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| RESEARCH ARTICLE

Deviant Arabic Transliterations of Foreign Shop Names in Saudi Arabia and Decoding Problems Among Shoppers

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| ABSTRACT
This study aimed to analyze a sample of Arabic transliterations of foreign shop names in Saudi Arabia; to identify the inaccuracies, and inconsistencies in the Arabic transliterations; the causes of the Arabic inconsistent and erroneous transliterations; whether shoppers (who do not know English) can decode and pronounce a sample Arabic transliterations of shop names; and the factors that should be taken into consideration in transliterating foreign shop names to Arabic. Results of the data analysis showed that 52% of the inaccurate transliterations are in the vowels and diphthongs; 36% are inaccurate and inconsistent transliterations of consonants. In 11.6% of the shop names, ch was reduced to sh; and /g/ was transliterated in 3 ways. 13% of the consonant transliteration deviations occurred in words containing a silent letter. In 6%, the Arabic vowel was double. In 8%, compound shop names were spelled together (blended) in the Arabic transliteration; In 7%, foreign names from French, Italian, Japanese, and Turkish were transliterated as they are pronounced in English, not in the original language. Findings also showed variant spellings of the same name shop names especially from French, Italian and Turkish (Parfois بارفواه بافويس; Spring سبرينج سبرينق; Semit Sarai سميت/سيميت; Chocolate شوكلت/شوكليت). Results of a decoding test given to a sample of college students and faculty who have a low proficiency level in English showed that the subjects could decode shop names such as تويز ار اص، نسكافيه بيرجر كينج، هارديز، كوستا، ساربكس.. ماكدونالدر، بيرغر كينج، but had difficulty decoding , دولس and other. The قوستو, أدفنتورا, جارليشوز لاونج, أميريكان إيجل أوتفترز, أكسسوريز, بايليس, باربكيوتونايت, لولو سلبريت, ذا تشيلدرنز بليس students and faculty had difficulty decoding Arabic transliterations because they are not familiar with the shop name in the foreign language, and because of the absence of short vowels in the transliteration, which makes it difficult to pronounce the transliterated names correctly. Deviant transliterations are attributed to transliterators who are non-native speakers of Arabic, English and other foreign languages. Recommendations for accurate Arabic transliterations of foreign shop names in Saudi Arabia are given.

| KEYWORDS

Foreign shop names, shop name transliteration, English-Arabic transliteration, decoding Arabic transliterations transliteration competence, variant transliterations, transliteration deviations

| ARTICLE INFORMATION

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1. Introduction

The spread of franchised international shops in many countries is a common global phenomenon. Wherever you go, you see franchised international shops names such as *Zara, Promod, H&M, Terranova, Monsoon, Bershka, Mother Care, Mango, LC Waikiki, Pull & Bear, The Body Shop, Starbucks, Costa, Burger King, Cinnabon, Subway, KFC, Dunkin Donuts,* and others inscribed in English with a transliteration of the shop name in the local language. Shop names in Saudi Arabia are no exception. As the number of modern shopping malls has been increasing in the past few years, the number of foreign shop names has been increasing as well, with the name of the foreign shop inscribed in the original language (English, French, Italian or Turkish) together with a

transcription of the shop name in Arabic. The aim of the Arabic transliteration of the foreign shop name is to enable Arab shoppers who do not know or cannot decode the foreign shop names to pronounce them easily by putting the foreign shop name in a familiar alphabet, vis Arabic. Nevertheless, Arabic has short vowels in the form of diacritics that are not usually shown in the written form of Arabic. Since Arabic has only 3 long vowels, 3 short vowels, and 2 diphthongs as opposed to 12 vowel sounds and 8 diphthongs in English, this makes it difficult for most English vowel and diphthong sounds to be represented by Arabic equivalents. In addition, most Arabic words have a syllable structure consisting of consonant-vowel combinations (CV), which means that most Arabic words contain a short or long vowel between two successive consonant letters. This makes it difficult to create English-Arabic transliteration pairs, since some English graphemes cannot be matched with a Romanised Arabic grapheme (Fattah & Ren, 2008).

Problems in the Arabic transliteration of foreign names have been the subject of research for a long time, especially in machine translation. Many researchers tried to solve this problem using a number of models, algorithms and machine translation systems. For instance, Abd El-Wahab, Abu-Khzam and El Den (2022) developed an effective machine learning approach for English-Arabic transliteration that adopted a convolution-networks' SEQ2SEQ model developed by Facebook for the Arabic-English transliteration problem and compared their approach to previous ones. This approach also builds on recent work by Google and Amazon researchers and was improved based on previous methods both in the training and prediction steps.

In another study, Ameur, Meziane and Guessoum (2019) developed ANETAC, an Arabic named entity transliteration and classification dataset based on freely available parallel translation corpora. The ANETAC dataset contains 79,924 examples. Each is a triplet (e, a, c), where e is the English named entity, a is its Arabic transliteration and c is its class that can be either a person, an organization, or a location. The ANETAC dataset can help researchers working on Arabic named entity transliteration and can be used for named entity classification purposes.

In a third study, Alshuwaier and Areshey (2011) provided algorithms based on some phonotactic rules used in programming a system for transliterating English names automatically. The system uses only a plan for translating English Names to Arabic, that can be processed and printed easily. The translated names can be read and recognized by ordinary people.

To improve multilingual Web retrieval, a generic transliteration framework, which incorporates an enhanced Hidden Markov Model, and a Web mining model, was developed by Zhou, Huang and Che (2008). The researchers also improved the traditional statistical-based transliteration by incorporating a simple phonetic transliteration knowledge base, a bigram and a trigram Hidden Markov Model, and a Web mining model that uses word frequency of occurrence information from the Web. They tried out the framework on an English–Arabic back transliteration and found that when using Hidden Markov Model alone, a combination of the bigram and trigram Hidden Markov Model approach performed best for English–Arabic transliteration. This Web mining approach Overall, the new framework achieved a precision of 0.72 when the eight best transliterations and boosted performance by 79.05%.

