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| RESEARCH ARTICLE

## English Spelling of the Glottal Stop and Voiced Pharyngeal Fricative in Arabic Personal Names by Educated Arabs on Facebook

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| ABSTRACT

A sample of 560 Arab Facebook users consisting of students, faculty, schoolteachers, and other professionals with different proficiency levels in English was selected. The study analyzed how Arabic personal names on Facebook to find out how names with the glottal stop (hamza) [ʔ] and/or voiced pharyngeal fricative [ʕ] in initial, medial and final positions, with different Arabic short and long vowels before and after them are spelled; whether there are variations in their spelling; causes of spelling variations, and the spelling strategies used. Results showed that 63% of the names have an initial hamza; 10% have a medial hamza; 24% have a final hamza. 65% have one variant and 29% have two variants. Names with the highest occurrences are *Eman* (26); *Ibrahim* (18); *Alaa & Ismail* (17) each; and *Asma* (16). In some names there is a cluster of 2-3 vowels (*Wael, Ismaiel, Ismaeel, Ismaeil, Doaa Duaa*). The voiced pharyngeal fricative [ʕ] in all names was substituted by a vowel as this phoneme/grapheme does not exist in English. Thus both [ʔ] and [ʕ] are represented by vowels and pronounced the same in English. 64.5% have an initial [ʕ], 30% have a medial [ʕ] and 5% have a final [ʕ]. 85% of the names with [ʕ] have one variant and 13.5% have two variants. اسماعيل has the highest number of variants (*Esmail/Ismail, Ismael, Esmaiel/Ismaeil, Ismaeel*) because [ʕ] ɛ is preceded and followed by long vowels. Some names with final [ʕ] and [ʕ] and followed by a long vowel were spelled with a single -a or double -aa. In *Asma, Wafa, Haifa and Sana*, [ʕ] was deleted because the spelling matches how the name is pronounced in the local dialect. In *Abduh, Amro Enayah Waed*, transferred the Arabic spelling system was transferred to English. [ʕ] was deleted in some names (*Menem, Yakoub, Gomma*) and the vowel was retained to facilitate pronunciation. An apostrophe was added in *Ro'aa, Asma'a* to split the vowel cluster. The study gives recommendations to help EFL students spell names with phonemes/graphemes that do not exist in English accurately and to help English speakers pronounce the English version correctly.

| KEYWORDS

Arabic personal names, educated Arabs, glottal stop, hamza, voiced pharyngeal fricative, spelling problems, English spelling variants, English transliteration, social media.

| ARTICLE INFORMATION

ACCEPTED: 01 January 2023

PUBLISHED: 15 January 2023

DOI: 10.32996/ijels.2023.5.1.2

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### 1. Introduction

The Arabic language has 25 consonant and 3 long vowel letters, in addition to 14 diacritical marks that include three short vowels and the glottal stop (hamza) diacritic (ء). Diacritical marks are placed above or underneath a consonant letter. Arabic has consonant phonemes that do not exist in English such as ح خ ص ض ط ظ ع غ ق H, x, S, D, T, ʕ, q, gh, DH, /g, tʃ, ʒ, ɲ/. The two languages also differ in the number of vowels, their length, quality, and position of the lips and tongue (Al-Jarf, 2007; Al-Jarf, 2003; Al-Jarf, 1994a; Al-Jarf, 1994b).

Specifically, the Arabic glottal stop or Hamza<sup>1</sup> [ʔ] همزة (ء) is not one of the 28 "full" letters in the Arabic alphabet. It appears in word initial, medial and final positions. The vowels before (ء) and after hamza determine the seat of hamza. The strongest vowels in

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<sup>1</sup> Hamza



The problems of Romanizing word-initial glottal stops in Modern Standard Arabic through transliteration and phonemic/phonetic transcription were explored by Al-Wahy (2021) who examined a number of authentic transliterations and transcriptions to find out how word-initial glottal stops are Romanised in different word positions. The researcher found some problems in representing word-initial glottal stops, and in words immediately preceding them in word-medial position. The researcher argued that in Standard Arabic, an initial glottal stop which is an integral part of a word or a prefix, is phonemic, whereas an epenthetic glottal stop is non-phonemic, in which case each type should be Romanised differently. The researcher concluded that most problems can be avoided by paying attention to the differences between phonemic and epenthetic glottal stops.

The glottal stop can be optionally deleted in Standard Arabic when it is associated by lengthening or gliding of an adjacent vowel that is usually preceding it. It can also be associated with gemination either in a word-final position or intervocalically. Word-final glottal stops can be also deleted when they are preceded by long vowels and this deletion is associated by shortening of such long vowels when gemination is blocked. Deletion is not allowed when neither lengthening/gliding, nor gemination is possible (Al-Ariq, 2022).

