

The Status of Arabic DaaD /d^s/ in the Speech of Jordanian Youth

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Abstract—The present study examines the current status of Arabic DaaD /d^s/ in the speech of Jordanian university students. Data are collected through an articulation test and a reading aloud task. The results show that although rural and Bedouin speakers are more likely to adhere to their own dialectal variants in both informal and formal contexts, both genders are increasingly influenced by the urban dialect, with females leading the change. From a socio-educational perspective, it is a must to provide school children with an awareness of the production of /d^s/ and /ð^s/ in their given vernaculars, as opposed to Standard Arabic, in preparation for formal contexts.

Index Terms—context, DaaD /d^s/, variants, Jordan, youth

I. INTRODUCTION

Grammarians as far back as the 8th century (cf. Sībawayhi in his book *Al-Kitāb*, 1988) examined the voiced, emphatic stop Arabic /d^s/ in terms of place and manner of articulation as well as its regional variants (Al Sharif, 2017). Certain scholars believe that the consonant /d^s/ is particular to Arabic, naming it ‘the language of DaaD’. This is based on the notion that this sound cannot be found in other languages (Al-Nassir, 1985), although this view is controversial (cf. Alqahtani, 2015). The way /d^s/ is produced by a speaker of Jordanian Arabic often distinguishes him or her as belonging to one of the main dialectal groups within the country, namely Bedouin (*Bedawi*), rural (*Fallahi* and *Horānī* varieties) or urban (*Madani*). Hussein (1980), Al-Khatib (1988) and Hamdan and Amayreh (2007) argue that /d^s/ is realized as a voiced emphatic interdental /ð^s/ fricative more or less unconditionally in rural and Bedouin speech communities. Members of the urban speech community however, used the same dental emphatic stop, i.e. [d^s], and to a lesser extent, the de-emphasized variant [d]. Earlier studies of speakers who replace /d^s/ with [ð^s] (cf. Cantineau, 1936; Palva, 1976; Shorab, 1982) reported that this alternation was phonetically unconditioned. Put another way, the given speakers replaced Standard Arabic (SA) /d^s/ with [ð^s] in each probable position within a word without exception. This also applies to speakers who consistently replace Standard Arabic /ð^s/ with [d^s]. Conversely, /ð^s/ is realized as [ð^s] in rural and Bedouin dialects, but as [d^s] in urban varieties (Hamdan & Amayreh, 2007).

The current study is based on Labov’s (1963) research paradigm which reflects on the study of language variation and change. The main goal of variationist research in a general sense, is to discover patterns in variable linguistic form usage. Quantitative methods are indispensable in highlighting such patterns since usage is characteristically an issue of the comparative occurrence of one form in competition with a contending form, as opposed to a clear-cut inclination. Labov’s (1966) New York study is an exceptional instance of competing vernacular forms, where he observed the pronunciation of post-vocalic /r/ among the employees who worked at three different department stores. The study aimed to examine if this feature, which exhibited a strong pattern of stratification within the speech of members of different social classes (i.e. those with higher socioeconomic status produced /r/ more frequently than those with lower socioeconomic status), could also be detected in the usage of inhabitants of New York of a single social class whose jobs resulted in interaction between themselves and customers from various social classes. Given these results, Labov referred to the ‘speech community’ as a group “not defined by any marked agreement in the use of language elements, so much as by participation in a shared set of norms” (Labov, 1972, pp. 120-121). In the same sense, the current study collected tokens of /d^s/ from university students of different dialectal heritage in two stylistic contexts, informal (i.e. an articulation test) and formal (a reading aloud task), to discover the extent to which subjects maintain their dialectal usage of /d^s/ or alter it according to context.

II. LITERATURE REVIEW

In Jordan, as touched upon in the introduction, Standard Arabic /d^s/ tends to surface as [d^s], [ð^s], and in more recent years [d] in JSA, according to the dominant dialect of the speaker. Moreover, [d^s] is also the urban variant of the variable /ð^s/. Al-Khatib (1988, pp. 183-184) states that “the importance of this variable lies in the fact that it can be used as a criterion with which to identify linguistically the urban from non-urban speakers of Arabic”. Al-Tamimi (2001) differentiates /d^s/ from other sounds such as /q/ by implying that it is not particularly salient in Jordan. However, Al-

Khatib (1988) showed that even Fallahi and Horānī speakers exhibited a lot of changeability in their use of /d^s/, with many using the nationally and locally prestigious urban variant [d^s] on a more frequent basis. With this point in mind and in contrast to what Al-Tamimi (2001) hints at, Al-Wer (2004, p. 3) mentions that there is in fact “sociolinguistic stereotyping of the interdental sounds in Jordan [...]. One observes, for instance, that [ð^s] [the rural and Bedouin variant] is extremely stigmatized in Jordan (and in the Levant in general)”. In a more recent study by Hamdan and Amayreh (2007), it was revealed that an emerging trend amongst many young and middle-aged urban female speakers (and to a lesser extent, females of other dialectal varieties) was to de-emphasize /d^s/, i.e. [d].

