallness and politeness (Aboh, 2025). In Tania, a speech variety of Kimeru spoken in Kenya, the prefix /kV-/ for singular nouns and /tV-/ for plural nouns is used to indicate the diminutive (Hyman and Mbûûi, 2024).

Diminutives were also found to behave morphologically differently across languages. A comparison between English and Urdu revealed that Urdu's inflectional system significantly facilitates the formation of diminutives. This productive morphological process contributes to the richness of the Urdu language. In contrast, such a morphological process is not as prevalent in English, resulting in a more limited use of diminutives (Batoool and Saleem 2023). Considering varieties of the same language, place of articulation dissimilation was observed in Hispano-Romance varieties of Spanish when adding the diminutive morpheme (Lozano and Bradley. 2024). Lozano and Bradley (2024) found that this phenomenon does not affect all varieties, attributing the variation to differences in constraint ranking.

Diminutives in Arabic primarily indicate a smaller size or quantity of the root word. For example, the nouns [umair] ‘nickname’ and [durairhim] ‘currency that is low in value’ are diminutives of the nouns [umar] ‘proper name’ and [dirham] ‘currency’ respectively (Al-Hamlaawi 1999; Abdul-Ghani 2001; Al-Samarrai 2013). In the Buraydawi dialect of Najd Arabic (BNA), Alsamaani (2025) found that reduplication can represent diminutive morphemes, as in the diminutive form /tθwi:wi:b/, which contains the reduplicated syllable /wi:/. Al-Sieedy (2017) illustrates how diminutives alter the phonology of words in Arabic. He argues that diminutives apply not only to Arabic nouns but also to other parts of speech, such as prepositions and demonstrative pronouns. Similarly, Hamid and Faiq (2009) indicate that infixation occurs to create diminutives in Arabic, affecting various parts of speech in the process. Neither Al-Sieedy (2017) nor Hamid and Faiq (2009) adhere to a specific theoretical framework to delineate the structure of diminutives. Watson (2006) illustrates how diminutive nouns are inflected from base nouns according to specific phonological templates, as shown in Table 1.

Table 1

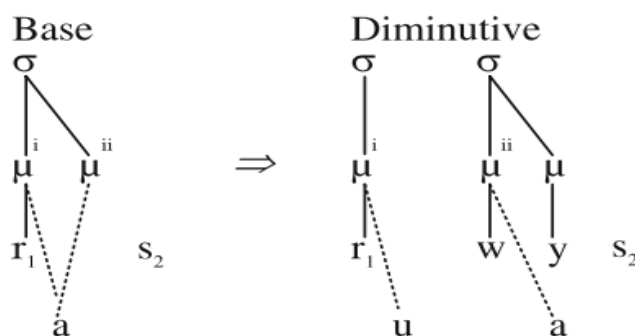
Phonological Templates for Creating Diminutives in MSA, Illustrated with Examples and glosses (adapted from Watson, 2006; p. 198)

Template	Base	Diminutive	Gloss
CvCC	Nafs	Nufaysah	Soul
CvCvC	‘asad	‘usayd	Lion
CvCvvC+ah	saHaab+ah	suHayyib	cloud
CvvCvC(+ah)	faakih+ah	fuwaykih	fruit
CvvCv(v)C	xaatam	xuwaytim	signet ring
CvCCv(v)C	jundub	junaydib	locust

Watson (2006) also illustrated how diminutives are inflected using autosegmental representations, augmenting this with constraint theory to demonstrate how constraints are ranked, as shown in Figure 1, for example.

Figure 1

raas à ruways Correspondence Relations (adapted from Watson, 2006; p. 200)



In this illustration, Watson (2006) argues that the spreading of the root segments is disfavored because the resulting diminutive is *ruways* and not *rusays**.

McCarthy and Prince (1990) demonstrated how the moraic structure of words in Arabic is reorganized according to the language's diminutive rules. This reorganization results in diminutives exhibiting the same iambic pattern, regardless of whether they share the structure of their non-diminutive counterparts or if iambicity is absent in the plural form. Refer to Table 2 (adapted from McCarthy and Prince, 1990, p. 223).

Table 2

A list of nouns along with their plural and diminutive forms (adapted from McCarthy and Prince, 1990, p. 223)

<i>Noun</i>	<i>Plural</i>	<i>Diminutive</i>	<i>Meaning</i>
hind	hind + aat	hunayd + at	‘woman’s name’
kaafil	kuffal	kuwayfil	‘breadwinner’
kaafir	kuffaar	kuwayfir	‘infidel’
rukab + at	rukab	rukayb + at	‘knee’
ħikm + at	ħikam	ħukaym + at	‘maxim’
waziir	wuzar + aa?	wuzayyir	‘vizier’
kitaab	kutub	kutayyib	‘book’

In Table 2, the CuCaC structure is applicable to all diminutive examples, while it does not extend to all plural forms. This suggests that the diminutive structure is consistently realized, irrespective of the stem's original form. One example from Table 2 is the singular [hikmah], which has the plural [hikam]. In the diminutive form, the vowel in the first syllable shifts from a front vowel to a back vowel, specifically from [i] to [u].

McCarthy (2000) examined iambic diminutive patterns, showing that the diminutive process conserves segmental spreading, whereby consonants retain their original positions. More broadly, the diminutive pattern constitutes a core analytic category that recurs in discourse, typically manifesting in disyllabic and trisyllabic forms. McCarthy (2000) also found that the structure of diminutives is not arbitrary; there is an inserted [y] sound and a vowel shift from [i] to [u] in the first syllable. Although these findings appear applicable to many cases of diminutives, McCarthy did not address all instances. Examining these additional cases would enhance our understanding of the generalizability of his findings.

Jaradat and Alkhawaja (2024) indicate that the morphological process of forming the diminutive is not only inflectional but can also be derivational, as it involves a change in meaning. They support their claim by explaining how some diminutives convey meanings distinct from their root forms. Refer to Table 3.

Table 3

A list of roots with non-diminutive and diminutive derivatives from MSA (adapted from Jaradat and Alkhawaja, 2024. p. 3)

Root	Non-diminutive nominal	Diminutive nominal
√bsʕl	baʕʕal-ah onion-F ‘an onion’	buʕʕajl-ah ‘hair follicle’
√ʕnb	ʕanab ‘tail’	ʕunajb ‘petiole’
√sjq	saaq ‘leg’	suwajq ‘inner pulmonic stream’
√rmḥ	rumḥ ‘spear’	rumajḥ ‘a cane’
√shl	sahl ‘easy’	suhajl ‘Canopus’
√qrf	qaraf ‘crunch’	qurajf ‘a type of cheese that is hard’
√dzsʔ	dzuzʔ ‘part’	dzuzajʔ ‘molecule’
√dzsm	dzism ‘body’	dzusajm ‘particle’

√qmḥ	qamḥ 'wheat'	qumajḥ-ah 'pill'
√btʕn	batʕn 'abdomen'	butʕajn 'ventricle'
√ʔðn	ʔuðun 'ear'	ʔuðajn 'atria'

In Table 3, the meanings of the diminutives include meanings that do not only pertain to the meaning 'smaller in size or quantity'.

Although researchers such as McCarthy and Prince (1990), McCarthy (2000), and Watson (2006) have examined the metrical structure of Arabic diminutives, their examples and discussions did not address all the structures of Arabic diminutives.

In her conference paper presented at SinFonIJA 14, Gouskova (2021) examines the structure of Russian diminutives, focusing on two main suffixes, -ok and -ik. She argues that their distribution is influenced by both phonological environments and lexical properties, suggesting that diminutive suffix selection is guided by sublexical phonotactic patterns and encoded diacritic features. These features not only affect morphological selection but also interact with prosodic and phonological behavior, offering insight into the interface between morphology and phonology in diminutive formation.

Comparative insights from Dutch further highlight how languages vary in their morphological encoding of diminutives. Ten Hacken (2013) analyzes Dutch diminutives and concludes that, although morphologically regular, they function more like word formation devices than inflectional elements due to their semantic unpredictability and absence of syntactic agreement. Unlike plural formation—which triggers agreement and fits traditional inflectional behavior—Dutch diminutives primarily serve lexical and evaluative purposes. This distinction parallels Arabic, where diminutive formation also exhibits rich morphophonological restructuring without directly influencing syntactic agreement. However, Arabic diminutives, unlike their Dutch counterparts, follow strict templatic patterns and are deeply embedded in the language's nonconcatenative morphological system, as shown in the current study.

Methodology

The search engine of the Alshamela digital library was utilized to query the term تصغير [taʕʕi:r], which functions as an adjective meaning "diminutive," as illustrated in the phrase [taʕʕi:rma:ʔ] 'diminutive of water'. This search engine encompasses approximately 8,000 books, totaling around 7 million pages of Arabic text. It also provides comprehensive bibliographic information for each result, including the book title, author, year of publication, publisher, and the relevant text itself. Consequently, the Alshamela search engine is a highly efficient resource for linguistic data. To ensure that only results pertinent to language research were included, the search was restricted to the linguistics genre, as this option was available for refining searches in the online interface. All 3,885 resulting tokens were examined within the

context of their source texts. This contextual analysis was crucial for distinguishing true diminutives from other uses. Tokens were included in the study if their context indicated they were diminutives, resulting in a list of 1,378. The remaining tokens were excluded because they were either section titles, purely explanatory text lacking examples or meaningful linguistic data, or repeated examples.

To further refine this list and exclude irregular usage, the 1,378 tokens were processed through the Almaany search engine. This engine searches for word entries across multiple dictionaries and provides examples from naturalistic sources. Only tokens that appeared in these examples were considered, which led to the final filtered list of diminutives. The resulting 54 examples, which appeared in both the Alshamela and the Almaany corpora, constitute this final list and are presented in Appendix 2. The use of the Alshamela search engine contributes to the reliability of the study's findings, and its combination with the Almaany search engine enhances data validity.

The diminutive tokens identified were presented using McCarthy's (1981) autosegmental representation. This approach illustrates how the diminutive segments remain independent of the root or stem segments. Despite their distribution among other segments, these diminutive segments exemplify the non-concatenative morphology of Arabic. Additionally, the representation indicates the placement of stress, understood as "the degree of force used in producing a syllable" (Crystal, 2008, p. 454). This follows the principle of weight-to-stress, defined as "the tendency for heavy syllables to receive stress," a notion that has also become central in several models of non-linear phonology (Crystal, 2008, p. 520). Several examples are included in Tables 4 through 11 below, where different morphemes of the words were specified. Arrows extended from the morpheme labels to the corresponding morphemes in the words, illustrating how words with similar structures align with one another, following the methodology of Almirabi (2021). Eisele and Bisele's (2002) morphological rules were utilized to demonstrate how diminutives are inflected. These rules also indicate the placement of syllable boundaries. Both McCarthy's (1981) and Eisele and Bisele's (2002) approaches to morphological analysis are essential for accounting for the generative nature of diminutive formation in languages with nonconcatenative morphology, such as MSA.

Results

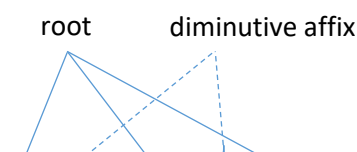
The structural meters of diminutives in Arabic can be categorized into several types, each exhibiting distinct characteristics based on the root structure. A disyllable iambic diminutive is inflected from a tripartite root, as exemplified by قُلَيْب [qulajb]. A trisyllable amphibrachic diminutive emerges from a tripartite root that ends in a feminine marker, such as حُبَيْلَة [hubajla]. Another trisyllable amphibrachic diminutive is formed from a quadripartite root, illustrated by

جَعْفِر [ʒuʕajfir]. In contrast, a trisyllable anapaestic diminutive is inflected from a five-segment root, exemplified by عُصْفِير [ʕuʕajfi:r]. For longer roots, a tetrasyllable quartus paeonic diminutive originates from a six-segment root, as demonstrated by زُعْفِرَان [zuʕajfira:n], while a tetrasyllable secundus paeonic diminutive is formed from a root that is either three-segment with a feminine marker or four-segment without, as seen in أُسْوِرَة [ʔusajwirah] and غُبَيْرِي [ʕubajqiri] respectively. Lastly, a trisyllable anapaestic diminutive can also be inflected from a quadripartite root, as shown in زُجَيْنِب [Zujajnib]. These various structural meters illustrate the rich and complex system of diminutive formation in Arabic. A common feature of all these meters is that the first vowel is [u] and the second is a glide [aj].

A diminutive word is inflected from a one-syllable stem, such as قلب ‘heart’ [qalb]. In this case, the diminutive inflectional process adds an additional syllable. This extra syllable is not simply appended as a chunk but is integrated as sounds distributed throughout different parts of the word. Consequently, this results in a disyllable Iambic structure. Only one structure found to be of two syllables that shares the same morphological skeleton with all the other examples is أُسْد ‘lion’ [ʔasad]. In this instance, the first segment is a glottal stop. Together with the following vowel, it forms one syllable. The remaining two segments of the stem create the second syllable, incorporating a medial vowel. Consider Table 4.

