Detecting Qassimi Saudi Dialect in Saudi Digitally-mediated Communication: A Linguistic Perspective

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Abstract: This paper argues that there are some phonological, morphological and semantic spoken features that are faithfully transmitted to written texts in written interactions via social media. The study adopts a mixed methods approach to detect whether there is a match between the spoken Qassimi Saudi Dialect and its written counterpart. The data for this study comes from WhatsApp textual chats exchanged between 103 Qassimi Saudi speakers. In addition to the linguistic analysis of chats, an online questionnaire was employed to examine the perception of Qassimi as well as non-Qassimi Saudi speakers on whether words elicited from the data are from the Qassimi dialect or not. The findings indicate that some spoken features of Qassimi Arabic have been found in the written digitally-mediated communications of Qassimi speakers. Qassimi Dialect spoken features are found at the phonological, morphosyntactic and semantic levels. The findings of this study have a number of practical and methodological implications for linguists and dialecticians.

Keywords: digitally-mediated communication, language and media, linguistic analysis, Saudi dialect, WhatsApp chats

1. Introduction

With the advent of technology and social media, digitally-mediated communication has taken different forms. When people interact, they show closeness to their interlocuters, especially members of a community with a shared location and background, using non-standardized linguistic forms. This is explained in terms of the "Weak-tie network model" (Paolillo 2001) and the concept of "close-knit territorially-based networks" (Milroy and Milroy 1992). Thus, people via language communicate meaning as well as orientation towards different groups and identities (LePage and Tabouret-Keller 1985; Yang 2007). As a result, online written communication has been affected by the available different affordances and contexts. Among the features that have emerged in online written communication is a tendency to represent spoken phonetic characteristics in writing (Crystal 2002; Herring 2012). Thereby dialects become mediatized as a result of the impact of digitally-mediated communication, leading scholars to be attracted to mediatization research (Coupland 2009, 2014; Androutsopoulos 2014).

The current research examines "different ways in which mediatization of dialect contributes to our understanding of the role of social media in processes of sociolinguistic change" (Stæhr, et al. 2019: 170). Dialects are examined with regard to their use in online contexts and how phonetic characteristics are reflected in

written form. This examination would lead to a better understanding of digital practices as well as dialect use (Stæhr, Monka, Quist and Larsen 2019). In retrospect, mediatization has not been considered in the literature on the causes of linguistic change; that is, social media was not vital for sociolinguistic change (Trudgill 1986; Labov 2001).

It is important to examine how phonological features are reflected in written communication. Therefore, the aim of this study is to examine the representation of Qassimi dialect in online written communication. This paper starts with some indications of the Qassimi Saudi Dialect (QSD) followed by the dialect's spoken features. Then, a review of the literature is presented revolving around two themes: studies on non-Arabic dialect and studies on Arabic dialects. The methodological approach is then explained followed by the analysis of data. The findings and discussion section answers the research questions and compare the results of the current study with those in the literature. Finally, the conclusion provides some implications and suggestion for further studies.

1.1 Qassimi Saudi dialect: Some indications

Qassim is located in the heart of Saudi Arabia and has more than 900 thousand Saudis speaking Qassimi Saudi Dialect (QSD), which is a local spoken (not written) variety of Najdi Arabic. It is worth noting that citizens in this part of Saudi Arabia have minimal contact with Saudis speaking other dialects given that the geographical location is in the center of Saudi Arabia which helps Qassimi Saudi Speakers (QSS) to keep their dialect features unchanged. Clearly enough, Saudis dwelling in the Central and the Eastern regions have preserved many of their local dialect features as a result of their conservatism and isolation (Holes 2004). In addition, Qassimi Saudi Dialect differs from Najdi dialects because QSD has many distinct characteristics (Alrashed 2018). The features of QSD are summarized in Table 1 below.

Table 1: Qassimi dialect features

No.	The linguistic level	Type of feature	Reference
1.	Phonological	a.Relative vowel space. This describes the syllable structure, as well as the location and quality of epenthetic vowels.	Alrashed (2018)
		b. Deletion of coda glottal stop /ʔ/ with compensatory lengthening of the preceding vowel as in راس /raʔs/ (Literally: head)	
		c.Affrication, i.e., the alternation between the velar stops /k, g/ and alveolar	

		affiliates /ts, dz/. For example, تسان /tsæn/ instead of كان ; /kæn/ (Literally: was)	
		Triconsonantal clusters. For example, يصلحه /jaŝlħuh/ (Literally: he fixes it)	Alnuqaydan (2022)
		Deletion of /a/ in the singular object feminine suffix -*ha*, as أخذت أمل كتابه instead of من كتابها /axaðat æmæl kitæbæh/ (Literally: Amal took her book)	Aldarsoni (2015), Al-Rojaie (2021)
2.	Morphosyntactic	Backing of the third-person masculine object/possessive pronoun -*ah* to be /-uh	Al-Rojaie (2021)
		Deletion of /-i/ in the first object pronoun -*ni*. For example, أخذن instead of أخذني /æxæðæn/ (Literally: He took me)	Aldarsoni (2015), Al-Rojaie (2021)
		Deletion of /a/ in the singular object feminine suffix -*ha*, as أخذت أمل كتابه instead of من كتابها /æxæðat æmæl kitæbæh/ (Literally: Amal took her book)	Aldarsoni (2015), Al-Rojaie (2021)
		Use of feminine -n when using verbs directed at plural women. For example, راحن، أخذن /ræħæn/ (Literally: They left).	Aldarsoni (2015)
3.	Semantic	Diminutives such as بنيتي /bunaiæti/ (Literally: my daughter)	Al-Rojaie (2012)

