Lexicon Variation and Distribution of Malay Dialect in Perak: A GIS Approach

Variasi Leksikon dan Penyebaran Dialek Melayu di Perak: Satu Pendekatan GIS

Nor Hashimah Jalaluddin, Zaharani Ahmad, Harishon Radzi & Mustaffa Omar

ABSTRACT

In many years research on geographical dialects are based on a hand drawn map and hence the isoglosses produced are unclear and ambiguous (cf Ajid, Rohani and Collins). Recently, an interdisciplinary approach supported by modern technological tool has become a breakthrough to account for this problem. A Geographical Information System (GIS) using interpolation technique which can store big volumes of spatial data, performing analysis and producing cartographic map results proves to be more reliable in constructing an accurate line of isogloss for lexicon variations and spatial distribution. This study attempts to adopt the same interdisciplinary approach in examining the variation and distribution of Malay dialects spoken in Perak. A purposive sampling ranging from four categories of ages and gender are chosen from 150 native Malay speakers. In our early findings, the state of Perak shows a mixture of Malay dialects, especially in the northern part. Different Malay dialects from the neighboring states have great influence to the Perak Malay dialect. As a result we can have Perak dialect such as 'deme' and 'mike' to refer to 'they', however, another lexicon variant 'depa' has been spotted in the northwest region. Interestingly, the migration of southern Siamese people, especially the Moslem from Pattani to Malaysia before independence has created a significant dialectal variation in Perak. These people in the northern and northeastern part of Perak use 'deme' instead. Another interesting observation is that this community has created some new variants such as 'ha' instead of 'hang' to refer to 'you' and 'muha' that is a combination of 'mu' (you) and 'ha' (you) for plural form. It is obvious that the topography of Perak acts as one of the contributing factors in determining lexicon variation and distribution in the state.

Keywords: Perak Malay; dialect; GIS; lexicon variation; isogloss

ABSTRAK

Penyelidikan tentang dialek geografi telah bertahun dilakukan namun peta isoglos yang terhasil masih menggunakan lakaran lukisan tangan, maka, kesannya peta yang terhasil adalah kurang jelas dan kabur (cf Ajid, Rohani dan Collins). Akhir-akhir ini, pendekatan antar-disiplin yang disokong oleh alat teknologi moden telah berjaya menyelesaikan masalah ini. Sistem Geographical Information System (GIS) yang menggunakan teknik 'interpolation' yang boleh menyimpan sejumlah besar data ruang, mampu melakukan analisis dan menghasilkan peta kartografi terbukti lebih boleh dipercayai dalam membina garisan isoglos yang lebih tepat untuk variasi leksikon dan penyebaran dialek mengikut ruang. Kajian ini bertujuan menggunakan pendekatan antar-disiplin ini dalam menilai variasi dan taburan dialek Melayu yang dituturkan di Perak. Persampelan 'purposive' berasaskan kepada empat kategori umur serta jantina diambil daripada 150 orang penutur jati Melayu. Dalam dapatan awal, negeri Perak menunjukkan percampuran dialek Melayu khususnya di bahagian utara. Perbezaan dialek dari negeri-negeri berjiran mempunyai pengaruh yang besar pada dialek Melayu di Perak. Hasilnya, kita akan ada 'deme' dan 'mike' yang merujuk kepada 'mereka', manakala variasi leksikon lain 'depa' ditemui di daerah barat laut Perak. Yang menariknya penghijrahan masyarakat selatan Siam terutamanya Muslim Pattani ke Malaysia sebelum kemerdekaan telah mencetuskan variasi dialek yang signifikan di Perak. Masyarakat ini yang menetap di utara dan timur laut Perak menggunakan 'deme'. Satu lagi dapatan menarik ialah, komuniti ini telah mencipta beberapa variasi baru seperti 'ha' bukannya 'hang' merujuk kepada 'kamu' dan 'muha' iaitu kombinasi 'mu' (kamu) dan 'ha' (kamu) untuk bentuk jamak. Apa yang lebih jelas adalah topografi bertindak sebagai salah satu faktor penyumbang dalam menentukan variasi leksikon dan penyebaran dialek di negeri itu.