Table 4

Disyllable Iambic diminutive when inflected from a tripartite root



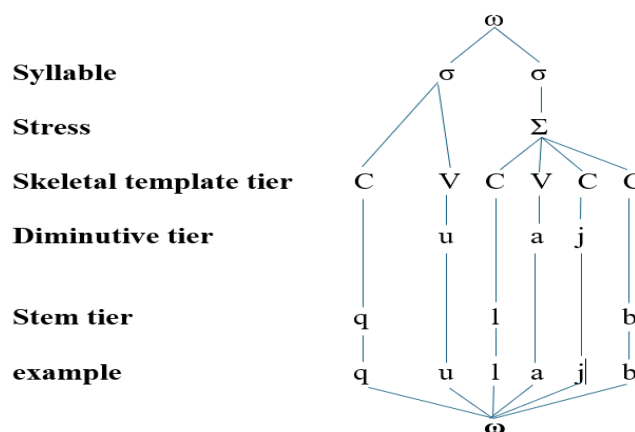
base transcribed	Arabic base	Arabic diminutive	diminutive transcribed	
qalb	قلب	قَلْب	qulajb	q u l a j b
Nahr	نهر	نُھِر	nuhajr	n u h a j r
bajt	بيت	بُيَيْت	bujajt	b u j a j t
sajf	سيف	سُيَيْف	sujajf	s u j a j f
θawb	ثوب	ثُوب	θuwajb	θ u w a j b
ʕud	عود	عُود	ʕuwajd	ʕ u w a j d
bab	باب	بُوب	buwajb	b u w a j b

Nab	ناب	نُوب	nuwajb	n	u	w	a	j	b
taʒ	تاج	تُوج	tuwajʒ	t	u	w	a	j	ʒ
kar	غار	غُور	kuwajr	k	u	w	a	j	r
mal	مال	مُويل	muwajl	m	u	w	a	j	l
ʕaʒ	عاج	عُويج	ʕuwajʒ	ʕ	u	w	a	j	ʒ
ma:ʔ	ماء	مُويه	muwajh	m	u	w	a	j	h
ʔasad	أسد	أُسَيِد	ʔusajd	ʔ	u	s	a	j	d

The diminutive affix in disyllable Iambic words consists of the second segment, which is the vowel [u], as well as the fourth and fifth segments, which are the neighboring sounds [aj]. These segments occupy the coda position of the first and second syllables, respectively. Consider Figure 2.

Figure 2

Disyllable Iambic diminutive when inflected from tripartite root



Stems that are inflected into an iamb exhibit various structures, including CVC, CVCC, CVVC, and CV σ CVC. Consider Rule 1.

Rule 1

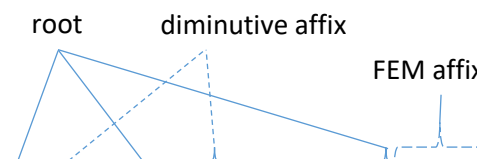
Disyllable Iambic diminutive formed from a tripartite root

$$\text{Ca}\{:, \text{C(a)}\}\text{C} \quad \rightarrow \quad \text{Cu}\sigma\text{Ca}\downarrow\text{C}$$

The tripartite segment root, when excluding the feminine markers, transforms into a trisyllable amphibrachic when generating diminutives. Consider Table 5.

Table 5

Trisyllable amphibrachic diminutive when inflected from a tripartite root ending in a feminine marker

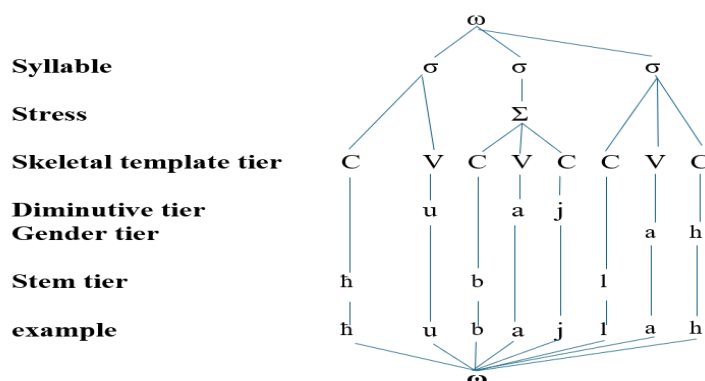


base transcribed	Arabic base	Arabic diminutive	diminutive transcribed	root	diminutive affix	FEM affix
ħubla	حُبْلَى	حُبَيْلَة	ħubajla	ħ u b a j	l a h	
baqarah	بَقَرَة	بَقَيْرَة	buqajrah	b u q a j	r a h	
dar	دَار	دَوَيْرَة	duwajrah	d u w a j	r a h	
?uxt	أُخْت	أُخَيَّة	?uxaj:ah	? u x a j	: a h	
Bint	بِنْت	بُنَيَّة	bunaj:ah	b u n a j	: a h	
qi:mah	قِيَمَة	قُوَيَمَة	quwajmah	q u w a j	m a h	
ħi:lah	حَيْلَة	حَوَيْلَة	ħuwajlah	ħ u w a j	l a h	

Each segment of the tripartite root occupies the onset of the three syllables, respectively. The first and second segments of the diminutive affix occupy the nucleus positions of the first and second syllables, respectively. The nucleus and coda positions of the third syllable are occupied by the feminine marker. Refer to Table 5 and Figure 3. Figure 3 also illustrates how the diminutive marker and the feminine marker occupy separate tiers.

Figure 3

Trisyllable amphibrachic diminutive inflected from a tripartite root ending in a feminine marker



Although tripartite stems are structured in various ways, as shown in Table 5, the resulting diminutives are organized in the same foot meter. Consider Rule 2.

Rule 2

Trisyllable amphibrachic diminutive formed from a tripartite root ending with a feminine marker

$$CV(\{:,C(a)\})C(\{a(h),C\}) \rightarrow Cu\sigma Caj\sigma Cah$$

With certain diminutives, the resulting words are amphibrachic trisyllable only when they include the feminine marker. However, when the feminine marker is removed, the diminutive becomes a disyllable iambic. Compare the corresponding male and female diminutives in Table 6, Rule 3, and Figure 4.

Table 6

Corresponding disyllable iambic and trisyllable amphibrachic diminutives inflected from tripartite, comparing feminine and masculine

				root	diminutive affix
ʔibn	ابن	بُنَيَّ	bunaj:a	b u n a j	
Bint	بنت	بُنَيَّة	bunajah	b u n a j	: a h

FEM affix

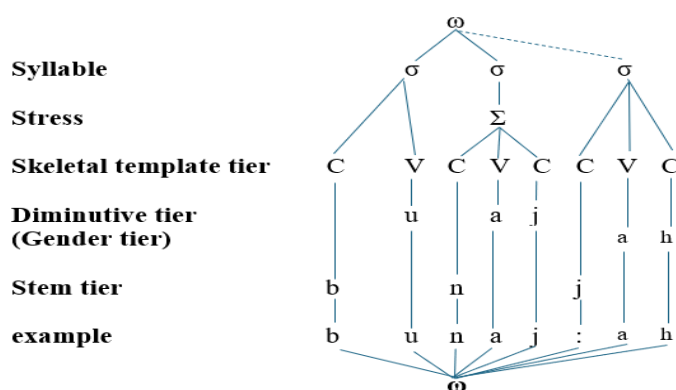
Rule 3

Corresponding disyllable iambic and trisyllable amphibrachic diminutives inflected from tripartite, comparing feminine and masculine

CVCC → CuσCaj(σ:ah)

Figure 4

Corresponding disyllable iambic and trisyllable amphibrachic diminutives inflected from tripartite, comparing feminine and masculine



The quadripartite segment root transforms into trisyllable amphibrachic when forming the diminutive. This diminutive consists of three syllables, with the diminutive affix attached to the first and second syllables, represented by the segments [u] and [aj], respectively. The root segments occupy the onset positions of the three syllables, while the fourth segment is positioned in the coda of the third syllable. Consider Table 7 and Figure 5.

Table 7

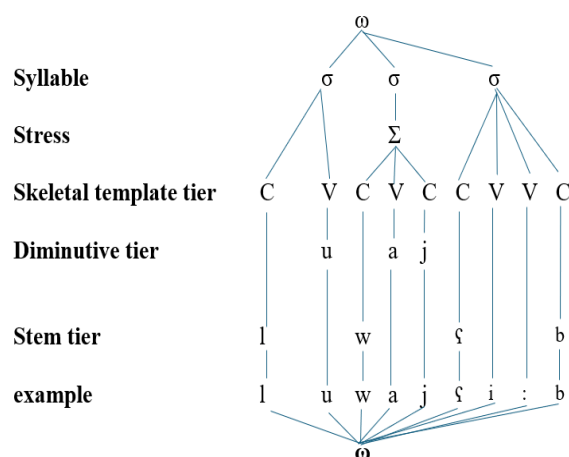
Trisyllable amphibrachic diminutive inflected from quadripartite root

				root		diminutive affix					
base	Arabic	Arabic	diminutive								
transcribed	base	diminutive	transcribed								
zaʕfar	جعفر	جَعْفَر	zuʕajfir	ʕ	u	ʕ	a	j	f	i	r
bunduq	بندق	بَنْدِقْ	bunajdiq	b	u	n	a	j	d	i	q

kitab	كِتَاب	كُتِبَ	Kutaj:ib	k	u	t	a	j	:	i	b	
raʕif	رَغِيف	رَّغِيف	ruʕaj:if	r	u	ʕ	a	j	:	i	f	
ʕazu:z	عَجُوز	عُجِّيزَ	ʕuzaj:iz	ʕ	u	ʒ	a	j	:	i	z	
zajnab	زَيْنَب	زُيِّنِب	zujajnib	Z	u	j	a	j		n	i	b
ʔaħmad	أَحْمَد	أَحْمِدَ	ʔuħajmid	ʔ	u	ħ	a	j		m	i	d
ʔa:dam	آدَم	أَوْدِمَ	ʔuwajdim	ʔ	u	w	a	j		d	i	m
ʔa:mir	عَامِر	عَوَّيِمِرَ	ʔuwajmir	ʔ	u	w	a	j		m	i	r
ʔa:kil	أَكَلَ	أَوَيْكِلَ	ʔuwajkil	ʔ	u	w	a	j		k	i	l
ʔa:xið	أَخَذَ	أَوَيْخِذَ	ʔuwajxið	ʔ	u	w	a	j		x	i	ð
salim	سَالِم	سَوَّيِلِمَ	suwajlim	s	u	w	a	j		l	i	m
katib	كِتَاب	كُتِبَ	kuwajtib	k	u	w	a	j		t	i	b
ra:fiʕ	رَفِيع	رَوَّيْفَ	ruwajfiʕ	r	u	w	a	j		f	i	ʕ
nahiD	نَاهِض	نَوَّيْهَضَ	nuwajhiD	n	u	w	a	j		h	i	D
laʕib	لَاعِب	لَوَّيْعِبَ	luwajʕib	l	u	w	a	j		ʕ	i	b

Figure 5

Trisyllable amphibrachic diminutive inflected from quadripartite root



Notice how the roots of the diminutives exhibit different structures, as shown in Table 7. Nevertheless, the diminutives are organized within a single metrical structure, specifically

trisyllable amphibrachic. The variety of structures is illustrated in the input of Rule 4 in which alfa/beta is used to encompass the either/or structures. Consider Rule 4.

Rule 4

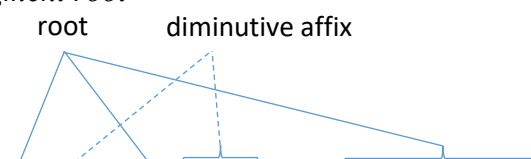
The trisyllable amphibrachic diminutive is formed when inflected from a tripartite root that ends with a feminine marker. This follows an organized foot meter after creating diminutives from various roots.

$$Ca(\alpha C)Ca(\beta:)C \rightarrow Cu\sigma Caj\sigma CVC$$

The trisyllable anapaestic diminutive is inflected from a five-segment root when the diminutive affix occupies the nucleus positions of the first and second syllables. In this structure, the four segments of the root occupy the onset of the three syllables, while the coda of the third syllable follows a geminated⁵ vowel. Consider Table 8.

Table 8

Trisyllable anapaestic diminutive inflected from five-segment root



base transcribed	Arabic base	Arabic diminutive	diminutive transcribed
safarʒal	سفرجل	سَفَرِيچ	sufajri:ʒ
ʕaʕfu:r	عصفور	عَصْفِير	ʕuʕajfi:r
sulTa:n	سلطان	سُلَيْطِين	sulajTi:n
qindi:l	قنديل	قُنْدِيل	qunajdi:l
Saħra:ʔ	صحراء	صَحْرَاء	Suħajra:ʔ
miza:n	ميزان	مُوزِين	muwajzi:n
miqa:t	مِقات	مُوقِيت	muwajqi:t
miʕa:d	مِعاد	مُوعِيد	muwajʕi:d
dina:r	دينار	دُنَيْنِير	dunajni:r
qira:T	قيراط	قُرَيْرِيط	qurajri:T

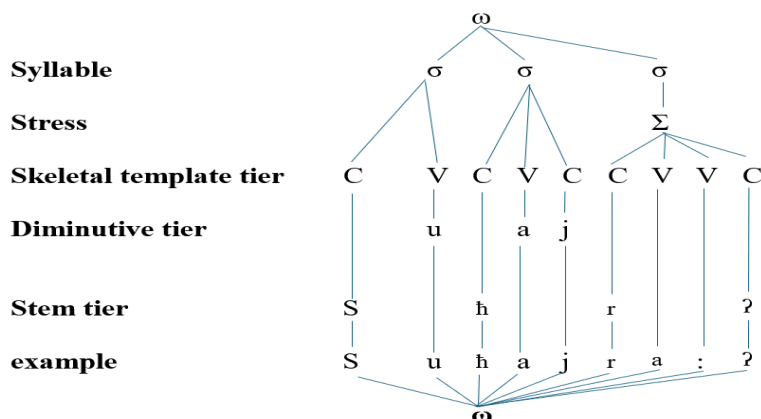
Diminutives with the same number of syllables are inflected from both quadripartite and five-segment roots. However, these roots differ in the length of the final syllable and their

⁵ For the purpose of the present paper, geminated segments are sounds that are characterized by a longer duration than non-geminated segments.

metrical structure. Specifically, the third syllable in the five-segment root trisyllable anapaestic diminutive contains a geminated vowel in the nucleus position and is stressed. In contrast, the third syllable of the quadripartite root features a non-geminated vowel in the nucleus position, with the stress placed on the second syllable. Consider Tables 7 and 8, and Figures 5 and 6.