Table (1) shows that QSD has a number of features on the phonological, morphosyntactic and semantic levels. These levels were investigated in a few studies conducted on spoken contexts. With the advent of technology and digitally-mediated communication, there is a need to examine how these features are reflected and transcribed into written forms. Therefore, this study attempts to answer the following questions:

1- How are the spoken features of the Qassimi Saudi Dialect QSD reflected in written communication?
2- How are the phonological, morphosyntactic and semantic features of QSD transcribed in written communication?

2. Literature review
2.1 Studies on non-Arabic dialect

It has been established that digitally-mediated communication has, since its advent, produced a variety of writing conventions (Crystal 2001; Themistocleous 2010; Danet 2020). Diglossia, hetroglossia and multilingualism are the outstanding linguistic features of online communication world-wide (Zhang 2020; Lee 2016; Androutsopoulos 2013) and in the Arab world (Darwish 2017; Itani, Roast and Al-Khayatt 2017; Albawardi 2018; Albawardi and Jones 2020).

Dialect adaptation in digitally-mediated communication has been given less attention (Zhang and Ren 2022). Research into the representation of dialects on different online platforms is relatively new and only a few studies have researched dialects in online written communication. Most of the research examining dialects in written online communication has looked at the utilization of words and has been found on the transcription of the phonological features of a dialect. One author is Huang (2015), who quantitatively examined various Arabic dialects of a number of countries including Egypt, the Arab Gulf and Iraq. The study used corpus analysis to identify different dialects assuming that every country speaks one main dialect based on sentence structure and textual features.

There are studies that investigate the way the phonological features of a dialect may be reflected in written communication. Zhang and Ren (2022) analyzed linguistic incorporation of spoken dialects in the Chinese language by Chinese online users. The study examines the stylistic adoption of dialectal expressions on a widely used website called 'bilibili.com'. The study identifies representative Chinese dialectal phrases and phonetic features. The study concludes that the instances researched reflect features found in the spoken dialects of several areas in Mainland China. Furthermore, the study highlights the different linguistic strategies used to represent these dialects which include phonetic transliteration and Roman letters (Zhang and Ren 2022).

Jørgensen, Hovy and Søgaard (2015) indicate that previous variational studies focusing on social media have studied dialects on the level of spelling and words. Yet, dialects exhibit differences on the levels of morphology and syntax.

Eisenstein (2013) indicates that preliminary research shows that some phonological elements are transcribed in written interactions via Twitter. This study examines consonant cluster reduction, th-stopping, and g-dropping. The study concludes that "phonology impacts social media orthography at the word level and beyond" (Eisenstein 2013: 17). Eisenstein (2017) attempts to identify regional dialects on Twitter to answer the question "[t]o what extent is phonological regional variation transcribed into written language in social media?" (Eisenstein 2017).

Adopting a quantitative method, the study investigates the existence of some terms that are well known in spoken dialects in the United States.

2.2 Studies on Arabic dialect
There are a number of studies that examine Saudi dialects within spoken contexts such as Omar and Nydell (1975), AlAmmar (2017) and Lowry (2021). These studies analyze the dominant spoken features of each Saudi dialect.

The Qassimi dialect has been studied with regard to its phonological features within spoken contexts. For example, Alnuqaydan (2022) examines the existence of triconsonantal clusters, Alabeeky (2022) analyzes word stress, Al-Rojaie (2021) identifies the features of the Qassimi variety, and Al-Numair (2021) investigates the vowels of the Qassimi dialect. However, these studies and others on the Qassimi dialect look at it within spoken data.

Alrashed (2018) analyzes affrication in Qassimi Arabic. Affrication is replacing some phonemes with an affricate, such as replacing the voiceless velar stop [k] with the voiceless palato-alveolar affricate [tʃ]. Alrashed (2018) shows that affrication is also common in some other Arabic dialects (Holes, 1991). In Saudi Arabia, some dialects spoken in the Central Province, i.e. the Najdi Arabic dialects, use affrication. In this context, the phonemes /k/ and /g/ are replaced by the alveolar affricates [ts] and [dz] in some situations (Ingham 1994). Alrashed (2018) studies affrication in QSD. The study indicates that "the alveolar affricate /ts/ and the velar stop /k/ express two different meanings in the second person possessive marker in QSD, in which they distinguish gender". The study illustrates that "the morpheme -(i)k expresses the second person masculine possessive marker, while the morpheme -(i)ts expresses the second person feminine possessive marker" (Alrashed 2018: 64-5).