Kata kunci: Melayu Perak; dialek; GIS; variasi leksikon; isoglos

INTRODUCTION

Most of geographical dialect studies in Malaysia used a traditional manually drawn map in determining dialect boundaries or isoglosses. For instances, based on phonological and lexicon variations, Ajid (1985) illustrates the isoglosses of local sub-dialects of Kelantan Malay spoken in Pasir Mas, Kelantan, and Rohani (1986) exhibits the isoglosses of Malay dialects spoken in Kuala Kangsar, Perak. This

impression-based drawing method is scientifically not appropriate because the isoglosses produced are unclear and ambiguous. Recently, an interdisciplinary approach supported by modern technological tool has become a breakthrough to account for this problem. A Geographical Information System (GIS) using interpolation technique which can store big volumes of spatial data, performing analysis and producing cartographic map results proves to be more reliable in constructing an accurate line of isogloss for lexicon variations and spatial distribution. Teerarojanarat, S. & Tingsabatdh, K. (2011) have demonstrated that the GIS manages to produce reliable dialectal boundaries for central and non central Thai based on 170 semantic units. The present study attempts to integrate both geography and linguistics or geolinguistics to draw a reliable isoglosses for Malay dialects spoken in Perak. Nor Hashimah et al. (2013, 2015), Noraini & Nor Hashimah (2014) prove that GIS able to demonstrate the pattern of dialect distribution based on the linguistics and non-linguistics factors.

DIALECT STUDIES: THE PAST AND THE PRESENT

There are a number of research have been done on Malay dialects. In the earlier stage, most of the discussions generally focus on the phonological descriptions of the Malay dialects spoken in Malaysia (Harun 69/70; Ismail 1973; Asmah 1993). In her analysis, Asmah (1993) specifically describes and draw the linguistic boundaries or isoglosses that dissect various Malay dialects based on phonology, lexicon and lexico-semantics as can be seen in Figure 1.
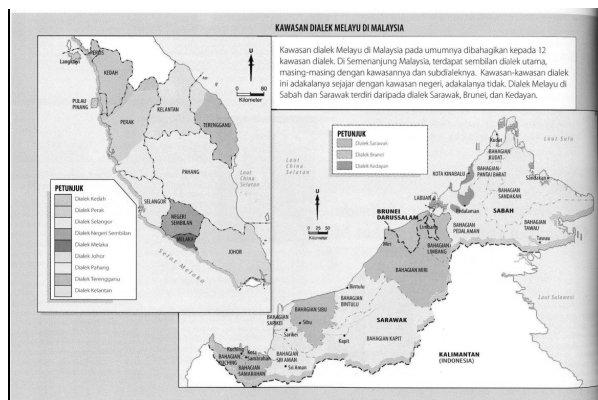

FIGURE 1. Malay Dialects in Malaysia

As shown in Figure 1, the dialect boundaries are divided and drawn based on impressionistic analysis with very limited data information on the Malay dialects. Her attempt to sub-group the dialects is influenced by geographical and political administrative information.

In addition, there are other researches on Malay dialects and these researches are more focused on a certain area that has distinctive features. Ajid (1985), Rohani (1986) and Collins (1983) have written on the geographical dialect of Pasir Mas, Kuala Kangsar and Ulu Trengganu respectively. All of them used phonological descriptions in determining the isoglosses of that particular area. Nevertheless the description given is merely based on linguistics analysis without taking geographical information into account.

Recent development has shown that research on dialectology has improved drastically, and today we can see that a multi discipline approach has become more popular. Apart from integrating linguistics with other disciplines (i.e geography), it is proven that the analysis on dialects has become more systematic. This multi discipline approach is known as geo-linguistics. A research group from Thailand has seriously involved in dialect studies and Geographical Information System (GIS) from early 2000 until today. The researchers from Europe, however, have even started long before Asian scholars began to develop the area. Lee and Kretschmar (1993) created a geographical database under a GIS environment to store and display the linguistic data obtained from the database of the Linguistic Atlas of the Middle and South Atlantic States (LAMSAS). Another work of GIS is carried out by Luo et al. (2000) that used GIS to assist them to visualize the settlement pattern of Tai minority groups in southern China.