Figure 6

Trisyllable anapaestic diminutive inflected from five-segment root



The trisyllable anapaestic diminutives are inflected from words with two syllables, where the first syllable can be either open or closed. The trisyllable anapaestic diminutives can also be formed from words with three syllables, provided that the first syllable is open. An open syllable is a syllable that ends in a vowel. Conversely, a closed syllable is a syllable that ends in a consonant. Consider Rule 5.

Rule 5

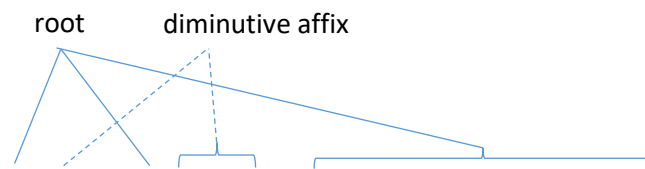
Trisyllable anapaestic diminutive inflected from five-segment root

$$CV(C)\sigma CVC\sigma(CVC) \rightarrow Cu\sigma Caj\sigma CV:C$$

When diminutives are inflected from roots with six segments, they are structured into four syllables that alternate between open and closed syllables. Consider Table 9 and Rule 6.

Table 9

Tetrasyllable quartus paeonic diminutive inflected from six-segment root



base	Arabic	Arabic	diminutive
transcribed	base	diminutive	transcribed
qurfuSa:ʔ	قرفساء	قُرَيْفِساء	qurajfiSa:ʔ q u r a j f i S a : ʔ
zaʕfara:n	زعفران	زُعَيْران	zuʕajfira:n z u ʕ a j f i r a : n

Rule 6

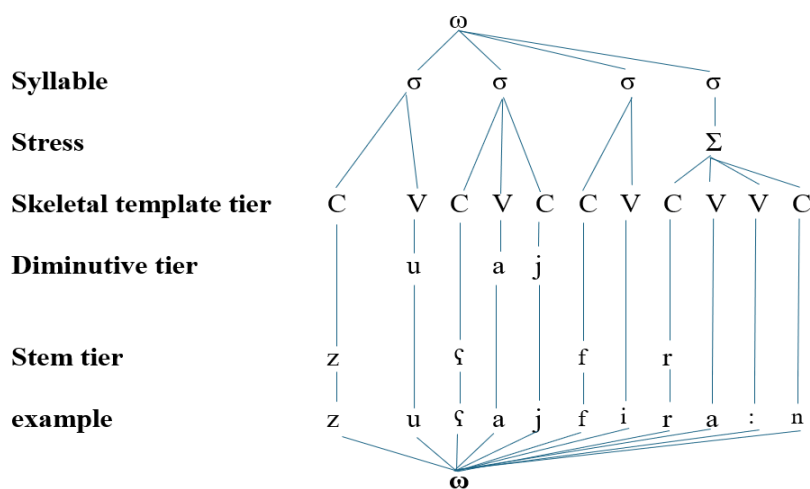
Tetrasyllable quartus paeonic diminutive inflected from six-segment root

$$\text{CVC}\sigma\text{CV}\sigma\text{CV:C} \rightarrow \text{Cu}\sigma\text{Caj}\sigma\text{Ci}\sigma\text{Ca:C}$$

The fourth syllable in the tetrasyllable quartus paeonic diminutive is stressed. This syllable also has a geminated vowel in the nucleus position. Consider Figure 7.

Figure 7

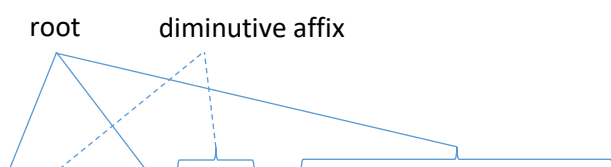
Tetrasyllable quartus paeonic diminutive inflected from a six-segment root



The tetrasyllable secundus paeonic diminutive is inflected from three-syllable words, where only the first syllable is closed, or both the first and final syllables are closed when a feminine marker is present in the coda of the final syllable. It should be noted that the non-diminutive form comprises four segments, and with the addition of the feminine marker, this count increases to five. When a feminine marker is included, the syllables alternate between open and closed. Consider Table 10 and Rule 7.

Table 10

Tetrasyllable secundus paeonic diminutive when inflected from roots that are three-segmented with a feminine marker or four-segmented without.



base	Arabic	Arabic	diminutive
transcribed	base	diminutive	transcribed
ʕabqari	عَبْقَرِي	عَبْقَرِي	ʕubajqiri ʕ u b a j q i r i
ʔuswarah	أَسْوَرَة	أُسَيُورَة	ʔusajwirah ʔ u s a j w i r a h

Rule 7

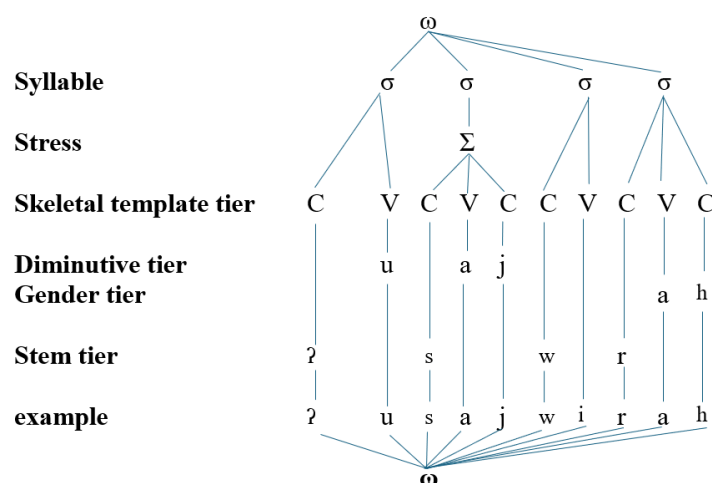
The tetrasyllable secundus paeonic diminutive is formed when inflected from roots that are three-segment with a feminine marker or four-segment without one.

$$CVC\sigma CV\sigma CV(h) \rightarrow Cu\sigma Caj\sigma CV\sigma CV(h)$$

Whether or not there is a feminine marker, the second syllable is closed and stressed. Consider Figure 8.

Figure 8

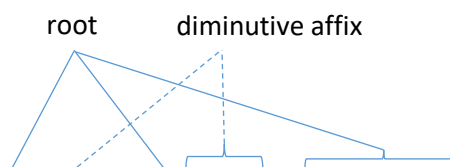
Tetrasyllable secundus paeonic diminutive when inflected from roots that are three-segmented with a feminine marker or four-segmented without.



The trisyllable anapaestic diminutive is inflected from a quadripartite segment or a five-segment root, resulting in the first syllable being open and the second and third syllables being closed. The third syllable is stressed and contains a geminated vowel in the nucleus position. Consider Table 11, Rule 8, and Figure 9.

Table 11

Trisyllable anapaestic diminutive inflected from quadripartite or five-segment root



base	Arabic	Arabic	diminutive						
transcribed	base	diminutive	transcribed						
zajnab	زَيْنَب	زُيْنَب	zujajnib	Z	u	j	a	j	n i b
ʔaḥmad	أَحْمَد	أَحْمِد	ʔuḥajmid	ʔ	u	ḥ	a	j	m i d
ʕaʕfu:r	عَصْفُور	عُصْفِير	ʕuʕajfir	ʕ	u	S	a	j	f i r
safarʕal	سَفَرَجَل	سُفَيْرِج	sufajriʕ	s	u	f	a	j	r i ʕ

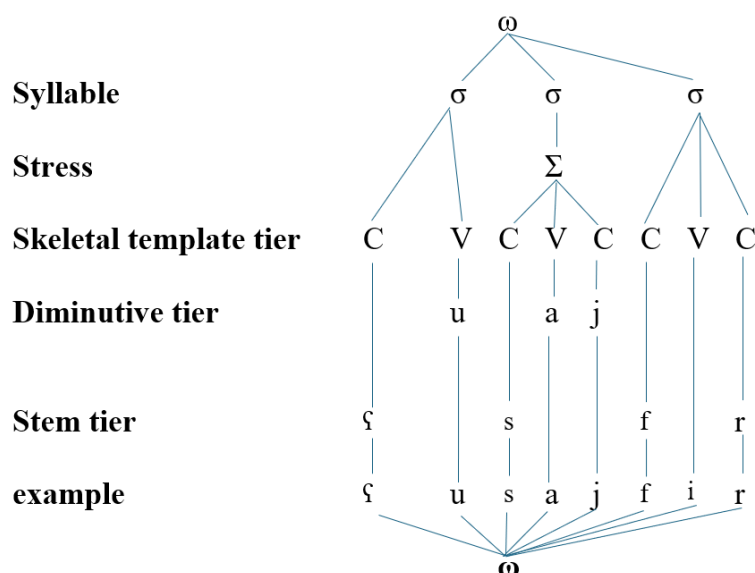
Rule 8

Trisyllable anapaestic diminutive when inflected from quadripartite or five-segment root

$$(CV\sigma)CVC\sigma CVC \rightarrow Cu\sigma Caj\sigma CVC$$

Figure 9

Trisyllable anapaestic diminutive inflected from quadripartite or five-segment root



Discussion

Previous research on Arabic diminutives has explored how these forms function in language, with findings indicating that diminutives alter the phonology of Arabic words through infixation and involve both inflectional and derivational processes (Hamid and Faiq, 2009; Al-Sieedy, 2017; Jaradat and Alkhawaja, 2024). However, several of these studies did not apply a clear theoretical framework, limiting their explanatory power.

Other studies adopted more structured theoretical approaches. For example, Watson (2006) demonstrated that specific phonological templates govern the formation of diminutives and highlighted how diminutive morphemes can override plural morphemes when both are present. Similarly, McCarthy and Prince (1990) investigated the role of moraic structure in diminutive formation, showing that Arabic diminutives consistently follow an iambic pattern, even when the corresponding non-diminutive forms do not. McCarthy (2000) further observed that consonants within diminutives retain their original positions, indicating a non-arbitrary morphological process.

Despite these valuable insights, previous studies do not fully account for all attested diminutive structures in Arabic. The current study addresses this gap by examining a comprehensive set of diminutive forms within Modern Standard Arabic (MSA), employing a combination of autosegmental morphophonological analysis, phonological rule application, and moraic structure theory. These frameworks help clarify the distinct morphological status of the diminutive morpheme, the mechanisms of its inflection, and the templates that guide its distribution across various word structures.

The analysis reveals that Arabic diminutives reorganize the underlying word structure through specific morphophonological templates. This restructuring often supersedes the influence of other morphemes present in the base forms. Notably, the study identifies six primary diminutive templates in Arabic:

- **Disyllabic Iambic Diminutive Structure:** $Cu\sigma CajC$ (e.g., *qalb* → *qulajb*)
- **Trisyllabic Amphibrachic Diminutive (Tripartite Root with Feminine Marker):** $Cu\sigma Caj\sigma Cah$ (e.g., *hubla* → *hubajla*)
- **Trisyllabic Amphibrachic Diminutive (Quadripartite Root):** $Cu\sigma Caj\sigma CVC$ (e.g., *zaʕfar* → *zuʕajfir*)
- **Trisyllabic Anapaestic Diminutive (Five-Segment Root):** $Cu\sigma Caj\sigma CV:C$ (e.g., *sulTa:n* → *sulajTi:n*)
- **Tetrasyllabic Quartus Paeonic Diminutive (Six-Segment Root):** $Cu\sigma Caj\sigma C\sigma Ca:C$ (e.g., *qurfuSa:ʔ* → *qurajfiSa:ʔ*)
- **Tetrasyllabic Secundus Paeonic Diminutive (Three-Segment with Feminine Marker or Four-Segment Without):** $Cu\sigma Caj\sigma CV\sigma CV(h)$ (e.g., *ʕabqari* → *ʕubajqiri*, *ʔuswarah* → *ʔusajwirah*)

These findings extend Watson's (2006) work on moraic patterns, offering a broader classification of diminutive forms in MSA. The study also confirms that the final structure of a diminutive word results not only from the morphological characteristics of the root or base word but also from the diminutive morpheme itself. Importantly, this morpheme is not inserted as a single, contiguous unit; rather, it is distributed across different positions within the word. This distributed pattern reflects Arabic's nonconcatenative morphology and corresponds to the process of transfixation (Broselow, 2000), in which vowels are interwoven with consonantal roots. Transfixation involves dispersing root and affix segments within one another, in contrast to other affixation processes where morphemes are added before, after, or within another morpheme as intact chunks. Specifically, vowels are inserted between the first and second,

second and third, and sometimes third and fourth consonants—restructuring the word in a systematic and meaningful way, as observed by McCarthy and Prince (1990). This refines McCarthy's (1981) claim that morphemes are placed on different tiers, by showing that the diminutive morpheme occupies one of these tiers.

While templatic structure accounts for most forms, diminutive pattern choice may also be shaped by other factors such as analogical leveling and usage frequency, particularly in spoken varieties.

Conclusion

The present study has presented a comprehensive analysis of diminutive structures in Modern Standard Arabic, demonstrating how these forms are generated through consistent morphophonological processes. By applying autosegmental and moraic frameworks, it was shown that diminutive morphology in Arabic is governed by predictable, rule-based patterns that transcend the base word's structure.

