

A Perceptual Dialect Map of Western Saudi Arabia

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1. Introduction

Perceptual dialectology (PD) is a field of sociolinguistics, related to dialect geography.¹ One of the main aims of PD is to investigate how non-linguists perceive regional varieties of specific areas and to map their perceptions of the 'linguistic landscape.'² Perceptual dialectology is concerned with the geographical distribution of dialects as seen from the viewpoint of ordinary people (i.e. non-linguists). Typically, it allows non-linguists to draw dialect areas on a map. Hence, its significance lies in its attempt to contextualize perceived dialect areas on a given map. It is important to note that PD treats dialects as regional varieties. The main aim of PD is to ascertain the distribution of dialects and the extent to which they confirm dialectologists' previous definitions.³

Many researchers have conducted perceptual dialectology studies to investigate regional varieties (i.e. dialects) in different countries. Dutch scholars have been the pioneers in the field.⁴ Following this, Japanese scholars began to show interest in the domain of perceptual dialectology.⁵ Recently, many researchers have conducted perceptual dialectology studies, eliciting non-linguists' attitudes towards specific dialect regions.⁶ Thus, the recent studies have incorporated both the perceptions and attitudes of people towards a given regional variety.

PD research has been conducted in a variety of locations. However, there is a significant gap in the literature with regard to Saudi dialects as none of the studies so far have focused on perceptions of Saudi dialects. Therefore, I have chosen the dialects in the western region of Saudi Arabia (i.e. the Hijaz region) to be the focus of my perceptual study. The Western SA dialects have been specifically chosen because (1) the western region of SA occupies a large portion of the country, leading to greater regional

1 Dennis R. Preston, *Perceptual Dialectology: Nonlinguists' Views of Areal Linguistics* (Vol. 7) (Dordrecht: Foris Publications, 1989).

2 Gabriele Iannàccaro and Vittorio Dell'Aquila, 'Mapping Languages from Inside: Notes on Perceptual Dialectology', *Social and Cultural Geography*, 2.3 (2001), 265.

3 Preston.

4 See Joe Daan, 'Dialekten [Dialetti]', in *Handbook of Perceptual Dialectology*, ed. by Dennis R. Preston (Amsterdam: John Benjamins Publishing, 1999), pp. 7-43; Ludger Kremer, 'The Netherland-German National Border as a Subjective Dialect Boundary', in *Handbook of Perceptual Dialectology* (Vol. 1), ed. by Preston, pp. 31-38; Antonius. A. Weijnen, 'On the Value of Subjective Dialect Boundaries', in *Handbook of Perceptual Dialectology* (Vol. 1), ed. by Preston, pp. 131-34.

5 See Antonie C. M. Goeman, 'Dialects and the Subjective Judgments of Speakers', in *Handbook of Perceptual Dialectology* (Vol. 1), ed. by Preston, pp. 135-46; Kikuo Nomoto, 'Consciousness of Linguistic Boundaries and Actual Linguistic Boundaries', in *Handbook of Perceptual Dialectology* (Vol. 1), ed. by Preston, pp. 63-70; Takesi Sibata, 'Consciousness of Dialect Boundaries', in *Handbook of Perceptual Dialectology* (Vol. 1), ed. by Preston, pp. 39-62.

6 Fumio Inoue, 'Classification of Dialects by Image: English and Japanese', in *Handbook of Perceptual Dialectology* (Vol. 1), ed. by Preston, pp. 147-60; Zoe Boughton, 'When Perception Isn't Reality: Accent Identification and Perceptual Dialectology in French', *Journal of French Language Studies*, 16.3 (2005), 277-304; Christopher Montgomery, 'Northern English Dialects: A Perceptual Approach' (unpublished doctoral thesis, University of Sheffield, 2007) <<http://etheses.whiterose.ac.uk/1203/>> [accessed 24 September 2014].

variation;⁷ (2) two of the most sacred cities in the Islamic world (i.e. Mecca and Medina) are located in Hijaz. Mecca has the Holy Mosque, and Medina has the Prophet Muhammad's mosque and his tombs making them sacred places, meaning that millions of people visit them each year.⁸ This study is focused on the perception of dialects. However, it is important to investigate whether such historical and religious issues affect people's perceptions towards their dialects. This study builds upon previous research, and furthers our knowledge by investigating a new context (i.e. the Saudi context) and taking more factors (both historical and religious) into consideration. The aim of this paper is to answer the following questions: Where do the Hijazi Saudi Arabs (residents of the western region) believe the dialect areas exist in Hijaz? Are there any religious or historical factors that affect people's perceptions?

