Journal of Academic and Applied Studies
Vol. 3(4) February 2013, pp. 30-44
Available online @ www.academians.org

ISSN1925-931X

Can Syllabicating Transliterated Arabic Road Signs Improve their Pronunciation by Non-Native Speakers of Arabic?

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Abstract
The present study investigated the effect of syllabicating transliterated Arabic road signs on their pronunciation by non-native speakers of Arabic. It was hypothesized that syllabicating transliterated road signs results in better pronunciation by non-native speakers of Arabic than writing them as whole words. Twenty subjects who participated voluntarily in the study were asked to read a list of twenty Arabic road signs transliterated into English, taken from real road signs in the UAE and written as whole words (Method 1). The same signs were syllabicated and shuffled before they were given to the subjects to read them (Method 2). Participants were recorded in both times. Records were played by three raters who scored participants on a Likert scale of four categories. For reliability of agreement, Fleiss' Kappa revealed substantial agreement (K= 0.667) for the Method 1 and moderate agreement (K= 0.599) for Method 2. Paired T test was applied to test the difference between the means of the first and the second method. The results showed a significant difference between the two means (t = -11.145, p<= 0.0001), which supports the research hypothesis. Results were discussed and implications were provided with further research suggested.

Keywords: **Syllabification – Road signs – Transliteration – Reading – Pronunciation**

I. Introduction

The development of the international relations, as well as the significant increase in world tourism, has led English to be used as an international language in many countries. It becomes the language of trading, media and international communication and even the medium of instruction in may countries. In other words, English becomes a 'living language' (Lewis, 2009).

Apart from teaching it as a second or foreign language in public and private institutions, many countries use English to define some of their cultural aspects, especially common practices, and if it is not used for daily communication and formal transactions, its alphabet symbols are used to transliterate nameplates, ports, road signs, caricatures, posters, and so on. Nameplates and road signs are, perhaps, the most noticeable aspects of common cultural practices where English is used internationally side by side with the native language.

Journal of Academic and Applied Studies
Vol. 3(4) February 2013, pp. 30-44
Available online @ www.academians.org

ISSN1925-931X

Transliteration, as defined by Kharusi, and Salman (2011, p. 3) is "the representation of a word or phrase written in a script different from the source language achieved by using the characters or letters of the target language". In other words, it is the process of writing words or letters in different alphabet while their pronunciation is kept in native language. People sometimes mix up *transliterations* and *transcription*. These are three different but related processes. According to Longman Dictionary (Transliteration, 2003, p. 1767), *Transliteration* is the conversion of letters or words into another alphabet, but *transcription* is writing down something exactly as it was said (Transcription, 2003, p. 1766). Accordingly, the difference between these two terms can be summarized as: transliteration is for words and letters but transcription is for sounds.

The question that may impose itself here is: why do we need transliteration? Holloway points that:

> The primary aim of transliteration is to provide an alternate means of reading text using a different script. Transliteration is intended to broadly preserve the sounds of the original script, but the focus is not on providing an accurate phonemic representation as it is in the case of transcription. (Holloway, 2012).

In other words, the overt purpose of transliteration is to give a chance to the nonnative speakers of the source language to pronounce the words or the phrases close enough to their original pronunciation, which helps in reducing mispronouncing and misunderstanding of these words and phrases.

A. Statement of the Problem

Transliteration of road signs as well as names of places into English has become a common feature of the recent age. Arab countries are not exceptions, especially Arabian Gulf countries, where *almost* all the road signs and nameplates are transliterated into English. The way the road signs are transliterated, however, doesn't mean that readers of these road signs will read and pronounce them in a correct way, especially readers who drive vehicles. Readability is "the ease of reading created by the choice of content, style, *design*, and organization that fit the prior knowledge, reading skill, interest, and motivation of the audience" (DuBay, 2007 p. 6). The time through which they are exposed to these road signs is much limited and the distance from which they read these road signs is not fixed. Moreover, these road signs are written as whole words, which may result in mispronunciation of these words. Such mispronunciation may, in turn, results in deviating from the original Arabic pronunciation and that could lead to undesirable results, such as mixing up places and/or missing destinations, especially by non-Arab road users.