As mentioned earlier, the researchers from Thailand have seriously involved in dialect study and GIS. In Premsrirat et al. (2004) study, GIS was used as a geographical database to store and map the distribution of ethno linguistic groups for the whole country, while Teerarojanarat and Tingsabadh (2008) developed the geographical database storing 170 semantic units in a study of lexicon variation covering the whole of Thailand and GIS map was used to display the word distribution. Similarly Cheewinsiriwat P. 2011 has elaborated the dialect patterns according to ethnics in Thai. Teerarojanarat and Tingsabadh (2011) have further explored the distribution of central and non central dialect using

the overlay technique. The overlay technique that integrates two types of data finally leads to a systematic isogloss of the dialects concerned. Besides Thai, Japan has also engaged in dialect studies and GIS. Onishi (2010) and Mokhtar Jaafar (2012) have shown the importance of GIS in geo-linguistics study. One of Onishi's findings is that the relationship between language data and outer language data are integrated through GIS, and it appears that the distributions of dialects can show the history of the language. He added that in eastern Japan, standard forms are used more in high-polite situation where areas have high density of population. Whereas Mokhtar (2012) shows that the chances of creating awareness among geography students are vital in enhancing the appropriateness of maps drawn in the future.

The present study attempts to adopt the same interdisciplinary approach in examining the variation and distribution of Malay dialects spoken in Perak (Nor Hashimah et al. 2013, 2015). By involving linguists, geographer, demographer and data miner, we aim to propose a new linguistic map demonstrating the distributions and dialectal boundaries of Malay dialects spoken in Perak. What makes this study different from the previous ones is that we used primary data collected from the field. The Thais researcher on the other hand used questionnaire distributed through mails. A firsthand knowledge proves to be more reliable, as we are able to observe the topography of the area and this can be used as supportive evidences in helping us to draw a more appropriate dialectal map.

Inevitably this paper will provide a better understanding on the distribution of Malay dialects and the isoglosses concerned as compared to Asmah (1993), Ajid (1985), Rohani (1986) and Collins (1983). It is shown that the isoglosses of Malay sub-dialects spoken in Perak are more accurate and this can supersede the previous findings.

METHODOLOGY

Since we are dealing with respondents directly in the field, a proper planning to capture the reliable sources is very crucial. We must have a key respondent from each selected sub-district and village to assist us. A preliminary survey need to be done first. We approached the sub district head known as *Penghulu* to determine the Malay native speakers in the area. The Penghulu will subsequently

contact the village head in order to identify the speakers. It is made known that migrations among people in the Malay archipelago are fluid, and as a consequent we can find many sub-ethnic Malays such as Rawa, Kerinci, Jawa, Banjar who speak differently from Malay. These people are excluded and will not be chosen as our respondents. However, migrants from Pattani are included since they have been in Malaya for over a millennium and they call themselves as Pattani Malay. They apparently speak Pattani Malay with the influenced from southern Thai and Kelantan (eastern Malaysia). Their dialect is intelligible and well understood by their Malay neighbours.

After a proper screening, demographically 38 villages are chosen. A purposive sampling ranging from four categories of ages and gender are chosen from the native Malay speakers. Interviews and questionnaires are our useful tools in gathering the relevant data. A group of 40 linguistic students are selected to carry out the interviews. They are equipped with phonetics knowledge. They are accompanied by the village head to make sure that their safety is guaranteed. A list of 196 words or lexicon items representing the most frequent Malay words are selected and interviewed. Apart from the wordlists, we collected the biodata and social background of the respondents and the topography of the village as well (see Figure 2 below). It is apparent that topographic information plays a significant role in determining sub-dialects distribution. For instance, lexicon variations on the use of pronouns (one examples) exist between 38 different villages. In addition to age gap, the topography such as rivers, highlands seems to play an important factor in dissecting the dialects.