2. The dialect situation in Saudi Arabia

2.1 The Hijaz Region

Western Saudi Arabia, specifically the Hijaz region, is the context of my research. Mecca and Medina are the most significant cities in Hijaz. Geographically, Jeddah is another important city,⁹ located on the shore of the Red Sea, which makes Jeddah an important port in Hijaz. Also, Jeddah is very close to Mecca; it is approximately 70 km away, which gives the city a sense of significance. Taif, Yanbu and Rabigh are other smaller towns in Hijaz. Figure 1 is a map of the Hijaz region, showing the location of Mecca, Medina, Jeddah, Taif and Yanbu. Not all small towns are marked on the map. The Hijaz region is characterized by its cosmopolitan nature: millions of Muslims from many countries travel to Hijaz every year. Therefore, there are many dialects that can be found in the following cities of Hijaz: Mecca, Medina, Jeddah and Taif.¹⁰



Fig. 1: A map of Saudi Arabia

Adapted from http://commons.wikimedia.org/wiki/File:Saudi_Arabia_map.png#file (Norman Einstein, 2006)¹¹

7 See William Ochsenwald, *Religion, Society, and the State in Arabia: The Hijaz under Ottoman Control, 1840-1908* (Columbus, OH: The Ohio State University Press, 1984) <<http://hdl.handle.net/1811/24661>> [accessed 19 January 2015]; Madawi al-Rasheed, *A History of Saudi Arabia* (Cambridge: Cambridge University Press, 2010).

8 Ochsenwald.

9 Ochsenwald.

10 Margaret K. Omar, 'Saudi Arabic, Urban Hijazi Dialect: Basic Course' (Washington, DC: Office for Education, 1975), <<http://eric.ed.gov/?id=ED112665>>, [accessed 20 December 2014].

11 Einstein, Norman, *A Map of Saudi Arabia*, online map, Wikimedia Commons, 2006,

<http://commons.wikimedia.org/wiki/File:Saudi_Arabia_map.png#file>, [accessed 10 July 2014].

2.2 Dialect research in SA

There are many issues that have affected the way in which researchers have investigated the dialect situation in the Middle East. The most dominant issues relate to tribal matters, and urbanization. In the following sections, I will explore each factor separately.

2.2.1 Tribal matters

Tribalism is a notion that refers to the strong ethical and cultural loyalty that a person has towards his tribe.¹² Tribalism is rooted in the Arabian Peninsula, which is the core region for SA, since it is ‘the home of all Arab tribes’.¹³ Tribal issues have affected the way researchers investigate Arabic dialectology, for example many studies focus on the dialects of the widespread tribes of the Arabian Peninsula, such as the Harb, Dhafir, Mutair and Al-Mura tribes.¹⁴

2.2.2 Urbanization

In the last sixty years, the Middle East has witnessed rapid urbanization and massive social change.¹⁵ One of the main effects of urbanization has been the shift from agriculture to industry in the employment sector. This has resulted in rural populations moving into the cities.¹⁶ As a result, the concept of ‘urban primacy’ has been given much more importance, ‘that is, one city, usually the capital city, it’s much larger than its rivals.’¹⁷

Such rapid development in the Middle East in general, and the Arabian Gulf in particular, affected the dialect situation. In other words, ‘new combinations of dialect features are forged, and bestow[ed] on them [is] a prestige such that they come to be regarded as national standard dialects.’¹⁸ The urbanization factor led many researchers to focus their research on two main objectives: first, investigating reasons for language change,¹⁹ and second, recording and documenting Arabic dialects before they disappear. Researchers were also keen to investigate the emergence of new dialect patterns.²⁰

12 Mohammed. A. E. Saleh, ‘Tribalism, Genealogy and the Development of Al-Alkhalaf: A Traditional Settlement in Southwestern Saudi Arabia’, *Habitat International*, 19.4 (1995), 547-70; Anh. N. Longva, ‘Nationalism in Pre-modern Guise: The Discourse on Hadar and Badu in Kuwait’, *International Journal of Middle East Studies*, 38.2 (2006), 171-87.