Both Arabic and English are stressed-timed rhythm languages (Barkat-Defradas, Hamdi, Ferragne & Pellegrino, 2004). A stress-timed rhythm means that stressed syllable "will intend to occur at relatively regular interval" (Roach, 2009, p. 107). Apart from phonemic and phonetic transcription, words syllabification may help in their correct pronunciation, especially by people who are familiar with the syllabification, i.e., linguists and language teachers. Syllabification means "dividing a word up into syllables" (Richards, Platt & Weber, 1985, p. 282). As Marchand and Damper indicate, syllabification contributes

Journal of Academic and Applied Studies
Vol. 3(4) February 2013, pp. 30-44
Available online @ www.academians.org

ISSN1925-931X

to the correct pronunciation of English words (Marchand & Damper, 2006). However, a distinction between syllabification and syllabic writing seems to be necessary in the current study. Syllabification is dividing a word up into syllables where each syllable is represented by one or more symbols. On the other hand, syllabic writing is featured, in Hancock (1995) words, that "each symbol stands for a syllable, or combination of syllables". [Abstract].

A road sign is a sign erected at the side of a road or canal to provide information to road users (The Free Encyclopedia, 2012). The purpose of this paper is to test the effect of syllabicating road signs on their pronunciation by non-native speakers of Arabic.

B. Research Hypothesis

It is hypothesized that syllabicating transliterated road signs results in better pronunciation of these words by non-native speakers of Arabic than writing them as whole words.

C. Research Question

The research is intended to answer the following question:
Does syllabification of Arabic transliterated road signs improve their pronunciation by non-native speakers of Arabic?

D. Research Significance

The present paper is a pioneer research in its field. To the knowledge of the researchers, no previous research has been carried out to investigate the research problem. Besides, it is hoped that the results would be utilized by traffic departments or the governmental bodies responsible for designing and writing the road signs in the United Arab Emirates (UAE) and other Arab Gulf countries. Furthermore, the research will add to the reading theory and the literature in transliteration and syllabification. It can also make a significant reference to those working in tourism on which they can base certain decisions about improving tourism and facilitating road users with easy-to-understand road signs. It is important to point out that transliterated Arabic road signs in any of the Arab countries do not aim at facilitating communication (Beesly, 1997/98); they, rather, serve the purpose of reading these signs easily by nonnative speakers of Arabic.

E. Research Limitations

This paper is limited to the Arabic road signs that are transliterated into English. It is beyond the research scope to tackle the consistency of road signs transliterations or the structure of the Arabic and English syllable. The research is limited to the pronunciation of those who have significant background in transliteration and syllabification. Nevertheless, the results can be generalized to all Arabic road signs that are transliterated into English all over the Arab world.

F. Terms Definitions

Non-native speaker: A person whose first language or mother tongue is different from Arabic.
Road user: A person who uses public roads to walk or drive a vehicle.
Road Signs: "A sign next to a road that gives information to drivers" (Road sign, 2003, p. 1432).

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ISSN1925-931X

Syllabicating: Forming or dividing words into syllables (Syllabicating, 2000).
Syllable: "A word or part of a word which contains a single vowel sound" (Syllable, 2003, p. 1683).
Transcription: Written representation of spoken language (The Free Dictionary, 2010).
Translation: The act of converting or translating a text from one language to another (The Free Dictionary, 2010).
Transliteration: Writing a word, sentence, etc in the alphabet of a different language or writing system. (Longman Dictionary, 2003).
Whole-word-writing: Writing words without dividing them into syllables.