Regarding Jordanian Arabic, Al-Tamimi and Gorgis (2007) analyzed Romanised Jordanian Arabic e-messages in 1098 e-mail messages and 1400 chat turns by 257 undergraduate students who have a workable knowledge of English. Findings revealed that notational formalism representing consonants was systematically employed in 37%, whereas the rest was represented variably. For one Arabic character, there were up to 6 corresponding symbols, mainly Roman, and Arabic numerals, whose selection is justified on pictorial and pronunciation grounds.

No other studies have been found in the literature that investigate the English spelling, transliteration, or transcription of the Arabic glottal stop hamza [ʔ] ʔ and the voiced pharyngeal fricative [ʕ] ʕ in initial, medial and final word positions on social media. Therefore, the purpose of this study is to find out the following: (i) how educated Arabs spell their names with the Arabic glottal stop [ʔ] ʔ and the voiced pharyngeal fricative [ʕ] ʕ in initial, medial and final positions, with different Arabic short and long vowels before and after hamza [ʔ] and [ʕ]; (ii) whether there are variations in spelling the same name on social media; (iii) what spelling anomalies exist; (iv) causes of variations in spelling the same names and (v) the strategies used in spelling names with hamza [ʔ] and [ʕ] in English on social media.

The spelling, transcription, or transliteration of Arabic personal names on social media is mainly intended for communication between native Arabic speakers and English speakers. Therefore, the English transliteration of Arabic personal names should be complete, easy to read by English speakers, consistent and should closely match the pronunciation of the name by Arabic-native speakers. In this respect, Aboelezz (2010) indicated that the variations in representing Arabic using Latin characters and how we choose to represent Arabic for Latinisation are critical issues since the Latinisation of Arabic requires encoding additional phonetic information such as adding short vowels. The unfaithful representation of Arabic sounds may distance Arabic speakers. Representations that are too faithful may alienate non-speakers of Arabic. Developing a common Latinisation scheme is needed. A contemporary style of Latinisation commonly used on social media today has attempted to do this through the use of numerals, but this style of Latinization is mainly intended for communication among native Arabic speakers.

## **2. Methodology**

### **2.1 Sample of Facebook Users**

A sample of 560 Arab Facebook users with names containing the glottal stop [ʔ] and/or voiced pharyngeal fricative [ʕ] in the first and/or surname was selected from the author's 4000 Facebook friends. Some subjects are students, others are college faculty and schoolteachers, in addition to some professionals specialized in business, education, computer science, law, medicine, and others. The subjects come from different Arab countries (Jordan, Lebanon, Syria, Palestine, Iraq, Egypt, Tunisia, Libya, Tunisia, Algeria, the Sudan, Kuwait, Qatar, Bahrain, Oman, UAE, and Yemen). They speak both their local Arabic dialect as well as Standard Arabic, have different educational levels and different proficiency levels in English, and.

### **2.2 Sample of Names with Hamza and Voiced Pharyngeal Fricative**

A sample of 487 names was selected from the author's 4000 friends on Facebook. The personal names in the sample consist of 67 unique names with the glottal stop hamza [ʔ] and 96 unique names with the voiced pharyngeal fricative [ʕ] in initial, medial and final positions and different Arabic short and long vowels before and after [ʔ] and [ʕ]. All the names in the two sets are male and female names and cover first and/or last names. Duplicate names, Arabic names spelled by non-native speakers of Arabic such as Malaysians, Bosnians, Bangladeshi, Uzbek, or any other nationality that uses Arabic names; names of foreign friends from the USA, Europe, Japan, China, and others; those written in other alphabets such as French, Bosnian, Hindi, Vietnamese, Thai, Russian, Uzbek, initials, and abbreviations (*Moh, Mhmd, Ab*), nicknames (*Pinkrose*) were not included in the sample. Only personal names spelled in English were compiled and analyzed. Focus is on the variant spellings of the Arabic personal names with the glottal and voiced pharyngeal fricative in English. Only few cases with initial hamza followed by /a:/ are included as those are too many and all are

spelled with an initial A, i.e., no variations. All names with initial hamza followed by [i/], [i:] or [u] were included. Other spelling anomalies in vowels and consonants within the other syllables of the name that do not exist in English are not the focus of the current study. In addition, the definite article, *Abu*, and *Abd* combined with the name were detached/isolated from names that begin with the voiced pharyngeal fricative ʕ (*Otaibi & Maani* instead of *Al-Otaibi & Almaani*).

In analyzing the variations in the English spelling of Arabic names with hamza and the voiced pharyngeal fricative, each name was counted as one token, each variant spelling of the same name was counted as a token and each occurrence (repetition) of the same variant, was counted as one token as well. For example, a name as علياء with several spellings (*Aliaa Alya Alyaa*) were counted as 3 tokens. If *Aliaa* occurred twice in the sample, *Alya* occurred 3 times and *Alyaa* occurred 4 times in the sample, they were counted as 9 occurrences.

Regarding differences in the spelling data, it was noted that variant spellings of a personal name might have one, two, or more differences depending on how the glottal stop and the voiced pharyngeal fricative are represented in English depending on the vowels that precede or follow them. Variations in other vowels and consonants not associated with [ʔ] and [ʕ] were not analyzed as they are not the focus of this study.