In addition, different approaches for extracting the transliteration of proper-noun pairs from parallel corpora based on different similarity measures between the English and Romanised Arabic proper nouns were considered by Fattah and Ren (2008). The researchers evaluated the new approaches using two different English-Arabic parallel corpora. Most of their results outperformed previously published results in terms of precision, F-Measure and recall. The strength of their new system is that it works well for low-frequency proper noun pairs.

An Arabic Named Entity Tagger leveraging a parallel corpus was created by Samy, Moreno and Guirao (2005). This Arabic Named Entity Tagger can be considered as a method for aligning Named Entities in parallel corpora. The model covers three main aspects of Arabic Named Entity recognition and tagging: different modules, scope of coverage and implementation methodology.

In China, a phoneme-based approach for transliterating foreign names to solve the OOV problem was proposed by Gao, Wong and Lam (2004). In this approach, automatic translation according to pronunciation similarities was adopted to map phonemes comprising an English name to the phonetic representations (transliteration) of the corresponding name in Chinese. The researchers used a statistical transliteration method with an efficient algorithm for aligning phoneme chunks. Unlike rule-based approaches, their method is data-driven. Unlike source-channel based statistical approaches, the researcher adopted a direct transliteration model, i.e., the direction of probabilistic estimation that conforms to the transliteration direction. The new approach demonstrated comparable performance to source-channel based system.

A second line of research in the Arabic language literature investigated how educated Arabs transliterate names from English to Arabic and Arabic to English. A study by Al-Jarf (2022e) analyzed variant English transliteration of the same Arabic personal

names on Facebook. The researcher found that 59% of the Arabic names have two variant transliterations in English and 26% have three. In 97% of the names, the variants differ in how the vowels/diphthong are represented in the English transliteration because Arabic and English differ in their vowel systems. Arabic consonant sounds for which two English graphemes exist were spelled differently. In 18% of the names, Arabic speakers transferred the Arabic spelling rules to the English transliteration. The short vowels were not represented in the English transliteration. In 15%, the subjects transliterated their names the way they pronounce them in their local dialect, not as the name is pronounced in Standard Arabic.

In a second study, Al-Jarf (2022b) examined how Arabic native speakers transliterate personal names with geminates on Facebook. Results indicated that one third of the Arabic names with geminates were represented by double consonants in the corresponding English transliteration. In 41% of the names, the geminate was represented in the English transliteration by a single consonant; and in 26%, a single consonant was doubled in the corresponding transliteration, although the Arabic name has no geminates, and the consonant is pronounced as a single phoneme. Arabic speakers tended to transfer the spelling of Arabic geminates into a single consonant in English because Arabic geminates are spelled with a single consonant and a germination diacritic ّ that is not usually shown in the written form of the words used by Arab adults. They also overgeneralized double consonants in the English transliterations of Arabic names that are pronounced with a single consonant phoneme.

In a third study, Al-Jarf (2022a) explored how native speakers of Arabic transliterate first and last names containing the definite article {al-} to English on Facebook; what variations exist in transliterating the definite article itself; how Arabic speakers transliterate {al-} before sun and moon letters in their names; and which strategies they use in transliterating names with a definite article. Results revealed that {al-} was used in 55% of the names; {el-} was used in 44% of the last names; reduced {l-} was used in 1% and {il-} was used in only one name. In 54% of the names, the definite article is attached to the name, with the names spelled in lowercase; in 15.5% of the names, the definite article is detached from the name, i.e., spelled as an independent morpheme; in 15.5% the name is spelled with a capital letter although it is attached to the definite article; in 13.5%, the definite article and the name are hyphenated; and in 1%, the definite article is reduced to {l-}, i.e., the vowel in the definite article is deleted. In addition, it was found that 40% of the names that follow the definite article begin with a sun (coronal) consonant as opposed to 60% that begin with a moon letter.

In Iraq, Ali & Ra'uf, 2010 investigated the difficulties that EFL students have in transliterating Arabic words. Results of a transliteration test administered to 33 Iraqi students showed that the students had more difficulty in forward transliteration (from Arabic to English) than backward transliteration (from English to Arabic). The researchers attributed the transliteration difficulties to the absence of some Arabic consonants and vowels in English and to the use of diacritics in Arabic which resulted in many spelling mistakes.

A third line of research focused on the transliteration of shop signs. In Saudi Arabia, Jeza Alotaibi & Alamri (2022) examined the lettering in bilingual shop signs in shopping malls in Riyadh and Jeddah, in terms of the relative size, information, and the quality of English-Arabic and Arabic-English transliteration or translation. They collected a sample of 184 bilingual signboards of which 68 were shortlisted for further analysis. They found that 54 were Arabic-English signs and 17 were English-Arabic signs. 83.3% of the signs were bilingual, with slight variation in their relative size and display of information. 66.7% displayed same sized lettering and 64.8% displayed the same information. 9.3% had a few inconsistent and erroneous transliterations and spellings combined.

Although many studies in the literature investigated the factors that affect the adoption of foreign shop names and whether they constitute a threat to the Arabic language, there is a dearth of studies that focus on human transliteration of shop names from English to Arabic and Arabic to English in Arab countries, in general, and Saudi Arabia, in particular. Therefore, this study aims to: (i) analyze a sample of foreign shop names and their Arabic transliterations in Saudi Arabia; (ii) identify the inaccuracies, and inconsistencies in the Arabic transliterations, i.e., faulty transliteration, and variant Arabic transliterations of the same shop name; (iii) causes of the inconsistent and erroneous Arabic transliterations; (iv) find out whether shoppers can decode and pronounce a sample Arabic transliterations of English shop names; (v) give examples where a translation should be used instead of the transliteration; and (v) factors that should be taken into consideration in transliterating foreign shop names to Arabic.

Findings of the present study are significant for shop owners, Chambers of Commerce and the Ministry of Commerce in Saudi Arabia that grant shop owners a permit to start their business and approve the foreign name and its Arabic transliteration. It will help correct faulty transliterations and substitute inaccurate and erroneous ones to help shoppers who do not know English decode and pronounce foreign shop names correctly.