FIGURE 2. At the fieldwork location

After the data have been collected, the researchers transfer them to Microsoft Office Excel program. All the variants identified are listed in Microsoft Office Excel. Subsequently, the data is transferred again, and this time into the GIS software.

FIGURE 3. Variants are listed in Microsoft Office Excel

Geographical Information System (GIS) is a software that is able to incorporate the linguistics data together with its Spatial Analysis Tool. The spatial based technique using a GIS tool to integrate the conventional linguistic approach can help us to produce more systematic isoglosses for the sub-dialect spoken in northern Perak. One of the advantages of using GIS is that not only the topographies like traffics, altitude and villages can be displayed, but also statistic data like demography and rainfall can be treated on the maps together with dialectological distribution data, and with repeating scrap and build many data can be verified together (Onishi 2010). In this study, it shows that new forms are explained as language change, and it is possible to see the spatial features of the areas where the linguistic new forms distribute.

ANALYSIS AND FINDINGS

In our preliminary findings, the state of Perak which is bordered by Kedah in the northwest, southern Thai in the north and Kelantan in the northeast has a mixture of Malay dialects, especially in the northern part. Different Malay dialects from the neighboring states have great influenced to the Perak Malay dialect. The Perak Malay normally uses 'deme' and 'mike' to refer to 'they', however, another lexicon variant 'depa' has been spotted in the northwest region. Interestingly, the migration of southern Siamese people, especially the Moslem from Pattani to Malaysia before independence has created a significant dialectal variation in Perak. These people in the northern and northeastern part of Perak use 'demo' instead. Another interesting observation is that this community has created some new variants such as 'ha' instead of 'hang' to refer to 'you' and 'muha' that is a combination of 'mu'

(you) and 'ha' (you) for plural form. The variant 'mu' is used in the northeastern region, whereas 'hang' is in the northwestern part of Perak. It is obvious that the topography of Perak acts as one of the contributing factors in determining lexicon variation and distribution in the state. For instance, the range of highlands has dissected Perak Malay into different dialects. Nevertheless, the so-called Perak Malay is obviously dominant at the low land area.

To clearly demonstrate the whole process from the gathered data, data analysis and finally the findings, this study will focus on the use of Malay pronouns as mentioned earlier. I (*saya*), you (*kamu*) and they (*mereka*) are selected as our primary lexicon items. For example, from the data gathered we can see that the variants involved can be in the forms of phonological variants and also lexicon variants. For instance, in the case of 'I' (*saya*), the lexicon /saya / is pronounced as three variants, namely [saya], [sayə] and [sayɔ]. Apparently, these variants become an identity of the speakers. The variants are influenced by the origin area of the speakers and the geographical elements such as boundaries, highlands and lowlands and demography factors like migration and transitions of ages. The economic factors play an important role as well. Let's have a look at the distribution of lexicon 'I' (saya) and it's four other variants.

As an introductory remarks on the background of Northern Perak namely, Larut Matang Selama and Hulu Perak, the following features can be very useful.

1. Bordered by Kedah (to the west), southern Thai (to the north) and Kelantan (to the northeastern).
2. An array of highlands that dissects the zone into two. One side facing Kedah and the other facing the southern Thai and Kelantan.
3. A big river known as Sungai Perak originated from Hulu Perak and ends at southern zone (Lenggong and Kuala Kangsar). In this area lies the lowlands.
4. A large lake to the east of Hulu Perak formed a large area of wetlands and very lightly populated. Most of the population in this area are Aslian people.
5. Large area of northern Perak especially to the west have a great influenced of northern dialect. This has been proven by Asmah. The sub-districts are Taiping, Bagan Serai and Bukit Gantang. Whereas area form the Lenggong influenced by Perak dialect in the south and Malay Pattani and Kelantan in the north and east.