For each unique name, the variant spellings, and the number of occurrences were tabulated. The number of names having 1, 2, and 3 variants spelling of hamza and the voiced pharyngeal fricative, and the number of names having 1, 2, 3, and more occurrences were counted. Names with the highest number of variants and highest number of occurrences were counted as well. The percentage of names the begin with an initial, medial and final hamza and voiced pharyngeal fricative was computed (See Tables 1 & 2).

To find out the strategies used in the variant spellings of Arabic names, English spellings were classified into: (i) those that match the pronunciation of the name in the user's local dialect, not Standard Arabic; (ii) cases where the spelled name matches that of Arabic; (iii) cases where the subjects misrepresented [ʔ] and [ʕ] in English due to lack of mastery of the English vowel system; (iv) cases in which the subject transferred the French spelling to English.

### **3. Results**

#### **3.1 English Spelling of Arabic Personal Names with the Glottal Stop**

Analysis of the personal name data shows 68 unique names containing the glottal stop (hamza) [ʔ] ء, with 95 variant spellings, and 283 occurrences. Results in Table 1 show that 65% of the names have 1 variant, 29% have 2 variants, and 4 names have 3 variants. 44% have one occurrence, 13% have two occurrences, 12% have four occurrences, and 10% have between 16-26 occurrences (2 names have 16 occurrences, 3 names have 17 occurrences, 1 name has 18 and another one has 26 occurrence). The names with the highest occurrences are إيمان *Eman* (26); إبراهيم *Ibrahim* (18); آلاء *Alaa* & اسماعيل *Ismail* (17) each; أسماء *Asma* (16); and دعاء *Doaa* (12). In addition, Table 1 shows that 41% of the names have an initial hamza + fatha; 15% have an initial hamza + kasra; 10% have a medial hamza + dhamma; and 24% have a final hamza + sukun (no vowel).

No spelling variations were found in the nouns beginning with hamza fat-ha. All names in this category are spelled with a capital A. Whether the Arabic name begins with Aliph madda (Ā) or hamza with a short vowel, both are spelled with an A in English (آدم *Adam*; آسر *Aser*; آية *Aya*; آلاء *Alaa Ala'a*). However, 2-3 variations were noted in spelling initial hamza with kasra. Names in this category are either spelled with an e or i as in *Ebtesam Ibtsam; Entisar Intesar; Ekram Ikram; Enas Enass Ines; Ebraheem Ebrahim Ebrahim Ebrahim Ibrahim; Eiman Eman Iman Imen*.

In names with medial hamza such as *Raid; Said; Waeel Wael; Nael Naela; Weam*, each noun has 2-3 vowels one for hamza and the other is the vowel that precedes it. Only *fouad* and *Roaa* have 3 vowels: one for hamza, one for the vowel before and another one for the vowel after.

The highest variations were found in nouns ending in a final hamza that is preceded by a long vowel (*Hana Hanaa; Doaa Duaa Dua'a; Alaa Ala'a; Asma Asmaa Asma'a Assma*). Names in this category are spelled either with a final a, aa, or a'a. Although the sample has 19 names that end with a final hamza preceded by the long vowel /a:/, few spellings have an apostrophe to mark the boundary between the vowel that substitutes hamza and the vowel that follows hamza (آلاء *Ala'a*; ضياء *Dea'a*; أسماء *Asma'a*). In 22 names that end with [a:] + hamza, the names are spelled with aa as in اسراء *Eisra Esraa Israa*; أسماء *Asma Asmaa Asma'a Assma*; آلاء *Alaa Ala'a*; براء *Baraa Bara*; بهاء *Bahaa*; ثناء *Thanaa*; رجاء *Rajaa Raja*; زهراء *Zhraa*; سناء *Sanaa*; شيماء *Shimaa Shymaa*; صفاء *Safaa*; ضياء *Diaa*; علياء *Aliaa Alyaa*; غيداء *Ghydaa*; هناء *Hanaa*; وفاء *Wafaa*; ولاء *Walaa*; رؤى *Roaa*.

Table 1: Arabic Names with Hamza, Their English Spelling, Location of Hamza, Number of Variants and Occurrences