There are a number of studies that examine triggers for affrication. Johnstone (1963) claims that affrication in QSD does not only occur in the environment of front vowels and consonant clusters. Mustafawi (2006), indicates that affrication in Qatari Arabic is only triggered by the long and short high front vowels /i/, /iː/. Moreover, Al-Rojaie (2013) claims that affrication is triggered by front vowels in QSD, as in /akil/ [atsil] 'food'. Al-Rojaie (2013) also analyzes blockers of affrication which include gemination and loanwords. On the other hand, Alrasheedi (2015) suggests that affrication in Ha'ili Arabic (one variety of Najdi Arabic) is triggered by two vowels only /i/ or /a/, irrespective of the length of the vowel.

According to Alrashed (2018), affrication in Qassimi spoken dialect QSD occurs in the following:

1-The Environment of Front Vowels (rooster)

2- The Environment of Non-High Vowels (if, horn)

3-The Environment of Consonant Clusters (many)

4- The Environment of Geminate Consonants (knife)

5-The Second Person Possessive Marker (your book)

6- The Irregular Plural (Broken Plural)

Reviewing the literature on QSD reveals that the gap with regard to examination of the QSD is reflected and transcribed in written communication. Although Alothman (2012) analyzes Najdi Arabic in multilingual synchronous computer-mediated communication, the study was conducted on Arabish texts, i.e. Arabic written in English letters and roman numerals and it has lumped all the Najdi dialects into a single variety. Alrashed (2018) states that "Najdi varieties should be studied individually since they tend to have specific features that might not be shared with other varieties. That is, just because a feature may be found to exist in one type of Najdi Arabic, it cannot be assumed that feature is also attested in all other closely related varieties." (iv).

Therefore, this study aims to examine the utilization and transcription of different QSD phonological, morphosyntactic and semantic features in online written interaction.

3. Methodology
3.1 Method
This is a mixed methods study that aims at investigating how QSD features are reflected in digitally-mediated communication. The study adopts a mixed method design in which qualitative analysis of texts is supplemented with quantitative analysis through a questionnaire.

3.2 Model
The model for this study derives from Herring (2012), Al-Rojaie (2012) and Alrashed (2018). Herring (2012) is adapted for the analysis of WhatsApp chats. The methodological focus of this study adopts Herring (2012) in which the focus is on "structural characteristics in text-based CMC at the utterance level" (1). Herring (2012) identified a number of levels for examining 'e.grammar' which is defined as "the set of features that characterize the grammar of electronic language" (1). These features occur on the following linguistic levels: typography, orthography, morphology and syntax (Herring 2012).

Al-Rojaie (2012) and Alrashed (2018) are used in combination with Herring (2012) because they provide linguistic classifications of QSD features. QSD spoken features are divided into phonological, morphosyntactic and semantic levels.

3.3 Data collection

Data for this study comes from two sources: a collection of WhatsApp Arabic text messages and a questionnaire. The first and main source of data includes WhatsApp chats in natural digitally-mediated interaction. This includes 21 one-to-one chats and 7 group chats during October, 2022. Participants (103 QSD speakers) were contacted via WhatsApp and were asked for consent to participate in this study and then to forward their WhatsApp chats (text without media, i.e. without images, audios and videos) with family and friends. All the chats were combined into a document in order to start the analysis stage. WhatsApp texts were read to elicit features of QSD by two speakers of QSD.

Another source of data comes from a survey used to get Qassimi and non-Qassimi speakers' perception of words and expressions. The questionnaire was administered online and comprised one closed-ended question: *"Are these words from the Qassimi dialect?",* followed by a list of words; the participants were asked to select an answer from a 3-point scale (Yes, Other, I don't know).

The questionnaire was analyzed quantitatively in which numbers and frequencies are presented and compared.

3.4 Participants

A total of 215 Saudis were employed to participate in this study. The participants are classified into two groups, each provided with different data.

The first group comprised 103 Saudis (71 women and 32 men) who provided WhatsApp chats. The age of this group ranges between 20 to 45 years old. They are all native speakers of Arabic who have lived in Qassim their entire lives and speak the Qassimi dialect.

The second group comprised 112 Saudis who are 19-45 years old of whom 58 were Qassimi participants and 54 non-Qassimi; the non-Qassimi come from different regions in Saudi Arabia and speak various Saudi dialects. All the participants have lived in Saudi Arabia their entire lives.

Ethical considerations and privacy procedures were adhered to. All names and personal information are masked. In addition, formal consent was sought from all participants.

4.   Analysis

The analysis of this study examined written WhatsApp texts exchanged by speakers of the Qassimi dialect. The analysis looks at a number of linguistic levels: phonology, morphosyntax and semantics. The phonological level examines *affrication* and the environment of affrication in written contexts. The *morphosyntactic* level deals with some *bound morphemes* common in the Qassimi dialect. The semantic level deals with the descriptive analysis of *word choice* and use of *diminutives*.

4.1 Analysis of phonological features in QSD digital-mediated written communication

4.1.1 Affrication

One of the main features of the Qassimi dialect is affrication. As indicated earlier, 'affrication' refers to the process of replacing glottal stops, /k/ and /g/, with affricates [ts]and [dz] (Ingham 1994; Alrashed 2018). Affrication was detected in the data collected. The analysis showed that participants used affrication in written communication with friends and family members. A total of 155 affrication instances were found in the collected WhatsApp chats. The analysis shows that affrication may occur at the beginning, middle and end of words as illustrated in Table 2.

