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Ease of Articulation in Selecting First Names

Alawiya W.I. AL-Siyami
Department of English, College of Social Sciences, Umm Al-Qura University, Makkah, Saudi Arabia

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Abstract

Investigating the ease of articulation in selecting names contributes to emphasizing the effect of articulatory features on speech perception and production. It explains why some names are distinctive among multi-semantic references and sociocultural dominance and are more likely appropriate for one sex than the other. This study explores how distinctive features of phonemes subconsciously derive our conception of first names, regardless of rich meanings or morphological endings. It argues that all selected names demonstrate articulatory-easy phonemes. Sex distinction is assumed to attribute phonemes of easier configurations to characterize girl names more than boy names. By inspecting a sample that exhibited no feminine suffixes or compounding structures, the study analyzed the phonemic components based on the articulatory-ease module. The findings justified equivalent preference of boy names and girl names to the ease of bilabial, coronal, voiceless features, and disyllabic structures. However, interest in names with easier anterior coronal sonorants, posterior distributed strident and glottal dominated the selected girl names in line with sound symbolism. Moreover, prominent everlasting names indicated a mechanism of articulatory ease that identified one essential unit to develop a unique smooth flow of phonemes. The distinctive characteristic features of this unit marked sex distinction and determined popularity.

KEYWORDS
articulatory mechanism, articulatory module, conserving effort, distinctive features, prominent names, sound symbolism

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1. Introduction

Different factors play a role in selecting first names. Apart from personal admiration for historical or religious figures and the aesthetics of meaning, there is the assertion that the selected name is socially accepted as a boy name or girl name. Morphological forms (suffixes) sometimes fail to define the sex of the bearer for cultural stereotypes (e.g., *Rose* and *Wolf*) or convention (e.g., *Jack* and *Elizabeth*). This is also observed with some Arabic names that have feminine-suffix endings (e.g., *Talhat, Rida,* and *Diyaa*); however, they are rarely named after girls despite having rich semantic implications.

Many linguistic perspectives approached the influence of phonological properties in conceiving names and distinguishing sex. Studies of sound symbolism emphasized the effect of phonetic features in conceiving different meanings relevant to masculine/feminine attributes (Kawahara et al., 2018; Klink, 2001; Monaghan & Fletcher, 2019; Sidhu & Pexman, 2015; Uno et al., 2020; Wu et al., 2013). Other studies determined the phonological aspects of prosodic properties as the number of phonemes, word stress, and syllable structures (Ackermann & Zimmer, 2021; Al Tamimi & Smith, 2023).

However, the effect of phonological properties on conceiving masculine and feminine attributes runs in opposite directions. Considering size and shape symbols, Ackermann and Zimmer (2021) indicated that the association of sound-meaning to names should not indicate a desired trait for women due to different cultural perceptions. Monaghan and Fletcher (2019) also affirmed that the phonetic features of voiceless fricative like /s/ may not positively characterize softness, smallness, and femininity; similarly, the voiced configuration of /d, g, k, z/ may not negatively characterize hardness, length, largeness, and masculinity. Al Tamimi and Smith (2023) reported insignificant difference in the use of voiceless or voiced phonemes with Arab names. Moreover, aesthetic semantic implications and sociocultural referents are indefinite factors, as parents nowadays are more inclined to choose elegant names that sound attractive (Alzamil, 2020).

Clearly, what emphasizes the phonological basis of these studies is the articulatory base. It can explain the (un)attentive of some names, regardless of rich meanings, social-cultural references, or morphological endings. It also justifies the popularity of the name *Muhammad* that has been described as the most popular name worldwide (PlotSet, 2023) or traditional names that are related to countries such as the Saudi names, *Nourah, Fahad,* and *Mishail*, (Al Tamimi & Smith, 2023) and the German names, *Katharina* and *Rolf* (Ackermann & Zimmer, 2021).

Therefore, the study adopts this proposition and argues that selecting first names is drawn toward those that contain phonemes of easier articulatory configurations. Focusing on names that carry no formal-sex distinction as feminine suffix or compounding structure, the study investigates two hypotheses:

- H1: All selected first names indistinctively demonstrate ease of articulation.
- H2: The relative ease of sound components determines that easier articulatory distinctive features characterize girl names more than boy names, which conform to the masculinity/femininity conception of sound symbolism.