II. Previous Studies

As mentioned earlier, no previous studies, to the researchers' knowledge, have been conducted to investigate the effect of syllabicating transliterated road signs. Previous studies on the effect of syllabification on pronunciation were mostly carried to support remedial programs in reading and lexical processing, or to teach children how to pronounce words in isolation when they have difficulties in pulling word syllables together. One of the earliest studies, for example, was carried out by Canney and Schreiner (1976/1977), where they examined the rule-oriented syllabication instruction and phonogram identification as advanced decoding strategies. They found that neither of strategies improved the word attack skills or the reading comprehension of the students being tested. Vroomen and de Gelder (1999) also conducted a study to investigate the lexical access of resyllabified words using a phoneme monitoring task. They found that resyllabification increased the lexical-processing demands. Another study was carried at the University of Melbourne, Australia (Posted in Docstoc Premium, 2010) where explicit teaching of syllabification strategies were found to increase the students' ability to syllabify by which their reading fluency is improved. A study on speech recognition, syllabification and statistical phonetics pointed out that speech recognition could be improved by taking syllable boundaries into account (Hunt, 2004). In a recent study by Sarma and colleagues (2012) on rule based algorithm for automatic syllabification of a word of Bodo (the Tibeto-Burman language), it is found that the correct syllabification rules improve naturalness of synthesized speech. Other studies that were conducted by Bhattacharya and Ehri (2004) and Shippen and others (2005) suggested that the use of syllabification strategies would increase students' understanding of isolated new, multisyllabic words. Bhattacharya (2006) also introduced a syllable-based reading strategy for mastery of scientific information. She concluded that accurate and fluent decoding of words is essential for effective reading of content area information.

Perhaps the closest study to the present research problem was carried out by Marchand and Damper (2006). Such a study aimed at introducing a system of syllabification that depends on algorithm for improving pronunciation of English by analogical reasoning. However, they showed that "including perfect (according to the corpus) syllable boundary information in the orthographic input can dramatically improve the performance of pronunciation by analogy of English words, but such information would not be available to a practical system" (p. 1). Another study by Marchand, Adsett and Damper (2009) was carried to investigate automatic syllabification in English, where the authors compared three different

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ISSN1925-931X

approaches of syllabification (rule-based method, data-driven paradigm and syllabification by analogy) and found that syllabification by analogy obtained consistent results.

A close study in transliteration of road signs was carried out by Kharusi and Salman (2011) to investigate the inconsistency of the English transliteration of place names in Oman. The study was part of a governmental project to simplify and unify the English transliteration of place names on tourist maps, at tourist sites, on road signs, and in marketing and public relations material. The researchers produced a simplified system for transliterating Omani place names into English for people who do not read or speak Arabic.

III. Methodology and Procedures

The present study is an empirical quasi experimental study using a one group design (Spector, 1981) to test two methods of writing transliterated names (i.e., whole word vs. syllabification) and compare their effect on the pronunciation of these names by nonnative speakers of Arabic. Such a design allows researchers to "measure the effect of an intervention (i.e., instructional activity, innovation, or program)" (Instructional Assessment Resource, 2007). The study measures the dependent variable (i.e., accuracy of pronunciation of transliterated names) using two different methods of writing these names (the independent variable). Although the participants did not receive any treatment, the two methods of writing were used as pretest (whole word pronunciation) and post test (syllabicated word pronunciation) for the same group. The design enables the researchers to compare means of two methods measured with the same precision (Kirk, 2009). It is hypothesized that syllabification of these names will lead to better pronunciation of such names by the same group of people used in the study.

A. Research Setting

The present paper was carried out in the UAE. The UAE is a constitutional federation of seven emirates; Abu Dhabi, Dubai, Sharjah, Ajman, Umm al-Qaiwain, Ras al-Khaimah and Fujairah. It occupies an area of 83,600 sq km along the south-eastern tip of the Arabian Peninsula (Emirates. Org, 2012).

The UAE is one of the open Gulf countries to the international trade and tourism. "Although Arabic is the official language, English is widely understood and ranks alongside Arabic as the language of commerce" (Emirates. Org, 2012). According to the UAE National Bureau of Statistics, the population of the country in 2010 was 8.26 million people, of which 88.5% are expatriates (National Bureau of Statistics UAE, 2012). Non Arabic Speakers represent about 77% of the population. Asians represent about 68% of the population; most of them are Indians, Pakistanis, Bangladeshis, Afghanis and Iranians. Europeans are estimates to be 3% of the population; Americans and South Americans 1%, Africans represent 1% (most of them are from South Africa and Kenya), and Australians represent 0.1%. (The Free Encyclopedia, 2013).

According to the Business City Guide (2013), the paved roads are about 4,080 kilometers across the UAE. In 2012, it was ranked first in terms of availability of paved roads and paved, among 132 countries around the world (Global Enabling Trade 2012, quoted in: General Authority for Telecommunications Regulatory, 2013).