Table 2: Affrication in Qassimi dialect speakers' WhatsApp written chats

Written affrication	Original glottal stop	Location in word	Number of occurrences	Example
[t͡s] ،تس	/k/ ك	Beginning	30	تسذوب /tsðu:b/ (Meaning: liar)
		Middle	17	باتسر /bætsir/ (Meaning: tomorrow)
		End	105	وشلونتس /wiʃlunits/ (Meaning: How are you?)
[dz] دز ، ز	/g/ ق	Beginning	0	None
		Middle	1	مزديه /mdzdjæh/ (Meaning: Well-done)
		End	2	تويدز /tiwi:dz/ (Meaning: peeking)
Total			155	

The analysis of the data collected showed that both varieties of affrication in the QSD, i.e., [ts] and [dz], are detected in the WhatsApp written exchanges between QSD speakers. The phoneme [ts] is represented by the Arabic letters 'تس'; it is found at the beginning of words (30 instances), middle (17 instances) and end (105 instances). The phoneme [dz], which is represented by the letters 'دز', is found in the middle and the end of words but not at the beginning. One explanation for not finding [dz] at the beginning of words in the data collected is that altering the spelling of Arabic words at the beginning may hinder the comprehension of the written word.

The data also showed the use of the same affricated words without affrication, i.e., written with the original phoneme /k/ or /g/. The following table shows the number of occurrences with and without affrication.

Table 3: Occurrence of words with and without affrication in Qassimi dialect speakers' WhatsApp written chats

Words with affrication	Transcription	Meaning	No. of occurrences	Without affrication	No. of occurrences	Ratio
وشلونتس	/wiʃlu:nits/	How are you?	14	وشلونك /wiʃlu:nik/	45	14:45
تسذب	/tsiðb/	lie	3	كذب /kiðb/	9	3:9
تسذوب	/tsiðu:b/	liar	2	-	0	2:0
تسذوبه	/tsiðu:bæh/	liar	1	-	0	1:0
تسبد	/tsæbd/	liver	2	-	0	2:0
تسبدي	/tsæbdi:/	my liver	3	-	0	3:0
تسبديه	/tsæbdi:h/	oh my liver	7	-	0	7:0
تويدز	/tiwi:dz/	peeking	2	-	0	2:0
عليتس	/ʕæleits/	on you	17	/ʕæleik/ عليك	23	17:23
باتسر	/bætsər/	tomorrow	6	-	0	6:0
تسنه	/tsinæh/	as if	2	كنه /kinæh/	11	2:11
تسان	/tsæn/	was	5	كان /kæn/	8	5:8
عيالتس	/ʕjælits/	your children	2	/ʕjælik/ عيالك	2	2:2
هديتتس	/hædieytəts/	your gift	1	/hædieytək هديتك /	2	1:2
تفوتتس	/tfu:təts/	you will miss	1	/tfu:tək/ تفوتك	4	1:4
خشتتس	/xiʃits/	your face	1	-	0	1:0
معتس	/miʕits/	with you	21	معك /miʕik/	32	21:32
لتس	/lits/	for you	29	لك /lik/	66	29:66

ياويلتس	/jæweilits/	you are in trouble	4	/jæweilik/ ياويلك	6	4:6
يقويتس	/jgæwi:ts/	give strength	1	0	0	1:0
يوديتس	/jwædi:ts/	take you	7	/jwædi:k/ يوديك	9	7:9
تسذا	/tsiðæ	like this	3	كذا /kiðæ/	26	3:26
يدابتسون	/jdæbtsu:n/	rustle	1	-	0	1:0
اخذتس	/ʔæxiðts/	took you	2	/ʔæxiðk/ اخذك	13	2:13
تسلبه	/tsælbæh/	dog	2	/kælbæh/ كلبه	3	2:3
عساتس	/ʕæsæts/	may you	1	/ʕæsæk/ عساك	14	1:14
ابتسي	/ʔæbtsi:/	I cry	2	-	0	2:0
ييتسي	/jæbtsi:/	he cries	1	-	0	1:0
دبتسه	/dibtsæh/	rustling	1	-	0	1:0
بتسم	/btsæm/	how much?	3	/bkæm/ بكم	18	3:18
سليتس	/sleits/	wire	1	-	0	1:0

Table 3 shows that the participants used various words with and without affrication. There are words that are affricated in their written interaction in some places but not in others. For example, the word لتس/lits/ (Meaning: for you) was affricated 29 times whereas its non-affricated equivalent, /lik/ لك, occurs 66 times. The analysis shows that non-affricated equivalents were used more often than the affricated form. However, there are a number instances where only the affricated form occurs in the data such as ابتسي /ʔæbtsi:/ (Meaning: I cry) and تسبد /tsæbd/ (Meaning: liver).

4.1.2 Triggers of affrication
The analysis also examines the triggers of affrication that were examined in the previous studies of spoken Qassimi data. According to Alrashed (2018), affrication occurs in the following: in the environment of front vowels, non-high vowels,

consonant clusters, geminate consonants, second person possessive markers and irregular plurals.