Al-Wer's (1997) study of the town of Salt found near completion of [ð^s] to [d^s] in the speech of young women. Another study she conducted in 2004 focused on sets of recordings of native speakers of Arabic on national satellite TV stations, either delivering formal speeches or reading news bulletins. One set consisted of Jordanian, Tunisian, Iraqi and Yemeni speakers: two of each nationality, respectively. Tunisians were most likely to read /d^s/ as /ð^s/, followed by Yemenis and then Iraqis. Al-Tamimi (2001, p. 124) explains that “though the orthographic system shows a difference between /d^s/ and /ð^s/, people usually confuse them, depending on their dialect, even while reading a written text”. Al-Wer (2004, p. 4) confirms this observation by stating that “a phenomenon which is readily observable in the Arabic dialects which have the interdental sounds [...] is that the speakers of these dialects very often read the orthographic representation of DaaD as [ð^s]”.

The study found that Jordanians (out of all the nationalities under investigation) were the least likely to make this 'error' between /d^s/ and /ð^s/ (Al-Wer, 2004). It may be proposed that this was the case because there is a clear distinction between /d^s/ and its variants within the community. That is to say, traditionally speaking, the way /d^s/ is produced by a JSA speaker distinguishes him or her (whether accurate or not) as belonging to an urban or non-urban dialect, and such speakers are very aware of this (Fowler Al-Hawamdeh & Hamdan, 2020). It is also the case that in Jordan, a clear distinction is made between standard /d^s/ and /ð^s/ as used in education and formal settings (Fowler Al-Hawamdeh & Hamdan, 2020). This is opposed to their more informal variants generally used in casual oral communication, which entails replacing /d^s/ with [ð^s] or vice versa, as well as an emerging trend to de-emphasize /d^s/, i.e. [d]. Although emphasis lies on /d^s/, some reference is made to /ð^s/ given the close relationship between the two sounds in Jordanian Spoken Arabic (JSA), and to a lesser extent the de-emphasized [d].

III. METHODOLOGY

A. Research Questions

The current study aims to investigate variation in the speech of Jordanian university students, with reference to /d^s. Hence, it seeks to answer the following questions:

1. How does /d^s/ prevail in the speech of Jordanian youth, specifically university students?
2. What possible implications does this have on their academic lives?

B. Subjects

In order to answer the questions of the study, data was collected on the current status of /d^s/ from a sample of second- and third-year Jordanian undergraduate student volunteers. The convenience sample for the present study consisted of a bio data questionnaire which was originally distributed to approximately 100 students. Following examination of their responses, seventy-two subjects (twenty-four per dialect) were selected, divided evenly in terms of gender, and the three main dialectal varieties represented in Jordan, namely urban, Bedouin and rural. The authors also engaged in a short conversation with each individual to establish his or her predominant dialect. Here, by predominant dialect, we mean the dialect the speaker most associates him or herself with, which is more often than not, also their family or tribal dialect. The rationale for selecting university students is that they are a potential reflection of the future dialectal landscape of Jordan. Young and easily influenced, they are at a transitional stage of their lives, intermingling with speakers from across the country and affirming their social identities through the sound selections they make.

C. Study Instruments

Subjects were provided with two different stylistic contexts in which to produce the variant under investigation through the employment of two quantitative-oriented measures; these were an articulation test and a reading aloud task.

D. Data Collection

Data collection met the ethical standards required by the authors' institutions, amongst which, subjects were clearly informed that all data collected were anonymous and that they were able to withdraw their participation at any time during the research process.

(a). Articulation Test

The articulation test was used to evaluate students' pronunciation of /d^s. Subjects were shown pictures and asked to name them the way they usually do in everyday natural communication. Nine picture words in total were shown to subjects which contained the consonant /d^s/, providing chances for it to occur three times initially, medially and finally (see Appendix).

(b). *Reading Aloud Task*

The aim of the reading aloud task was to investigate the extent to which /d^s/ surfaces in an academic context (i.e. formal), as opposed to its dialectal variants [ð^s], and [d] which is still emerging in the Jordanian speech community. The variable /ð^s/ was also examined to see whether subjects produce it as [ð^s] or [d^s]. Subjects were provided with a Modern Standard Arabic (MSA) passage relating to Jordan's wildlife (where /d^s/ and /ð^s/ occurred nine times each; three times initially, medially and finally) and asked to read it aloud as if they were reading in a university lecture (see Appendix).

E. *Data Analysis*

For both the articulation test and reading aloud task, the audiotaped material was listened to and transcribed independently on a prepared form by two experienced JSA speakers, who were also proficient in MSA. After transcription of each target word, the two versions were compared. In case of disagreement, the disputed word was replayed up to three times.