The road signs in the UAE are written in both Arabic graphemes and English graphemes. Arabic is written form right to left, in a cursive style (i.e., joint letters). On the

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Available online @ www.academians.org

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other hand, English is written from left to write in print (i.e., single letters). Aside from English words that indicates directions (e.g., north, south, east, west, right, left, etc.) and the distances (e.g., next, after, one kilo, etc.), names of places and roads are transliterated from Arabic into English.

B. Participants

Twenty teachers who teach at the Higher College of Technology (HCT), Al-Fujairah participated voluntarily in the study. Although they have different nationalities, the homogeneity was clearly demonstrated in that they were all native speakers of English, and none of them had Arabic as a mother tongue or second language. Besides, they all held an MA degree in English or in other Educational field by which they were accepted as teachers at the HCT. Table (1) below shows the distribution of participants according to their nationalities.

Table 1. Participants according to their nationalities

Nationality	**Numbers of Participants**
British	8
American	8
Canadian	2
Australian	1
New Zealander	1
Total	**20**

The only other variable -beside the way of writing road signs- that could have some effect on the results of the study was the participants' length of stay in the UAE. Such length of stay ranged between 8 months (the lowest period of time) and 19.5 years (the longest period of time), with an average of 7.125 years for the whole group. Table (2) summarizes the participants' length of stay in the UAE.

Table 2. Participants' length of stay in the UAE.

Period of stay	**Number of participants**
8 months – 2 years	6
3 years – 7 years	4
8 years – 10 years	5
More than 10 years	5
Total	**20**

To find out whether the effect of stay in the UAE was significant on participants' pronunciation, the participants were divided into two equal groups of 10 each, on the basis of the average period of stay: less than 8 years, and 8 years and more as shown in Table (3).

Table 3. Participants' length of stay in the uae.

Period of stay	**Number of participants**
Less than 8 years	10
8 years and more	10
Total	**20**

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For Method A, a *t* test with no equal variance was calculated between the means of the two groups (Group 1: 8 years and more: $X = 51$ with SD = 7.409) and (Group 2: $X = 49.6$ with SD = 6.637) and found no significant differences between the means ($t = 0.4451$; $p<0.01$, df = 18). For Method B, a *t* test with no equal variance was also calculated between the means of the two groups (Group 1: 8 years and more: $X = 59.9$ with SD = 6.420; Group 2: $X = 59.2$ with SD = 5.808). The results of the *t* test also showed no significant difference ($t = 0.2557$; $p<0.01$, df = 18). The length of stay did not have significant effect on participants' pronunciation of the transliterated road signs.

C. Data Collection Instrument

Two versions of a list of twenty real transliterated road signs of two or more syllables taken randomly from Al Ain–Dubai highway were developed. The list contained words (names) of different numbers of syllables as follows (Table 4):

Table 4. Number of syllables in the selected road signs

No of Syllables	No of Words
2 syllables	5
3 syllables	9
4 syllables	5
5 syllables	1
Total	20

In the first version (Method A), signs were written as whole words (see appendix A). The second version (Method B) contained the same road signs but syllabicated and completely shuffled (i.e., produced in a completely different order) (see appendix B). The purpose of shuffling the signs was to avoid Mere-exposure effect. Mere-exposure effect refers to the effect of exposing subjects to a familiar stimulus, where they tend to do better in familiar stimulus than in non familiar one (Zajonc, 1968). The first version was given to the participants individually where they were asked to read it once, while their readings were recorded. Each participant was given a number (1 to 20) for the sake of accuracy in later rating of his/her pronunciation. After one week, the same participants were asked to read the second version while their readings were recorded. The one week period was also though to reduce the Mere-exposure effect, where the participants might have remembered some of the signs from their first reading.

IV. Data Analysis and Findings

Records collected from the participants were played by the researchers to check level and clarity of sounds. For the sake of reaching reliable decisions about participants' pronunciation of every word, the records were given to three university teachers specialized in Arabic language teaching to rate how close the pronunciation of each participants was in a Likert scale of four categories: (1) very different, (2) different, (3) close, and (4) very close. Categories were explained as follows (see Appendix C):

Very Different: The speaker pronounces the word completely different from its original pronunciation in Arabic.