13 *Ibid.*, p. 171.

14 *See*, Thomas. M. Johnstone, ‘The Sound Change j > y in the Arabic Dialects of Peninsular Arabia’, *Bulletin of the School of Oriental and African Studies*, 28.2 (1965), 233-41; Alyan. M. Al-Hazmy, ‘A Critical and Comparative Study of the Spoken Dialect of the Narb Tribe in Saudi Arabia’ (unpublished doctoral thesis, University of Leeds, 1975), <http://etheses.whiterose.ac.uk/916/1/uk_bl_ethos_510015.pdf> [accessed 4 June 2014]; Bruce Ingham, ‘Notes on the Dialect of the Dhafir of North-eastern Arabia’, *Bulletin of the School of Oriental and African Studies*, 45.2 (1982), 245-59; Bruce Ingham, ‘Notes on the Dialect of the Al Murra of Eastern and Southern Arabia’, *Bulletin of the School of Oriental and African Studies*, 49.2 (1986), 271-91.

15 Clive Holes, ‘Community, Dialect and Urbanization in the Arabic-speaking Middle East’, *Bulletin of the School of Oriental and African Studies*, 58.2 (1995), 270-87.

16 *Ibid.*

17 *Ibid.*, p. 271.

18 *Ibid.*, p. 285.

19 *Ibid.*

20 *See* Bruce Ingham, ‘Some Characteristics of Meccan Speech’, *Bulletin of the School of Oriental and African Studies*, 34.2 (1971), 273-97; Theodore Prochazka, *Saudi Arabian Dialects* (London: Kegan Paul International, 1988); Clive Holes, *Gulf Arabic* (New York: Psychology Press, 1990); Munira A. Al-Azraqi, 1998. ‘Aspects of the Syntax of the Dialect of Abha (South West Saudi Arabia)’ (unpublished doctoral thesis, University of Durham, 1998) <<http://ethos.bl.uk/OrderDetails.do?uin=uk.bl.ethos.244379>> [accessed 4 June 2014]; Mohammad. H. Bakalla, ‘What is a Secret Language? A Case from a Saudi Arabian Dialect’, in

Holes investigated the reasons behind the emergence of new dialect patterns in the Arabic-speaking Middle East.²¹ He examined three case studies to uncover the dynamics of language change in the region. One of the most significant findings to emerge from this study is that city dialects are the most common and dominant since they represent urbanization, political importance and are spoken by a large proportion of the population. As Holes states, dialects which are only spoken by older generations are still spoken in certain parts of countries of the Middle East as a way of showing communal identity and harmony.²² Following Holes, I intend to investigate whether or not the dialect of city dwellers is perceived as having the most prestige by non-linguists.

Significantly less work has been conducted on Saudi dialects in comparison to Western Dialectology. None of the aforementioned studies have investigated perceptual dialectology in Western Saudi Arabia. In this sense my research on perceptions of dialect in the Hijaz region will be filling a significant gap in the literature, furthering our knowledge of a dialect that has been of special interest throughout history. Importantly, much research has found that certain cities in Hijaz have religious significance which suggests the dialects of this region may also be considered significant.²³

3. Methods

Preston argues that it is not enough to elicit people's attitudes and perceptions towards a certain variety in structured interviews and questionnaires; instead, such questions must be contextualised to achieve the best possible results.²⁴ One way of contextualising questions is to give informants a map of the area under investigation and then ask them to convey their perceptions, attitudes, and beliefs on the map. Therefore, PD involves the use of geographical maps; such contextualisation will expand the research on language attitudes. This research follows the perceptual dialectology framework. As such, I have taken the approach of using a draw-a-map task, originally developed by Preston, to elicit responses.²⁵ In this task, 'informants draw boundaries on a blank (or minimally detailed) map [i.e. base map] around areas where they perceive regional speech zones to exist.'²⁶ There has been debate regarding the type of base map that should be used: a base map type or a map that includes some details (i.e. including city names, rivers, borders).²⁷ However, I choose to use two types of base map; one is a blank map (i.e. a map with only state borders visible), and the other is a more detailed map (i.e. including city names). The aim of using two types of map is to determine whether the different types of base map can affect the students' recognition of dialects on the map.