IV. RESULTS

The main objective of the study was to investigate how /d^s/ prevails in the speech of Jordanian youth and the implications of this on their academic lives. These questions were answered based on data collected through two tasks, discussed in the following sections.

A. *Articulation Test Results*

The articulation test was conducted in order to examine how Standard Arabic /d^s/ and its dialectal variants prevail in the speech of young Jordanian university students, recalling that /d^s/ can be realized as [d^s], [ð^s] or [d] in JSA. The articulation test consisted of nine words each containing the variable /d^s/, and hence there were 216 chances for each dialectal group (24 subjects) to produce /d^s/ as they usually would in everyday life. In total, all subjects had 648 chances to produce /d^s/ for each gender (12 subjects), there were 108 chances to produce /d^s/ for each gender. Table 1 reveals the number and percentage of each group of subjects' production of the variants of /d^s/ (i.e. the actual realizations of /d^s/) in the articulation test.

TABLE 1
NUMBER AND PERCENTAGE OF ACTUAL REALIZATIONS OF /d^s/ PER GENDER AND DIALECTAL GROUP IN ARTICULATION TEST

Variant	[d ^s]		[ð ^s]		[d]	
	No.	%	No.	%	No.	%
Dialect						
Bedouin						
Males	20	19	88	81	0	0
Females	38	35	70	65	0	0
Rural						
Males	39	36	69	64	0	0
Females	51	48	52	48	5	4
Urban						
Males	106	98	0	0	2	2
Females	84	78	0	0	24	22
All Males	165	51	157	48	2	1
All Females	173	53	122	38	29	9
Grand Total*	338	52	279	43	31	5

*Grand total ÷ 648 x100

Table 1 shows that 52 percent of instances of /d^s/ were produced by all subjects as [d^s], 43 percent as [ð^s], and five percent as [d]. Examining gender, one can see that Bedouin males were the most likely to adhere to their own dialectal variety, and therefore the least likely to realise /d^s/ as [d^s] amongst all groups (19%). Bedouin females realized /d^s/ as [d^s] in 35 percent of all instances. Rural males also realized /d^s/ as [d^s] in 36 percent of all instances, whereas rural females showed similar behavior in 48 percent of the collected tokens. There was also some evidence of rural females de-emphasizing /d^s/ (4%). Urban females produced /d^s/ as [d^s] in 78 percent of all instances in addition to de-emphasizing it in the other 22 percent. Urban males were the most likely to maintain their variant /d^s/ as it surfaced in 98 percent of all instances, with the other two percent de-emphasized. Table 2 below shows the number and percentage of each group's actual realization of /d^s/ in the articulation test per dialectal group.

TABLE 2
NUMBER AND PERCENTAGE OF ACTUAL REALIZATIONS OF /d^s/ PER DIALECTAL GROUP IN ARTICULATION TEST

Variant	[d ^s]		[ð ^s]		[d]	
	No.	%*	No.	%	No.	%
Bedouin	58	27	158	73	0	0
Rural	90	42	121	56	5	2
Urban	190	88	0	0	26	12
Grand Total	338	52	279	43	31	5

Table 2 shows that /d^s/ was least likely to be produced as [d^s] by Bedouin speakers (27%), followed by rural speakers (42%). Adhering to their dominant dialect, urban speakers were the most likely to produce /d^s/ as [d^s] (100% of all instances; 88% emphasized and 12% de-emphasized). On the other hand, /d^s/ was produced as [ð^s] 73 percent of the time by Bedouin speakers, and 56 percent of the time by rural speakers. There were no instances of urban speakers producing /d^s/ as [ð^s]. The de-emphasized variant [d] was also produced in replacement of /d^s/, two percent of the time by rural speakers and 12 percent by urban speakers. This result implies that even within the urban dialect, de-emphasis still appears to be an emerging trend. In contrast, there were no instances of Bedouin speakers who produced /d^s/ as [d]. The tendency of some urban speakers to de-emphasize should not however, take us away from their main tendency to use [d^s] Furthermore, even within this percentage, subjects were not consistent, i.e. not a single subject produced all instances of /d^s/ as [d].

B. Reading Aloud Task Results

The data collected from the reading aloud task examined the extent to which subjects paid attention to a formal reading passage and the orthographic difference between /d^s/ and /ð^s/ and whether subjects followed similar patterns to the articulation test. The variables /d^s/ and /ð^s/ occurred nine times each (three times in initial, medial and final position) in the reading passage. Hence, there were 216 opportunities for each dialectal group (24 subjects) to produce /d^s/ or /ð^s/. Since each dialectal group was divided equally in terms of gender (12 males and 12 females), each sub-group had 108 opportunities to produce /d^s/ or /ð^s/. Table 3 shows the number and percentage of production of the variants of /d^s/ (i.e. the actual realizations of /d^s/), in the reading aloud task according to dialect and gender of subjects.