1.   The environment of front vowels

Similarly, Al-Rojaie (2013) claims that [ts] is triggered by front vowels in the word stem, as in /akil/ [atsil] 'food'. This is detected in the data collected as in the following example:

Example 1:

<div dir="rtl">

باتسر /bætsir/ (tomorrow, باكر)

</div>

2.   The environment of non-high vowels

The data show the use of affrication in written communication with non-high vowels as in the following example:

Example 2:

<div dir="rtl">

عليتس /ʕælets/   (Meaning: on you, عليك)

</div>

3.   The environment of consonant clusters

Similar to Johnstone (1963) and Alrashed (2018) who found affrication in consonant clusters in oral communication, the current written data shows the occurrence of affrication in that same triggering environment. The following examples show affrication using [t͡s] and [d͡z] instead of /k/ and /g/ within the environment of consonant clusters:

Example 3:   عردز /ʕərdz/   (Meaning: vein, عرق)

Example 4:   تسذب   /tsəðb/ (Meaning: lying, كذب)

Example 5:   تسبد   /tsæbd/   (Meaning: liver, كبد)

The data show three triggers of affrication out of the four triggers identified in the literature. The current data show no use of affrication within the environment of geminate consonants. Al-Rojaie (2013) indicates that geminating is a blocker as in /dikan/(Meaning: shop, دكان).

4. The Second person Ppossessive markers

The current data show written affrication indicating a second person possessive marker in the Qassimi dialect. One example is shown below:

Example 6:   هديتتس /hædieytəts/ (Meaning: your gift, هديتك)

However, the analysis did not detect affrication in irregular plurals (Broken Plural).

4.2 Morphosyntactic analysis of QA writings

The analysis of the data collected also examined the representation of the Qassimi dialect on the level of syntax. Syntactic features identified as part of the Qassimi dialect (Aldarsoni 2015) are examined in the collected written WhatsApp chats. The following Qassimi syntactic features were investigated:

1. Omitting the /æ/in the singular feminine (absent) marker after /h/:

The data show a number of instances in which the /æ/in the singular feminine (absent) marker after /h/ is omitted. One example is the word "له" /læh/ which means 'for her'; this word occurs 120 times (Ratio: 24:1). In this word, the sound /æ/ is omitted from the end of the preposition. For the full list of words with /æ/ omission, see Table 4 below.

Table 4: Words with /æ/ omission in the singular feminine (absent) marker after /h/ and number of occurrences in Qassimi dialect speakers' WhatsApp Written chats

Whats App Text	Transcription	Meaning of word	Number of occurrences	Before omission	Transcription	Number of occurrences	Ratio
له	/læh/	For her	120	لها	/læhæ/	5	24:1
كوده	/Ku:d æh/	Perhaps she will	2	كودها	/Ku:dæhæ/	0	2:0
كزيه	/kezi:h/	Send her	1	كزيها	/kezi:hæ/	0	1:0
عطه	/ʕtˤ æh/	Give her	6	عطها	/ʕtˤæhæ/	2	3:1
ارسليله	/ærsili:læh/	Send her	4	ارسليلها	/ærsili:læhæ/	0	4:0
ياطعمه	/yætˤ uʕmæh	How cute	2	ياطعمها	/yætˤuʕmæhæ/	0	2:0
تسنه	/tsinæh/	As if she	2	كنها/تسنها	/tsinæhæ/	0	2:0
عنده	/ʕindæh/	With her	36	عندها	/ʕindæhæ/	94	36:94
قلبه	/glubæh/	Flip it	4	قلبها	/gælubhæ/	1	4:1
اغوله	/ʔ ɣul æh/	Strangle	1	اغولها	/ʔ ɣul æhæ/	0	1:0
عطاه	/ʕætˤ æh/	Gave her	4	عطاها	/ʕætˤ æhæ/	3	4:3
نعاله	/niʕælæh/	Her shoes	2	نعالها	/niʕælæhæ/	1	2:1
نظارته	/næðˤæritæh	Her glasses	3	نظارتها	/næðˤæræthæ/	0	3:0
هبدناه	/hæbædnæh/	We ate it	1	هبدناها	/hæbædnæhæ/	0	1:0

2. Omitting the speaker's first-person marker /i:/:

The data collected show a number of instances, as listed below, in which the /i:/, the speaker's first-person marker, is omitted. One example is the word "علمن" /ʕælmæn/ (Meaning: tell me); this word occurs 15 times (ratio:

15:11). In this word, the sound /i:/ is omitted from the end of the verb. All words under this category are verbs.