Unlike earlier studies that focused on individual cases or limited structural types, this work identifies six major templates that represent the full range of attested diminutive formations in MSA. It also highlights how the diminutive morpheme operates not as a fixed affix but as a dispersed element integrated through transfixation, underscoring the complexity and elegance of Arabic morphology.

When conducting a morphological analysis of diminutives using an autosegmental approach, it becomes clear that placing the diminutive morpheme on a separate tier is highly effective. This method demonstrates how bound morpheme segments are dispersed among the root segments in a nonlinear fashion, accounting for the fundamental principles of generative morphology. Such analysis reaffirms McCarthy's (1981) claim that the autosegmental approach effectively addresses the theoretical challenges posed by nonconcatenative languages, which cannot be adequately explained through linear concatenation alone.

Beyond theoretical significance, the findings have practical applications. The predictable, rule-governed nature of diminutive patterns can inform natural language processing (NLP) tools for generating, recognizing, and analyzing these forms. They can also support language learning by clarifying that diminutives are not arbitrary word changes, thus aiding learners in acquiring their forms and functions. Additionally, these insights can contribute to the development of more accurate and comprehensive Arabic learners' dictionaries.

The present research is limited to tokens found in published works in Modern Standard Arabic (MSA). A discussion of diminutive morphology will benefit from examining other types of discourse and focusing on other varieties of Arabic. Future research may also benefit from a

comparative analysis of diminutive patterns across other Semitic or nonconcatenative languages to determine whether similar morphological processes are shared. Such cross-linguistic comparisons could deepen our understanding of the typological features of nonconcatenative morphology and enrich theories of morphological structure and inflection.

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Appendix 1

Symbols Used in the Present Study to Represent Arabic Sounds:

Consonants

Arabic Letter	Sound Symbol	Arabic Letter	Sound Symbol
ء	ʔ	ض	D
ب	b	ط	T
ت	t	ظ	Z
ث	θ	ع	ʕ
ج	ʒ	غ	ɣ
ح	ħ	ف	f
خ	x	ق	q
د	d	ك	k
ذ	ð	ل	l
ر	r	م	m
ز	z	ن	n
س	s	ه	h
ش	ʃ	و	w
ص	S	ي	j

Vowels

i		u
e	ə	o
a		

Appendix 2

List of Identified Diminutives (for comparison)

base transcribed	Arabic base	Arabic diminutive	diminutive transcribed																	
qalb	قلب	قُلَيْب	qulajb	q	u		l	a	j	b										
nahr	نهر	نُهِير	nuhajr	n	u		h	a	j	r										
bajt	بيت	بُيَيْت	buajjt	b	u		j	a	j	t										
sajf	سيف	سُيَيْف	sujajf	s	u		j	a	j	f										
θawb	ثوب	ثُويِب	θuwajb	θ	u		w	a	j	b										
ʕud	عود	عُويِد	ʕuwajd	ʕ	u		w	a	j	d										
bab	باب	بُويِب	buwajb	b	u		w	a	j	b										
nab	ناب	نُويِب	nuwajb	n	u		w	a	j	b										
taʒ	تاج	تُويِج	tuwajʒ	t	u		w	a	j	ʒ										
kar	غار	كُويِر	kuwajr	k	u		w	a	j	r										
mal	مال	مُويِل	muwajl	m	u		w	a	j	l										
ʕaʒ	عاج	عُويِج	ʕuwajʒ	ʕ	u		w	a	j	ʒ										
ma:ʔ	ماء	مُويِه	muwajh	m	u		w	a	j	h										
ʔasad	أسد	أُسَيْد	ʔusajd	ʔ	u		s	a	j	d										
ʔibn	ابن	بُنَيَّ	bunaija	b	u		n	a	j			:	a							
hubla	حبلَى	حُبَيْلَه	hubajla	h	u		b	a	j			l	a	h						
baqarah	بقرة	بُقَيْرَة	buqajrah	b	u		q	a	j			r	a	h						
dar	دار	دُويِرَة	duwajrah	d	u		w	a	j			r	a	h						
ʔuxt	أخت	أُخَيَّة	ʔuxajjah	ʔ	u		x	a	j			:	a	h						
Bint	بنت	بُنَيَّة	bunajjah	b	u		n	a	j			:	a	h						
qi:mah	قيمة	قُويِمَة	quwajmah	q	u		w	a	j			m	a	h						
hi:lah	حيلة	حُويِلَة	huwajlah	h	u		w	a	j			l	a	h						
ʒaʕfar	جعفر	جُعْفِر	ʒuʕajfir	ʒ	u		ʕ	a	j			f	i	r						
bunduq	بندق	بُنْدِيْق	bunajdiq	b	u		n	a	j			d	i	q						
kitab	كتاب	كُتَيْب	kutaji:b	k	u		t	a	j			:	i	b						
rakif	رغيف	رُغَيْف	rukaji:f	r	u		k	a	j			:	i	f						
ʕaʒu:z	عجوز	عُجَيْر	ʕuʕaji:z	ʕ	u		ʒ	a	j			:	i	z						
ʕaSfu:r	عصفور	عُصْفِر	ʕuSajfir/	ʕ	u		S	a	j			f	i	r						

safarʒal	سفرجل	سَفَرِج	sufajriʒ/	s	u	f	a	j			r	i	ʒ						
zaj nab	زينب	زَيْنِب	zujaj nib	Z	u	j	a	j			n	i	b						
ʔahmad	أحمد	أَحْمَد	ʔuhajmid	ʔ	u	h	a	j			m	i	d						
ʔa:dam	آدم	أَدِيم	ʔuwajdim	ʔ	u	w	a	j			d	i	m						
ʔa:mir	عمر	عَوِمِر	ʔuwajmir	ʔ	u	w	a	j			m	i	r						
ʔa:kil	أكل	أَوِكِل	ʔuwajkil	ʔ	u	w	a	j			k	i	l						
ʔa:xið	أخذ	أَوِخِذ	ʔuwajxið	ʔ	u	w	a	j			x	i	ð						
salim	سالم	سَوِلِم	suwajlim	s	u	w	a	j			l	i	m						
katib	كتاب	كُتِب	kuwajtib	k	u	w	a	j			t	i	b						
ra:fiʕ	رفيع	رَوِيع	ruwajfiʕ	r	u	w	a	j			f	i	ʕ						
nahiD	ناهض	نَوِهَض	nuwajhiD	n	u	w	a	j			h	i	D						
laʕib	لاعب	لَوِيعِب	luwajʕib	l	u	w	a	j			ʕ	i	b						
safarʒal	سفرجل	سَفَرِج	sufajri:ʒ	s	u	f	a	j			r	i	: ʒ						
ʕaSfu:r	عصفور	عَصْفِير	ʕuSajfi:r	ʕ	u	S	a	j			f	i	: r						
sulTa:n	سلطان	سَلْطَان	sulajTi:n	s	u	l	a	j			T	i	: n						
qindi:l	قنديل	قُنْدِيل	qunajdi:l	q	u	n	a	j			d	i	: l						
Sahra:ʔ	صحراء	صَحْرَاء	Suhajra:ʔ	S	u	h	a	j			r	a	: ʔ						
mizan	ميزان	مُوزِين	muwaizi:n	m	u	w	a	i			z	i	: n						
miqat	مقات	مُوقِت	muwaiqi:t	m	u	w	a	i			q	i	: t						
miʕa:d	ميعاد	مُوعِد	muwaiʕi:d	m	u	w	a	i			ʕ	i	: d						
dina:r	دينار	دَنِينِر	duhajni:r	d	u	n	a	j			n	i	: r						
qira:T	قيراط	قُرِيرِط	qurajri:T	q	u	r	a	j			r	i	: T						
ʕabqari	عقري	عَبْقَرِي	ʕubajqiri	ʕ	u	b	a	j			q	i				r	i		
ʔuswarah	أسورة	أَسَوْرَة	ʔusajwirah	ʔ	u	s	a	j			w	i				r	a	h	
qurfuSa:ʔ	قرقصاء	قُرْقِصَاء	qurajfiSa:ʔ	q	u	r	a	j			f	i				S	a	: ʔ	
zaʕfara:n	زعفران	زُعْفِرَان	zuʕajfira:n	z	u	ʕ	a	j			f	i				r	a	: n	

Critical Language Awareness in Translation: Towards A Critical Cognitive Corpus-Based Training of Translators

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الملخص

على الرغم من الدراسات السابقة عن الوعي اللغوي في مجال الترجمة، لا يزال هناك نقص في الاعتراف من قبل الممارسين بأهمية الوعي اللغوي النقدي (فيركلاف، 2013/1992) بالجانب المعرفي/الإدراكي للمعنى، والذي يُعد جوهرًا في عمل المترجمين، سواء كانوا متدربين أو مهنيين يعملون أو يدرّسون ويُدرّبون في مجال الترجمة. تناولت الدراسة الحالية مدى الوعي النقدي لدى المترجمين المتدربين وإدراكهم للبنى المفاهيمية/التصويرية في كل من اللغة المصدر واللغة الهدف وذلك عند ترجمة العبارات المجازية في الخطاب الشعري من العربية إلى الإنجليزية. هدفت الدراسة إلى تقديم توصيات تعليمية لتحسين تدريب المترجمين، مستندة إلى أدلة تجريبية مستخلصة وفق منهجية تحليل الخطاب النقدي المعرفي للمتون المحوسبة لترجمات المتدربين.

كشفت النتائج عن تشوهات مفاهيمية واسعة النطاق لدى المترجمين ناتجة عن ضعف وعيهم بالمعاني المجازية، والمخططات التصويرية/المفاهيمية، والسرديات الثقافية للنص الأصل. كما أظهرت بيانات مجموعات التركيز والمقابلات أن هذه الأخطاء غالبًا ما ترتبط بالاعتماد المفرط على القواميس الثنائية اللغة، وضعف المعرفة التاريخية، وانعدام الوعي النقدي بعالم الخطاب للنص المصدر/الأصل. ختاماً تسلط النتائج الحالية الضوء على مزايا دمج التحليل النقدي المعرفي والمبني على المتون المحوسبة للخطاب المترجم في طرق تعليم المترجمين وتدريبهم لتعزيز وعيهم اللغوي النقدي. وذلك ليس فقط لتطوير مهاراتهم ومسيرتهم المهنية فحسب، بل أيضًا لتجنب الوقوع في ترجمات غير دقيقة قد تهدد تماسك النص وتشوّه المعنى المقصود في النص الأصل.

الكلمات المفتاحية: الثبات التصويري واللفظي، تدريب المترجمين، التحليل المعرفي القائم على المتون المحوسبة، الوعي اللغوي النقدي، الخطاب المترجم.

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Abstract

Despite previous studies on language awareness in translation, there remains a lack of acknowledgement, among practitioners, of how critical language awareness (Fairclough, 1992/2003) of the cognitive side of meaning is essential to the work of translators, both trainees and professionals working or teaching and training in the field of translation. The current study examined the extent to which trainee translators demonstrate critical awareness of conceptual structures in both the source and target languages when rendering figurative lines from Arabic poetic discourse into English. The aim was to offer pedagogical recommendations for enhancing translation training through empirical evidence drawn from a cognitive corpus-based Critical Discourse Analysis (CDA) of trainees' translations.

The findings revealed widespread conceptual distortions stemming from inadequate awareness of the Source Language's (SL) metaphorical meaning, conceptual schemas, and cultural narratives. The focus group and interview data revealed that these errors were often linked to an overreliance on bilingual dictionaries, limited historical knowledge, and a lack of critical awareness of the discourse world of the source text. The current findings shed light on the merits of incorporating cognitive corpus-based analysis of translated discourse in translators' pedagogy and training to enhance their critical language awareness, not only to develop their skills and careers but also to avoid chances of arriving at inaccurate translations that may threaten their cogency and distort the intended meaning of the original (source) text.

Keywords: *conceptual and lexical invariance, translator training, cognitive corpus-based critical discourse analysis, critical language awareness, translated discourse.*

Introduction

Throughout the last two decades, research on language awareness has inspired many practitioners in the field of language learning and teaching to think ‘critically’ about the appropriate ways a foreign language should be taught (Taylor, et al., 2017). However, with regard to other fields of language studies that deal with language use in social contexts, such as translation studies (Munday & Zhang, 2017), there remains a lack of acknowledgement among practitioners on how critical language awareness is essential to the work of translators, both trainees and professionals working, teaching, and training in the field of translation. Although the concept of language awareness has been clearly stated in early work in translation studies, such as Faber’s (1998) where she stated that “one of the most difficult things translators have to learn is how to extract conceptual meanings from source texts, so that they base their translations on reformulations of those meanings, rather than on the words or structures that codify them” (Faber, 1998, p. 9), the notion of language awareness has not yet received sufficient momentum in translation studies. Apart from the contributions of Zabalbeascoa (1994, 1997), Faber (1998), Malmkjær (2017), and, more recently, Liu and Chen (2021), this lack of recognition could be attributed to the dominant prevalence of functional approaches, which have dominated translation studies throughout the last decades since the 1970s. Therefore, this study investigates how a cognitive corpus-based critical analysis (Fairclough, 1995) of translated discourse (Otaif, 2024, 2025) can contribute to the enhancement of translation training protocols. It emphasises empirically driven critical language awareness among trainee translators, particularly in improving their ability to identify and preserve conceptual meaning when rendering figurative and culturally embedded texts from Arabic into English.