By investigating the ease of articulation in selecting Arab names, the study emphasizes the effect of articulatory features on speech production. It throws light on how phonemes and distinctive features are subconsciously recognized by the brain to derive conception. It also provides insights into understanding the process of naming in Arab culture.

1.1. Literature Review in Ease of Articulation:

Shariatmandari (2006) believed that ease of articulation is a module that is essential for the analysis of sound pattern. All human beings have a natural tendency toward conserving energy and communicating efficiently as apparent in syntagmatic and paradigmatic paradigms (Shariatmandari, 2006). What makes the difference is the different scales that each language has for defining easy or difficult sounds. Yet, "Articulatory difficulty is the same wherever you go" (Shariatmandari, 2006, p. 215). It is the way in

Corresponding Author: Alawiya W.I. AL-Siyami 00966555521936, awsiyami@uqu.edu.sa

which these phonetic segments emerge in the structure and form of the language. Shariatmandari (2006) indicated different articulatory phonetic features that explicated the ease of articulation. These include the physical changes of laryngeal state, place/manner of articulation, phonotactics of sound sequences, lenition, devoicing, and assimilation. The degree of ease is comparable within the same feature (Shariatmandari, 2006).

The articulation of bilabial, for instance, identifies ease by using lips as the primary articulator. The fact that bilabial sounds are the first to emerge in early language-acquisition processes (Vihman, 1996) emphasizes their ease across language inventories. Languages that exhibit no voiceless /p/ inventories manifest their presence as allophones of /b/. For instance, a set of adjacent Arabic voiceless consonants in *sabt* 'Saturday' brings up /p/ *sapt*. However, the ease of bilabial compares /p/ to /b/ and marks the former easier than the latter. The exerted effort for producing voiced consonants increases to control the articulatory muscles of the vocal folds as they are drawn together for periodic vibration (Hall, 2007; Ohala, 1983).

Second in articulatory ease is the coronal feature. Belvins (2019) indicated that coronal consonants are typologically preferred for ease and flexibility of the tongue, apical, or blade part, to reach various passive receptors. Encompassing this secondary coarticulatory makes the physical dynamic of the coronals less easy than the bilabial. The aerodynamics flow of this category distinguishes between phonemes that exert effort for completely obstructing airflow as /t, d/ and those with partial obstruction as /θ, ð, s, z, ʃ, ʒ/. The degree of obstruction is compared to the dynamic flow of coronal sonorants to distinguish between nasal /n/, with less easy articulation than vowels or glide /w, j/, and liquid consonants /l, r/ (Lindblom, 1981). The phonetic coronal-stop feature is associated with sharpness, strength, and heaviness relevant to the perception of male attributes (Kawahara et al., 2018; Klink, 2001; Monaghan & Fletcher, 2019; Sidhu & Pexman, 2015; Uno et al., 2020; Wu et al., 2013). However, the ease of coronal sonorants /n, l, r/ is associated with softness and round shape relevant to female attributes (Sidhu and Pexman, 2015).

The distance of configurations to supraglottal determines the production of post-velar phonemes to be more difficult than consonants produced at the anterior. Shariatmandari (2006) related the rare existence of voiced velar /g/ for voiceless velar /k/ in the phonological inventories across languages to articulatory difficulty. Ohala (1983) determined that moving back in posterior increases effort because of the required precision, and so, the secondary coarticulatory (the tongue) has to aggravate air pressure in that small narrow space of the larynx. Shariatmandari (2006) indicated that narrower space and the active role of the tongue characterized increasing effort. However, the configuration of glottal phonemes that involves the constriction of the vocal folds at the glottis is exceptionally easy. Although the voiceless glottal stop /ʔ/ contrasts in ease to other stop features /t, d, k, b/, it exerts more effort than the continuant fricative /h/ that is not very different from a whispered vowel (Roach, 2009). The ease differentiates the configuration of other posterior phonemes at uvular and pharynx that determine precision of slightly different points of constrictions.