Table 5: List of words with /i:/ omission in the speaker's first-person marker and number of occurrences in Qassimi Dialect Speakers' WhatsApp written chats

Whats-App Text	Transcription	Meaning of word	Number of occurren-ces	Before omission	Transcription	Number of occurren-ces	Ratio
علمن	/ʕælmæn/	Tell me	15	علمني	/ʕællimni:/	11	15:11
هبلتين	/hæbælti:n/	You scared me	3	هبليتيني	/hæbælti:ni:/	1	3:1
يمثلن	/ymæθlæn/	It resembles me	1	يمثلني	/ymæθəlni:/	1	1:1
فرحين	/færħi:n/	Make me happy	1	فرحيني	færħi:ni:/	0	1:0
خلن	/ xælæn/	Leave me	3	خلني	/ xælini:/	0	3:0
قهرتن	/ghæritæn/	She annoyed me	3	قهرتني	/gæhæri:tni/	2	3:2
عطين	/ ʕæ tˤ i:n/	Give me	6	عطيني	/ ʕætˤi:ni:/	4	6:4
علمون	/ ʕælmu:n/	Tell me	3	علموني	/ ʕælmu:ni:/	5	3:5

3. Assigning the feminine marker /n/ :

The data show a number of instances in which the feminine marker /n/ is assigned to verbs, a feature that was identified by Aldarsoni (2015) as a feature of the QSD. One example is the word "تعالن" /tæʕælæn/ (Meaning: come); this verb occurs 9 times (Ratio: 9:8). In this verb, the sound /n/ is attached to the end of the verb to indicate that females are being addressed (See Table 6 below).

Table 6: List of verbs with the feminine marker /n/ and number of occurrences in Qassimi dialect speakers' WhatsApp written chats

Verbs	Transcription	Meaning	Number of occurrences	Ratio
يطبخن	/yætˤbəxin/	Cooking	4	4:0
يعترفن	/yʕtærfin/	Confessing	1	1:0
يروحن	/yru:ħin/	Going	5	8:3
تعالن	/tæʕælæn/	Come	9	9:8
جتكن	/dʒætkən/	came	2	2:3
تصلاكن	/tasˤlækən/	Surround	1	1:0
تجن	/tidʒən/	Come	6	6:5
صارن	/sˤæræn/	Were	2	2:2
مايبيهن	/mabi:hin/	I don't want	3	3:1
اشوفهن	/ʔʃu:fəhin/	Seeing	1	1:0
يهوشن	/yhu: ʃən/	Arguing	1	1:0
تلطين	/tilətˤi:n/	Devouring	1	1:0

In addition to verbs, the current data show that the feminine /n/ marker is attached to nouns and prepositions. The following table shows five words that were used and recur several times in the data. For example, the word "اهلهن" /ʔhəlhin/ (Meaning: their family) recurs 6 times (Ratio: 6:1) and shows the use of the feminine /n/ marker at the end of the noun 'family'.

Table 7. Nouns with the feminine marker /n/ and number of occurrences in Qassimi dialect speakers' WhatsApp written chats

Nouns	Transcription	Meaning	Number of occurrences	Ratio
ملحكن	/milħikin/	How sweet	1	1:2
اخباركن	/ʔxbærikin/	How are you?	3	3:13
اهلهن	/ʔhəlhin/	Their families	6	6:1
حداهن	/ħædæhin/	One of them	4	4:0
وينكن	/we:nikin/	Where are you?	5	5:18

The data also show that the feminine /n/ marker can be attached to prepositions. One preposition ending with the feminine /n/ marker is found in the data. The preposition "on" is assigned the feminine /n/ marker as seen in the following table.

Table 8: Prepositions with the feminine marker /n/ and number of occurrences in Qassimi dialect speakers' WhatsApp written chats

Preposition	Transcription	Meaning	Number of occurrences	Ratio
عليهن	/ʕælehin/	On them	3	3:1

The morphosyntactic features of the QSD spoken variety were found in the collected written digitally-mediated communication via WhatsApp. In addition to those identified in Aldarsoni (2015), the data collected show more features related to assigning the feminine marker /n/ to nouns and prepositions in addition to verbs.

4.3 Semantic analysis of QSD writings
4.3.1 Word choice
The data show the use of a number of words that are not used in written formal Arabic, and are usually used in the Qassimi dialect. A list of 29 types from around 200 tokens was extracted by four Qassimi speakers; these words were selected because they are known to the speakers to be used in the Qassimi dialect. In order to test this assumption, a survey with the list of words (assumed to be used in the Qassimi dialect) was distributed among 58 Qassimi speakers and 54 Saudis who speak other dialects in order to elicit an opinion on whether these words are common in the Qassimi dialect or not. The following table (Table 9) shows Qassimi words used in the data, their meaning in English, number of occurrences and frequencies yielded from the survey:

Table 9: Responses and percentages from a questionnaire about Qassimi Saudi dialect speakers' perception on some words

Word	Meaning	No. of occurrences	Number of Qassimi responses (n.58) *"Are these words from the Qassimi dialect?"*						Number of non-Qassimi responses (n.54) *"Are these words from the Qassimi dialect?"*					
			Yes		Other Dialects		I don't know		Yes		Other Dialects		I don't know	
لغديه، لغدي	perhaps / maybe	10	46	79.3 %	5	8.6 %	7	12.1 %	27	50 %	4	7%	23	43 %