2. The Arabic and English Phonetic Systems

Orthographically, Arabic has 25 consonants, 3 long vowel letters and 14 diacritical marks that include three short vowels (See Table 1 and Image 1). Diacritics are placed on top of or underneath a consonant letter. In general, words in Arabic books, magazines, newspapers, T.V., social media and street signs are normally shown without the diacritics. Arabic speakers read, write and spell words without using any diacritics. Arab students and adults have no problem reading words that have the same consonants but differ in the diacritics on top of each consonant. They can figure out how a word without diacritics is pronounced with different short vowel sounds from context. Phonetically, Arabic has three short vowels /a/, /u/, and /i/ which contrast phonemically with their long counterparts /aa/, /uw/ and /iy/. /i/ as in 'tibb'; /u/ as in /kutub/; /a/ as in /katab'; /ii/ as in /fiil/; /uu/ as in /ʔuud/; and /aa/ as in /maal/. It has 2 diphthong sounds: /ay/ as in ليلى /Layla/ and /aw/ as in صوت/SawT/ (Al-Jarf, 2018; Al-Jarf, 2007a; Al-Jarf, 2003; Al-Jarf 1995a; Al-Jarf, 1995b; Al-Jarf, 1955c; Al-Jarf, 1992).

Table 1: The Arabic Alphabet in Arabic Script and Phonetic Alphabet

ء	ي	و	ه	ن	م	ل	ك	ق	ف	غ	ع	ظ	ط	ض	ص	ش	س	ز	ر	ذ	د	خ	ح	ج	ث	ت	ب	ا
ʾ	y	w	h	n	m	l	k	q	f	gh	ʿ	ẓ	ṭ	ḍ	ṣ	sh	s	z	r	dh	d	kh	ḥ	j	th	t	b	ʾ

Image 1: Arabic Diacritics with Examples[1]

Diacritical Marks التَّشْكِيْل				
Tanween with *Shaddah*	*Tanween* تَنْوِيْن	Short vowels with *Shaddah* شَدَّة	Short vowels	
ـًّ	ـً	ـَّ	ـَ	*fatHah* فَتْحَة
ـٍّ	ـٍ	ـِّ	ـِ	*kasrah* كَسْرَة
ـٌّ	ـٌ	ـُّ	ـُ	*DHammah* ضَمَّة
		ـّ	ـْ	*sukuun* سُكُون

On the other hand, English has 21 consonant and 5 vowel letters that are shown in Image 2. Unlike Arabic, English has no diacritics. Phonetically, English has 24 consonant sounds[2] /p/ /b/, /t/ /d/, /k/ /g/, /f/ /v/, /s/ /z/, /θ/ /ð/, /ʃ/ /ʒ/, /ʧ/ /dʒ/, /h/, /w/, /n/, /m/, /r/, /j/, /ŋ/, /l/ and 12 vowels sounds[3] as follows:

/ɪ/ pit /piːt/, sick /siːk/
/e/ let /let/, west /west/
/æ/ fat /fæt/, flat /flæt/
/ʌ/ cut /dʌt/ dump /dʒʌmp/
/ʊ/ put /pʊt/, look /blʊk/
/ɒ/ pot /pɒt/, hot /hɒt/
/ə/ around /əˈraʊnd/, system /ˈsɪs.təm/
/iː/ leek /liːk/, mee /miːt/
/ɑː/ card /cɑː/, part /pɑːt/
/ɔː/ port /pɔːt/, talk /tɔːk/
/ɜː/ heard /hɜːd/, work /wɜːk/
/uː/ foot /fuːt/, group /gruːp/

English also has 8 diphthong[4] sounds as follows:

/eɪ/ plane /pleɪn/, hate /heɪt/
/oʊ/ phone /foʊn/, home /hoʊm/

[1] https://blogs.transparent.com/arabic/basic-arabic-diacritical-marks/
[2] https://www.speechactive.com/english-consonants-ipa-international-phonetic-alphabet/
[3] https://www.speechactive.com/english-vowels-ipa-international-phonetic-alphabet/
[4] https://www.speechactive.com/english-vowels-ipa-international-phonetic-alphabet/

/aʊ/ house /haʊs/, frown /fraʊn/
/ɪə/ dear /dɪə/, tear /tɪə/
/eə/ care /keə/, bear /beə/
/ɔɪ/ toy /tɔɪ/, boy /bɔɪ/
/aɪ/ kind /kaɪnd/, side /saɪd/
/ʊə/ cure /cʊə/, tour /tʊə/

Regarding the syllable structure, Modern Standard Arabic has the syllable types shown in Table 2 and English has the syllable types shown in Table 3.

Table 2: The Syllable Structure in Standard Arabic

Syllable Types	Examples	Phonetic Transcription
CV (light)	لـ (for)	/li/
CVV (heavy)	في (in)	/fi:/
CVC (heavy)	كم (how much)	/kam/
CVVC (super-heavy)	مات (died)	/ma:t/
CVCC (super-heavy)	كبت (suppression; sadd (dam)	/Kabt/; /sadd/
CVVCC	سامّ (poisonous)	/sa:mm/

Table 3: The English Syllable Structure

Syllable Types	Examples	Phonetic Transcription
V	a	/ey / or / a/
VC	eat	/i:t/
VCC	east	/i:st/
VCCC	asks	/aesks/
CV	the	/ðə/
CCV	tree	/triy/
CCV	spree	/spriy/
CVC	sit	/sit/
CVCC	cats	/kaets/
CVCCC	sixth	/siksT/
CVCCCC	bursts	/b ´ rsts/
CCV	draw	/dra/
CCVC	stood	/stud/
CCVCC	treats	/triyts/
CCVCCC	clasps	/klaesps/
CCCV	screw	/skruw/
CCCVC	street	/striyt/
CCCVCC	streets	/striyts/
CCCVCCC	scripts	/skripts/
CCCVCCCC	strengths/	strenqs/

A comparison of the Arabic and English sound systems showed that Arabic has consonant phonemes that do not exist in English (ح خ ص ض ط ظ ع غ ق H, x, S, D, T, ʕ, q, gh, DH,) and English has consonant phonemes that do not exist in Arabic /g, ʧ, ʒ, ŋ/. Arabic and English vowels differ in number, length, quality, and position of the lips and tongue. Arabic has 2 diphthongs compared to 8 diphthongs in English. Arabic has 6 syllable types as opposed to 20 syllable types in English, which are longer and have consonant clusters of more than 2 in initial, medial and final word positions (Al-Jarf, 2003; Al-Jarf, 1995c; Al-Jarf, 1992; Al-Jarf, 1990a; Al-Jarf, 1990b; Al-Jurf, 2002; Al-Jurf, 1994).