THE DISTRIBUTION OF 'I' (*SAYA*)

In northern Perak, we can find 5 variants of 'I'. The variant 'aku' is very dominant and is productively used in both Larut Matang & Selama (LMS) and Hulu Perak (HP). 'Aku' denotes strongly one self, very dominant and at the same time reflects the closeness of a relationship among peers. It can also portray the power of a super-ordinate to a sub ordinate. It has a similar connotation as in the standard Malay. The next dominant variant is [sayə], with a score of 87.5%. [sayə] is widely used in LMC and fully used in HP. This variant has also a similar connotation to the standard language. A more interesting finding is on variants [saya], [sayɔ]

and [kami]. [saya] only exists in LMS with a score of 50% but none is found in HP. Likewise [kami] scored 50% at LMC but only 25% in HP. Finally [sayɔ] was found 50% in HP but only 25% in LMS.

Data in Table 1 shows the existence of 'I' in northern Perak. The high score for [saya] meets the features of (ii) and (v) above. The boundary near to Kedah has influenced the use of [saya]. Since HP is far from Kedah, we can anticipate no [saya] is used in that area. As for [kami], once again it exists more in LMS rather than Hulu Perak. Only 25% is used in HP. While [sayɔ], can be found more in HP as compared to LMS and only 25% on LMS. The use of [sayɔ] meets the features of (i) and (ii).

TABLE 1. The Distribution of variants 'I' in Northern Perak

Lexicon (L)	Larut Matang & Selama		Hulu Perak		Total	
L1- /saya/	2	(50%)	0	(0%)	2	(25%)
L2- /sayə/	3	(75%)	4	(100%)	7	(87.5%)
L3- /sayɔ/	1	(25%)	2	(50%)	3	(37.5%)
L4 – /aku/	4	(100%)	4	(100%)	8	(100%)
L9 – /kami/	2	(50%)	1	(25%)	3	(37.5%)

Additionally, there are places with more than 2 variants. The existence of multiple variants ranges from 2 to 5. These interesting facts can be explained better with GIS. Combination of different variables such as speakers, boundaries, topographies become a major factor that leads to this occurrence. For instance, Kg. Baru and Kg. Batu 12 in Trong, Kg. Pauh and Kg. Kubu Hilir in Bukit Gantang and Kg. Pahit Tengah in Pengkalan Hulu have 4-5 variants of 'I'. For Trong and Bukit Gantang –there are major roads that connect them. Topographically both areas are near to places towards the west that is Kedah. Trong is adjacent to the sea whereas Bukit Gantang has an access road to Kuala Kangsar, which is a lowland and a center for the royal administration. Even though there is a highland near Bukit Gantang that separates Bukit Gantang from Kuala Kangsar, there is still access road to Kuala Kangsar. That is why speakers from Bukit Gantang use Kedah dialect instead of Perak dialect. However the activities that allow people to interact have shown a great impact to the existence of the variants. As for Pengkalan Hulu, the borders form the west, north and east have once again given an impact to the distribution of the variants. For a clearer picture, the distribution of variants 'I' pronoun is drawn with spatial analysis of GIS as in Figure 4 below.
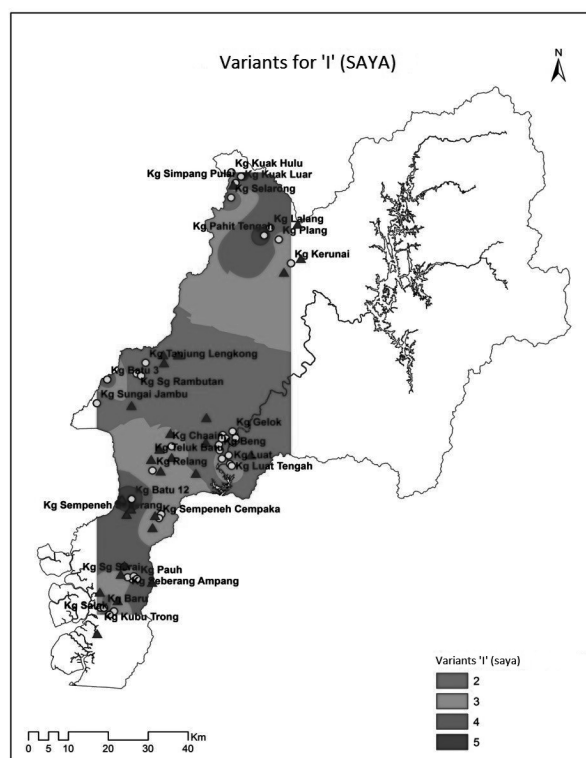