Perspectives on Arabic Linguistics, ed. by D. B. Parkinson and E. Benmamoun (Amsterdam: Studies in the Theory and History of Linguistic Science, 2002) Series 4, pp. 171–84.

21 Clive Holes, 'Community, Dialect and Urbanization in the Arabic-speaking Middle East', *Bulletin of the School of Oriental and African Studies*, 58.2 (1995), 270-87.

22 Ibid, p. 285.

23 Ibid.

24 Preston, p. 4.

25 Ibid.

26 Ibid.

27 Alfred Lameli, Christoph Purschke and Roland Kehrein, 'Stimulus und Kognition. Zur Aktivierung mentaler Raumbilder', *Linguistik Online*, 35.3 (2008), 55-86.

Twenty-three female students between the ages of 18 and 24, who were born in Hijaz and still live in this region of SA, made up the participant sample for my research. This particular age group was selected because they were more accessible to me through universities. The students were exclusively female because the education system in SA is gender-segregated; therefore, female students were easier for me to recruit. All students were Bachelor level and from the same English language and linguistics department. Fieldwork was conducted in the summer of 2014. Data was collected from three cities in the Western region of SA: Mecca, Jeddah, and Rabigh. Mecca and Jeddah are big cities while Rabigh is a small town. The rationale for choosing these locations was that I wanted to compare the results obtained from big cities with the ones obtained from small towns, and I wanted to investigate the reasons behind any perceptual differences.

Building upon Preston's methods,²⁸ I used the draw-a-map task to collect data. Students were asked to draw lines on a map around the borders or boundaries in Hijaz where they perceived dialect areas to exist. Students were divided to two groups. In the first group, they were given a blank map of SA and were asked to draw boundaries around areas in Hijaz where they perceived people's Arabic to sound distinctive. The second group was given the same task, but with a slightly more detailed map of SA (i.e. including city names). Figure 2 presents an example of the base map (i.e. a map with only state borders), and Figure 3 presents an example of the more detailed map. The two groups were given different types of maps so I could determine whether the informants could draw lines around dialect areas and also label the areas, or whether they were only capable of labelling the areas without drawing the lines. The results from the draw-a-map task were processed using overhead transparency sheets, meaning that each data map was placed under the overhead transparency, and I copied lines onto the overhead transparencies.



Fig. 2: Example of the base map



Fig. 3: Example of the more detailed map

The project was reviewed by the University of Sheffield's ethics review panel and informed consent was gained from all participants.

²⁸ Preston.

4. Data analysis

My results show that informants typically identified six different regional varieties in the Hijaz region. The exact number of lines drawn around each dialect region is presented in the following table. Table 1 shows the number of lines drawn around each dialect region and the percentage totals. The lines indicating each regional variety were transferred onto a separate overhead transparency. In the final analysis, a composite map of all of the drawn lines covering the whole Hijaz region will be presented.

Area label	Number of students	Number of lines drawn	Percentage
Mecca	23	17	73%
Jeddah	23	15	65%
Medina	23	14	60%
Rabigh	23	4	17%
Taif	23	2	8%
Yanbu	23	2	8%

Table 1: Number of lines drawn by informants around different dialect areas.

4.1 Regional variety in Mecca

Out of the 23 informants, 17 drew clear lines around Mecca, indicating that for these participants Mecca has a distinct regional variety. Therefore, we can say that 73% of the informants agreed that Mecca has a distinctive dialect. It is important to note that the dialect in Mecca was perceived as the most distinct in the Hijaz region among all informants. Mecca holds significant religious and historical value for all Muslims around the globe and among Saudis in particular. It could be argued that the ideological importance of Mecca affected people's perceptions of its dialect. Figure 4 indicates the number of lines drawn around Mecca.