Name	English Spelling	Hamza Location	Variants	Occurrences
احلام	Ahlam	Initial with A	1	3
احمد	Ahmad	Initial with A	1	1
آدم	Adam	Initial with A	1	1
ادهم	Adham	Initial with A	1	2
اروى	Arwa	Initial with A	1	1
آسر	Aser	Initial with A	1	1
اسراء	Eisra Esraa Israa	Initial with A	3	6
اسلام	Eslam Islam	Initial with A	2	9
اسماء	Asma Asmaa Asma'a Assma (initial hamza)	Initial with A	1	16
اسيل	Aseel	Initial with A	1	1
اشرف	Achraf Ashraf	Initial with A	1	2
اضواء	Adhwa	Initial with A	1	1
افراح	Afrah	Initial with A	1	1
افنان	Afnan	Initial with A	1	1
اكرم	Akram	Initial with A	1	3
ألاء	Alaa Ala'a (initial hamza)	Initial with A	1	17
ألبا	Alba	Initial with A	1	1
امجد	Amgad	Initial with A	1	1
امل	Amal Aml	Initial with A	1	3
امنة	Amna	Initial with A	1	1
امير	Amir	Initial with A	1	1
اميرة	Amera Amira	Initial with A	1	2
امين	Amin	Initial with A	1	1
امينة	Amina	Initial with A	1	1
انس	Anas	Initial with A	1	1
انوار	Anwar	Initial with A	1	1
آية	Aya	Initial with A	1	1
ايمن	Ayman	Initial with A	1	1
ابتسام	Ebtesam Ibtsam	Initial with E	2	2
ابتهاج	Ebtihaj	Initial with E	1	1
ابتهاال	Ebtehal	Initial with E	1	1
ابراهيم	Ebraheem Ebrahim Ebrahim Ebrahim Ibrahim Ibrahim	Initial with E	2	18
احسان	Ehsan	Initial with E	1	2
اسماعيل	Esmail Ismail Ismaeel Ismaell Ismaeil Ismaeel Ismael Esmail Ismaiel	Initial with E	2	17
اكرام	Ekram Ikram	Initial with E	2	4
إلهام	Elham	Initial with E	1	2
إلياس	Eliyas	Initial with E	1	1
انتصار	Entisar Intesar	Initial with E	2	2
انعام	Inaam	Initial with E	1	1
ايمان	Eiman Eman Iman Imen	Initial with E	3	26
ايناس	Enas Enass Ines	Initial with E	2	6
ايهاب	Ehab	Initial with E	1	4
اسامة	Osama Usamah	Initial with O	2	2
رايد	Raid	Medial	1	1
نائل نائلة	Nael Naela	Medial	1	5
وائل	Waeel Wael	Medial	2	4
رؤى	Roaa, Roua	Medial	2	2
سائد	Said	Medial	1	1
فؤاد	Fouad	Medial	1	9
ونام	Weam	Medial	1	1
اسماء	Asma Asmaa Asma'a Assma (final hamza)	Final	3	16

آلاء	Alaa Ala'a (final hamza)	Final	2	17
براء	Baraa Bara	Final	2	3
بهاء	Bahaa	Final	1	4
ثناء	Thanaa	Final	1	1
دعاء	Doaa Duaa Dua'a	Final	3	12
رجاء	Rajaa Raja	Final	2	2
زهاء	Zhraa	Final	1	1
سنا	Sana Sanaa	Final	2	4
شيماء	Shaima Shaimaa Shymaa	Final	2	3
صفاء	Safa Safaa	Final	2	4
ضياء	Dea'a Diaa	Final	2	2
علياء	Aliaa Alya Alyaa	Final	2	4
غيداء	Ghydaa	Final	1	1
هنا	Hana Hanaa	Final	2	7
هيفاء	Haifa	Final	1	2
وفاء	Wafa Wafaa	Final	2	4
ولاء	Walaa	Final	1	6
<b>Total</b>			<b>95</b>	<b>283</b>

### 3.2 English Spelling of Arabic Personal Names with the Voiced Pharyngeal Fricative ع

Results in Table 2 show 96 unique names containing the voiced pharyngeal fricative [ʕ] ع, with 114 variant spellings and 281 occurrences. It can be seen that 85% of the names in the sample have one spelling; 13.5% have two variant spellings; and 1 name has six variant spellings. The names with the highest occurrences are عمر *Omar* (26); اسماعيل *Ismail* (17); عماد *Emad* (15); سعيد *Saeed* (15); عمرو (*Amr*, & عزيز *Aziz* (11); سعد *Saad* (10). The name with the highest number of variant spellings in the sample is اسماعيل *Esmail/Ismail, Ismaell/Ismael, Esmaiel/Ismaiel, Ismaeel, Ismaeil* because ع is preceded by the long vowel [a:] and followed by the long vowel /i:/. In addition, the middle vowel that is replacing ع resulted in a three-vowel sequence (cluster) which is not part of the English orthographic/phonetic system.

As seen in Table 2, the voiced pharyngeal fricative [ʕ] ع in all the Arabic names in the sample was replaced by a vowel in the English spelling of the name as it does not exist in English. The selected vowel usually depends on the position of [ʕ] ع in the name and the vowels that precede it or follow it. Taking this into consideration, Table 2 shows that 64.5% have an initial [ʕ] (47% have Initial [ʕ] with fat-ha; 12.5% have an Initial [ʕ] with kasra and 5% have an initial [ʕ] with dhamma). Medial [ʕ] occurred in 30% of the names in the sample; and final [ʕ] occurred in 5% only as in *Rabie, Shaya, Shafie, Dabea, Badie*.