3. Data Collection and Analysis

3.1 Sample of Shop Names

A corpus of 500 shop names was collected from a Saudi Mall Directory. The corpus included all malls in major cities in Saudi Arabia: Riyadh, Jeddah, Makkah, Madinah, Dammam, Dhahran, khobar, Hassa , Jubail, Abha, Tabuk and Taif. It included shops for clothing, shoes, accessories, beauty products, children's toys, in addition to restaurants, cafes and amusement areas. Shop names were classified into 4 categories: (i) International franchised foreign shop names; (ii) local shops with foreign names; (shop names with a mixture of Arabic and foreign names; (iv) shops with pure Arabic names (See Table 4 and images in the Appendix). All

shops with pure Arabic names and those with a mixture of Arabic and foreign names were excluded. Duplicate shop names were removed as well. Only shops with foreign names whether they are international brands/chains or local foreign names were compiled and subjected to further analysis (See Table 4 for examples). Thus, final sample consisted of 320 foreign shop names together with their Arabic transliteration.

Anomalies, inconsistencies, and inaccuracies in the Arabic transliteration of the foreign shop names in the sample were classified into: (i) transliterations with faulty vowel and diphthong representations; (ii) vowel deletion; (iii) misrepresentations of consonants that do not exist in Arabic such as g, ch, and others; (iv) variant transliterations of the same shop name; (v) transliterating French and Italian shop names as if they were English names; (vi) doubling of Arabic long vowels; and (vi) blinding words in a compound. Cases in each category will be reported in percentages.

Table 4: Percentage of Shops with Foreign International Brand Names, Local Foreign Names, Mixed Names and Pure Arabic Names

International brand names	Mango مانجو, Starbucks ستاربكس, Bershka بيرشكا, Debenhams دبنهامز, Costa Caféكوستا , Pierre Cardin بيير كاردان, Mother Care مذركير, Burger King, Tacco Hut تاكو هت, Zara زارا, Pizza Hut, Terranova تيرانوفا, New Yorker نيو يوركر , Domino's Pizza دوميوز بيتزا , The Body Shop ذا بودي شوب, L C Waikiki ال سي وايكيكي , H , تويز ار اصToys R Us , صب واي Subway , مونسون Monsoon,توب شوب Top Shop,جلوريا جين Gloria Jean & M أم & اتش , Tim Hortons تيم هورتنز,Giordano جيوردانو, DKNY, Chicky Cheese , تشيكي تشيز Dunkin دانكن دونتس Donust
Local shops with foreign names	Java Hour جافا آور, Pink Blue Fashion بينك بلو فاشن, Java Chocolate , جافا شوكلت Surpise Gift , سربرايز جفت Bono سوتابل تايم كافيه, Suitable Time Cafe , الجوري كوفي Jori Coffec , سوت Suit , جريل آند شيل Grill & Chill Café بونو كافيه, Fashion Store فاشون ستور, Free Look فري لوك, Bush Avenue بوش افينو, Curry Special كاري , بلومينج Blooming, بوجا سوبر فوود Buja Super Food, صالة للعب تنس الطاولة Jeddah Masters- سبيشلل Brand , بليس 45 Place 45, مون دايمونت Moon Diamont, موون توون Moon Toon, مودز لايف Modds Life برند سنتر Center , برجر كتشن Burger Kitchen, بلاك سبون Black Spoon.
Mixed Arabic + foreign shop names	ثوب كيدز، بسبوسة بوكس، الصيرفي ميجا مول، صيادية إكسبرس، الرياض هب، محل دايتشن، لاكجري للإكسسوارات والمجوهرات، زكي أوبتكال، اوبريشن فلافل، تفاحة كيدز، بست عبايا، اليشمك للجلابيات، المشاط لانجري للملابس الداخلية، عالم سماش للترفيه، سرايا الزهور، المبدعون للملابس والأسبورات، كازا الزهور.
Pure Arabic Shop Names	البيك، الركن السويسري، البيت الإماراتي للعود، طاجن، زهور الريف، بيت التصميم الإسلامي، الطازج، النهدي، الغزالي، هرفي، قرية الألعاب، عبد الصمد القرشي، القهوة الإيطالية، المخزن الكبير، قزاز، المذاق المغربي، أسواق العزيزية، محمود سعيد، المشواة الذهبية، جوهرة وجواهر، فتيحي، الشواية، محمصة الرفاعي، الصاج الريفي، المهباج، نعومي للملابس الداخلية، مطعم الليوان.

3.2 Sample of Shoppers

A sample of 50 students and instructors from the departments of Arabic, history, sociology, education, and Islamic studies who are native speakers of Arabic but do not know English or have a low proficiency level in English were tested. The subjects were given a decoding test that included a sample of Arabic transliterations of foreign shop names without seeing the shop name in the foreign alphabet, i.e., the name in the foreign language such as English, French, Italian and Turkish. The Decoding Test consisted of the following:

أدفنتورا- جارليشوز لاونج- أميريكان إيجل أوتفترز، كيسري كافيه- إسبريت - أكسسوريز، بايليس، باربكيوتونايت -نسكافيه دولس قوستو - دكتور نيوتريشن، ناتشرال تاتش - ماكس ملهمز – ستاربكس – بيرجر كينج – ماكدونالدز - قراند ستور – سيلنترو – سواروفسكي – سبرينق - ريكر شوز - رووود شيك -سيناما -بوتاتو هت - لافي ان روز - مستر قيمز - ووك ات – باتيس - دينمايت شيكن – دايتشن – دايتشن - قوزال للملابس التركية - دولتشي فيتا. تويز ار اص - بمبوني وبكلافجي - ذا تشيلدرنز بليس، شرمبشاك.

The students and faculty were asked to read each shop name out loud. Their reading was recorded and then scored for accuracy. Frequencies and examples of the Arabic transliterations that the subjects could decode and those that they could not decode are reported. Results of the decoding test will be reported qualitatively.