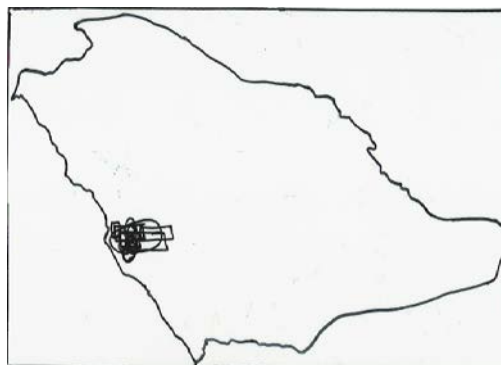


Fig. 4: The number of lines drawn around Mecca

4.2 Regional variety in Jeddah

Out of the 23 informants, 15 perceived that there was a regional variety in Jeddah. 65% regarded the dialect in Jeddah as distinct from neighbouring ones. Figure 5 shows the number of lines drawn by the informants to indicate the regional variety in Jeddah. Generally, the Jeddah dialect was perceived as the second most distinctive dialect in Hijaz. Its geographical location (considered as the main port in Hijaz) and its proximity to Mecca are possible factors that led people to perceive the Jeddah dialect as distinct. Figure 5 indicates the number of lines drawn around Jeddah.

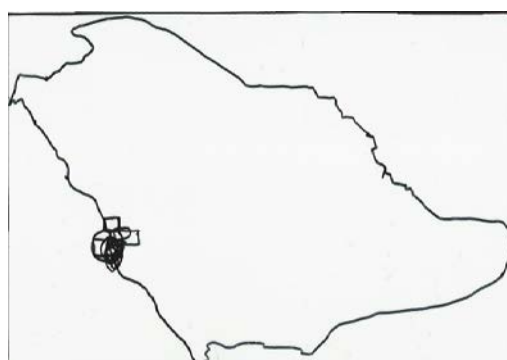


Fig. 5: The number of lines drawn around Jeddah

The most interesting result indicated that the informants from Mecca and Jeddah regarded themselves overwhelmingly as having distinct dialects from one another. However, one informant from Mecca stated that there was an overlap between the dialects of Mecca and Jeddah. Five out of eight (62%) informants from Rabigh indicated that both the regional varieties found in Mecca and Jeddah are the same, while three informants in Rabigh perceived there being a distinctive regional variety in Mecca. Figure 6 presents the overlap found between Mecca and Jeddah.

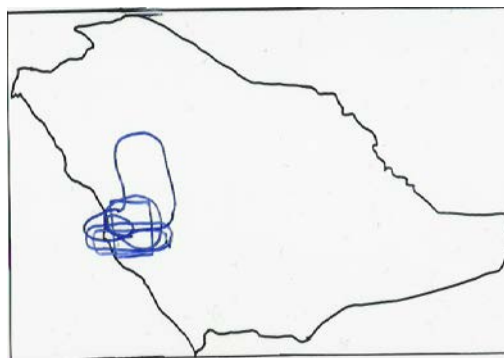


Fig. 6: The overlap found between Mecca and Jeddah

The data shows that informants from Mecca and Jeddah, which are geographically close, regarded themselves as having distinct dialects from one another. However, 50% of the informants from outside of these two cities, in this case Rabigh, perceived that the two cities share the same dialect. This local perception of difference is in keeping with findings of Cukor-Avila et al. in Texas, Evans in Washington State, and Bucholtz et al. in California, where the residents of each area they studied regarded themselves as having a distinctive dialect to neighbouring regions, while the outsiders regarded them as having the same regional variety.²⁹ I would argue that the proximity of Mecca and Jeddah means that informants from these two cities typically recognise each other's regional varieties rather than dialect areas further away. Similarly, as I have discussed earlier, Montgomery claims that '[t]he effect of bare proximity should see "near-to" or home dialect areas more readily recognised than other areas.'³⁰ Thus, he found that informants perceive regional varieties easily when they are near to informants' home areas.