Ghazeli (1977) indicated that Arabic pharyngeal phonemes involve the retraction of the tongue root toward the posterior wall of the pharynx; however, the constriction of voiceless /ħ/ is narrower than the voiced /ʕ/. Uvular phonemes determine the back of the tongue to be pulled toward the posterior wall; however, the constriction also differentiates between the voiceless /q, x/ and the voiced /ɣ/ (Ghazeli, 1977). Furthermore, the production of emphatics /sˤ, tˤ, dˤ, ðˤ/ determines the tongue dorsum to be more raised and retracted than the coronals /s, t, d, ð/ while the tongue root presses against the epiglottis and pushes it toward the back of the pharynx to reduce the volume (Ghazeli, 1977). These complex configurations were reported to bring up the size of torment and space when deciding the sound that reflected the symbols of small vs. large in the perception of hell-names (Al-Siyami, 2022).

The position in which the phoneme is located within the word structure contributes to the equation as well. Easier articulatory features identified word-final position of any stop consonants with less effort (Belvins, 2019). The transition of alveolar /t/ to glottal stop /ʔ/ at word final in the English words *wha?* for *what* demonstrates the general tendency for "less effortful articulation" in speech (Shariatmandari, 2006, pp. 209–112). Similarly, the transition of the feminine suffix /t/ to glottal fricative /h/, with *Fatimat* to be pronounced as [fatimah], emphasizes the tendency. As for word-initial phonemes, Al Tamimi and Smith (2023) reported the preference of /ʔ/ with female names but /ʕ/ with male names. The preferences suggest sex distinction that associates the ease of glottal with girl names but the complex configuration of voiced pharyngeal with boy names.

Finally, names that exhibit less easy syllable structures or higher number of phonemes show an increased effort in speech. Phonetically, open syllable CV is easier than closed syllable CVC, and the characteristic features of phonemes certainly differentiate between the production of easy and difficult names. Ackermann and Zimmer (2021) found that female names are longer due to the quantity of vowels and open syllable endings, whereas male names showed consonant syllable endings. However, Al Tamimi and Smith (2023) indicated that Saudi female and male names differed significantly in the number of phonemes but not syllable structures. Both studies determined that names with structures that exerted effort for the quality of segments or their arrangements in closed syllable characterized boy names.

Clearly, the different outputs of previous studies suggested variables of distinctive features and emphasized the association of particular phonemes with meaning. These variables are articulatory-based and are typically expected to characterize the selected names in the samples. They include:

- Bilabial, coronal, and voiceless features as distinctive features of articulatory ease.
- Sonorants, anterior/posterior articulatory positions, and word length as effective features of sex distinction.

2. Method

The data included 1064 names of students who were registered to study at the Department of English at Umm Al-Qura University during the years 2020–2021. After excluding the names with final feminine-morphemes that morphologically characterize girl names like Asmaa, Ruba, or Fatimat and compound names that usually characterize boy names (Abdullah, Abdulrahman, etc.), the sample included 845 names. As the study focuses on consonants, names that contain similar consonants (Malak and Malaak, Amal and Amaal, Hanaan and Haneen, Hashem and Hisham, Fares and Firas, etc.) were considered as one token.

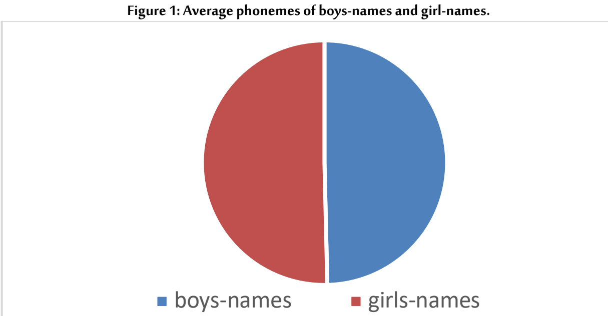
All names were transcribed following the narrow phonetics transcription based on the documented English version. Drawing on consonants, these phonemes were described for distinctive features following Hall (2007). They were recorded into Excel 365 to quantitively and qualitatively detect the proposed variables of articulatory features:

- Distinctive features of place, manner, and voicing.
- The phonotactic of word position (initial and final).
- Word length as demonstrated with syllable structure and types.