FIGURE 4. The Distribution of variants 'I' in Northern Perak

THE DISTRIBUTION OF 'YOU' (*KAMU*)

As in the case of 'I', the pronoun 'you' has its own variants. We have identified 7 variants for kamu 'you', namely 'kamu', 'mu', 'mung', 'hangpa', 'hang' 'awak' and 'dɛmɔ'. These variants have influenced and well distributed and assimilated from the neighboring area. [kamu] and [haŋ] are distributed from the western areas which are strongly influenced by the northern dialect, namely Kedah especially for LMS. While the pronoun [kamu] and [haŋ] can also be found in HP. They occur in both Kerunai and Pengkalan Hulu districts. These areas are lowlands. [kamu] is clearly influenced by Perak dialect while [haŋ] is influenced by Kedah dialect near Pengkalan Hulu. In the case for [haŋpa] and [awa/], we can find the variants in LMS only. [haŋpa] is strongly from the Kedah dialect while [awa/] is from Perak dialect. Meanwhile [muŋ] and [dɛmɔ] are clearly from the southern Thai and Kelantan. The variants for 'hangpa' and [awa/] and [muŋ] and [dɛmɔ] rely on features   (i), (ii), (iii) and (v).

TABLE 2. The Distribution of Variants 'YOU' in Northern Perak

Lexicon (L)	Larut Matang & Selama		Hulu Perak		Total	
L1 - /kɑmu/	3	(75%)	3	(75%)	6	(75%)
L2 - /mu/	2	(50%)	2	(50%)	4	(50%)
L3 – /muŋ/	0	(0%)	1	(25%)	1	(12.5%)
L5 – /haŋpa/	1	(25%)	0	(0%)	1	(12.5%)
L6 – /haŋ/	3	(75%)	3	(75%)	6	(75%)
L9 – /awa//	1	(25%)	0	(0%)	1	(12.5%)
L11 - /dɛmɔ/	0	(0%)	1	(25%)	1	(12.5%)

The map in Figure 5 below shows the distribution of variants 'you' in northern Perak. This map shows the intergration of geographical, demographical and linguistic factors tied together to form a reliable isogloss for the pronoun 'you'.

FIGURE 5. The distribution of variants 'you' in northern Perak

THE DISTRIBUTION OF 'THEY' (*MEREKA*)

The third pronoun is 'they' (mereka). The Pronoun 'they' has nine variants. And again the combination of demography, topography and linguistics integrated with GIS tool serves as a systematic window in understanding the distribution of this pronoun. As we can see in Table 3, the phonological variants produced [dema], [demə] and [demɔ] for set one and [depa] and [dɛpɔ] for the second set. Meanwhile [haŋpa], [mikə], [məɣɛkɔ] and [moha] form a different lexicon variant for 'they' as well. As mentioned earlier, phonological variants exist in tandem with lexicon variants, such as [dema], [demə] and [demɔ]. More interestingly, the variants occur at different places. In sum, [dema], [depa], [haŋpa] are more dominant in LMS. This again has to do with the features mentioned above. These variants are related to features (i) and (ii) above.