TABLE 3
NUMBER AND PERCENTAGE OF ACTUAL REALIZATIONS OF /d^s/ PER GENDER AND DIALECTAL GROUP IN READING ALOUD TASK

Variable	[d ^s]*		/d ^s /		[d]	
	No.	%	No.	%	No.	%
Bedouin						
Males	31	29	77	71	0	0
Females	51	47	57	53	0	0
Rural						
Males	43	40	65	60	0	0
Females	55	51	53	49	0	0
Urban						
Males	108	100	0	0	0	0
Females	99	96	0	0	9	4
All Males	182	56	142	44	0	0
All Females	205	63	110	34	9	3
Grand Total	387	60	252	39	9	1

*The correct response in the text

Table 3 shows that although the test was formal, and in theory it was supposed that all subjects would produce /d^s/ as it is realized in SA, in this diglossic context approximately only two thirds (60%) of all males and females combined did so. There is a clear tendency for females to be more open to /d^s/; almost half of Bedouin and rural females did not show loyalty to their own dialects. Females were also more likely than males to produce /d^s/ as [d^s] (63% as opposed to 56%). Looking at gender, Bedouin males were the least likely to produce /d^s/ as [d^s] (29%), followed by rural males (40%). Urban males produced [d^s] in all instances (100%). Bedouin females were the least likely to produce /d^s/ as [d^s] (47%), followed by rural females (51%). Urban females produced [d^s] in all instances (whether emphasized 96% or de-emphasized 4%). Rural and Bedouin speakers did not de-emphasize /d^s/ in any instance.

Given that Bedouin males' production of /d^s/ was especially limited (29%), it seems they were more affected by the impact of their own 'native' variant sound, i.e. [ð^s]. One might argue that [d^s] is an 'alien' sound to them, which seems to have influenced the way they approached the text, i.e. they tended to ignore the orthography, and went simply by their mental audio perceptions. There were times when they produced /d^s/, but these instances were overshadowed by their

production of [ð^s]. We may look at it in terms of two competing subconscious forces acting simultaneously - one force pushing them towards the prestige sound, i.e. [d^s], and the other force pulling them back towards the native sound, i.e. [ð^s]. In this case, the latter force appears more powerful than the former.

In terms of the output of the variant [ð^s] of /d^s/, Bedouin males were the most loyal to their own dialect (71%), followed by rural males (60%). In terms of the output of [d^s], urban males and females were the most loyal to their own dialects (100% and 96% respectively). This loyalty was, in terms of educational achievement, more useful to urban subjects who produced most instances of /d^s/ as it is realized in SA, and least useful to Bedouin males, given that they are more likely to produce [ð^s]. Bedouin and rural females were less loyal to their own dialects (53% and 49% respectively). It seems that the relatively high percentage of /d^s/ in Bedouin and rural females' realizations of [d^s] compared with those produced by their male counterparts, was reinforced by a general tendency to convert to the urban dialect. These results are not obviously different from those elicited from the articulation test where the tendency of Bedouin and rural females to use the urban [d^s] was also evident (see Table 1).

It may be the case that a sizable number of Bedouin and rural subjects actually attempted to produce /d^s/ as it is realized in SA but failed to do so. Two possible explanations are that they subconsciously produced it as [ð^s], or simply chose to use [ð^s] by their own free will. A rural male subject did in fact comment to one of the authors that he knew he had produced /d^s/ as [ð^s] but found it extremely hard not to. Hence, it appears that context, i.e. formal (in this case, the reading aloud task) vs. more informal (in this case, the articulation test) circumstances, did not affect most subjects' production of /d^s/, especially Bedouin and rural speakers. Table 4 is a summary of subjects' performance in terms of the number and percentage of the actual realizations of /d^s/ in the reading aloud task per dialectal group.

TABLE 4
NUMBER AND PERCENTAGE OF ACTUAL REALIZATIONS OF /d^s/ PER DIALECTAL GROUP IN READING ALOUD TASK

Variable	/d ^s /				[d]	
	[d ^s]*		[ð ^s]			
Variant	No.	%	No.	%	No.	%
Bedouin	82	38	134	62	0	0
Rural	98	45	118	55	0	0
Urban	207	95.8	0	0	9	4.2
Grand Total	387	60	252	39	9	1

*The correct response in the text

A closer look at Table 4 illustrates that Bedouin speakers as a whole were, the least likely to produce /d^s/ correctly (38%). Rural speakers were slightly more likely to produce /d^s/ correctly (45%), and urban speakers produced /d^s/ correctly for the majority of instances (95.8%), with the remaining instances de-emphasized (4.2%). It seems that urban speakers generally had an advantage here in producing /d^s/ correctly, given (as stated previously) that [d^s] is the variant they normally use in their dialect; a variant that appears 'entrenched' in their lexical terminology. Recall that in Al-Wer's (2004) study of Arab speaking newsreaders, Jordanians were the least likely (out of all the nationalities under investigation) to confuse /d^s/ and /ð^s/. In comparison with the current study, it is suggested by the authors that while the specifics regarding participants' dialects in Al-Wer's (2004) data were not provided, it may be the case that the Jordanians were urban dialect speakers in which /d^s/ tends to be used. Hence, these speakers were in actual fact displaying adherence to their own dialects, rather than MSA as such.