Literature Review

Language Awareness in Translation

The importance of language awareness in any language pedagogical theory emerges from the simple fact that curricula should help learners become critically aware of language and its features (Fairclough, 1992/2013). Otherwise, learners will continue to make the same mistakes until they become aware that this is not the right way to do things. When Fairclough (1992/2013) introduced the concept of critical language awareness, he stated that the term ‘language awareness’ was limited to the context of education and applied linguistics, denoting ‘knowledge about language’. Therefore, he expanded the concept by drawing a dichotomy between ‘language awareness’ and what he called ‘critical language awareness’. He stated that language capabilities (competence) can be seen as an ‘awareness of language’, yet it is only when this awareness/competence is used and practised in a ‘purposeful discourse’ (emphasis is mine), such as translated discourse, that we become mindful of whether this language awareness is critical or not.

Regarding translation, Faber (1998, p. 9) stated that “but for translation students, it [language awareness] is a vital necessity. Arguably, consciousness of the underlying patterns of meaning in language (in its generic sense) stands in direct relation to the relative ease with which students acquire translation skills”. Likewise, Gutknecht and Rolle (1996) in their book *Translating by Factors: The Missed Encounter* stated that while “retention of conceptual meaning is an invariance demand, linguistic variation of expressions is a variance demand” (p. 303). They grounded their argument on Lyon’s (1981) assertion that in translating a book, a translator should ensure that the conceptual meaning is retained while lexical variations can be used to avoid repetition and adhere to the target language style.

Liu and Chen (2021) investigated whether a brief instructional intervention on linguistic ambiguity could enhance trainee translators’ ability to detect ambiguity in translation, addressing a notable gap in empirical research on metalinguistic awareness. The results showed a significant improvement in identifying ambiguous items, affirming the pedagogical value of fostering language awareness, even with short interventions. However, the study also revealed a tendency to overinterpret unambiguous items, highlighting the need for a deeper conceptual understanding alongside noticing. These findings suggest that training in critical language awareness benefits translators of different proficiency levels.

Corpus-Based Approaches and Language Awareness in Translation

Although some researchers in translation studies have stressed the importance of training translators (see Baker, 1993, 1995, 1996, 2000; Nord, 2005, 1996; Pym and Hao, 2025; Schäffner, 2000; Wendland, 2019; among many others), some of these approaches have focused on the overall procedure of the translation process but have not examined subtle conceptual variances and their role in reconstructing SL meanings, particularly in translating literary texts. For example, while translation-oriented text analysis (Nord, 2005) demands an analysis of all factors inside and outside the text, corpus-based approaches, such as Baker (1993, 1995, 1996, 2000) and Bowker (1999), can reveal much about the importance of language awareness in translation studies by comparing and contrasting the conceptual and lexical variances produced by translators. This is evident in studies such as Bowker (1999), Rodríguez-Inés (2012), Al Zumor (2021), and Otaif (2024, 2025).

First, Bowker (1999, p. 160) acknowledged the importance of language awareness in translation but stated that it is not “always easy to help students refine this faculty”. She found that corpora helped raise translators’ language awareness and contributed to minimising their resistance to correcting mistakes. She added that “the principal advantage afforded by concordancing tools is that they allow translators to see terms in a variety of contexts simultaneously, which in turn allows them to detect various kinds of linguistic and conceptual patterns that are sometimes difficult to spot in isolated printed resources (e.g., meanings of terms, related terms, typical phrasal patterns)” (Bowker, 1999, p. 165). Baker (2000), on the

other hand, attempted in a small-scale exploratory study to use corpus linguistics tools to show if they can reveal the style of literary translator(s) with the aim of finding out what is distinctive in the language they use. She concluded that although it was “methodologically difficult, it is possible in principle to identify patterns of choice which together form a particular thumb-print or style of an individual literary translator. It is also possible to use the description which emerges from a study of this type to elaborate the kind of world that each translator has chosen to recreate” (p. 260).

Rodríguez-Inés (2012) observed that the use of corpora increased the awareness of translators translating from Spanish into English. The study highlighted the importance of using corpora in training translators who are non-native speakers of English and shed light on how “a corpus-based SL-oriented exercises can also help demonstrate the relative value of native-speaker intuition and make students aware of the importance of using documentary resources such as electronic corpora to back up their decisions” (p. 237). Chen and Shen (2025) conducted a qualitative study to address a notable gap in translation education research: the lack of empirical insight into how large-scale, corpus-based, project-based learning (PjBL) initiatives shape student translators’ language awareness and competence development. Drawing on data from reflective journals and semi-structured interviews with 97 student translators and 15 instructors at a Chinese foreign language university, this study explored the pedagogical impact of a two-year corpus-construction project involving military tribunal texts. The findings revealed that students significantly enhanced their language awareness through mastering legal terminology, refining translation strategies, and engaging in bilingual text alignment using CAT tools. This heightened awareness extended to syntactic precision, semantic equivalence, and ethical sensitivity in handling historically charged content, underscoring the transformative role of authentic collaborative translation tasks in fostering metalinguistic insight and critical reflection.

Al Zumor (2021), in a corpus-based analysis of Arabic translations of academic papers that were originally written in English by Arabic authors, found that the passive structures in the English abstracts (STs) were rendered into different Arabic grammatical structures, including active verbs and verbal nouns. Although this study primarily focused on the differences between SL and TL grammatical structures, its findings can also be extended to illustrate how varying grammatical structures, which exemplify lexical variance between the SL and TL, may lead to different realities (i.e. conceptual variances that diverge from the original meaning conveyed in the source text).

This type of variance in conceptual meaning can be seen as a violation of the demand stated by Gutknecht and Rölle (1996), which is that of the conceptual meaning invariance mentioned above. In other words, in Al Zumor’s (2021) study, the conceptual meanings of Arabic structures varied and differed from the meaning of the English (SL) passive structures. Although Al Zumor (2021) has shown, based on corpus-based evidence, an example of how lexical variance can occur when translating texts into Arabic, he did not explain the conceptual

variances of these variant lexical choices, which is an area that requires a cognitive account from cognitive linguistics that corpus-based approaches lack (see Baker, 2010).

This raises the question of whether a corpus-based analysis of translations is sufficient to attain a better level of awareness of how the conceptual level of meaning is rendered in the target language. The question raised here is a common and recognised problem of corpus-based approaches to text analysis; Baker (2010) admitted that although corpus-based approaches can help us understand commonalities and variant patterns in texts, they need a cognitive account to interpret these findings. This is an area where cognitive corpus-based approaches to critical discourse analysis, such as Koller (2006) and Charteris-Black (2004, 2021), have been helpful. These approaches have shown how a combination of cognitive linguistics, corpus linguistics, and critical discourse analysis can provide a better and more in-depth understanding of metaphorical meanings and conceptual structures in texts, as well as explain their socio-semantic functions within a given discourse or culture. In other words, they can explain how a text composer is critically aware of the text they produce in their translated discourse (Otaif, 2024).

Cognitive Corpus-based Critical Analysis of Translated Discourse

In this vein, with specific reference to translation studies, there is a growing recognition of the roles played by 1) cognitive linguistics in translation studies (cf. Rojo and Ibarretxe-Antuñano, 2013; Ji et al., 2025), and 2) critical discourse analysis and its importance in raising critical language awareness in translation studies (cf. Al-Hejin, 2012; Elewa, 2019; Daghigh & Guo, 2024). Using cognitive corpus-based critical discourse analysis, Otaif (2024) found that translators used different translation procedures and ‘cognitive mechanisms’ (Ji et al., 2025; Otaif, 2024, 2025) to transfer or override culturally incompatible narratives, including their conceptual representations. Depending on their critical language awareness of what narratives the source language texts will convey to the target culture through their translated discourse, some translators have modified some parts of the conceptual representations embodied in culturally incompatible terms.

In this vein, Otaif (2024), using a cognitive corpus-based critical analysis of translated discourse, found that some Arabic translators, driven by their critical language awareness, made lexical choices that brought about conceptual variances when translating feminist terms such as ‘single mothers’ into Arabic; their used strategies were neither localising nor foreignizing but ‘cognitive mechanisms’ that enabled them to adhere to the socio-cultural norms and values of the target culture. For example, some translators were found to use ‘breastfeeding mums’ (TL text) to translate the English feminist term ‘single mums’ (SL text); they chose this strategy to avoid invading the TL with a foreign narrative that is incompatible with the Islamic and Arab culture. Although the strategy used here has rendered the status of the women as being responsible for feeding their children through a culturally equivalent (Newmark, 1988) TL

lexical choice, the translation used has rendered a different conceptual reality from the one that was given in the SL. This was done through cognitively selecting certain elements from the conceptual meaning of the SL term and neglecting or overriding others, resulting in conceptual and lexical variances between the two (the SL and TL terms).

Ji et al. (2025) acknowledged that there is an emerging trend within translation studies that draws heavily on cognitive linguistics, focusing on how translators and interpreters interact with and render conceptual structures of the SL meaning into the TL, especially when translating metaphors, metonymies, image schemas, and related linguistic patterns. They added that this approach offers vital insights into the different ways translators navigate the deep semantic and conceptual structures that underpin language, which are essential for conveying meaning across diverse linguistic and cultural contexts.

Therefore, a cognitive approach to the analysis of translated discourse would serve to illuminate why certain translations or mistakes are committed by translators and what conceptual realities they convey from the SL to the TL's sociocultural contexts. The current study aimed to show, through a cognitive corpus-based critical discourse analysis of trainees' translations, how the triangulation of tools and analytical concepts from cognitive linguistics, corpus linguistics, and critical discourse analysis can inform language awareness in translation, with particular reference to translator training. Specifically, it aimed to answer the following research questions:

- 1- To what extent do the trainees' translations reflect critical awareness of conceptual representations in the source text/discourse?
- 2- To what extent can critical cognitive corpus-based discourse analysis inform and improve translation training protocols?

Methodology

A mixed-methods design was employed within a Critical Discourse Analysis (CDA) analytical framework. The current study used 1) a translation task, 2) a focus group, and 3) interviews to collect data. Each method was employed at a different stage of data collection, respectively, as will be explained in this section later. First, a translation test was used to investigate the extent to which the trainees' translations reflected their critical awareness of the conceptual variances their lexical choices may bring about when rendering the source text into the TL. Second, the focus group and the interviews were conducted to provide an explanation of why certain lexical choices or mistakes were committed by the participants. The chosen methods are in line with the analytical procedure of critical discourse analysis (Fairclough, 1995), where an analyst should 1) identify (in our study, through the outcome of the translation tests) a sample for discourse analysis, 2) interpret its common patterns and irregularities

(through concordance software and analytical concepts from cognitive linguistics and translation theories), and finally 3) explain the findings within their socio-cultural context (through the focus group and interviews). Therefore, it is worth noting that the main methodological approach used in the current study was cognitive corpus-based critical discourse analysis, which is a recent approach that analyses text/discourse based on a triangulation of analytical concepts and tools (Charteris-Black, 2019, 2021; Otaif, 2019, 2024, 2025⁶). This triangulation adopts analytical concepts and tools from 1) critical discourse analysis (Fairclough, 1995), 2) cognitive linguistics, such as metaphors and schemas (see Evans, 2009, 2010; Evans and Green, 2006; Lakoff and Johnson, 1980, Talmy, 2000), and 3) corpus linguistics, such as concordance software (Baker, 2023).

Data Collection

From my five-year experience in teaching translation to postgraduate students and trainees, both novice and experienced translators were usually found to face difficulties in translating the figurative language used in literary texts, especially poems. Therefore, one of the poems that the trainees usually found difficult to translate into English was selected for this study. The chosen text is loaded with figurative poetic meanings and images (conceptual and metaphoric representations), which pose challenges in their translation. Therefore, the text is expected to render lexical and conceptual variances in trainees' translations. The quality of translators' translations is expected to vary based on their critical awareness of the figurative language used in the text, its cultural discourse, and the historical world of the text. Below is a copy of the first seven lines chosen for the translation test (Table 1). The chosen text was handed to the trainees only in Arabic to be translated into English (see Table 1 for the source text with a model translation of each line).

⁶ Otaif (2024, 2025) incorporated theories and analytical concepts from translation studies in his critical study of translated discourse, and the emerging approach was named a cognitive corpus-based critical analysis of translated discourse.

Table 1

The Source Text: Granada Poem by Nizar Qabbani

Line 1	في مدخل الحمراء كان لقاءنا At Alhambra's entrance, we met,	ما أطيّب اللقاء بلا ميعاد how sweet (wonderful) it is to meet out of the blue/without a rendezvous
Line 2	عينان سوداوان في جُجُريهما Two Black eyes, in their sockets,	تتوالد الأبعاد من أبعاد dimensions breed/multiply from other dimensions.
Line 3	هل أنت إسبانية؟ سألتها "Are you Spanish?", I said	قالت: وفي غرناطة ميلادي "And was born in Granada", She replied
Line 4	غرناطة؟ وصحت قرون سبعة Granada! And seven centuries awakened	في تينك العينين.. بعد رقاد inside those [beautiful] eyes, after a long sleep/ slumber
Line 5	وأمية راياتها مرفوعة And the Umayyads' flags are highly hoisted	وجيادها موصولة بجياد and their steeds are connected to other steeds
Line 6	ما أغرب التاريخ كيف أعادني How strange history is!	لحفيدة سمراء من أحفادي When it returned me/ took me back to a brown granddaughter of mine
Line 7	عانقتُ فيها عندما ودعتها As I farewelled her, I embraced in her a man	"رجلاً يُسمى "طارق بن زياد" named Tariq ibn Ziyad

The model translation was done by the researcher and peer-reviewed by two experts in literary translation, who are all professors of translation studies; one of them is a winner of a prestigious award in translation. Based on their feedback, the translation was improved by adding alternative words, such as *slumber* in Line 4.