2.1. Analysis:

The data revealed 109 tokens for 390 boy names and 140 tokens for 455 girl names. These tokens brought up a total of 2473 consonants: 1160 consonants for boy names and 1313 for girl names. The average difference between these phonemes was not significant despite the large number of girl names (Figure 1).

Figure 1: Average phonemes of boys-names and girl-names.



To determine validity, a *t-test* revealed a value of *P= 0.95*, which is higher than 0.05. The insignificant difference in the use of phonemes between boy names and girl names disagrees with Al Tamimi and Smith (2023). It indicates that the names of the sample exhibited similar use of phonemes. Probing into place of articulation, the phonemes demonstrated different preferences between boy names and girl names (Figure 2).

Figure 2: Articulatory place of phonemes composing boy names and girl names.

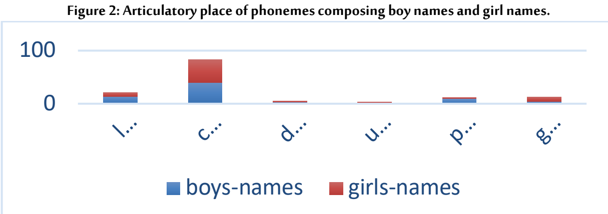


Figure 2 shows the high proportion of coronal and labial phonemes. This emphasizes that boy names and girl names indistinctively opt for the ease of these two articulatory features, which supports the first hypothesis. The figure marks the dominance of pharyngeal with boy names but the ease of glottal with girl names. The distinctive preference supports the second hypothesis that easier articulatory components characterize girl names.

Investigating the voiceless variable across the sample, the names were categorized into those containing mere sonorants, voiceless or voiced obstruents, or a mixture of both voiceless/voiced obstruents (Table 1).

Table 1: Frequency and tokens of names with obstruents and sonorants features.

Names composed of	Boy names			Girl names		
	Frequency	Token	Average	Frequency	Token	Average
Voiceless	136 (35%)	48	2.83	164 (36%)	56	2.93
Voiced	88 (23%)	25	3.52	137 (30%)	38	3.61
Mixed	158 (40%)	33	4.79	101 (22%)	34	2.97
Sonorants	8 (2%)	3	2.67	53 (11%)	12	4.42
Total	390			455		

Table 1 shows the high proportion and increased tokens of names with voiceless obstruents that formed more than one-third (36%) of the sample. The values in the table emphasize that boy names and girl names are prone to the distinctive ease of voiceless features, which supports the first hypothesis. A *t-test* showed the insignificant difference as *P-value= 0.094*, which is greater than 0.05. The negligible difference in the use of voiced obstruents with boy names and girl names (*P-value=0.887*) reiterates the hypothesis as well. Both names show less preference in selecting first names with mere voiced or mere sonorant features, though most names persistently composed sonorant consonants. Increased average of names composing of voiced and sonorant segments reflected the high proportion of *Raghad* that scored 5% (*n*=22) and *Reem* that scored 2% (*n*=10) and other extended tokens (*Manar, Rawan, Maram, Mariam,* and *Nour*) that scored 7% (*n*=30) of girl names. Increased average of names composed of mixed obstruents reflected the high proportion of *Muhammad* that scored 13% (*n*=49) of boy names.

Defining the voiceless/voiced obstruents and sonorant phonemes reveals articulatory ease of distinctive features that contribute to sex distinction (Table 2).

Table 2: Articulatory features of word-initial phonemes: Average and tokens.