Although subjects could see the written passage in front of them, and were instructed to read it aloud as if they were in a university lecture, in addition to being aware that their readings would be recorded (which would normally lead to a heightened sense of awareness), there was still a fairly large number of instances when Bedouin and rural subjects produced /d^s/ as [ð^s]. Bedouin and rural males in particular tended to adhere more to their own dialectal variants. That is, regardless of the grapheme, these subjects went against the force of orthography where the letters representing these sounds are clearly distinct. Table 5 shows the number and percentage of production of the variants of /ð^s/ (i.e. the actual realizations of /ð^s/), in the reading aloud task according to dialect and gender of subjects.

TABLE 5
NUMBER AND PERCENTAGE OF ACTUAL REALIZATIONS OF /d^s/ PER GENDER AND DIALECTAL GROUP IN READING ALOUD TASK

Variable	/d ^s /			
	[d ^s]*		[d ^h]	
Variant	No.	%	No.	%
Bedouin				
Males	97	90	11	10
Females	85	79	23	21
Rural				
Males	96	89	12	11
Females	90	83	18	17
Urban				
Males	87	81	21	19
Females	78	72	30	28
All Males	280	86	44	14
All Females	253	78	71	22
Grand Total	533	82	115	18

*The correct response in the text

It is evident from Table 5 that /d^s/ is vastly different from /d^h/ being replaced by other variants. Subjects as a whole produced [d^s] in 82 percent of all instances, i.e. most subjects from all dialectal groups in fact produced /d^s/ correctly. However, females were almost twice as likely as males to replace /d^s/ with [d^h] (22% as opposed to 14%). Urban females were the most likely to produce /d^s/ as [d^h] (28%), followed by Bedouin females (21%), with rural females closely behind (17%). Urban males were the most likely to produce /d^s/ as [d^h] (19%), whereas Bedouin and rural males were the least likely (10% and 11%, respectively). These results can be attributed to the fact that [d^h] is a dialectal variant of /d^s/ in the urban dialect, whereas [d^s] is the rural and Bedouin variant. The authors also previously argued that it appears Bedouin speakers adhere more to their dialectal heritage than rural speakers, which explains why Bedouin subjects were the most likely to produce /d^s/ as it is realized in SA. Having said that, as shown in Table 6, there was only a slight difference in the realizations of /d^s/ as [d^h] between the three groups. In general, although the target sound was /d^s/, 14 percent of all males and 22 percent of all females produced [d^h]. Table 6 is a summary of the number and percentage of the actual realizations of /d^s/ in the reading aloud task per dialectal group.

TABLE 6
NUMBER AND PERCENTAGE OF ACTUAL REALIZATIONS OF /d^s/ PER DIALECTAL GROUP IN READING ALOUD TASK

Variable	/d ^s /			
	[d ^s]*		[d ^h]	
Variant	No.	%	No.	%
Bedouin	182	84	34	16
Rural	186	86	30	14
Urban	165	76	51	24
Grand Total	533	82	115	18

*The correct response in the text

In contrast to the production of /d^s/ shown in Table 4, Table 6 shows that there were remarkably similar results between the three groups for the correct production of /d^s/; rural subjects (86%), Bedouin subjects (84%), and urban subjects (76%). The variable /d^s/ did not appear too problematic for urban subjects. In fact, subjects, regardless of their dialectal background, produced /d^s/ as other variants much more than they did with /d^s/ itself. As we mentioned earlier, the results reveal that the majority of urban subjects were able to produce /d^s/ correctly in the reading aloud task, as opposed to falling back on their own dialectal variant, [d^h] (a trend also evident in Abdel-Jawad & Awwad's study, 1989). The authors suggest that this was possible through their application of an effective self-monitoring technique. This technique may date back to their school days, when they were systematically corrected by their Arabic language teachers on producing /d^s/ as [d^h] while reading aloud. Whether this result also has something to do with the nature of the two sounds (i.e. /d^s/ and /d^h/), certainly warrants further research.