Study Sample

The study had two main groups of participants for each stage of data collection (Table 2).

Table 2

The Study Sample

Method	Translation Task	Focus Group and the Interview
Sample size	54 MA in Translation students	8 MA Students and 2 MA Instructors

First, 60 postgraduate students enrolled in an MA in Translation program at a Saudi university, all with a minimum IELTS score of 6.5, participated in the translation task. Twenty students from each class of the program participated over a period of two and a half years, with

one class per year in 2021, 2022, and 2023. The trainees were given the translation task, usually during the first week of the 2nd year of their translation program. This step was taken to ensure that the participants did not have any homework, exam pressure, or other commitments while completing the task. They were also given the opportunity to use their phones to look up the meanings of equivalent words in the target language; however, their use was restricted to online bilingual dictionaries. This restriction was to ensure that they do not consult online parallel corpora that may increase the quality of their translations based on viewing previously published translations. The aim was to determine the extent to which they were aware of the conceptual variances evoked by their translation choices. The time given for this task was two hours (120 minutes); it was noticed that most of the trainees submitted their translations in less than 90 minutes, usually between 60 and 80 minutes. Despite the fact that the time of task completion would be of relevance, it was not collected, especially because the main aim of the current study was to investigate the pedagogical implications that the analysis may offer concerning language awareness in translation. The translations were then compiled, classified, and coded before being fed into the concordance software, WordSmith Tool 8. The final research corpus comprised 54 returned translations with a total size of 4895 tokens/words (Table 3).

Table 3

The Research Corpus

Number of Trainees	60
Number of submitted translations	54/ 60
Total Corpus Size	4895 tokens/words

The names of the translators were coded using middle name initials and family name initials. Other non-relevant notes were removed from the corpora (Figure 1).

Figure 1

A Sample of The Corpus-Based Analysis of The Trainees' Translations

me back to a brunette granddaughter of mine. Give her a hug when you say goodbye to her dbye to her	Tr. L.A.txt
to one of my lovely places, When I bid farewell to her, I hugged, A man called "Tariq bin Zeiad" Nizar Gabbani	Tr. F.Ash.t
her , it seemed To some man who called (Tariq bin Ziyad) i hugged riq bin Ziyad) i hugged	Tr. S.Ash.t
helped to reunion With one of my dark skin grandchildren I hugged her to say Good bye and I felt as if I hugged a man	Tr. A.S.txt
grandchildren I hugged her to say Good bye and I felt as if I hugged a man called Tareq ben Zeyad Tareq ben Zeyad	Tr. A.S.txt
our race.. In thar familiar face.. When I see her off, I hugged that nobel man.. Who's name is ""Tariq Ibn Ziad"" ..	Tr. B. A.txt
me back, To a brunette one of my descendant. Once i embraced her to a farewell, Evoked memories of one	Tr. M. Ae.t
golden-skinned beauty, one of my grand daughters i embraced in her a man called ""Tariq Ibn Ziyad"" as I	Tr. R.A.txt
of yore When I bid her adieu when I knew I was going, I embraced Tariq ibn Ziyad in her. q ibn Ziyad in her.	Tr. S.H.txt
to an east granddaughter, from my pedigree of yore I embraced in her soul when I was leaving A man called	Tr. A.As.tx
granddaughter of my grandchildren? Farewell , I embraced a man called ""Tariq bin Ziyad."" " nked their	Tr. H.O..txl

The Procedural Steps of The Analysis

The main procedural steps of the analysis were identifying, interpreting, and explaining samples of conceptual and lexical variances found in the trainees' translations, which in turn can reflect their level of critical language awareness of the source text and the target language (see Figure 1 above). The corpus data were first analysed, focusing on how certain meanings, which entail unique conceptual representations (i.e. figurative or metaphoric meanings), were conveyed by different translators into the TL and in what conceptual and lexical forms. In cognitive corpus-based critical discourse analysis, the role of the critical discourse analyst is manifested in three steps: 1) identify (see Figure 1), 2) interpret, and 3) explain (Fairclough, 1995). While corpus linguistics tools such as concordance software were mainly used to help automatically and systematically identify (stage one) samples for the analysis (Koller & Mautner, 2004), cognitive linguistics tools such as metaphors and schemas (see Charteris-Black, 2021; Evans, 2009, 2010; Evans and Green, 2006; Talmy, 2000) were used to interpret (stage two) how the source text's conceptual meaning was reconstructed in the target language. After identifying and interpreting samples of lexical and conceptual variances (stages one and two), the analysis moved to explain (stage three) the findings within the critical paradigm of critical discourse analysis (CDA; Fairclough, 1995), where linguistic choices and strategies are not always arbitrary but meaningful within a particular social context (Charteris-Black, 2021; Fairclough, 1995; Otaif, 2024, 2025; van Leeuwen, 2008).

In other words, the corpus-based textual analysis aimed to identify whether the translators had extracted the conceptual meanings of the source text and transferred them correctly, as evident in their translations and explained by the focus group and interviews. The textual analysis was followed by a focus group, where eight of the participants/trainees and two instructors were invited to a virtual meeting (Table 2). The findings of the study were presented to them in the focus group, where they were then given the opportunity to try to explain and comment on them (explanation stage), followed by a 15-item structured interview schedule to elaborate on the outcome of the focus group discussions. It is worth noting that the focus group included eight trainees (almost three from each class/cohort) (Interviewees 1, 2, 3, 4, 5, 7, 8, and 9) of the study sample and two instructors (Interviewees 6 and 10) who were teaching in the selected MA in Translation program.

Ethical Considerations

Participants in all stages were given a consent form to sign, where they were asked to give their consent and informed that they had the right to withdraw, and that their responses would be used anonymously and solely for research purposes.

Methodological Limitations

It is worth emphasising here that, unlike Baker (1993, 1996), the current study was limited to the merits of building a monolingual corpus for the analysis of trainers' translations, where target texts (the trainees' translations) were always compared to the source text.

Findings and Discussion

Corpus-based Findings

The cognitive corpus-based analysis revealed that, although all participants were native Arabic speakers with a minimum IELTS score of 6.5, many lacked critical awareness of how their lexical choices brought about variant conceptual realities in the TL (English). In Line 1 (Table 1), the Arabic preposition "في" pronounced *fī* was mistranslated by 9/45 trainees as "in the entrance", evoking containment rather than location. In contrast, 39/45 trainees correctly used "at the entrance", while two opted for "at the door of" and "at the entry of". These differences underscore a schematic misunderstanding of English prepositions by some, where "in" suggests enclosure and "at" denotes spatial positioning, evoking conceptual differences in the TL.

Line 2 exposed even more lexical and conceptual variance. The term "حجرَيْهما" pronounced as *hijraiehma* (their sockets), was accurately rendered by only 9 translators out of 54. Two translators mistranslated it into "stones" (F=2), likely due to phonetic similarity with the Arabic word "hajariehma", which means their stones in English (see Figure 2).

Figure 2

Concordance of *their...stones*

N	Concordance	File
1	certain date Two black eyes in theirs eyes stones which can see far away Are you	As. Qa. OBT
2	without an appointment. Black eyes in their stones , born from the dimensions of ... Are you	Lat .Moh..txt

Other variants included "frames" (F=4), "orbs" (F=5), "orbits" (F=5), "depths" (F=4), and "embraces" (F=1). Notably, 14 translators (F=14) deleted the phrase entirely, suggesting avoidance, perhaps due to lexical uncertainty or lack of TL linguistic competence.

In Line 3, the term "غرناطة" pronounced as Ghurnata, which means the city of Granada, was correctly translated by 30 trainees. On the other hand, 14 chose to omit it (F=14), while others produced distorted versions, such as "Garnada" (F=3), "Granda" (F=4), and "Grenata" (F=1). These errors point to cultural unfamiliarity and a lack of historical background on the Andalusian civilisation and how it can be reported in the TL. The failure to recognise Granada as a historically significant city reveals a disconnect from the poem's discourse world and undermines its narrative coherence in the TL.

Likewise, Line 4 translations presented further lexical divergence. The phrase "seven centuries awakened" was rendered with verbs like "woke up" (F=7), "awoke" (F=5), "awake" (F=3), "revived" (F=7), and "aroused" (F=3). While some verbs aligned with the metaphor of sleep, others, like "revived", suggested resurrection, distorting the intended meaning. The second clause of Line 4 received translations such as "from a sleep" (F=23), "from a slumber" (F=10), and "from a slumbering" (F=13), with inaccurate choices such as "from a nap" (F=1) and "from somnolence" (F=1) which varied in terms of the nature and length of the sleeping act. These choices reflect varied conceptual variances and inconsistent conceptual interpretations.

On the other hand, Line 5 revealed striking misreadings. The word "أمية" (Umayyad) was mistranslated as "illiterate(s)" by seven trainees (F=7), likely due to confusion with the Arabic word "Umiceah", which means an illiterate woman. This surprisingly indicates that these translators misread the word and translated it into another Arabic word that is pronounced similarly, namely أمية Umiee. Umiee, in Arabic, refers to an illiterate person who has not learned to read or write, as shown in the concordance lines in Figure 3.

Figure 3

Concordance of *illitera**

N	Concordance	File
1	centuries in these eyes after a long sleep. An illiteracy girl raised her banner, and her horses	Am. Ass..txt
2	centuries awaken by her eyes after rest Her illiteracy is raised Her horses are attached to	As. Shai. N..txt
3	woke up, In those eyes after sleeping, A illiteracy whose flags are raised, And its	Rag A. Esh.txt
4	seven centuries. In those eyes, after slumber.. Illiterate's banners raised up high. Her Steeds	Raw BA.txt
5	awaken*** in those eyes after long hibernate Illiterate with a high flag***and her horses	F. Ha..txt
6	horns awakened after slumber in those two eyes Illiterate with raised banners and their horse is	Ree. Ash..txt
7	after a long time of sleeping And a flashback of illiterate women raising her flags Whose	Am .Fo.txt

Some of these seven translators seem to process the word *Umayyaton* as 'a proper name of a girl who is both illiterate and whom they think the poem is talking about' (ConcLs 1, 5, and 7 in Figure 3). Ten translators (F=10) interpreted it as a girl's name, while others used transliterations such as "Uma" (F=28) and "Om" (F=5). Additional variants included "Umay'ah"

(F=1), "Bani Ummah" (F=1), and "nation" (F=2). Six translators (F=6) skipped the line (Line 5) entirely. These errors may suggest a lack of historical and linguistic competence, resulting in a conceptual distortion of the poem's ideological references and cultural nostalgia narrative.

The phrase "جياها موصولة" (their steeds are connected) (Line 5, Table 1) was translated with terms like "horses" (F=36), "stallions" (F=2). Conversely, a wrong translation that reflected poor L1 competence was "her good is connected to good" (F=1). In contrast, 14 translators (F=14) deleted the clause or the entire line. While "stallions" evoked the image of Arabian horses, the phrase "good is connected to good" indicated a complete misreading of both the vocabulary and the metaphor of the connected cavalry of warhorses. These inconsistencies reflect a failure to grasp the symbolic and historical depth of the poem.

In Line 6, the phrase "returned me to a brown granddaughter" was rendered as "brought me back" (F=20), "bring(ing) me back" (F=4), "took me back" (F=9), "returned me" (F=7), "got me back" (F=3), and "sent me back" (F=2). Many examples exhibited tense errors, such as translating the SL past tense into present simple and continuous, as in "bringing", "gets", and "sends" (Figures 4-9).

Figure 4

Concordance of*brought me back**

N	Concordance	File
1	other horses How strange history is How it had brought me back to my brown grand-daughter I	Arw Qo..txt
2	horses too How amazing history is! How it had brought me back To the dark-skinned beauty,	Ay Sh..txt
3	to another How bizarre history is! How it brought me back To this dark-skinned girl, one	Rih Ele.txt
4	chained to each other How strange how history brought me back to a dark grand daughter of	Ab. Shu..txt
5	with others How strange is history when it brought me back***to a one of my brunette	F. Ha..txt
6	horses lined together How strange that history brought me back to a dark-skinned	Na Ja..txt
7	at one with their stallions How amazing history brought me back To the dark skinned, one of	AbEL. Q..txt
8	are numerous. How strange is history; how it brought me back. To a dark-skinned	An. Ash..txt
9	united they were What a strange history that brought me back To a brunette granddaughter	Ar. Ah..txt
10	attached to horses how strange is history, how it brought me back to a brown granddaughter of	Ass. Sh..txt
11	is knotted with steed it is strange how history had brought me back to my dark-skinned	Je Ash..txt
12	banners and horses What a history! How it brought me back to one of my beautiful grand	RnQ.txt
13	their stallions How amazing history is! how it had brought me back To the dark-skinned beauty,	MZ Add..txt
14	strange history is how the brown granddaughter brought me back from my grandchildren.	Raz. Jaf..txt
15	by other horses What the strange history! How it brought me back to the brunette	As. Qa. OBT.
16	to other horses How strange the history that brought me back to a brown grandchild of my	As. Shai. N.
17	are tied to each other Strange history how it brought me back to a Brunette granddaughter	Th. Bar..txt
18	linked their horses What a strange history ! How brought me back to a brunette granddaughter	Ha. Ot..txt
19	breeds, in their speed. How a strange history had brought me back, To a brunette one of my	Mea. Ele..txt
20	other are linked How strange is history how he brought me back To a brunette grandchild of	Saw. Ash..txt

Figure 5

Concordance of*bring(ing) me back**

N	Concordance	File
1	her horses What is the strangest history, how did it bring me back? For a brown granddaughter I	Am. Add.
2	the warrior horses lined up together how did history bring me back with dark-skinned one of my	Ath Qa..txt
3	is connects with its rider How strange is history to bring me back to a brown granddaughter, one of	Ree. Ash.
4	on to their horses How extraordinary history can be! bringing me back to the golden-skinned beauty,	Ru . Haj.