مير	But	16	56	96.6%	2	3.4%	0	0.0%	36	66.7%	16	29.6%	2	3.7%
كود، كوده	perhaps	15	57	98.3%	1	1.7%	0	0.0%	35	64.8%	13	24.1%	6	11.1%
يوحش	horrifying	1	54	93.1%	3	5.2%	1	1.7%	33	61.1%	11	20.4%	10	18.5%
نغرت، نغرتي، ينغر	Get jealous	6	57	98.3%	0	0.0%	1	1.7%	32	59.3%	7	13.0%	15	27.8%
غدفة	veil	2	54	93.1%	2	3.4%	2	3.4%	19	35.2%	13	24.1%	22	40.7%
كزيه	Send it	1	57	98.3%	1	1.7%	0	0.0%	36	66.7%	12	22.2%	6	11.1%
تقل	As if/seems	12	56	96.6%	1	1.7%	1	1.7%	41	75.9%	6	11.1%	7	13.0%
ينكس	return	3	56	96.6%	2	3.4%	0	0.0%	29	53.7%	19	35.2%	6	11.1%
تويدز , يويق	peeking	3	57	98.3%	1	1.7%	0	0.0%	35	64.8%	11	20.4%	8	14.8%
دربيه (سمينة)	fat	1	56	96.6%	1	1.7%	1	1.7%	32	59.3%	6	11.1%	16	29.6%
طمل	dirty	2	51	87.9%	4	6.9%	3	5.2%	26	48.1%	9	16.7%	19	35.2%
هماه	Did/since	7		0.0%		0.0%		0.0%		0.0%		0.0%		0.0%
بُه	Be+pronoun	92		0.0%		0.0%		0.0%		0.0%		0.0%		0.0%
مدحيات، مدحي، دحي	Full of	3	52	89.7%	2	3.4%	4	6.9%	29	53.7%	7	13.0%	18	33.3%
مزدي (مقدي)		1	56	96.6%	2	3.4%	0	0.0%	32	59.3%	9	16.7%	12	22.2%

Arabic	Meaning												
الفزيهن, منلفز	Hide/hidden	3	58	100.0%	0	0.0%	0	0.0%	32	59.3%	7	13.0%	15	27.8%
اغوله	strangle	1	56	96.6%	1	1.7%	1	1.7%	30	55.6%	7	13.0%	17	31.5%
الدغلة		1	32	55.2%	6	10.3%	20	34.5%	17	31.5%	9	16.7%	28	51.9%
نوبة	once	1	58	100.0%	0	0.0%	0	0.0%	26	48.1%	20	37.0%	8	14.8%
جغف	kiss	1	52	89.7%	0	0.0%	6	10.3%	23	42.6%	10	18.5%	21	38.9%
عس	check	1	45	77.6%	4	6.9%	9	15.5%	14	25.9%	14	25.9%	16	29.6%
البلش	Trouble		43	74.1%	6	10.3%	9	15.5%	27	50.0%	11	20.4%	16	29.6%
هارجت , هارجين	talk		51	87.9%	5	8.6%	2	3.4%	35	64.8%	11	20.4%	8	14.8%
طمبسي	Kneel/bow		56	96.6%	1	1.7%	1	1.7%	27	50.0%	6	11.1%	21	38.9%
متدحملة	Dress in layers		51	87.9%	3	5.2%	4	6.9%	28	51.9%	5	9.3%	21	38.9%
يفطن	realize	2	58	100.0%	0	0.0%	0	0.0%	37	68.5%	12	22.2%	5	9.3%
منلهدة	agonized	1	53	91.4%	1	1.7%	4	6.9%	27	50.0%	6	11.1%	21	38.9%
نمرح (بمعنى ننام)	sleep	2	53	91.4%	5	8.6%	0	0.0%	31	57.4%	13	24.1%	10	18.5%

In general, the survey shows that QSD speakers are more certain about the source of words than the non-Qassimi speakers. This is hardly surprising, given that this is due to the nature of the words generated and distributed from the WhatsApp chats between Qassimi people. Some words are identified as part of the QSD dialect by both Qassimi and non-Qassimi participants such as the words "مير" /mer/ (Meaning: but) (96.6% and 66.7% respectively) and "يفطن" /yæftˤæn/ (Meaning: realize) (100% and 68.5% respectively). On the other hand, there are words that are realized to be part of the Qassimi dialect by QSD speakers but are classified by non-Qassimi participants as spoken in other dialects. For example, the word "نوبة" /noubæh/

(Meaning: one time) was identified as a QSD word by 100% of Qassimi participants whereas 48.1% of the non-Qassimi indicated that this word is a QSD word and 37.0% indicated that it is also spoken in other dialects. There was only one word that was strange to both Qassimi as well as non-Qassimi participants. The response rate 'I don't know' from Qassimi and non-Qassimi in respect of "الدغلة" /ædiɣlæh/ (Meaning: heartburn) was high, 34.5% and 51.9% respectively.

All in all, the results from this questionnaire show that the words in the data collected are parts of the QSD spoken dialects and identified as such by Qassimi as well as non-Qassimi speakers. This shows that the impact of the dialect is seen on the level of semantics (word choice).