Articulatory features		Boy names		Girl names	
		Tokens	Average	Tokens	Average
Anterior labials	Bilabial	26	4.12	15	2.93
	Labiodental	7	4.71	3	1.33
Anterior coronal	Interdental	2	2		
	Alveolar	32	3.1	50	3.56
Posterior coronal	Alveolar palatal	6	2.5	14	4.21
Dorsal	Velar	4	4.75	7	3.57
Guttural	Uvular	5	4.8	7	3.43
	Pharyngeal	18	2.76	8	3.38
	Glottal	9	4.89	36	2.61

In consistency with Figure 2, Table 2 demonstrates the increased tokens and frequencies of labials and coronals that specify the preferences for anterior place of articulation. The prevalence of /m/ in 25% (*n*=96) of boy names and /r/ in 23% (*n*=103) of girl names marks the ease of anterior sonorant features that both phonemes share. However, the complex configuration of nasal /m/ contrasts that of liquid retroflex /r/ (Lindblom, 1981), and the stop feature makes the bilabial /m/ meets the perception of masculinity in line with sound symbolism. The high average of /m/ (4.8) accounts for the popular name *Muhammad*.

Although bilabials are less frequent with girl names, /m/ still attains increased tokens (*n*=12) compared to /b/ that formed three tokens *Bashayer, Bayan,* and *Batoul* for 2% (*n*=9) of girl names. Indeed, the combination of bilabial and sonorant features represents the top ease of articulation that makes /m/ commonly attentive in selecting names, which conforms to Uno et al. (2020) that bilabials are associated with symbols of innocent and cute characters.

Similarly, the increased tokens of coronals distinguished the nasal coronals /r, n, l/ to form 34 tokens, of which /r/ formed 20 tokens and average of 5.15 with girl names. It brought up the prominent names, *Raghad* and *Rahaf,* and other extended tokens that generated the 4.42 average of sonorant names in Table 1. Names such as *Reem, Manar, Maram, Rawan, Mariam, Nour, Leen, Manal, Raneen,* and *Yaman* emphasize that the articulatory ease and sophistication of these sonorants developed their preferences. The distinctive features of these sonorants increase the possibility of characterizing the name to girls, and that conforms to Sidhu and Pexman (2015). However, the infrequency of the sonorant /w/ that formed 6% (*n*=25) emphasizes comparative ease and complies to Shariatmandari (2006) that the articulatory difficulty of velar motivates their rare existence.

Preferences within this favored universal typology (Belvins, 2019) distinguished between posterior and anterior phonemes relevant to sex. Table 2 shows increased tokens and average of posterior coronal with girl names. Odden (2013) indicated that the production of alveopalatal strident-sibilant /ʃ, ʒ/ determines a constriction that extends for a considerable distance along the direction of airflow. This distributed feature emphasizes favoring /ʃ, ʒ/ to comply with feminine perception to names like *Shahad, Ashwaq, Amjad, Joud, Wijdan, Ujwan,* and *Wajan*. In contrast, the prevalence of alveolar strident-sibilant /s, z/ with boy names for 11% (*n*=43) and formed 14 tokens explain the increased tokens and average of anterior coronal. The complex configuration of hissing or buzzing sounds and the relative increased features with emphatics /sˤ, tˤ, dˤ/ emphasize the perception of masculinity with names like *Faisal, Sattam, Sultan, Wisam, Faris, Nahed,* *Ayed,* and *Samer*. The infrequency of names such as *Samar, Sadeem,* and *Samah* determines that such features are less preferred in girl names.

Table 2 also identifies extended tokens of posterior to specify /ʔ/ that formed 18% (29 tokens) of girl names and /ʕ/ that formed 9% (13 tokens) of boy names. Although the prevalence emphasizes favoring voiceless obstruents, the complex configuration of the voiced pharyngeal /ʕ/ reaffirms perceiving *Omar, Ali*, *Assaf*, *Moataz, Mueen, Adel,* etc. as boy names and disfavoring *Mead, Abeer, Uhoud, Andaleeb,* etc. as girl names. The perception of masculinity that associates /ʕ/ explains the infrequency of girl names, as /ʕ/ was observed in 3% (*n*=14) of the sample. However, the increased tokens of glottal /ʔ, h/ and pharyngeal /ʕ, ħ/ in contrast to other posterior gutturals indicate that these features are highly attendant when selecting first names.

Considering the word-final variable, Table 3 emphasizes the effect of phonetic distinctive features in differentiating the preferences of boy names and girl names.

Table 3: Articulatory features of word-final phonemes: Average and tokens.