4. Results

4.1 Arabic Transliteration Deviations

Data analysis has revealed that 69% of the shop names in the sample were translated correctly as in *Costa* كوستا; *Starbucks* ستاربكس; *New Yorker* نيويوركر ; *Terranova* تيرانوفا ; *Zara* زارا ; *Monsoon* مونسون ; *Bershka* بيرشكا ; *Mango* مانجو; *GIORDANO* جيوردانو; *Forsythia* فوسيثيا; *Orange* أورانج; *Adidas* أديداس ; *Centerpoint* سنتربوينت ; *Max* ماكس ; *Splash* سبلاش; *The beauty Secrets* ذي بيوتي سيكرتس; *The Body Shop* ذي بودي شوب; Aldoالدو ; Hamburgini هامبرغيني; *Pizza Hut* بيتزا هت ; *Domino's Pizza* دزمينوز بيتزا ; *Philly Stakes* فيلي ستيكس; Subway صب واي; Sabriano صبريانو ; Pull & Bear يول اند بير ; Treats N Beans تريتس اند بينز; *Baskin Robins* باسكن روبن ; *CINNABON* سينابون; *Dark Stores* دارك ستورز; *Brand Bazaar* براند بازار; *Carrefour* كارفور; *Danube* الدانوب and others. Examples of smart transliterations are those where "&" and/or "N" were substituted by the full word "اند", although "N" was incorrectly transliterated as ن in others. Another example of smart transliteration is *Subway* where the connected compound was spelled with 2 independent words and *Sub* was transliterated with an emphatic /S/ rather than a plain /s/ to approximate the English pronunciation with /ʌ/ which is an allophone in Arabic that exists in lieu of an emphatic consonant only (See images of a sample of foreign shop signs with their Arabic transliteration in the Appendix).

Moreover, data analysis has shown that 31% of the Arabic transliterations in the sample are inaccurate, inconsistent and erroneous, as follows:

- 52% of the inaccurate transliterations are in the vowels and diphthongs; with 29% mis-transliterated vowels and 23% mis-transliterated diphthongs respectively (See Table 5). As an example, the diphthong /eɪ/ was transliterated in 3 different ways: (i) *Payless* بايليس; *Way* واي ; *Pie* باي; *Fly* فلاي ; *Clay* كلاي; *Way*واي ; *Bay* باي were transliterated with "أي" (ii) *Late &* لات *Bates* باتيس are transliterated with "l" only; (iii) *Celebrate* سلبريت ; *PLACE* بليس; *Raising; Cane's* ريزينج كينز; *Shake* شيك; *Same* سيم; *Face* فيس are transliterated with a "ي". A vowel is deleted from the Arabic transliteration in *Event*افنت ; *Godiva* جوديفا ; *Keisari* كيسري ; *Chilli* تشلي ; *Onyx*أونكس ; *Burger Kitchen* برجر كتشن *Cilantro* سيلنترو; *Honey* هني and others. The addition of a long vowel will help shoppers overcome the pronunciation ambiguity associated with the absence of short vowels which are not usually shown on the written form. When a long vowel is missing, the name can be pronounced with any short vowel, which will result in a faulty pronunciation. In *Naomi* نايومي; *Jarlicious* جارليشوز; *Perfume* بارفيوم ; *Markato* ماركاتو; the vowel has been changed with a faulty one. In *Muffin* مافن ; *Spot Café* سباوت كافيه ; *Cinema* سيناما, a vowel has been added which causes a faulty pronunciation of the name in Arabic.

- 36% are inaccurate and inconsistent transliterations of consonants. In 11.6% of the shop names with ch, the equivalent grapheme in the Arabic transliteration is reduced to sh/ with the exception of *Sketchers* سكتشرز *Natural Touch* ناتشرال تاتش; *Chili's* تشيليز; where ch was represented with ش+ ت. This is because ch does not exist in Arabic and there is no grapheme that represents it.

- In another 11.6%, the /g/ consonant in the foreign name was transliterated in different ways as Standard Arabic has no grapheme for it.

- 13% of the consonant transliteration deviations occurred in words containing a silent letter (*Debenhams*), deleting final /-s/ whether it is a plural or possessive /-s/ as in *Esquires Café* كافيه اسكوير; *Beauty Secrets* بيوتي سيكرت ; mispronouncing the word *luxury;* doubling the consonant /l/ in *Curry Special* كاري سبيشلل; mispronouncing the plural -s as in *Brands* براندس;

- 6% of the Arabic transliterations use double وو /u:/ or /ou/, i.e., shop names with the long vowel /u:/ are transliterated with a double وو in Arabic which is not the standard Arabic spelling as in *food* فوود; *Moon Toon* موون توون ; *Foam* فووم; Cool كوول; *Road* روود. Here, the tranliterators are transferring the English vowel digraphs to Arabic spelling. This is one of the unconventional ways of spelling words on social media where some users use multiple أأأأأ or ووووو or ي ي ي ي (See # 6 in Table 5).

- In 8%, compound shop names consisting of words separated by a blank were spelled together (blended) in the Arabic transliteration. This would make the name longer and more difficult to decode by shoppers who are not familiar with the name and who do not know English as they would not be able to identify the word boundary (See # in Table 5).

- In 7%, foreign shop names from French, Italian, Japanese, and Turkish are transliterated as they are read in English, not in their original language. *Parfois* بافويس and *la Vie en Rose* لافي إن روز where *en* was transliterated according to its English pronunciation. In some cases, this has resulted in a funny pronunciation which is not meaningful if an Arab pronounces those names in their English version, not in the original foreign language version (See #8 in Table 5).

- Other erroneous examples were found in the Arabic transliteration of French shop names where the French orthographic and spelling system was transferred to Arabic as in *Café d'Arabia* كف د العربي in which *café* was transliterated into كف which means the (hand palm); d' as د and *Arabia* as العربي i.e., the Arab. In *l'Douh Café* ل'دووه, the apostrophe was used in the Arabic transliteration which is never used in the Arabic orthographic and spelling system. In *Cotton Home* قطن هوم, the Arabic equivalent was used for *cotton*.