4.4 Diminutives
The literature shows that using diminutives is one of the QSD features (Al-Rojaie 2012). In the data collected, 88 occurrences of diminutives are found out of 10 types. These words show closeness and kinship. The most frequently used diminutive is "قليبي" /glaibi/ (Meaning: my heart) to show endearment. Others show relations such as "my mother" and "my daughter" (See Table 10 for full list).

Table 10: Diminutives in QSD WhatsApp chats

Diminutive form in Data	Meaning in English	Transcription	Number of Occurrences	Ratio
قليبي	My heart	/qlaibi/	30	30:187
بنيتي	My daughter	/binaiti/	12	12:49
اخيتي	My sister	/ʔxaiti/	11	11:253
مسيكين	Poor thing	/msaiki:n/	9	9:11
وليدي	My son	/wlaidi/	9	9:17
اميمتي	My mom	/ʔmaimiti:/	7	7:921
بسيسه	Cat	/bsaisæh/	3	3:1
اخيي	My brother	/ʔxaiji:/	2	2:52
خبيزه	bread	/xbaizæh/	2	2:0
كليبه	Dog	/klaibæh/	1	1:0
Total	10 types		88 tokens	

The table shows that diminutives are created by inserting /ei/ in the middle of the word, i.e. nouns. The following is an example of the diminutive "قليبي" /glaibi/ (Meaning: my heart) used in one of the collected WhatsApp chats:

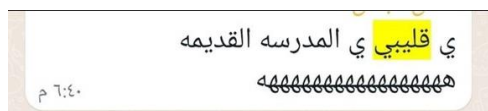ي <mark>قليبي</mark> ي المدرسه القديمه
هههههههههههههههه
٦:٤٠ م

Figure 1. Screenshot from WhatsApp chat with a diminutive

In this interaction, the diminutive form of the Arabic word 'heart' is used in combination with the bound first-person pronoun 'my'. The chat was about the participant's old school, who used the diminutive to show love for her/his that school.

The analysis section reveals that QSD oral linguistic features are located within the collected written digitally-mediated communication. These linguistic features are found on the phonological, morphological and semantic levels.

5. Findings and discussion

This study aims at examining the representation of the Qassimi dialect in written digital communication. The study shows that some oral features that have been identified as relevant to the Qassimi dialect are present in the collected written data. These features occur on the phonological, morphological and semantic levels. The data reflects the existence of some phonological aspects such as affrication which is transcribed into the written communication of the participants. On the morphological level, the data shows that there are a number of instances in which the /æ/in the singular feminine (absent) marker after /h/ and the speaker's first-person marker /i:/ are omitted, and the feminine marker /n/ is assigned to words. The analysis of the data collected in this study shows the occurrence of a number of Qassimi syntactic features identified in Aldarsoni (2015), who indicated that attaching the feminine marker /n/ to verbs is one of the features of QSD. However, the data collected reveals that the feminine marker /n/ is also attached to nouns and prepositions as well as to verbs. On the semantic level, words and diminutives that are known to be part of the QSD (Al-Rojaie 2012) are used in the data.

The ratio of QSA traces in the data vary. Some forms are used with transcribed QSA features more than the standard form whereas other words are used more in the standard form. In addition, ratios show that in some cases only the QSA form is used such as the affricated word باتسر /bætsər/ (Meaning: tomorrow) but there are no occurrence of the standard form. A number of possible reasons would be related to frequency of use, type of interlocutor, interpersonal factors and context. Investigating these reasons is suggested for further research.

The findings of this study are in line with Alothman (2012), who found that some oral aspects of Najdi dialects exist in Arabish (i.e. Arabic written in Roman

letters and numerals) texts collected in her study. However, the findings of the current study contribute to the understanding of how oral features of the Qassimi dialect in particular are transcribed into written communication.

These findings have some practical implications for linguists. Analyzing accents via collecting digitally-mediated communication naturalistic written chats has a number of advantages: it is not only a way to document some features of spoken accents, but also facilitates studying spoken features through written text. The methodological approach of this study can be extended to account for other Saudi or Arabic accents. Spoken features of different Arabic accents can be traced in digitally-mediated communication. The results from this study and other similar future studies contribute to the understanding of how people transcribe spoken features of their accent into their written communication.

However, some Qassimi dialect features, such as location and quality of epenthetic vowels, could not be examined due to their oral nature which cannot be reflected in written contexts. This implies the different nature of speech and writing. The study also implies that in order to fully grasp all features of a spoken accent, analysis should be conducted using spoken data.

6. Conclusion

This study aimed at examining the representation of QSD oral features in written texts. The collected WhatsApp chats between Qassimi speakers reveal that some spoken QSD features have been transcribed in their written chats. These insights contribute to Saudi dialects and dialect variation studies as the findings of this study provide room for the documentation of a particular accent. At the same time, comparison with other dialects is permissible. Therefore, linguists and historians should study accents within spoken as well as written contexts.

A number of areas can be suggested for further studies. Comparative studies can be conducted to compare spoken features of QSA in online written interaction of old vs. young Qassimi people. Comparative studies can also be undertaken on written digitally mediated communication of Qassimi people living in Qassim vs. those living in other areas outside Qassim. In addition, future studies may concentrate on oral features of QSA that are not reflected in the current data in order to understand why these features are not apparent in written texts.

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