Articulatory features		Boy names		Girl names	
		Tokens	Average	Tokens	Average
Anterior labial	Bilabial	11	3.1	16	3.19
	Labiodental	6	3.83	10	4.3
Anterior coronal	Interdental	1	4		
	Alveolar	73	3.9	94	3.3
Posterior coronal	Alveolar palatal			3	2
Dorsal	Velar	1	1	1	1
Guttural	Uvular	1	2	4	3.75
	Pharyngeal	6	1.5	5	1.8
Sonorant	High front vowel /i/	10	3.2	7	2.71

The prevalence of bilabial and coronal features in Table 3 aligns to Table 2. The coronal sonorants /r, n, l/ are shown to define girl names as they formed 41% (*n*=188) and 68 tokens of anterior coronal. The dominance of coronal /d/ points out to the ease and preference of voiced-stop feature at word-final position in line with Belvins (2019). The high tokens and frequencies of /s, ʕ, d, dˤ/ in Table 3 reaffirm that distinctive features of less articulatory ease tend to be perceived as more relevant to boy names than girl names, which emphasizes the second hypothesis of the study. Table 4 explores the effect of the word-length variable in sex distinction.

Table 4: Tokens and average of syllable structures and types.

		Boy names		Girl names		Significance
		Tokens	Average	Tokens	Average	
Monosyllabic	CVCC	2	3	3	1.67	No (*P-value =2.67*)
	CVVC	3	1	13	3.79	
Disyllabic	CV.CVC	63	2.93	82	3.54	No (*P-value =2.67*)
	CV.CV	8	2.25	2	4	
	CVC.CVC	25	3.46	23	2.35	
	CVC.CV	1	4			
Trisyllabic	CV.CVC.C.CVC	1	49			No (*P-value =2.67*)
	CV.CV(V).CV	1	10	11	2.73	
	CVC.CV(C).CVC	5	3.8	6	2.73	

The high proportion and increased tokens of open-syllable-initial in Table 4 for 75% (*n*=339) of girl names and 73% (*n*=285) of boy names conform to Al Tamimi and Smith (2023). No significant difference marks sex distinction with syllable structure. The increased average of trisyllabic structure type 1 points out to one token *Muhammad*. The increased tokens of CV.CVC and CVC.CVC in Table 4 connect to Table 2 and relate the prevalence of /m/ that formed 20% (*n*=79) of CV structure in boy names and /ʔ/ that formed 9% (*n*=40) of CV structure and 10% (*n*=43) of CVC in girl names. The prevalence of alveolar /d/ (Table 3) demonstrates the prevalence of CVC indistinctively in boy names and girl names. It formed the syllable [mad] that occurred for 32% (*n*=269).

In short, the results conform to the hypotheses of this study. Selecting first names is ease-base dependent and conforms to sound symbolism. All variables of articulatory ease were apparent in the structure of the selected names. However, comparative ease defined sex distinction so that names containing less articulatory-ease productions of strident continuants, emphatic coronals, and the voiced pharyngeal /ʕ/ instigated the perception of masculine attributes and were less likely to be preferred with girl names.

2.2. Discussion:

Investigating the hypotheses that selecting first names and conceiving the sex of the bearer drew on articulatory-easy configurations and revealed articulatory bias. Variables of articulatory-easy configurations in Table 2 identified favored anterior as the bilabial nasal /m/ and coronal /r, d/ and the favored posteriors /ʔ/ and /ʕ/ to determine discrepancy between voiceless and voiced obstruents. Phonetically, these phonemes vary in active energy and jaw positions. According to Lindblom (1981), the nasal stop sonorant /m/ is produced with somewhat higher jaw position than the retroflex liquid /r/ that is produced with the lowest jaw position, and /d/ is somewhat higher than the first two for the voiced and stop features. The ease of coronal sonorants that are approximant /r/, diffuse-nasal /n/, and lateral /l/ appropriately derives the perception of softness and sophistication of feminine attributes in line with sound symbolism.