Names with the initial voiced pharyngeal fricative [ʕ] ع followed by [i:] or [i] have 2 variants that differ in whether the initial ع is substituted by e or i as in عماد *Emad Immad; Ezzat, Isam, Eid*,

All names that begin with [ʕu] were substituted by a syllable with the single vowel /o/ as in عمر *Omar Oumar; العمري Omari; العمدة Omda; عمران Omran; العتيبي Otaibi; عثمان Othman*.

In word-medial position, [ʕ] ع is substituted with a single a or a double aa as in وعد *Waad Waed; شعبان shapaan Shaban; جمعة Gomma Gomma; معروف Maarouf Marouf; عواطف Aouatef Awatef Awatif*. In names spelled with a double aa (*Gomaa, Inaam, Issaadi, Maani, Maaoui, Maarouf, Saad, Saadeh, Shaarani, Waad, Saeedi, Doaa*), one vowel is the vowel before [ʕ] ع and the other is the one replacing [ʕ]; whereas names spelled with a single a such as *Alasadi, Badia, Jafraa, Shalan, Shaya, Gomma, Marouf*, spellers have deleted [ʕ] ع and retained the vowel.

The spelling strategies and variants used with the final hamza when preceded by a long vowel (آلاء *Alaa Ala'a; ضياء Dea'a Diaa; أسماء Asma Asmaa Asma'a Assma*) are identical to those used in names with a final [ʕ] followed by a long vowel as in *دعاء Doaa Duaa Dua'a*. In both name categories, the names are spelled with a final a, aa, or a'a. Few spellings in the sample have an apostrophe to separate the two aa at the end of the name into the one for hamza and the one that follows hamza (*Dua'a, Asma'a*).

The most problematic names to transcribe are those where [ʕ] is the last consonant before a pause or where [ʕ] is preceded by [i] and followed by [i:] as in *بديع Badie; الضبع Dabea; ربيع Rabie; شفيع Shafie; مرعي Marey; الرفاعي Refaey; شافعي Shafei Shafay; نعيم Naem; بدية Badia; عيط Ait; عليو Aliyu; عليوة Eleiwa Aliwaa; اسماعيل Esmail/Ismail, Ismaell/Ismael, Esmaiel/Ismaiel, Ismaeel, Ismaeil*. Here the subjects did not know which English vowels to use for representing the 2 or 3 vowel sequences surrounding [ʕ].

Other names with [ʕ] that might be difficult to spell are those where [ʕ] is followed by a diphthong (Ait عيط; Aliyu عليو; Aoun عون; Eita عيطة; Aissani العيساني).

In some names, the spelling is transferred to English from French as in *Aouatef* عواطف & *Aoun* عون which are spelled (ou) but pronounced [aw].

An interesting finding is that some subjects made adaptations in the English representation of the names with [ʕ] to facilitate pronunciation by non-native speakers. In those cases, the spellers deleted ع in the English spelling and only spelled one vowel as in *Menem* منعم; *shapaan Shaban* شعبان; *Yaqoub* يعقوب; *Shalan* شعلان; *Shaya* الشايح; *Gomma* جمعة; *Marouf* معروف. In very few cases, Arab spellers foreignized the Arabic names. They used *Newman* for نعمان; and *Etman* for عثمان).

**Table 2: Arabic Names With the Voiced Pharyngeal Fricative ع, Their English Spelling, Location of ع, Number of Variants and Occurrences**

Arabic Name	English Spelling	[ʕ] Locations	Variants	Occurrences
عباسي	Abbasi	Initial with A	1	1
عبد الله	Abdullah	Initial with A	1	1
عبد	Abed	Initial with A	1	1
عديلة	Adela	Initial with A	1	1
عدنان	Adnan	Initial with A	1	1
عفراء	Afraa	Initial with A	1	1
العيساني	Aissani	Initial with A	1	1
عيط	Ait	Initial with A	1	1
عالية	Alia	Initial with A	1	1
عليو	Aliyu	Initial with A	1	1
علام	Allam	Initial with A	1	1
عمارة	Amara	Initial with A	1	1
العنزري	Anazi Al~	Initial with A	1	1
عنتر	Antar	Initial with A	1	1
عون	Aoun	Initial with A	1	1
عرين	Areen	Initial with A	1	1
عروف	Aruof	Initial with A	1	1
العسكري	Askari El~	Initial with A	1	1
عطاء	Ataa	Initial with A	1	1
عطايا	Ataya	Initial with A	1	1
عطاس	Attas Al~	Initial with A	1	1
عدلي	Adly	Initial with A	1	2
علي	Ali	Initial with A	1	2
العنسي	ansi Alansii Al~	Initial with A	1	2
عارف	Aref	Initial with A	1	2
عاصم	Assem	Initial with A	1	2
العطار	Attar Elattar Al	Initial with A	1	2
عوض	Awad	Initial with A	1	2
عباس عباسي	Abass Abas Abbasi	Initial with A	1	3
عادل	Adel	Initial with A	1	3
عبود	Abood Abod	Initial with A	1	4
عمار	Amar Ammar	Initial with A	1	4
عطية	Atia Attea Attya Attia	Initial with A	1	4
عاطف	Atef Atif	Initial with A	1	5
عزة	Azza	Initial with A	1	5
العبد عبد	Alabed Abed	Initial with A	1	6
عبير	Abeer	Initial with A	1	7
عامر	Amer	Initial with A	1	7
عبدو	Abdo Abdou Abdu Abduh	Initial with A	1	8