Table 5: Faulty Transliteration

Types of Faulty Transliterations	%	Examples
1) Vowels	29%	• La Vie En Rose لافي ان روز ; Parfoisبارفواه - بارفويس ; Zoeزوي ; Burger Kitchen برجر كتشن ; Merkato ماركاتو هني كوفي لاونج ; Honey Lounge & Café سيناما ; Cinema سيلنترو ; Cilantro متش آند تريز; Muffinمافن ; Perfume بارفيوم ; Potato Cornerبوتيتو كورنر ; Mitch And Trees سباوت كافيه ; Spot Cafeووك ات ; Wok It Restaurant إكسيني ; Xiny افنت مول ; Event Mall ذا يلو تشلي ; Onyx كيسري كافيه ; The Yellow Chilli جس ; Guessجوديفا ; Godiva ايليس ; Naomi نايومي; Jarlicious Lounge وافل ببلز ; Bubbles Waffles أونكس روز ; Rosesجارليشوز لاونج
2) Diphthongs	23%	• Roma Way روما وي; Dip N Pie ديب ن باي; Dip N Fly ديب ن فلاي; Clay Max كلاي ماكس ; J. Co Donuts and Coffee جي كوجي كو دونتس; Ice Shoes أيس شوز; Cook Wayكوك واي ; Late Life لات لايف; Lulu Celebrate لولو سلبريت; PLACE بليس; Rieker Shoes ريكر شوز; The Bay Hall ذا باي هول ; Raising; Cane's مطعم ريزينج كينز; Tandoori Riceتاندوري ريس; Road Shake شيك روود شيك; Bates باتيس ذا سيم شوب ; ذا فيس شوب
3) Consonant Ch	11.6%	• Dynamite Chicken دينمايت شيكن; Bamboo Chips بامبو شيبس Charleys شارليز ; Chinese Tandoori شاينيز تندوري ; Grill & Chill جريل آند شيل (مطعم); Munchkins مانشكيز; Sichuan Scrispy سيشوان كريسبي;
4) Consonant G	11.6%	• Blooming بلومينج ; Grand Store قراند ستور; Gürkan Şefقوركان شيف; Spring سبرينق ; Mr Games مستر قيمز; Nescafe Dolce Gusto نسكافيه دولس قوستو ; Spring Mix Rice ارز ميكس سيبرنج ; Magnolia Bakery ماغنوليا بيكري Tully Goreتولي جور;
5) Other Consonants	13%	• Oak Berry Acaiاوك بيري أساي ; Z Mart Accessoriesزي مارت أكسسوريز ; Esquires Café كافيه اسكويرز; Brands For Lessبراندس فور لس ; Luxury Accessories لاكجري للإكسسوارات; Debenhams متجر دبنهامز ; Dr Nutrition دكتور نيوتريشن; Curry Special كاري سبيشلل;
6) Double Arabic وو	6%	• Pooja Super Food بوجا سوبر فوود; Moon Toon موون توون ; Fava Foamفافا فووم; Cool Creppe كوول كريب; Road Shake روود شيك
7) Blending	8%	• Joyalukkas جوي الوكاس; American Eagle Outfitters أميريكان إيجل أوتفترز; Barbecue Tonight باربكيوتونايت; Blue Age بلوايج ; Chuck E Cheese's تشيكي تشيز ; Inrest Home Furniture انرست هوم للأثاث; So Souffle سوسوفليه, Shrimp Shack شرمبشاك ; Payliesبايليس
8) Mispronunciation	7%	• ***French***: So Souffle سوسوفليه; Aix Tra إيكس ترا; Esprit إسبريت; La Vie En Rose لافي ان روز ; Parfoisبارفواه - بارفويس. • ***Italian:*** Nescafe Dolce Gusto نسكافيه دولس قوستو • ***Japanese:*** Acai أساي • ***Turkish:*** Gürkan Şef قوركان شيف; Keisari Café كيسري كافيه; Simit Saray سيميت سراي, سميت

4.2 Variant Transliteration

Comparisons of the Arabic transliterations of some foreign shop names showed transliteration inconsistencies (variant spellings for the same name) as shown in Table 6:

- In # 1, 2, 3, 4, 5, 6, 7, and 8, شوكلت & شوكوليت; ناتشرال & ناتشورال ; تاندوري & تندوري ; بوتيتو & بوتاتو; فاشن & فاشون ; سميت & سيميت ; سوبرانو &سبرانو ; شرمب & شريمب ; the first word is transliterated as it is pronounced in English (phonemically); and the second transliteration as it is spelled in English (orthographically).

- In #9, بارفواه & بارفويس, the first is a transliteration of the words as it is pronounced in French; whereas بارفويس is faulty because the transliterator spelled it the way it is pronounced in English due to lack of knowledge that the word is French and hence should be transliterated as it is pronounced in French.

- In # 10, سينما is a loan word used in Standard as well as Colloquial Arabic and سينما with a short /a/ is the standard Arabic spelling for it. سيناما is faulty probably because the transliterator is not familiar with the standard spelling ang thought it should be spelled with a long /a:/.

- In # 11, نعومي is correct because it is the Arabic equivalent to Naomi, but نايومي is faulty because the vowels in the source noun were mispronounced by the transliterator.

- In # 12 & 13, the /g/ sound in سبرينق & سبرينج is transliterated in 2 ways as /g/ does not exist in Standard Arabic, but exists in some Arabic dialects such as the Saudi dialect. According to the Saudi dialect, the /g/ is substituted by ق /q/, which is pronounced /g/ in the spoken Saudi dialect. On the other hand, the /g/ sound was substituted by ج /dj/ in سبرينج as it is traditionally transliterated by speakers of other Arabic dialects. Similarity, in # 15, the /g/ sound in *Burger King* is transliterated in 2 different ways: one with ج and the other with /غ/ as both بيرغر &برجر are used as equivalent graphemes for /g/. Regarding the deletion and use of the vowels in برجر & بيرغر ;كينج & كنج , the first word is spelled graphemically as in English, whereas the second one is spelled phonetically as it is pronounced in the daily use of Arabic.