Conversely, the only explanation for those rural and Bedouin subjects who produced the MSA /d^s/ as [d^h] is the influence of the urban dialect, given that this variant does not exist in their own dialects. Subjects were aware that the orthographic distinction indicates a reading difference; that is, they still remembered the orthographic distinction (they were taught in school) between the two sounds /d^s/ and /d^h/ dictates a difference in pronunciation in each case. On another note, rural and Bedouin speakers who did produce /d^s/ as [d^s] or urban speakers who produced /d^s/ as [d^h] may have been exhibiting dialectal preference, rather than a lack of awareness of the orthographic distinction between the two sounds. That is, they were aware of the orthographic identity of /d^s/ and /d^h/ but chose to adhere to their own dialectal variant. It is the case that at times, /d^s/ and /d^h/ act as phonemes; there are numerous examples of minimal pairs, such as *ḥad'ara* 'he came' and *ḥad'ara* 'he prohibited', *d'alla* 'he went astray' and *ḍ'alla* 'he stayed', *d'anna* 'showed misery' and *ḍ'anna* 'was unsure', amongst numerous others.

V. DISCUSSION

When it comes to a change of context with emphasis on formality, urban university students are at an advantage compared to their Bedouin and rural counterparts. The authors propose /d^ʕ/ is already in their dialectal inventory and hence, there is no need for them to adjust their speech in more formal contexts, such as the reading aloud task. Bedouin and rural speakers however, appeared to face difficulties in regulating their speech to produce /d^ʕ/ correctly when reading a formal passage, even given the fact that they were able to see the passage and the orthographical distinction between /d^ʕ/ and /ð^ʕ/. Bedouin university students especially faced this problem, on the premise (the authors argue) that they adhere more to their own predominant dialect than rural students. The number of instances of /d^ʕ/ that were produced by Bedouin and rural subjects as [d^ʕ] reflect that these subjects were either, (1) making an effort to adhere to MSA given that it was a formal passage, or (2) were influenced by the urban dialect.

With regards to the articulation test, it appears from the current study's results that Jordanian dialects have to some extent, gone through the process of dialect levelling over recent years, especially amongst the younger, more mobile generations. The term 'dialect levelling' (also known as 'supra-localization') refers to the process by which certain dialects assimilate, mix or merge, especially in the case when a particular language is standardized; the lessening or eradication of marked distinctions between dialects over a period of time. Lefebvre (1988, p. 46) states that levelling is "the reduction of variation between dialects of the same language in situations where speakers of these dialects are brought together". Blanc's (1960, p. 82) study of four educated Arabic speakers showed that with levelling "the speaker may replace certain features of his native dialect with their equivalents in a dialect carrying higher prestige, not necessarily that of the interlocutor". When it comes to Jordan, El Salman (2001, p. 31) refers to levelling as "the attempt of the speaker to accommodate his/her speech by using features of other dialects found in the area". Milroy and Milroy (1985, p. 343) claim that "the diffusion of change is accomplished by individuals who have many ties within the close-knit community and who also have a relatively large number of outside contacts". The subjects in the current study also have a large number of outside contacts. They are given the opportunity to interact with other students from across the country for at least three years, which appears enough for levelling to occur. It appears however, that for students from Bedouin and rural towns who remain within those areas, levelling occurs to a much lesser degree, if at all.

The other two dialects are also giving way to the urban variety, with females in the lead. This tendency is not emerging anymore; it has become a fact of life. In Jordan, stop realizations are competing with fricative realizations in the most formal of contexts. There is also a growing trend in the use of the stop /d^ʕ/ across a wide range of everyday informal lexical items. The authors' prognosis is that this pattern is unlikely to decrease. It is important to recognize that Jordan was not originally an urban population; it was Bedouin. However, the 1948 Arab-Israeli war changed this set up; a large number of the population is now urban. One also must consider that the articulation test may have made some subjects more conscious of their speech and less spontaneous when their responses were audiotaped. So, in reality, the number of rural and Bedouin subjects who adopt [d^ʕ] in casual speech may actually be more. Hence, at times, the orthographic difference between the two sounds causes them to act like independent phonemes. However, in the text, as it happens, this difference was not phonemic, making it easier for subjects to interchange between the two sounds. It is useful to report here that none of the subjects attempted to self-repair, i.e. correcting their pronunciation of /d^ʕ/, after producing it as [ð^ʕ]. This might be attributed to the fact that exchanging the two phonemes in certain words is an example of a high-quality miscue, i.e. it is semantically acceptable since it does not interfere with meaning. Hence, readers do not attempt to correct themselves because there is no negative impact on listener comprehension, and therefore they do not view it as an 'error' as such.