عمرو	Amr Amro	Initial with A	1	11
عزيز	Aziz Abdel Aziz	Initial with A	1	11
عائشة	Aisha Asha	Initial with A	2	2
عائدة	Aida Ayda	Initial with A	2	3
عواطف	Aouatef Awatef Awatif	Initial with A	2	3
عيس	Eess	Initial with E	1	1
عيطة	Eita	Initial with E	1	1
عناية	Enayah	Initial with E	1	1
عصمت	Esmat	Initial with E	1	1
عطاف	Etaf	Initial with E	1	1
عز	Ezz	Initial with E	1	1
عزت	Ezzat	Initial with E	1	2
عصام	Isam Issam	Initial with E	1	2
عيد	Eid	Initial with E	1	4
عليوة	Eleiwa Aliwaa	Initial with E	2	2
عيسى	Eissa, Essa	Initial with E	2	6
عماد	Emad Immad	Initial with E	2	15
العمري	Omar Al	Initial with O	1	1
العتيبي	otaibi Al-	Initial with O	1	1
عثمان	Othman	Initial with O	1	1
العمدة	Omda El~	Initial with O	1	2
عمران	Omran	Initial with O	1	3
عمر	Omar Oumar	Initial with O	2	26
اسعد	Assad	Medial	1	1
بديعة	Badia	Medial	1	1
انعام	Inaam	Medial	1	1
اسعادي	Issaadi	Medial	1	1
جعافرة	Jafraa	Medial	1	1
المعني	Maani Al	Medial	1	1
معاوي	Maaoui	Medial	1	1
مرعي	Marey	Medial	1	1
منعم	Menem	Medial	1	1
نعيم	Naem	Medial	1	1
نعمان	Newman	medial	1	1
الرفاعي	Refaey Al-	Medial	1	1
سعادة	Saadeh	Medial	1	1
سعدية	Saadia	Medial	1	1
السعيد	Saeedi Al~	Medial	1	1
الشعراني	Shaarani	Medial	1	1
شعلان	Shalan	Medial	1	1
شعيب	Shoaib	Medial	1	1
طعيمة	Tuaima	Medial	1	1
يعقوب	Yaqoub	Medial	1	1
دعاء	Doaa	Medial	1	2
سعد	Saad	Medial	1	10
شعبان	shapaan Shaban	Medial	2	2
وعد	Waad Waed	Medial	2	3
معروف	Maarouf Marouf	Medial	2	4
الشافعي	Shafei Shafay	Medial	2	4
جمعة	Gomma Gomaa	Medial	2	7
سعيد	Said Saeed Essaid	Medial	2	15
اسماعيل	Esmail/Ismail, Ismaell/Ismael, Esmaiel/Ismaiel, Ismaeel, Ismaeil	Medial	6	17
البيديع	Badie Abdel~	Final	1	1
ربيع	Rabie	Final	1	1



شفيق	Shafie	Final	1	1
الضبع	Dabea El~	Final	1	1
الشايق	Shaya Al~	Final	1	1
<b>Total</b>			<b>114</b>	<b>281</b>

#### 4. Discussion

Findings of the current study have revealed that the variant spellings and occurrences for each name with a glottal stop and voiced pharyngeal fricative are much fewer than the variants and occurrences of the English spelling of Arabic names on social media that prior studies revealed as in the English spelling of Arabic compound personal names (Al-Jarf, 2023); the deviant Arabic transliterations of foreign shop names in Saudi Arabia (Al-Jarf, 2022a); the English transliteration of Arabic personal names with the definite article {al-} (Al-Jarf, 2022b); gemination errors in Arabic-English transliteration of personal names with geminated consonants (Al-Jarf, 2022c); and variant transliterations of the same Arabic personal names (Al-Jarf, 2022d).

As in the current study which found problematic areas in spelling hamza [ʔ] and the voiced pharyngeal fricative [ʕ] in personal names as (بديع *Badie*; الضبع *Dabea*; ربيع *Rabie*; شفيق *Shafie*; مرعي *Marey*; الرفاعي *Refaey*; شافعي *Shafei Shafay*; نعيم *Naem*; بديعة *Badia*; عيط *Ait*; عليو *Aliyu*; عليوة *Eleiwa Aliwaa*; اسماعيل *Esmail/Ismael, Ismaell/Ismael, Esmaiel/Ismaiel, Ismaeel, Ismaeil*), prior studies by Shehata (2015) reported problematic Arabic consonants as perceived by native English-speaking students learning Arabic who found pharyngeal and the pharyngealized consonant phonemes particularly the fricative pharyngeal-glottal phoneme difficult to perceive and produce.