- In # 14, the /ch sound in *Chili's; Grill & Chill; Chilli*, is reduced and transliterated as /sh/ in شيل, but in تشيليز تشلي, it is transliterated with a /ch/.

- In #15, the compound name *Bookiccino* is transliterated as one word in بوكشينو with a sh rather than ch and as 2 separate words in بوك تشينو with a ch. Transliterating it as 2 words makes it easier for shoppers who do not know English to decode it.

Table 6: Variant Transliteration

Name	Variant 1	Variant 2
1) Chocolate	شوكلت سراي	شوكوليت مولتن
2) Natural	ناتشورال تاتش	ناتشرال لوك
3) Tandoori	تاندوري ريس	تندوري
4) Potato Corner; Potato Hut; Potato twist	تويست بوتيتو ; بوتيتو كورنر	بوتاتو هت
5) Fashion	بنك فاشن	فاشون ستور
6) Simit Saray	سيميت سراي	سميت
7) Soprano	سوبرانو كافيه	سبرانو آيس كريم
8) Shrimp Sahck/Shrimp Dynamite	دينمايت شرمب	شريمب شاك - شريمبشاك
9) Parfois	بارفويس	بارفواه
10) Cinema	سيناما	سينما
11) Naomi	نعومي	نايومي
12) Spring	سبرينق	ارز ميكس سيبرنج
13) Burger King	برجر كنج	بيرغر كينج
14) Chili's; Grill & Chill; Chilli	جريل آند شيل	تشيليز - تشلي
15) Bookccino	بوكشينو	بوك تشينو

4.3 Can Shoppers Decode?

Results of the decoding test showed that the sample of students and faculty in this study could decode shop names such as نسكافيه بيرجر كينج تويز ار اص .ماكدونالدر، بيرغر كينج، هارديز، كوستا، ساربكس. as those were among the first shops that were imported in Saudi Arabia and people have mastered their pronunciation. On the contrary, students and faculty in this study had difficulty decoding shop names as in, كيسري كافيه ,أميريكان إيجل أوتفترز ,جارليشوز لاونج ,أدفنتورا , نسكافيه دولس قوستو, ناتشرال تاتش ذا تشيلدرنز بليس ، ماكس ,سبرينق ,روود شيك ,بلوايج ,ريكر شوز ,سباوت كافيه ,لولو سلبريت , باربكيوتونايت,بايليس ,أكسسوريز ,إسبريت ملهمز ، قراند ستور سيلنترو ، سواروفسكي ، سيناما ، بوتاتو هت ، لافي ان روز ، مستر قيمز ، ووك ات ، باتيس ، دينمايت شيكن ، دايتشن ، قوزال للملابس التركية ، دولتشي فيتا. بمبوني وبكلافجي This is probably due to the plethora of shop names currently available in shopping malls which makes it difficult to master the pronunciation of such shop names. Also, the subjects stated that they are not familiar with those shop names in the foreign language, and they could not decode them due to the absence of the short vowels which makes it difficult to pronounce. The string of graphemes (the consonant and vowels sequences) in the Arabic transliteration does

not match the conventional consonant and vowel sequences in Arabic and the subjects could not break such words into familiar syllables to be able to decode it. As a result, they pronounced them based on Arabic phoneme-graphemes correspondence rules, not English phoneme-graphemes correspondences.

5. Discussion

Analysis of the Arabic transliterations of foreign shop names in Saudi Arabia has revealed many inaccuracies and inconsistencies which might be attributed to the following: In general, shop names are transliterated by foreign, non-Arab workers who cannot pronounce Arabic sounds and words correctly and hence transliterate the names according to their faulty pronunciation. In other cases, shop names were transliterated by Arabic native speakers who are not sufficiently proficient in English and delete short vowels that are represented by diacritics in Arabic. Both Arab and foreign transliterators are non-native speakers of English, and have no knowledge of French, Italian, Japanese and Turkish pronunciation. In English, they probably have inaccurate pronunciation of unfamiliar shop names, lack knowledge of the Arabic and English vowel systems, and how English vowels, diphthongs and consonants that do not exist in Arabic might be transliterated using the Arabic alphabet. In addition, variant transliterations of the same name might be due to the different people transliterating the same name in different locations. Those people might have varying degrees of competence in Arabic, English, and other foreign languages used in the shop names. Variations in transliterating the same consonant such as g can be attributed to the variations use by different linguists and variations used in different Arab countries and dialects.

The percentage of transliteration inaccuracies in the current study are higher than that in Jeza Alotaibi & Alamri's (2022) study who examined bilingual shop signs in shopping malls in Riyadh and Jeddah and found that 9.3% of the shop names have a few inconsistent and erroneous transliterations and spellings combined. In this study, the sample of shops was selected from malls in 12 cities in Saudi Arabia, which means a wider coverage of shops.

Transliteration deviations in the shop names in the present study are similar to transliteration anomalies in hotel names in Makkah, Madinah and Riyadh. In some hotel names, the same Arabic word was transliterated differently. There are also faulty transliterations of Arabic words, where short vowels in the Arabic words were deleted in the English transliteration. There are even misspellings of English proper names as in *Vanas* instead of *Venus* and *Orkid* instead of *orchid; and Nelover* instead of *Nilufer*. Errors in transliterating Arabic words reflect mispronunciations of Arabic words, whereas misspellings of English words reflect lack of knowledge of sound-symbol associations and spelling words phonetically (Al-Jarf, 2021).

The transliteration inaccuracies in the shop names in this study reflect English pronunciation inaccuracies among shop name transliterators. This is similar to proper noun pronunciation inaccuracies in English by educated Arabic speakers such as mispronouncing English vowels; replacing consonants absent in L1 by their equivalents; inserting a vowel in consonant clusters in Proper Nouns and acronyms; breaking words into two sub-words; pronouncing words the way they are spelled. Pronunciation errors made by Arab students are attributed to transfer from the native language or the local dialect, insufficient mastery of English pronunciation rules, phonics and phone-grapheme correspondences and lack of knowledge of the differences between English and Arabic phonology (Al-Jarf, 2022c).