4.3 Regional variety in Medina

14 out of 23 informants perceived a regional variety to exist in Medina. It should be noted that data were not collected from informants in Medina City. I would expect the number of perceptions to be higher if I had collected data from informants who live in Medina. As previously mentioned, Medina is the second most important spiritual city in the Islamic world. It may be the case that the religious value of this city means that its dialect is perceived distinctively by informants, as is the case in Mecca, although at a slightly lower level of perception than Mecca. However, further research is needed to confirm whether the religious nature of these cities actually affects people's perceptions of the Mecca and Medina dialects. It is important to note that it is not religion itself that makes the dialects distinct, but it might affect people perceptions. Figure 7 indicates the number of lines drawn around Medina.

29 See Patricia Cukor-Avila, Lisa Jeon, Patricia Rector, Chetoo Tiwari and Zat Shelton, Zat, "'Texas-It's Like a Whole Nuther Country": Mapping Texans' Perceptions of Dialect Variation in the Lone Star State', *Proceedings of the Twentieth Annual Symposium About Language and Society – Austin, Texas Linguistic Forum*, 55 (2012), 10-19; Betsy E. Evans, 'Seattle to Spokane: Mapping perceptions of English in Washington State', *Journal of English Linguistics*, 41.3 (2013), 268-91; Mary Bucholtz, Nancy Bermudez, Victor Fung, Lisa Edwards and Rosalva Vargas, 'Hella Nor Cal or Totally So Cal? The Perceptual Dialectology of California', *Journal of English Linguistics*, 35.4 (2007), 325-52.

30 Christopher Montgomery, 'The Effect of Proximity in Perceptual Dialectology', *Journal of Sociolinguistics*, 16.5 (2012b), 647.

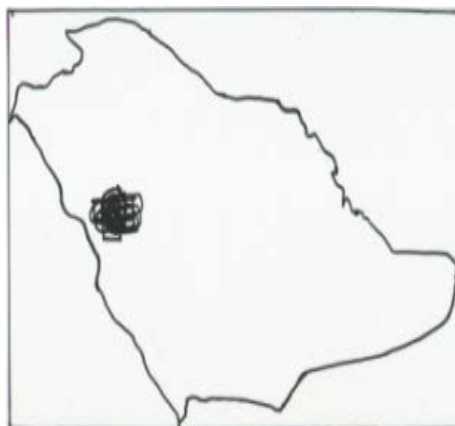


Fig. 7: The number of lines drawn around Medina

4.4 Regional variety in Rabigh

Unexpectedly, only 4 informants out of 23 perceived a regional variety to exist in Rabigh, while none of the other informants drew lines around this area. Such a low number of perceptions of the regional variety in Rabigh might be down to a number of factors: firstly, Rabigh was not marked on the map I adapted, because it is a small town. Secondly, it is the case that linguistically ‘Jeddah and Mecca dominated the much smaller towns and villages in their areas.’³¹ The dialect of smaller towns, such as Rabigh, is not perceived as frequently as the dialects of big cities such as Mecca, Jeddah and Medina. Figure 8 indicates the number of lines drawn around Rabigh.

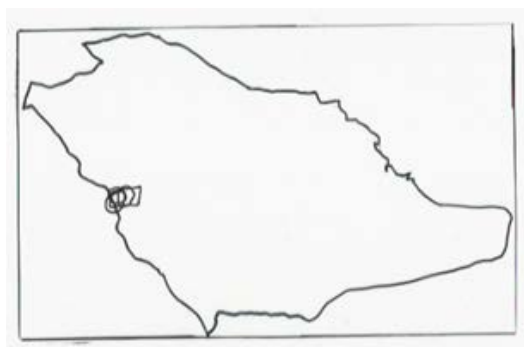


Fig. 8: The number of lines drawn around Rabigh

4.5 Other regional varieties

Only four informants perceived other dialect areas to exist in Hijaz such as Taif and Yanbu. This suggests that there are still varieties of dialects in Hijaz but they are not frequently perceived by informants compared to regional varieties in Mecca, Jeddah and Medina. This means that the dialects of small towns or regions are less frequently perceived than larger towns. My overall findings support the

³¹ Ochsenswald, p. 28.