Whereas for [demɔ], we observe that this form is fully (100%) spoken in HP. HP is highly influenced by southern Thai and Kelantan which use the back semi low vowel /ɔ/. Unlike for pronoun [demɔ], we can see an equal distribution for [demə]. The reason is that these places are located near the lowland where the language contact happened almost every day. From the map drawn with GIS tool we can see
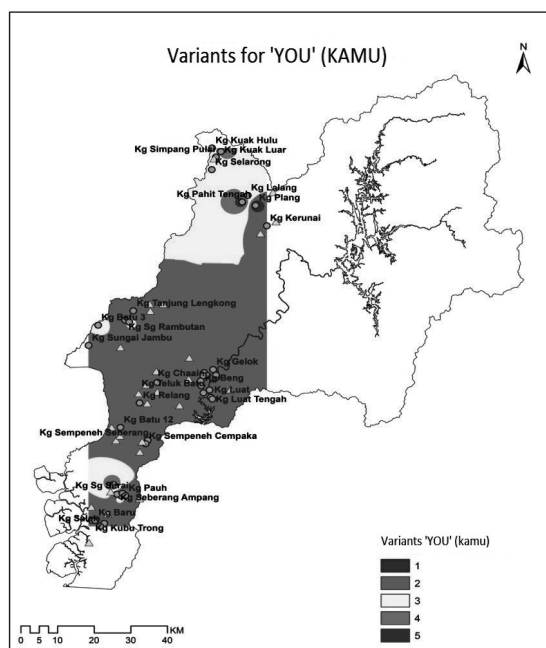
that the frequent use of different variants has to do with the demographic and geographic factors. The area is normally densely populated, and has many access roads to the neighborhood area, central point for all types of economics activities. More interestingly, these areas have become a melting pot for different people with different sub-dialects to interact and communicate. So the existence

of different variants of pronoun is expected. Once again, the features (iii) and (v) become the contributing factors for the distribution. Finally [mikə], [məɣɛkə] and [moha] are only used in HP. These forms are either influenced by Perak dialect to the south. These area which is known as Lenggong is very closely related to Kuala Kangsar which has a very strong accent for Perak dialect.

TABLE 3. The Distribution of variants 'THEY' in Northern Perak

Lexicon (L)	Larut Matang & Selama		Hulu Perak		Total	
L1- /dema/	1	(25%)	0	(0%)	1	(12.5%)
L2 - /demə/	2	(50%)	2	(50%)	4	(50%)
L3- /demɔ/	1	(25%)	4	(100%)	5	(62.5%)
L4 – /depa/	4	(100%)	2	(50%)	6	(75%)
L6- /dɛpɔ/	2	(50%)	1	(25%)	3	(37.5%)
L7 – haŋpa/	2	(50%)	0	(0%)	2	(25%)
L10 - /mikə/	0	(0%)	1	(25%)	1	(12.5%)
L13 -/məɣɛkɔ/	0	(0%)	1	(25%)	1	(12.5%)
L14 – /moha/	0	(0%)	1	(25%)	1	(12.5%)

The distribution of 'they' is shown in the GIS map as in Figure 6 below. We can see the seven variants of 'they' in northern Perak. The multiple variants will appear in lowlands, near a river, a densely populated area and many transportations access to the area. While an interior area surrounded by highlands and no major road access will have the least variants of pronouns.

The role of GIS does not stop at drawing or producing an isogloss at word levels only. The advantage of GIS is that it capable of joining all pronouns in one map. Simultaneously, it can assist us to produce a jointly pronouns map as seen in Figure 7 below. We can see the overall variants used by the speakers in northern Perak.
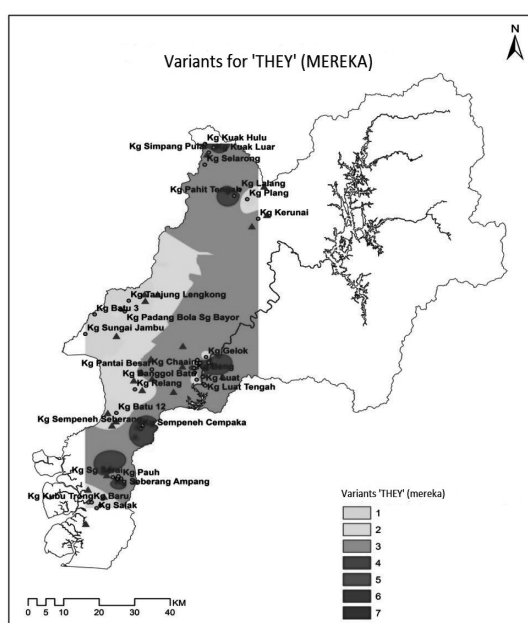