Figure 6

Concordance of*take/took me back**

N	Concordance	File
1	tied to my steeds. How strange is history... To take me back to a brunette grandchild of mine.	Raw BA.txt
2	at one with their steeds. How strangely the history took me back , to a memory of a dark-skinned	Ree Os.txt
3	whose banners are rising ... How oddly the history took me back to a dark-skinned granddaughter of	Shq Aa.txt
4	horses were in rows lined How strange history is it took me back To a beautiful dark-skinned	Waf Qs.txt
5	Granada as well. She said How strange history is to take me back to one of my grandchildren I said	Abdu. Ash.
6	supported by other horses Its wiered how history took me back To a brown granddaughter of mine	Ss.txt
7	with other horses, How strange when the history took me back , To a brown granddaughter of my	Rag A. Esh.
8	are followed by horses What a weird history , how it takes me back to a brown-skinned granddaughter	H. As..txt
9	are followed by horses how strange how history took me back to a brunette grandchild of mine	Ja. En..txt

Figure 7

Concordance of*return/turn me back**

N	Concordance	File
1	its justice were remains how strange is history it returned me to one of my granddaughter	Ab Qa. txt
2	to each other. What a strange history that returned me to a brunette granddaughter which	Am. Ass..txt
3	pour How strange is history, how is it that I am returning To a beautiful granddaughter, from	Sad. Hus..txt
4	How weird the history was when it Returns me to one of my brown granddaughters	Nu Ass..txt
5	horses How strange is history! How It returns me to an east granddaughter, from my	SU. Sae.txt
6	..I have to brag.. How wondrous that history turned me back.. To remember our race.. In	Bas. Mih.txt
7	reigned and strong Oh how strange how time turned back to think that you're my	M. Hal..txt

Figure 8

Concordance of*got me back**

N	Concordance	File
1	attached with horses. What a strange history that gets me back To a brunette granddaughter from	Ab Ham.1.txt
2	with other horses What a strange history when he got me back To a brown granddaughter of mine I	M. Alma.txt
3	good. The strangest thing about history is how he got me back to a brunette granddaughter of mine.	Lat .Moh..txt

Figure 9

Concordance of*send me back**

N	Concordance	File
1	are linked with a horse. How strange is history! Send me back to a tawny granddaughter from	Ran H.
2	with a horse What a strange history, how did it send me back To a brunette granddaughter	H. Qa.

Additionally, the second clause of Line 6 received different translations. The found TL translations "سمراء" pronounced as *sammraa* included "brunette" (F=14), "brown" (F=13), and "dark-skinned" (F=14). Each translation evoked a different conceptual and cultural narrative. While "brunette" evoked a conceptual image aligned with Western norms of hair and skin colours, "brown" and "dark-skinned" preserved the poem's original narrative that refers to a woman of Arabian origins (Figures 10-12).

Figure 10

Concordance of*brunette granddaughter, grandchild, etc.*

N	Concordance	File
1	. What a strange history that gets me back To a brunette granddaughter from grandchildren of	Ab Ham.1.txt
2	. How strange is history... To take me back to a brunette grandchild of mine. grandchild of mine.	Raw BA.txt
3	history when it brought me back***to a one of my brunette granddaughters I hugged in her at	F. Ha..txt
4	. What a strange history that returned me to a brunette granddaughter which is one of my	Am. Ass..txt
5	a strange history that brought me back To a brunette granddaughter of mine In whom a man	Ar. Ah..txt
6	a strange history, how did it send me back To a brunette granddaughter from my grandchildren I	H. Qa..txt
7	strange history! How it brought me back to the brunette granddaughter of mine I hugged a man	As. Qa. OBT..txt
8	how strange how history took me back to a brunette grandchild of mine when I bid her	Ja. En..txt
9	other Strange history how it brought me back to a Brunette granddaughter of mine I hugged in her	Th. Bar..txt
10	, victory and our glory These black eyes and the brunette such an Arab, they were her	Ar. Hana.txt
11	a strange history ! How brought me back to a brunette granddaughter of my grandchildren?	Ha. Ot..txt
12	thing about history is how he got me back to a brunette granddaughter of mine. Give her a hug	Lat. Moh..txt
13	How a strange history had brought me back, To a brunette one of my descendant. Once I	Mea. Ele..txt
14	strange is history how he brought me back To a brunette grandchild of mine When I said	Saw. Ash..txt

Figure 11

Concordance of*brown granddaughter, grandchild, etc.*

N	Concordance	File
1	history is How it had brought me back to my brown grand-daughter I saw Damascus face I	Arw Qo..txt
2	a strange history when he got me back To a brown granddaughter of mine I hugged her	M. Alma.txt
3	strange history is brought to me, the meeting of brown granddaughter. With her I felt the	Mish H..txt
4	strange is history, how it brought me back to a brown granddaughter of my grandchildren I	Ass. Sh..txt
5	bright me back to one of my grand-daughters browned-skinned grand-daughter I hugged in her	Naj. Ash..txt
6	horses Its wiered how history took me back To a brown granddaughter of mine When I send her	Ss.txt
7	strangest history, how did it bring me back? For a brown granddaughter I hugged her when she	Am. Add..txt
8	the history was when it Returns me to one of my brown granddaughters I holded in her a man	Nu Ass..txt
9	strange when the history took me back, To a brown granddaughter of my grandchildren, I	Rag A. Esh.txt
10	to horses How strange history is how the brown granddaughter brought me back from my	Raz. Jaf..txt
11	rider How strange is history to bring me back to a brown granddaughter, one of my grandchildren.	Ree. Ash..txt
12	strange the history that brought me back to a brown grandchild of my grandchildren In our	As. Shai. N.txt
13	What a weird history , how it takes me back to a brown-skinned granddaughter of my	H. As..txt

Figure 12

Concordance of*dark-skin** *granddaughter, grandchild, etc.*

N	Concordance	File
1	How strange that history brought me back to a dark-skinned granddaughter of mine I bid her	Na Ja..txt
2	rising ... How oddly the history took me back to a dark-skinned granddaughter of my	Shq Aa.txt
3	How amazing history brought me back To the dark skinned , one of my grand daughters	AbEL. Q..txt
4	linked to each other ... her flag is raised To dark skinned granddaughter to my	Na. Qa..txt
5	history is! How it had brought me back To the dark-skinned beauty, one of my grand-	Ay Sh..txt
6	bizarre history is! How it brought me back To this dark-skinned girl, one of my grand daughters	Rih Ele.txt
7	strange history is it took me back To a beautiful dark-skinned grandchild of mine When I bade	Waf Qs.txt
8	history is! how it had brought me back To the dark-skinned beauty, one of my grand	MZ Add..txt
9	strange is history; how it brought me back. To a dark-skinned granddaughter that is one of my	An. Ash..txt
10	strange how history had brought me back to my dark-skinned granddaughter I let her entrusted	Je Ash..txt
11	that history has helped to reunion With one of my dark skin grandchildren I hugged her to say	Am. Fo.txt
12	to the past >> to one of my grandchildren she is dark-skin granddaughter. I hugged her when I	Am. Qar..txt
13	the history took me back, to a memory of a dark-skinned granddaughter of mine. hter of	Ree Os.txt
14	up together how did history bring me back with dark-skinned one of my granddaughters e of	Ath Qa..txt

These choices illustrate how grammatical and lexical variances can distort the conceptual reality of a source text (Figure 4-12). Lastly, the metaphors in Line 7 presented a rich site of metaphorical complexity and conceptual divergence. The word "عانقت", pronounced in Arabic as *aanaqto*, was most frequently translated as "hugged" (F=23) and "embraced" (F=17), yet these choices evoked markedly different schematic and conceptual scenarios (Figures 13 & 14).

Figure 13

Concordance of *hug**

N	Concordance	File
1	a brunette granddaughter of mine. ¶Give her a hug when you say goodbye to her" ~N.Q. ¶	\Lat .Moh.txt
2	grandchildren ~¶When I gave her a good-bye hug, I saw in her a man called Tariq Ibn	\Gh Q..txt
3	I hugged her to say Good bye and I felt as if ~¶I hugged a man called Tareq ben Zeyad ~N.Q.	\Am .Fo.txt
4	back to the brunette granddaughter of mine ~¶I hugged a man called Tareq Bin Ziyad when I	\As. Qa. OBT..txt
5	beauty, one of my grand- ~¶daughters. I ¶I hugged her when she called her a man called	\Ay Sh..txt
6	a man named Tariq bin Zeyad I saw ~¶When I hugged her goodbye ~N.Q. ¶	\Ar. Ah..txt
7	who are one of my granddaughters. ¶¶I hugged her when I said my goodbyes, a man	\Ra A..txt
8	she is dark-skin granddaughter. ¶¶I hugged her when I was left from a man called	\Am. Qar..txt
9	skinned granddaughter to my grandchildren ~¶¶I hugged her when I said goodbye ~¶A man	\Na. Qa..txt
10	back ~¶To a brown granddaughter of mine ~¶¶I hugged her when leaving and through her ~¶¶I	\M. Alma.txt
11	me back? ¶¶For a brown granddaughter ~¶¶I hugged her when she said goodbye to him ~	\Am. Add.txt
12	~¶With one of my dark skin grandchildren ~¶¶I hugged her to say Good bye and I felt as if ~	\Am .Fo.txt
13	of my grandchildren. ¶¶When I said goodbye I hugged her.....a man named "tariq bin ziyad"	\Ree. Ash..txt
14	grandchildren ~¶¶When I said goodbye to her, I hugged in her ~¶¶a man called Tariq Ibn Ziad	\Shq Aa.txt
15	back to a Brunette granddaughter of mine ~¶¶I hugged in her when I said goodbye a man	\Th. Bar..txt
16	browned-skinned grand-daughter ~¶¶I hugged in her when I said goodbye a man	\Naj. Ash..txt
17	grandchild of mine ~¶¶when I bid her goodbye I hugged in her a man called Tariq ibn Ziyad ~	\Ja. En..txt
18	granddaughter that is one of my own. ¶¶I hugged in her as I bade farewell. ¶¶A man	\An. Ash..txt
19	a one of my brunette granddaughters ~¶¶I hugged in her at goodbye*** a man called	\F. Ha..txt
20	~¶To some man who called(~¶¶Tariq bin Ziyad) i hugged N.Q. ¶	\Saw. Ash..txt
21	back to think that you're my granddaughter ~¶¶I hugged something within her and said	\M. Hal..txt
22	In ¶¶thar familiar face.. When ¶¶I see her off, I hugged that nobel man.. ¶¶Who's name is	\Bas. Mih.txt
23	a brown granddaughter of my grandchildren, ~¶I hugged while I was saying goodbye to her, ~	\Rag A. Esh.txt

Figure 14

Concordance of *embrac**

N	Concordance	File
1	of my granddaughters. When I said goodbye, I embrace a man called Tareq bin Ziyad. Ziyad.	Am. Ass..txt
2	When I bid her adieu when I knew I was going, I embraced Tariq ibn Ziyad in her." ibn Ziyad in	Sad. Hus..txt
3	grandchild of mine When I bade farewell to her I embraced in her That Arab hero by the name	Waf Qs.txt
4	daughters The last one: When I said goodbye, I embraced in her Tariq ibn Zaid Tariq ibn Zaid	Rih Ele.txt
5	east granddaughter, from my pedigree of yore I embraced in her soul when I was leaving A	SU. Sae.txt
6	me back to a dark grand daughter of mine I embraced in her someone called tariq bin	Ab. Shu..txt
7	beauty, one of my grand daughters I embraced in her a man called ""Tariq Ibn	Ru . Haj..txt
8	of my grand daughters When I said goodbye, I embraced in her A man by the name of Tariq	MZ Add..txt
9	of my grand daughters When I said goodbye , I embraced In her A man by the name Tariq Bin	AbEL. Q..txt
10	grandchild of my grandchildren In our farewell, I embraced in her A man named Tariq bin Ziyad	As. Shai. N.
11	, To a brunette one of my descendant. Once I embraced her to a farewell, Evoked memories	Mea. Ele..txt
12	to a brown granddaughter of my grandchildren I embraced her when I waving her a man named	Ass. Sh..txt
13	to a tawny granddaughter from my grandchildren I embraced a man, who is Tariq Bin-ziyad , when	Ran H.txt
14	a brunette granddaughter from my grandchildren I embraced a man in her When I saw her off !	H. Qa..txt
15	whom she denoted to were my grandparents I embraced a man called "Tareq ibn Ziyad" In	Ab Ham.1.txt
16	granddaughter of my grandchildren? Farewell , I embraced a man called ""Tariq bin Ziyad."" ette	Ha. Ot.txt
17	a good meeting without a date Black eyes in their embraces Born the dimensions from the	As. Shai. N.
18	granddaughter of mine I bid her farewell embracing with/ within her, A man named	Na Ja..txt

While "hugged" implies physical contact and emotional intimacy, "embraced" can suggest either symbolic acceptance or physical contact (LDCE, 2025; OOLD, 2025). In addition to the translations given above, eight translators (F=8) chose to omit the line entirely, likely because of the difficulty in grasping its layered meanings. Less frequent translations included "evoked memories of" (F=1)", felt the presence of" (F=1), and "was reminded of" (F=1), each reflecting attempts to capture the metaphor's emotional resonance without resorting to physical imagery.