results obtained by Holes.³² In Holes' study, dialects of urban cities seemed to be most commonly identified by participants. Equally, in the current study, urban dialects were perceived as the common ones, such as those spoken in Mecca, Jeddah and Medina, while dialects spoken in small towns and villages were less frequently identified compared to the city dialects. The results from this study suggest that urban dialects are identified more frequently than rural dialects. This result is similar to Evans' findings in Washington State.³³ The distinction in perceptions between urban/rural varieties was explicit: people from the western side of the state were described as educated, while people from the eastern side of the state were described as adopting rural and farming lifestyles and were labelled as 'countryside' people.³⁴

4.6 Misleading data

As was noted above, the informants were divided into two groups: one group (11 informants) were given a base map of SA, and the other group (12 informants) were given a more detailed map. The results revealed that 5 informants out of 23 had a relatively low level of geographical competence because they placed cities incorrectly on the map base map of SA. These results indicate that a more detailed map provides more accurate results. Figure 9 presents an example of one student's map where the placement of both Mecca and Jeddah was incorrect.

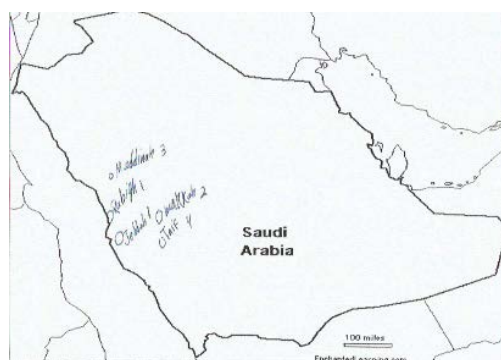


Fig. 9: Example of wrong dialect placement on the map

By comparing this map to Figure 2, it is evident that the student misplaced Rabigh, Jeddah and Mecca on the map. It would seem that the student perceives dialect differences, but her lack of geographical knowledge hindered her from accomplishing the task correctly.

4.7 The validity of the research

To validate the results, I have attempted to generate a composite map of all of the lines drawn in the western region and compared it with an actual dialect map (i.e. a dialect map compiled by linguists) of Western SA. If the comparison were to reveal that the two maps did not support each other, this would

³² Holes, 'Community, Dialect and Urbanization in the Arabic-speaking Middle East', section 2.2.2.

³³ Evans.

³⁴ Ibid, p. 286.

not necessarily be a huge problem because the study involves asking native speakers about their subjective perceptions. Local speakers may have a better understanding of such perceptual considerations than dialectologists, especially in a country that has been slightly under-researched in terms of dialectology investigations. Figure 10 presents a composite map of all the data collected in the draw-a-map task. Figure 11 presents an actual dialect map of the region.

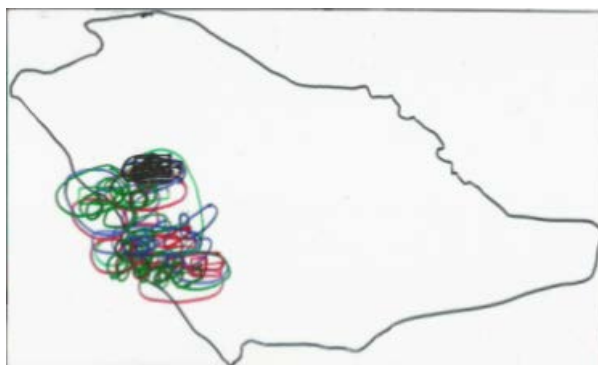


Fig. 10: A composite map of all data collected

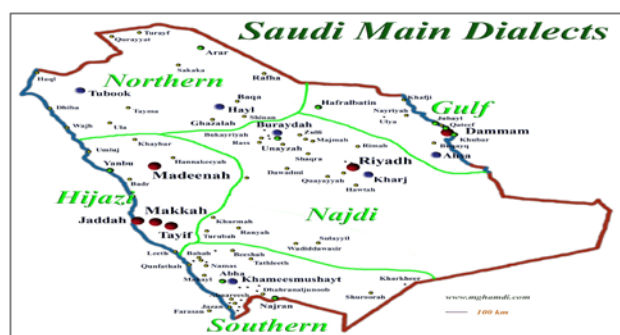


Fig. 11: Dialect map of SA

Adapted from <http://www.mghamdi.com/SaudiD.jpg>

When comparing the above two maps, it can be observed that the informants' perceptions were centred on the Hijazi dialect region, with the exclusion of any dialects from outside the Hijaz. Moreover, the actual dialect map denotes that nine dialects are spoken in Hijaz while the composite map signifies that there are six dialects in Hijaz. Thus, informants did not perceive all dialect areas in the region. There are a number of possible reasons for this: firstly, it may be the case that the dialects recorded by dialectologists were simply unimportant to local speakers. Secondly, time constraints, that is, not all locations were surveyed in the study. Thirdly, there was not a large number of informants, resulting in the perceptions to be limited to specific dialects.