Transliteration anomalies in shop names are similar to those student-Interpreters' make in pronouncing foreign proper noun, the difficulties they have in identifying and discriminating one or more phonemes in foreign Proper Nouns; changing and substituting phonemes by a longer or shorter vowel, by another consonant or another syllable; reducing/deleting part of the Proper Noun, whether it is a vowel, consonant or even a syllable; and inserting a vowel to break the consonant clusters. Most pronunciation errors among interpreting students are attributed to lack of knowledge of Proper Nouns and of the similarities and differences in Proper Noun pronunciation in English and Arabic (Al-Jarf, 2022d).

Moreover, transliterations inconsistencies in the current study are similar to the variant transliteration of personal names produced by Arabic-native speakers on Facebook. The variants differ in how the vowels/diphthong are represented because Arabic and English differ in the number of vowels, vowel quality and vowel articulation. Arabic has 3 long vowels, 3 short vowels and 2 diphthongs, whereas English has 12 vowels and 8 diphthongs. In transliterating personal names, Arabic consonants, for which two English graphemes exist, were spelled differently. Short vowels were not represented in the transliteration. Educated Arabs transliterated their names the way they pronounce them in their local dialect (Al-Jarf, 2022e).

Furthermore, the faulty vowel and diphthong transliterations which constitute half of the transliteration anomalies in this study are similar to spelling difficulties that EFL Arab college students have in spelling English and the difficulties that Saudi children in Grades 1 to 3 have in decoding Arabic as L1. EFL Arab college spellers had more difficulties with phonemes than graphemes (63% and 37% of the spelling errors respectively). Some of the phonemic problems that the students had were inability to discriminate all or most of the phonemes in a word and inability to discriminate vowel phonemes. They mostly had graphemic

problems with vowel digraphs, double consonants, silent vowels and consonants, and homophones (Al-Jarf, 2019; Al-Jarf, 2011a; Al-Jarf, 2010; Al-Jarf, 2009; Al-Jarf, 2008a; Al-Jarf, 2008b, Al-Jarf, 2008c; Al-Jarf, 2007b; Al-Jarf, 1999). Al-Jarf, 2005a; Al-Jarf, 2005b). Likewise, children learning to read in the Grades 1 to 3 had difficulties in sound-symbol association and structural analysis respectively. They had difficulties in letter and word recognition and in discriminating Arabic long and short vowels and consonants with diacritics (Al-Jarf, 2018).

6. Recommendations

For more accurate transliterations of shop names, this study recommends that the Chamber of Commerce and the Ministry of Commerce in Saudi Arabia create an online database consisting of standardized parallel corpora of foreign shop names and their standard transliterations which can be used by new shop owners as a directory for transliterating shop names from English to Arabic and Arabic to English. As a transliteration quality check, professional translators and students majoring in translation can contribute to the transliteration and/or translation of shop names from English, French, Italian, Japanese, Hindi, and other foreign languages to Arabic instead of foreign workers who lack translation and transliteration knowledge and competence.

Since the absence of diacritics from written shop names makes them difficult to decode, especially by those who do not know English or those who are not familiar with the name, some diacritics can be added to some names that are difficult to decode.

To avoid decoding problems, some shop names should be translated rather than transliterated especially in Arabic words borrowed in English or loan/Arabized words used in Arabic. For example, *Cotton Home* can be translated into بيت القطن instead of قطن هوم, because the word *cotton* is originally Arabic that was borrowed into English. The Arabic version of the name can be decoded by Arab shoppers, and the English version can be decoded by non-native speakers of Arabic.

An important rule that should always be taken into consideration in transliterating foreign names to Arabic and vice versa is that the sequence of graphemes in the Arabic transliteration should fit the Arabic graphological system. Some examples of transliterations that are difficult to decode because they have unfamiliar consonant and vowel sequences (combinations) that do not exist in Arabic and do not fit the Arabic graphemic system are *Dr Nutrition* د. نيوتريشن ; *Natural Touch* ناتشرال تاتش; *Lulu Celebrate* لولو سلبريت. Those can be translated into دكتور التغذية; اللمسة الطبيعية; احتفالات لولو. Similarly, the Arabized version of chocolate شوكولاتة can be used in order not to mis-transliterate the word in id different shop names as in شوكولايت ; شوكلت سراي مولتن. The same applies to Z Mart Accessories. The Arabized word اكسسوارات, that is commonly used in spoken Arabic, can be used instead of أكسسوريز as it can be easily decoded and pronounced.

To decode words containing /g/ accurately, ج or غ can be used in the Arabic transliteration to enable Arab shoppers from different Arab countries and speaking different dialects to decode it.

In the case of compound shop names that are agglutinated, those can be transliterated as two separate words to make the name shorter and easier for Arab shoppers to decode. For example, it would be better to split شرمبشاك into two words شريمب شاك; *Barbecue Tonight* باربكيوتونايت into باربكيو تونايت; Outfitters أوتفترز into آوت فيترز; *So Souffle* سوسوفليه into سو سوفليه. Some compounds with separate component parts can be blended. *Wok It Restaurant* ووك ات can be transliterated as a blend ووكيت.

When a foreign shop name is unfamiliar, and transliterators do not know how a name is pronounced, they can listen to the pronunciation on Google Translate.

Finally, the widespread use of foreign shop names, whether international Franchised or local shop names in Saudi Arabia and the sociocultural, marketing and globalization issues behind this phenomenon is still open for further investigation by researchers in the future.

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1) Appendix: Image of a Sample of Foreign Shop Signs with Their Arabic Transliterations


COSTA
برد توك
BreadTalk
كافا نوار
KAFA NOIR
CRÊPE&DIP
كريب ن ديب
CHOCOLATE CAFÉ


CHARLEYS
PHILLY STEAKS
فيلي ستيكس
PHILLY STEAKS
هامبرغيني
hamburgini
SUBWAY


Potato Corner™
بوتيتو كورنر


بيجو BB بريجيت
flormar
فلورمار


هامبرغيني
hamburgini
baskin robbins
باسكن روبنز
BR
Ice Cream
SUBWAY


THE BODY SHOP
ذي بودي شوب


LuLu
لولو
FASHION STORE
فاشون ستور
MEN / WOMEN / KIDS
رجالي / نسائي / أطفال


Deer & Dear
ديير اند ديير