In addition, weaknesses that Arab Facebooks users have in spelling Arabic names in English are similar to those EFL Arab college students make in spelling general words such as inability to discriminate vowels such as /e/ & /i/; /o/ & /u/; voiced and voiceless consonants as in *Shaban & Shapan; Ebrahim & Eprahim*; vowel digraphs (ie, ea, ee & ae, ai) and matching the Arabic graphemes with the correct English equivalents (Al-Jarf, 2019; Al-Jarf, 2011a; Al-Jarf, 2010; Al-Jarf, 2009; Al-Jarf, 2008a; Al-Jarf, 2008b)

Another important finding is the substitution strategies utilized by some subjects in this study such as substituting [ʕ] with a vowel, as it does not exist in the English phonetic and orthographic systems. The substitution of phonemes by others is common in many languages but the sound substitutes differ from one language to another. This finding is consistent with findings of prior studies such as Sulaeman, Yusuf, Nurholis and Hannan (2022); Rusmana, Supriadi, AINU Syamsi, Heryani and Sulaeman (2022) and Gunardi, Indira, Citraesmana and Sulaeman (2020) who indicated that Indonesian speakers changed [ʕ] to a nasal vowel and deleted [ʔ] while reciting the Quran. Likewise, Sudanese subjects reading the Quran made adaptations in [ʔ] and [ʕ]. They changed [ʔ] followed by the vowels [ʔʌ], [ʔi] and [ʔʊ] to the short vowels [ʌ], [i] and [ʊ]. They changed the Arabic [ʕ] followed by vowels [ʕʌ], [ʕi] and [ʕʊ] to the nasal vowels [ã], [ĩ] and [ũ]. When [ʔ] is in sukun (no vowel), they pronounced it in the same way. When [ʕ] is in sukun, they changed the sound to the voiced glottal stop with sukun. Similar adaptations in pronunciation were made by Sudanese subjects in another study in which they changed [ʔ] and [ʕ] in Surah Al-Fatihah. The easiest strategy for Sudanese subjects in producing those sounds was deleting those consonants and pronouncing the vowel sounds only.

In 12 names, final hamza was substituted by a single [a] as in اسراء *Eisra*; أسماء *Asma Assma*; براء *Bara*; رجاء *Raja*; زهراء *Zhraa*; سناء *Sana*; شيماء *Shaima*; صفاء *Safa*; علياء *Alya*; هناء *Hana*; هيفاء *Haifa*; وفاء *Wafa*. This was explained by Al-Ariqy, (2022) who referred to a rule in Standard Arabic that allows the optional deletion of the glottal stop when it is associated by lengthening or gliding of an adjacent preceding vowel. Word-final glottal stops can be deleted when preceded by long vowels and this deletion is associated by shortening of such long vowels when gemination is blocked. Deletion is not allowed when neither lengthening/gliding nor gemination is possible.

Unlike findings of Al-Tamimi and Gorgis's (2007) study in which undergraduate students systematically employed notational formalism representing consonants in 37% of the data, the rest was variably represented. An Arabic character had 6 corresponding symbols. Romanized, and Arabic numerals were inserted based on pictorial and pronunciation grounds. In the current study, 68.5% of the names with hamza have 1 variant and 27% have 2 variants. Similarly, 85% of the names with [ʕ] ع in the sample have 1 variant; 13.5% have 2 variant spellings. However, none of the subjects inserted numerals in their English names to substitute phonemes/graphemes that do not exist in English. This means that two thirds of the sample have a systematic representation of the Arabic phonemes/graphemes under study.

Moreover, the spelling of some names in the sample is a transfer from the subjects' local Arabic dialects as in *Asma, Shaima, Alya, Hana, Haifa, Wafa* are spelled without hamza and *Waed* is spelled with an e as this is how it is pronounced in the Jordanian, Palestinian, and Syrian dialects as opposed to *Waad* in Standard Arabic. In other cases, the name is spelled in English the way it is spelled in Standard Arabic as in *Abduh, Enayah* which are spelled with a final h, although it is inaudible in the flow of speech. Amro

عمرو is spelled with a final o because the Arabic name is spelled with a silent final و. Few subjects transferred the spelling of their names (*Oumar, Roua, Aouatef, Aoun; Ines; Imen*) from French to English (Al-Jarf, 2007b; Al-Jarf, 1999).

The variant spellings and faulty representations of [ʔ] and [ʕ] with the vowels that precede or follow them reflect inadequate competence in English and inadequate knowledge of the differences between the phonological and orthographic systems and the grapheme-phoneme correspondences in English and Arabic. They do not know whether the English vowel (E) or (I) is equivalent to the initial hamza with kasra. They have problems connecting the graphemes with their pronunciation as well (Al-Jarf, 2008c; Al-Jarf, 2005a; Al-Jarf, 2005b).