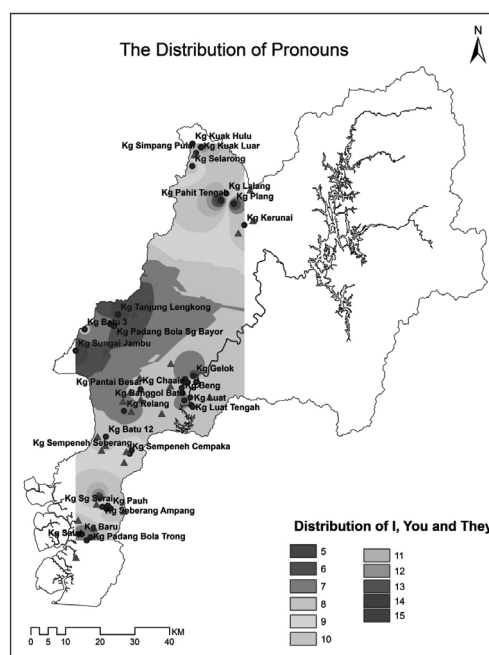FIGURE 6. The distribution of 'they' is shown in the GIS map

FIGURE 7. A jointly pronouns map

Lastly, we can have an overlay for one pronoun (in this case - 'I'). The distribution of 'I' is clearly shown from the range 2 to 5 as in Figure 8. It is understood that the range 2 is considered low. Normally the topographic factors play an important role in determining the distribution of the variants.
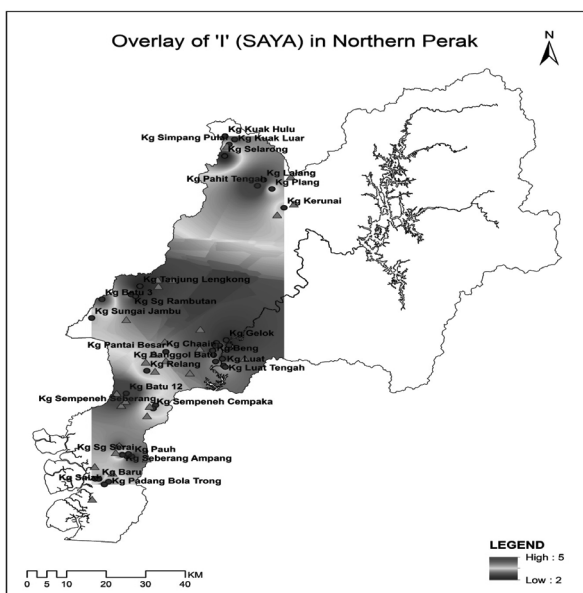

FIGURE 8. The distribution of 'I' from the range 2 to 5

CONCLUSION

The research in dialectology has some innovations that makes this discipline becomes much more interesting. The multi discipline approach has become more popular recently. We can have not only the result of the geographical dialects but how the dialects spreads based on the topographical factors. We can predict as why at certain areas they have more lexicon variants as compared to the high hills area. In the case of the Malay dialect of Perak, factors such as boundaries, rivers, lowlands and highlands are important in determining the dialect. In addition, migration, history and socio-economic factors have contributed to the factor as well. The fact that GIS is strictly restricted to geography has been widely applied in other discipline as well. It has spread to information system especially for data miners. It is now a friendly tool for anyone from any other discipline to utilize it.

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Nor Hashimah Jalaluddin
Institut of the Malay World and Civilization
Faculty of Social Sciences and Humanities
Universiti Kebangsaan Malaysia
Bangi, Selangor
MALAYSIA

Zaharani Ahmad
Harishon Radzi
School of Language Studies and Linguistics
Faculty of Social Sciences and Humanities
Universiti Kebangsaan Malaysia
Bangi, Selangor
MALAYSIA

Mustaffa Omar
School of Human Development and Psychology
Faculty of Social Sciences and Humanities
Universiti Kebangsaan Malaysia
Bangi, Selangor
MALAYSIA