4.8 Research limitations

A lack of geographical competence was an obstacle for some of the students who took part in the base map task. A few of them asked for help in indicating the location of the cities. They knew that people spoke differently in the Western region, but they failed to draw lines to indicate where that occurred

because they did not have a competent level of geographical knowledge. Such deficiencies will be overcome in further research by providing the students with a map that includes the city names. Thus, they would not spend too much time looking for exact locations on the map. The other limitation is related to the processing of the results with overhead transparencies. The students were asked to draw lines where they perceived dialect areas to exist. All of the lines drawn were transferred to a composite map using overhead transparencies. Two main points must be addressed here. First, when similar lines were transferred, it was found that too many lines drawn by the informants were the same in shape and location. Therefore, a number of the lines on the map overlap, and sometimes the result seems to be one thick line.

This limitation leads to another one, which is related to the fact that no statistics could be obtained from the overhead transparencies. Montgomery comments that overhead transparencies are low-tech, as no effective way could be found to digitise the results.³⁵ Therefore, in the final methodology, it is essential to process data with computerised software to obtain more accurate and statistically based results. GIS (geographic information system) is a type of software that ‘enables a user to process, analyze, and visualize all kinds of models of the earth’s surface.’³⁶ Furthermore, Montgomery notes that ArcGIS, which is a type of GIS software, possesses many advantages, one of which is that ‘the visualization is zoomable, the percentage boundaries are more fine-grained and reflect more subtly in respect of informants’ agreement over the placement of dialect areas.’³⁷ Moreover, ArcGIS has the ability to ‘produce meaningful composite datasets and to show them alongside other datasets from other disciplines.’³⁸ Thus, such a system can combine the administrative maps, mountain and river maps, and rail network maps with the perceived dialect map.³⁹

5. Conclusion

To conclude, I will address how this study reveals Western SA residents’ (non-linguists) perceptions of the regional varieties spoken in the Western region of SA, and how religious or historical factors affect people’s perceptions. The results revealed three major regional varieties in the Western region of SA: one in Mecca, one in Jeddah, and one in Medina. The dialect in Mecca was always perceived as the most distinctive of the three regional varieties. In addition, it is potentially the case that the religious and historical nature of Mecca has resulted in it being perceived as the most distinctive dialect, but more research would be required to confirm this. Further research will shed some light on the position of Mecca as a city with certain ideological implications.⁴⁰ My results also revealed that the urban-rural

35 Christopher Montgomery and Philipp Stoeckle, ‘Geographic Information Systems and Perceptual Dialectology: A Method for Processing Draw-a-Map Data’, *Journal of Linguistic Geography*, 1.1 (2013), 59.

36 Montgomery and Stoeckle, p. 59.

37 Christopher Montgomery, ‘Mapping the Perceptions of Non-linguists in Northern England’, *Dialectological and Folk Dialectological Concepts of Space: Current Methods and Perspectives in Sociolinguistic Research on Dialect Change*, 17 (2012a), 167.

38 *Ibid.*, p. 176.

39 *Ibid.*

40 Laila Mobarak Alhazmi, ‘Western Saudi Arabia Dialects: An Attitudinal Approach’ (unpublished doctoral thesis, University of Sheffield, forthcoming in 2018).

distinction was very clear with respect to dialect perception: urban varieties were more frequently identified than rural varieties. It is hoped that other researchers will conduct perceptual dialectology studies across SA in order to provide a complete picture of the distribution of dialects in the Saudi geographical landscape. Such research will help to assign the dialect zones in SA. Most importantly, it will help to enable an understanding of the impact of the ideological nature of certain regions in SA on peoples' perceptions towards the dialects of these regions.

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