The discrepancy between voiceless and voiced obstruents determined sex distinction. The increased tokens and high proportions of voiced obstruents /b, d, z, ʕ /, voiceless continuant strident-sibilant, and acute /s/ and emphatics /sˤ, tˤ, dˤ/ indicated that articulatory difficulty is favored with boy names. The distinctive features of these articulations derive the perception of strength, heaviness, and velocity of masculine attributes in line with sound symbolism. Thus, names like *Safwan, Safi, Talal, Basel, Tareq,* and *Diyaa* can never be mistaken for girl names. Moreover, the features suggested a relation between average and tokens that reflected specific prominent names. For instance, /ʃ/ brought up the name *Shahad* and /ʔ/ for *Ahmad*. However, the decrease in tokens and increase in average exclusively brought up *Khalid* for /x/, *Waleed* for /w/, *Ziyad* or *Zeinab* for /z/. Similarly, the rise of average with /m/ and the trisyllabic structure CV.CVC.CVC uniquely reflected the one and only name, *Muhammad*.

The prevalence of coronal and labials in the structure of prominent names and extended tokens of Arabic boy/girl first names determined that articulatory base is perceptually pertained across languages, which supports the hypotheses of the study. The dominance of /d, r, n, l, ʃ/ and /f, m/ suggested a combination of favored articulatory phonemes that ensured the progress of dynamic smooth transitions between the aligned distinctive features. Dominant names determined one intervening distinctive character in appropriate position to bring up the ringing sound and give the transition vivid vibes. Contrastively, names like *Raneem, Raneen, Leen, Layan, Layal*, *Lewan, Manar, Maram, Manal, Rawan, Yaman, Raneem,* and *Muneer* marked varieties that lacked unanimous popularity. Despite the ease of sonorants, the sound structure of the names demonstrates static-smooth transition between sonorant-consonants and vowels, which misses an interval active sonority. The transition marked a mechanism that indicated sex distinction in selecting first names. Generally, the results brought about two patterns that demonstrated this mechanism:

2.2.1. The association of bilabial and coronal

This pattern is generated from the dominance of bilabial /m/ and coronal /d/ and /r/. It demonstrates three combinations. The first is the combination of /m/ and a vowel forming the open syllable [ma]. The combination exhibits a natural opening of jaw without additional effort that resembles the babble of infants (MacNeilage & Davis, 2000). It frequently occurs at word-initial of the disyllabic structure CV.CVC (*Mishari, Muath, Maram, Mead*, *Manal,* etc.) and CVC.CVC (*Mutaz, Mansour, Mishal*, etc.) or the trisyllabic structure CV.CVC.CVC (*Muhammad*, *Muayyad,* and *Muhannad*).

The second combination is /m/ with voiced-stop /d/, and the third is with retroflex sonorant /r/. Both combinations formed the closed syllable CVC, which physically represents the easy combination of anterior bilabial and coronal. They exceeded at word-final positions. However, [mar] was commonly detected after the open-syllable initial [ʕa] in *Omar, Amer,* and *Ammar*, [θa] in *Thamer,* or [sa] in *Samer*. The prominence of names with ʕ-m-r order emphasizes that the distinctive features of voiced pharyngeal and low jaw position contrasts that of voiceless fricative coronals /θ, s/ in preference. The effect of /ʕ/ on lowering the second formant of adjacent vowel (Ghazeli, 1977) reduces the differences between the sonorants and ensures its distinctive character.

Apparently, /m/ in CV and CVC frequently occurred following anterior coronals /s, sˤ, r, n/ and posterior /ʃ, ʒ, ħ, ʕ, h, w/, which emerged as the intermediate feature and challenged the ease-bar of [ma]. The combination and position of sounds motivated comparative relativity of ease that determined popularity. The uniqueness of the name *Muhammad,* for instance, attributes to the occurrence of /m/ in all three syllables, which accounts for more ease. The position of the voiceless pharyngeal fricative /ħ/ is the distinctive character that brings up vividness without disturbing the low-jaw mandibular of the nasal and vowels (Lindblom, 1981). Reversing the order of /m/-/ħ/-/m/–/d/ or changing the syllable type accelerated sonority and suggested failure in building up the popularity of the tokens, *Hamad, Haamed, Humoud, Mahmoud,* and *Mumdouh*.