## 5. Recommendations

This study sought to explore how educated Arabs on Facebook spell personal names containing the glottal stop (hamza) [ʔ] and the voiced pharyngeal fricative [ʕ] in initial, medial, and final positions with different vowels that precede and/or follow them. Results of the data analysis revealed several variations and anomalies. In order for the spelling of Arabic names in English to be complete (no missing phonemes/graphemes), easy to read and pronounce by English speakers, consistent (the same name has the same representation by different spellers), and closely match the pronunciation of the name by Arabic-native speakers, Arab spellers should master the phonological and graphemic systems of English and Arabic, and how a single sound or combination of sounds should be transliterated. To enhance educated Arabs' spelling competence in spelling Arabic personal names in English, this study recommends the following:

- Checking how names spelled in different ways are pronounced such as names spelled with (ai) as رائد *Raid* [reɪd]; سعيد *Said* [sa: ʔid; وائل *Waeel* [waʔi:]
- Avoid having one spelling for two names as سعيد *Said* & سائد *Said*. سائد should be spelled Sa'id and سعيد should be spelled Sa'eed.
- Adding an apostrophe to names with a medial (aa) as in *Ma'aoui, Sa'eedi* and to names ending with a double (aa) as in *Dua'a; Ala'a; Asma'a; Na'el Na'ela; Wa'el; Ro'aa; Fo'uad; We'am; Asma'a; Ala'a; Bara'a; Baha'a, Thana'a; Dua'a; Raja'a; Zahra'a; Sana'a; Shaima'a; Safa'a; Aliaa Alya'a; Ghyda'a; Hana'a; Haifa'a; Wafa'a; Wala'a* to split the vowel cluster to one that represents the vowel and the other that represents the voiced pharyngeal fricative or glottal stop so that they are pronounced with a slight pause in between.
- Reducing final long [a:] from aa to a in names that end with [ʔ] or hamza in word final positions as in *Menem* منعم; *Shapan Shaban* شعبان; *Yaqoub* يعقوب; *Shalan* شعلان; *Shaya* الشايح; *Gomma* جمعة; *Marouf* معروف. *Aisha* can be reduced to *Asha*.
- Disyllabic names beginning with hamza and [i] can be spelled with an initial E as in *Ehsan; Ekram; Elham; Elyas;; Eman; Enas* as spelling such names with an initial i will change the pronunciation of *Ihsan* to [aɦsan] as in *icon* and *Ireland* (following English pronunciation rules for nouns); whereas trisyllabic names (*Ibtisam; Ibtihaj; Ibtihal; Ibrahim; Intisar, Ismael*) can be spelled with an initial (i) which will be pronounced [i] as in *intention, irritation*, without affecting the pronunciation.
- Spelling names that begin with hamza+O with a capital O as in *Omar Osama, Omari; Otaibi; Othman; Omda; Omran* since this the common spelling among Arabs. Spelling them with an initial U might result in pronouncing the initial vowels as [yu:] which sounds funny as in the case of *Usamah* [yu:sa:ma] and others.
- The -ie digraph in *Badie, Rabie, Shafie, Dabea* is similar to the vowel digraph in *die, lie, pie, tie*, and thus English speakers will pronounce them with [ay] not [i:]. So, the best option is to use -ee as this digraph is pronounced [i:]. Similarly, *Marey Refaey Shafei Shafay* should be spelled with -ee (*Mar'ee Refa'ee Shaf'ee Shaf'ee*) where [ʕ] will be blended with the vowel and the apostrophe will split the name into two sub-parts that require a slight pause in between during the pronunciation, giving an approximate pronunciation of the whole name. Instead of *Badia*, a better spelling for بديعة would be *Badee'a*. Similarly, instead of the faulty spellings *Eleiwa Aliwaa*, a better English spelling for عليوة [ʕleywa] is *Elaiwa* where an initial hamza with (e) is inserted.
- Adding y to names such as *Diya'a* [diya:ʔ] instead of *Dea'a & Diaa*;
- The best spelling for اسماعيل is *Ismael* as it is close to the English version *Ishmael*.
- Foreignizing some names that have equivalents in English or are close in pronunciation to English names as in *Ishmael* for اسماعيل; *Newman* for نعمان; *Etman* for Othman.
- Mind-mapping software can be used to represent the English spelling of each [ʔ] and [ʕ] in initial, medial and final positions with different vowels before and after each, together with illustrative examples (Al-Jarf, 2011b).

Finally, this study recommends creating a directory of Arabic personal names with the glottal stop and voiced pharyngeal fricatives where each name has one transliteration which best matches its Arabic pronunciation and makes it easy for both English speakers and enables Arabic native speakers of Arabic who are not familiar with the name to pronounce the name correctly.

**Conflicts of Interest:** The author declares no conflict of interest.

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