Having said that, free variation also occurs between the two sounds since many native speakers of spoken JSA do not perceive a change in meaning when one is exchanged for the other (Fowler Al-Hawamdeh & Hamdan, 2020). For example, if a speaker were to say *akhd^ʕār* or *akhð^ʕār* 'green', *bayd^ʕ* or *bayð^ʕ* 'eggs', *d^ʕabiʕ* or *ð^ʕabiʕ* 'hyena' and *Ramad^ʕān* or *Ramað^ʕān* 'the fasting month', s/he is not producing two different words in each pair (Fowler Al-Hawamdeh & Hamdan, 2020). This explains why many native speakers of JSA do not perceive a change in meaning. Due to diglossia, free variation also occurs at an oral level in the absence of a text, compared to orthography and thus either [d^ʕ] or [ð^ʕ], acts as an allophone of SA /d^ʕ/ or /ð^ʕ/, depending on the speaker's dialect. Hence, speakers rightly perceive that the two sounds generally do not contrast, i.e. the lexical item has the same meaning whether produced with /d^ʕ/ or /ð^ʕ/. This was the case with the words provided in both the articulation test and reading aloud task. If speakers feel there is no shift in meaning, it is possible that they do not feel any difference in the way they produce a given word with either /d^ʕ/ or /ð^ʕ/. Thus, if speakers (in this case, university students) feel there is no difference in meaning between the two sounds in certain words, it is possible that they will not perceive the change to be an error and thus will not make an effort to distinguish between the two.

There were a number of cases where subjects used one variant throughout the reading aloud task, (i.e. only /d^ʕ/ or /ð^ʕ/). This encourages the authors to suggest that spoken mental representations may dominate graphic representations which are added at a later stage to the mental lexicon. Given this, another interpretation of the results may be attributed to a phenomenon referred to in the literature as 'reading miscues': an inconsistency between what a written text actually contains and what students say when reading aloud (Johnson, 2016). Miscue analysis was initially developed by Goodman (1973) for the purpose of understanding the reading process. Goodman (1973) prefers the term 'miscue' as opposed to 'error' or 'mistake' in an attempt to avoid value implications. In the present study, it appears that graphic miscues occurred,

i.e. when there is more than one variety of pronunciation for the same graphic item, which particularly occurs when dialectal speakers read aloud (Goodman, 1973).

In relation to the reading aloud task, students may already have an established mental image of /d^s/ in the words containing /ð^s/ or vice-versa because of their spoken dialects and therefore produce it that way. Put simply, it is as if they see /d^s/ or /ð^s/ in a given word even though it is not actually there. The current study indicates that a major force behind such miscues is diglossia. That is, diglossia is responsible for reading miscues made by Jordanian university subjects when reading aloud. The confusion between /d^s/ or /ð^s/ may indicate that everyday spoken forms are more deeply entrenched in the mental representations of youth, as opposed to their orthographic forms. It is also dependent on the extent to which readers are corrected by external forces (say, a student by a teacher in a classroom environment). In the case of Jordanian Arabic, if it happens that the teacher or instructor does not distinguish a difference in meaning when the two sounds are interchanged, or is perhaps influenced by their own dialectal variant, it is possible that they may not actually correct students and hence the miscue is further fossilized. Furthermore, it may have been the case that some subjects did not feel the formality of the 'providing data' situation, given that they were simply volunteering to assist in a research project. Since Arabic is diglossic in nature, reading development may be hindered in some individuals because MSA and spoken dialects are distinguished "by phonological systems with overlapping, although not identical, phonemic inventories" (Saiegh-Haddad, 2003, p. 433). This is particularly the case with SA variables which have dialectal variants, such as /ð^s/, /d^s/, /q/, /θ/, /ð/ and /dʒ/.

As a result of such linguistic duality, native Arabic speakers may experience some difficulty in reading (cf. Ibrahim, 1983; Maamouri, 1998; Ayari, 1996). This point applies to the current study given that dialectal variants are often the same variables found in SA. Saiegh-Haddad (2003) argues that native Arabic speaking children's limited oral exposure to MSA has a significantly negative impact on their reading, at both a word and discourse level. Interestingly, a study by Hamdan and Fowler Al-Hawamdeh (2020) also reveals that even some adults (in this case, professional newsreaders) from a variety of different Arabic regional dialects experience difficulty in distinguishing between /d^s/ and /ð^s/ when reading aloud. Hamdan and Amayreh's (2007) findings in a conversation task showed a growing influence of the JSA urban dialect on children's speech; 60 percent of subjects used it, the majority of whom were females. In the present study, the same tendency is found in the speech of teenagers and young adults from all dialects. Moreover, not a single urban subject adopted the Bedouin and rural variant of [ð^s], again indicating that the two other vernacular varieties are losing out to the urban dialect. Note that the authors of the current study intentionally included Bedouin speakers as one third of the sample. Yet, even with this inclusion, the percentage of subjects who used [d^s] was still high (52%). If the sample had been random, the percentage would have been even higher. Reflecting upon these results in more depth, one explanation to account for this gender difference as the literature suggests, is that female speakers tend to be more influenced by prestigious varieties and often lead the way in linguistic innovation. In the case of the current study, the prestigious dialect of Amman is the urban dialect, especially amongst younger generations and thus the emphatic stop /d^s/ is the prestigious variant. It appears that males in general, who past studies indicate, tend to adopt more formal varieties or stay loyal to their own dialects (cf. Abdel-Jawad, 1989), are also increasingly becoming influenced by the urban dialect. It seems that unidirectional levelling is taking place between the dialects of Jordan in favor of the urban variety, especially in the case of youth, which is gaining speed.