2.2.2. A succession of voiceless obstruents

The high proportions and increased tokens of voiceless obstruents brought up this pattern. Voiceless features (Table 2) or names composed of voiceless phonemes (Table 1) demonstrated labial /f/, anterior coronal /s, θ/ or posterior /ʃ/, pharyngeal /ħ/, or glottal /ʔ, h/ to occur frequently in succession or with interrupted sonorant consonants. Names composing of such distinctive features formed an adequate match of voiceless anterior and posterior distinctive features. For instance, the distributed strident /ʃ/ matches the weak friction of /h/ in *Shahad*. An efficient match is also observed in the succession of the pharyngeal /ħ/ preceding the glottal stop /ʔ/ in *Ahmad*, the intense emphatics of /sˤ/ preceding /f/ in *Faisal,* and the two weak continuants /h/ and /f/ before the retroflex /r/ in *Rahaf*. The dynamic flow in such sequences marked no changes in place of articulation or separated jaw positions.

Infrequent names of voiceless successions either marked an intervention of voiced obstruents /b, ʕ/ as in *Ebrahim, Ebtisam, Ebtihal, Sabah, Assaf,* and *Esmail* or exhibited rough changes of jaw position from stop to fricative and posterior to anterior as in *Aseel, Shaker, Hatoun, Asrar,* etc. The combination demonstrated distinctive features of exerted effort and disrupted sonority in a context of more sonorous consonants such as /r, l, n, m/ and/or the highest sonority of vowels. Such names can be related to cultural or social factors; however, they also reflected expanded tokens of less commonly observed names.

Evidently, the findings of this study complied with Shariatmandari (2006). The ease of names manifested not only the distinctive variables of articulatory features (bilabial, coronal, and voiceless) and word-position but also the mechanism by which they are combined and arranged. The two detected patterns indicated a comparatively less articulatory-easy unit that energizes the smooth transitions between the phonemes. It is the unit character that marks sex distinction and determines everlasting popularity.

3. Conclusion

The consistency of the findings in the study with previous studies emphasized the effect of phonemes on speech and production. The charms of meanings and connotative references ostensibly explained the preference for some names. However, the touchstone for selecting them diligently drew and appealed for phonemes that deeply inherited ease of articulation and their distributions. The name *Muhammad* represented conserving energy through the unique distribution of the articulatory ease of the bilabial, coronal, and voiceless features. Although the reference to the Muslim prophet might hinder conceiving it for girl names, the sequence of easier articulatory-distinctive features in *Shahad, Raghad,* and *Rahaf* might hinder them from being conceived for boy names.

The generalization should never propose that names with exerted articulatory effort or examined reverse dynamic distribution are far from being selected. Rather, it suggests that paradoxical reconciliation is required for any name to maintain sex distinction, inquisitiveness, and popularity. While the study outcome could serve in illustrating the effect of phonemes in typologically diverse word lists, it places an inquiry for further implications that were not touched. There is the plausibility that ease encompasses feminine-morpheme inflections to reduce exerting energy or balance the disrupted sonority. The distribution of vowels and their acoustic effect on the dynamic flow of name-structure remains to be explored too. Nevertheless, focusing on consonant components provides deep comprehension of the psychology of phonemes in speech and specifically, the mechanism of distribution that contributes to shaping perception and conceiving the sex of the bearer.

Biography

Alawiya W.I. AL-Siyami

Department of English, College of Social Sciences, Umm Al-Qura University, Makkah, Saudi Arabia, 966555521936, awsiyami@uqu.edu.sa

Dr. Al-Siyami is a Saudi associate professor of linguistics, specializing in phonology. She holds an MA degree in translation. She was a former deputy head of English department (girls' section) of UQU and active in many administrative committees. She participated and attended many international and local conferences. She has five published research articles, of which "Intertextuality in newspaper advertising" has been cited by 11 countries. Her other researches are widely searched on google.com too. Her research interests concern phonology relevant to speech perception/production, translation, discourse analysis, language of advertising, and language and gender.

ORCID ID: 0000-0001-6060-8374

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