Focus Group and Structured-Interview Findings

When asking the interviewees *Why do you think some translators chose to skip or delete some of the source text in their translations?* The majority of the respondents (9 out of 10 = 90%) reported that they think this is due to the trainees' low competence in English. Yet, an informative answer came from one of the two instructors (Interviewee 10) who reported: *it might be that these trainees did not find an equivalent in the target language or maybe run out of time (usually trainees skip the last parts of the text if they ran out of time).*

Regarding the many (24/54) translators' failures to translate the name of 'Granada' correctly, Interviewees 2 and 3 commented that *"I think they[the translators] thought these are the names of Arabic cities and should be transliterated into English because they may not have English equivalents, as in the name of the holy city Makkah"*. A claim that Interviewee (3), disagreed with, stating that: *"they should have searched for equivalents before submitting their translation"*. However, Interviewees 4 and 5 attributed this to the lack of historical background on Muslim civilisation in Andalusia. In fact, when asked *Why do you think some translators failed to convey the historical meaning of the source text in their translation* (Question 11 in the

interview schedule), nine out of ten respondents (90 %) attributed this to the trainees' lack of historical information about Andalusia.

When discussing this mistranslation of *Umayyaton/Umayyad* into 'Umieeah', which means 'illiterate girl' or illiteracy, Interviewee 3 thought *that Umayyaton was the name of a place*. On the other hand, Interviewee 4 stated that she 'had no idea what the word referred to'. However, Interviewee 5 knew that it referred to the Islamic Umayyad Caliphate (661-750 AD). While Interviewees 3, 4, and 5 attributed this mistake to the trainees' poor linguistic competence in Arabic (their L1), Interviewees 7, 8, and 9 attributed such mistranslations to the trainees lack of the required linguistic competence as well as the historical background information about the text world, a possible reason that was also given by the two instructors (Interviewees 6 and 10).

As for the mistranslation of "their steeds are connected to other steeds" which was omitted by many translators (F=14), Interviewee 1 saw that the deletion strategy occurs in the translation "*because of the translators' low linguistic competence in English, usually when not being able to find an English equivalent*". On the other hand, Interviewee 2 attributed translating this phrase wrongly into "her good is connected to good" to a lack of awareness of the Source Text's discourse historical world.

As for rendering the wrong tense in translating Line 6, such as 'takes me back' (Figures 4-9), Interviewee 2 reported that it might be understood that "*these lexical variances are related to the trainees' linguistic competence in the target language; however, using the wrong tense might be because they were in a hurry to submit their translations*".

When asked about the reason behind the mistake of translating the brown-skinned girl into 'brunette' (Line 6), some interviewees (seven out of 10) referred to the use of Arabic-English dictionaries that have translated this wrongly, offering them a limited variety of the possible conceptual variances each choice can evoke. This raises the question of whether these bilingual dictionaries are written based on critical cognitive awareness of the differences between these lexical choices across the two languages and cultures.

When the interviewed students were asked the following question regarding their use of Arabic-English dictionaries, *I usually use a bilingual English-Arabic (Arabic-English) dictionary but do not consult monolingual dictionaries* (Question 1 in the interview schedule), all of them answered 'yes'.

The translations *brown* granddaughter* (F=13; see Figure 11 above) and *dark-skinned granddaughter* (F=14; see Figure 12 above) represent better translation choices for foreignizing the meaning of the source text to the target reader in a way that brings him to the flavour and original scene given in the Arabic poem in comparison to the translation *brunette*.

When commenting on these lexical choices, Interviewees 1, 2, 3, and 5 did not spot the difference and thought that *brunette* was a good equivalent. On the other hand, Interviewees 4, 7, 8, and 9 reported that the use of *brunette* was not appropriate.

However, while Interviewee 7 thought that dark-skinned is an appropriate alternative translation, Interviewees 6, 8, and 9 stated that *brown* is a better choice because it can be used to refer to some Arabs, while *dark-skinned* may be used to refer to Africans.

On the other hand, Interviewees 1 and 3 argued that *hugged* was a good lexical equivalence for translating Line 7 (Figure 13) before they became surprised when told about the conceptual differences their lexical choice may evoke in comparison to ‘embraced’ (Figure 14). In fact, all the Interviewees, i.e., 10 out of 10 agreed that *the trainees were not always aware of the conceptual variance their translations can evoke in the target language* (Question 10 in the interview schedule).

Additionally, Interviewees 4 and 5 suggested *met*; when asked about their choice, the latter (Interviewee 5) stated that *met* is a safer choice, as it will not evoke physical or romantic scenarios that may distort the original meaning of the source text, as *hugged* may evoke. Interviewee 3 chose ‘embraced’.

As discussed earlier, the interviewees agreed that consulting Arabic-English dictionaries was their first practice when translating and *that they do not spare the use of machine translation in their daily practices* (Question 3 in the interview schedule, Q.3, henceforth). This may have reduced their TL understanding of the conceptual variances each choice may evoke. On the other hand, 90% (9/10) agreed that *the use of parallel corpora* (Q.4) or *monolingual dictionaries in the target language* (Q. 2) was not regularly their first choice when translating an Arabic text into English.

Overall, the interviewees agreed, based on the presented findings, that 1) *the cognitive corpus-based analysis of the trainees’ translations was very helpful* (Q.5), and 2) *the cognitive corpus-based analysis of the translators’ translations could raise their critical language awareness* (Q. 7). However, when asked *whether their MA program in translation included similar critical corpus-based training* (Q. 13), 80% of the respondents, including one of the instructors, stated that they did not have similar critical training. However, two interviewees disagreed and attributed the use of similar training to the efforts of one of their outstanding instructors.

Discussion

While the corpus-based analysis identified substantial conceptual and lexical variances in the translators’ translations, the interviews and focus group discussions explained the corpus findings, offering insights into the cognitive and pedagogical reasons underlying these

translation errors. Most respondents attributed mistranslations and deletions to low English competence, lack of historical knowledge, and overreliance on bilingual dictionaries. The findings of this study align with previous research that underscores the importance of critical language awareness in training translators. While Gutknecht and Rolle's (1996) conceptual invariance principle posits that retaining conceptual meaning is a fundamental requirement for translation, the study's cognitive corpus-based analysis revealed that translators often violated this principle. They violated the conceptual invariance principle (Gutknecht & Rolle, 1996) by producing unintended conceptual shifts, such as misrepresenting spatial relationships through incorrect prepositions or culturally misinterpreting historical and figurative elements (Figures 1-14).

For example, the problem encountered by nine trainees in translating the clause *في مدخل الحمراء كان لقائنا*, which means *At Alhambra's entrance, we met* (Line 1), indicates that they tended to find the English preposition *in* (but not *at*) as an equivalent to the Arabic preposition *في*. While this can be true in other contexts, its current use is a mistranslation because it evokes a different schematic/conceptual representation of the source meaning given in Line 1. This can be attributed to the claim that trainees lack the required awareness of the variant spatial and schematic meanings that each of the prepositions *at* and *in* can evoke/denote in English. While the preposition *at* can denote the meaning of a location (usually used to describe *arriving at cities/places*), the use of the preposition *in* in this context is inaccurate. It denotes the containment of something inside a container (Evans and Green, 2006; Talmy, 2000). For discussions of similar mistranslations and difficulties encountered by Arab translators translating into English, see Al Yaari and Aajami (2019), Almaflehi (2013), and Hummadi et al. (2020).

Another example is the lexical variance found in translating Line 6 through variant lexicogrammatical patterns and tenses (Figures 4-9). This grammatical variance explains how the cognitive unawareness of the schematic meaning⁷ evoked by 'different lexicogrammatical structures', such as those in Al Zumor (2021) may result in numerous conceptual variances. Therefore, variances in rendering the grammatical structure can also violate the conceptual invariance demand stressed by Gutknecht and Rolle (1996) and result in an inaccurate reformulation of the SL conceptual meaning (Faber, 1998).

Therefore, based on the many examples discussed above (Figures 1-14), it can be concluded that the translators in the current study demonstrated divergent linguistic choices that modified the source text's conceptual reality.

⁷ Not the schematic meaning of the used lexical items alone, but also the meaning evoked by the grammatical structures used as given in the source text, e.g. *when it sent me back to/took me back to/bringing me back to*.

While Bowker (1999) posited that corpora enhance translators' linguistic awareness and reduce resistance to corrective feedback, the present study advances this perspective by illustrating how cognitive corpus-based critical discourse analysis uncovers both lexical and conceptual variance. The results have direct implications for Baker's (2010) argument that corpus-based approaches require cognitive analysis to fully interpret the linguistic patterns found. These discrepancies highlight a gap in training methodologies, suggesting that translators need more exposure to cognitive corpus-based critical discourse analysis to refine their critical awareness.

Cognitive Corpus-Based Critical Discourse Analysis in Translators' Training

When interviewees were asked about the merits of this methodology, i.e. *How did you find the use of the critical corpus-based discourse analysis methodology in translator training?* (Q. 15), their responses were categorised and summarised as follows:

1. It increases the trainees' critical awareness of language and their mistakes (Interviewees 2, 3, 5, 7, 8, and 10) by presenting and discussing their translations in the light of critical cognitive corpus-based analysis. This is similar to Bowker (1999, p. 160), who found that the use of corpora helped in raising the translators' language awareness and contributed to minimising their resistance to mistake correction.
2. It improves trainees' critical understanding of the conceptual variances their lexical choices might inaccurately evoke in the target language and culture (Interviewees 2, 3, 5, 7, 8, and 10). This supports the conclusions drawn by Rodríguez-Inés (2012), who found that corpus-driven exercises help translators recognise lexical and conceptual discrepancies.
3. *It provides friendly critical feedback, where the trainees can see their mistakes without being embarrassed* (Interviewees 1, 3, 5, 7, 8, and 10), especially since their names were coded and anonymised in this type of collective training.
4. *It improves trainees' translations and their linguistic competence by exposing them to alternative translations made by their peers* (Interviewees 1, 2, 3, 5, 7, 8, and 10).
5. It improves the trainer's instructions by enabling them to identify common patterns and errors or misinterpretations made in translations, which, in turn, can allow for targeted improvement and refinement of instructions (Interviewee 9).
6. It helps the teacher/trainer deliver feedback collectively and anonymously by coding the names of the trainees in the corpus concordance software (Interviewees 3 and 10).
7. It encourages translators to stop their overreliance on bilingual dictionaries and consult the available online parallel corpora (Malamatidou, 2017) to understand the discourse

world of some collocations and phrases, as well as ‘pack up’ their translation decisions (Interviewees 3, 6, and 10).

This reminds us of Rodríguez-Inés’ (2012) argument that “a corpus-based SL-oriented exercise can also help demonstrate the relative value of native-speaker intuition and make students aware of the importance of using documentary resources such as electronic corpora to back up their decisions” (p. 237). Lastly, the findings of this study contribute to the broader argument for the need for a cognitive corpus-based approach in translator training. Instances in which trainees struggled with choosing the right lexical choices or lexicogrammatical structures, such as rendering “Umayyaton” and “took me back to a brown-granddaughter” inaccurately or misinterpreting spatial and historical elements (Figures 1-14), support Fairclough’s (1992, 2013) claim that critical language awareness is necessary for understanding language use in its wider context. The responses from the interviewed instructors and trainees further indicated that these translation issues stemmed not only from linguistic incompetence but also from a lack of historical and cognitive familiarity with the discourse world of the SL text.

The findings support Liu and Chen’s (2021) call for instructional interventions to enhance the critical awareness of trainee translators and align with Ji et al.’s (2025) emphasis on incorporating cognitive linguistics in translation studies, as well as Otaif’s (2024, 2025) premise that triangulating cognitive linguistics, corpus linguistics, and critical discourse analysis can 1) improve translators’ critical awareness of the conceptual variances their translations may introduce, and 2) strengthen the translator training protocols by equipping translators with deeper conceptual and linguistic awareness.

Conclusion

Overall, the current study demonstrates that critical language awareness in translation is a prerequisite that extends beyond basic linguistic proficiency, requiring critical cognitive knowledge to identify conceptual and lexical variances between source and target texts. Previous studies, such as Bowker (1999), Baker (1993, 1995, 1996, 2000), Rodríguez-Inés (2012), and Chen and Shen (2025), have emphasised the importance of corpus-based approaches; however, the current study extends these insights by showing how violations of Gutknecht and Rolle’s (1996) conceptual invariance principle impact translation quality in a way that may distort the source text’s conceptual coherence and cultural narrative. The findings also indicate that incorporating cognitive critical corpus-based training can strengthen translators’ abilities to assess their TL lexical choices, including their conceptual representations, with greater accuracy. Future research should explore pedagogical frameworks that integrate cognitive corpus-based critical discourse analysis, ensuring that trainees not only

refine their linguistic skills but also enhance their awareness of socio-semantic structures, thus fostering more precise and culturally attuned translations.

Given that Faber (1998) stressed the importance of critical language awareness in translation but admitted that it is ‘difficult’ to help trainees ‘refine this faculty’ (Bowker, 1999), the current approach offers a way forward to train novice translators and professional trainers to overcome this difficulty, consult online corpora, and avoid chances of arriving at inaccurate translations that may threaten their cogency and distort the intended meaning of the original (source) text they are translating, especially when it comes to literary translation. While the findings of the current study were limited to translating literary texts and one MA program, they could be of great relevance to other programs and texts. Future research should expand across multiple genres and institutional contexts, investigating how cognitive corpus-based methods function in domains such as legal or scientific translation. This could reveal genre-specific conceptual variances and their socio-political implications in real-life situations, which can inform tailored pedagogical interventions in translator training. Finally, in light of the current study’s findings, future research may examine affective or motivational variables, such as anxiety, confidence, or identity, which may influence the translator’s translation behaviour, especially after receiving cognitive corpus-based feedback and training.

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