Differences in the results of the present study and research conducted almost four decades ago, reflect a sociolinguistic change in the speech of both male and female Jordanian youth. This especially seems relevant to young male university students, who encounter and interact with urban speakers on a daily basis, and may feel under inadvertent peer pressure (in a communicative sense), to adopt the urban dialect. Hence, the present study reveals evidence of dialect mixing (i.e. more flexibility) in the speech of both rural and Bedouin males and females, unlike the results of some previous studies (cf. Cantineau, 1936; Palva, 1976; Shorab, 1982). In contrast, urban dialect speakers stayed consistent, i.e. loyal to their own dialects. It does, however, appear that Bedouin subjects in general adhered more to their own dominant dialect than rural subjects in realizing /d^s/ as [ð^s]. This is most likely because Bedouin speech communities 'represent the old type of urban settlement' (Al-Wer, 1991), who were not substantially affected by Palestinian migration following the Arab-Israeli war of 1948, i.e. by those speakers with whom /d^s/ (and hence the urban dialect) is most likely associated. The inhabitants in such areas have distinct accents and sociolinguistic identities, as well as strong customs and traditions (Al-Wer, 1991). In the past (up until the 1980's at least), Bedouins lived in the desert and isolated small settlements, far away from city centres and hence, had little if any contact with urban speakers, as did to a lesser extent, rural communities. However, factors such as the 1970's oil boom, an increase in migration and urbanization and the impact of globalization, caused many Bedouins to become more sedentary, sell land and move to cities, mingle with and at times marry members of urban communities, and become more open to inter-group influences, including dialect.

VI. CONCLUSION

The present study, with reference to Jordanian youth, confirms that a clear distinction exists in the way /d^s/ is produced according to the speaker's dialectal group, i.e. Bedouin, rural or urban. The findings confirm that urban university students are more likely to produce /d^s/ as an emphatic dental stop, with some tendency to de-emphasize, especially by females. Bedouin and rural university students are more likely to produce /d^s/ as [ð^s] in both formal and informal contexts, reflecting a loyalty or personal preference for their dialectal heritage. The results also reveal that there seem to be two types of

prestigious forms competing in the speech of university students: (1) the rural dialect amongst rural and Bedouin males, and (2) the urban dialect amongst rural females and urban males and females, as well as to a lesser extent, Bedouin females. The study also exposed instances of Bedouin and rural speakers from both sexes who produced /d^s/ as a dental emphatic stop, which shows evidence of dialect mixing and the broad ranging impact of the urban dialect on the speech of university students from diverse dialectal heritage.

On a pedagogical level, it certainly appears that more work needs to be done in the Jordanian early schooling system to help children who come from different dialectal backgrounds to associate each of these two variables with its orthographic form. For instance, children may be given practice in the difference between the two sounds with a view to raising their awareness of the target sounds' (i.e. /d^s/ and /ð^s/) place and manner of articulation. Further practice could also be provided to help them distinguish between written vs. spoken forms of the two sounds, an exercise which associates each spoken form with its written production, in order for students to establish associations between the two. This measure would consequently aid spelling and reading. Pre-emptive pedagogical strategies from an early age may, to some degree, prepare students for university, the workplace and other formal contexts. As Hamdan and Amayreh (2007, p. 63) suggest "these activities may include poems, rhymes, songs, short stories and Quranic suras (chapters)".

APPENDIX A. ARTICULATION TEST WORDS CONTAINING /d^s/

Position	Target	Meaning
initial	d ^s ab ^s	hyena
	d ^s ū?	light
	d ^s arab	hit
medial	maw ^s ad ^s ī ^s	subjects
	ramad ^s ān	fasting month
	ʔakhd ^s ar	green
final	bayd ^s	eggs
	nabd ^s	pulse

APPENDIX B. WORDS CONTAINING /d^s/ FROM READING ALOUD TASK PASSAGE

Position	Target	Meaning
initial	d ^s ab ^s	hyena
	d ^s a ^s hla	shallow
	d ^s īfāf	riverbank
medial	ʔakhd ^s ar	green (adj.)
	d ^s ad ^s īd ^s	noise
	khad ^s rā?	green (n.)
final	tarbid ^s	located
	ʔard ^s	land
	tata ^s r ^s rad ^s	exposed

APPENDIX C. WORDS CONTAINING /ð^s/ FROM READING ALOUD TASK PASSAGE

Position	Target	Meaning
Initial	ð ^s abi	deer
	ð ^s alēla	shady
	ð ^s āhir	visible
Medial	muhāfað ^s a	governorate
	manð ^s ar	the view
Final	ðibā?	antelope
	alfāð	words
	taktað	overcrowded
	hifāð	maintain

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