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Different: The speaker pronounces the word somehow different from its original pronunciation in Arabic.
Close: The speaker pronounces the word close to its original pronunciation in Arabic.
Very Close: The speaker pronounces the word very close to its original pronunciation in Arabic.

Arabic words with diacritics (Arabic vowel points) were provided in both versions to ensure reliable judgment (Appendix C). Moreover, A short session of training was held by the researchers for each rater separately to train them how to rate. The four categories in the used Likert scale were given values from 1 to 4 as follows:

Very different =1, Different= 2, Close = 3, Very close = 4

The three scores for each participant in each word were added and the average of these three scores was calculated and used as the final score for each participant.

To assess the reliability of agreement between the three raters, Fleiss' Kappa was calculated for each recording list. The mean (X) of each rater' scores for each participants were used and the results showed substantial agreement (K= 0.667), Pi= 16.495, P_e = 0.4733 and P = 0.82475); and moderate agreement (K= 0.599, Pi = 15.997, Pe= 0.500878) with N =20 and n= 3 (Number of raters) and k= 4 (number of categories). The results were interpreted according to Landis and Koch (1977) interpretation table.

To test the main hypothesis of the research, a paired t test was conducted using SPSS 16 for Windows to compare the means of Method A (whole word) and Method B (syllabicated word) The results showed a significant difference between the means for Method A (M=50.30, SD=6.88) and Method B (M=59.55, SD=5.96); t (19) = -11.145, p = 0.0001. The results suggested that syllabicating words improved their pronunciation. To be more specific, the results suggested that syllabicating transliterated road signs would result in close pronunciation to their original names. Tables (5) and (6) below summarize the results:

Table 5. Paired samples statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Scores in Whole Word reading	50.3000	20	6.88324	1.53914
	Scores in Syllabicated Words	59.5500	20	5.96900	1.33471

Table 6. Paired samples test

	Paired Differences					T	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			

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Table 6. Paired samples test

		Paired Differences					T	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Scores in Whole Word reading and Scores in Syllabicated Words reading	-9.25000	3.71165	.82995	-10.98710	-7.51290	-11.145	19	.000

V. Discussion and Implications

A. Discussion

The results of this study showed significant difference in pronouncing road signs when they are written as whole word and when they are syllabicated ($t = -11.145$, $p<0.0001$). Such results answer the research question and support the research hypothesis that syllabicating transliterated road signs results in better pronunciation of these words by nonnative speakers of Arabic than writing them as whole words. Another important finding of the research is related to the effect of length of stay of participants in the target culture, where the length of stay did not have significant difference on the road signs pronunciation by nonnative speakers whether these words are written as whole words ($t = 0.4451$; $p<0.01$) or syllabicated ($t = 0.2557$; $p<0.01$). Although different approach was used, the results of the present study were in consistency with the results obtained by Marchand and Damper (2006) about the positive effect of syllabification on improving word pronunciation. On the other hand it, these results differ from those obtained by Canney and Schreiner (1976/1977) which showed that syllabication instruction did not improved the word attack skills or the reading comprehension of the pupils tested. One of the interpretations of such difference is that the current study used different approach and the subjects in both studies were different. Besides, Canney and Schreiner investigate the effect of certain syllabification rules on word attack skills, while the current study investigates the effect of syllabification on transliterated road signs.

Another important finding was that the length of stay of the participants in the UAE did not have significant effect on their pronunciation of the transliterated road signs regardless of the way these signs are written. Although these results support the findings of Shim (1995), they stand in a counter-line of the mainstream in this issue represented by results obtained by other previous studies that found a positive relationship between the length of stay in target language culture and language proficiency in general (Purcell and Suter, 1980; Krashen,

ISSN1925-931X

1981; Krashen, 1994; Slavoff and Johnson, 1995; Bialystok, 1997; Finney, 2005). Such a matter might be attributable to the sample size of the present study (n = 10 for both samples) and the topic under investigation. Besides, the main concern of most of the previous studies was the critical period while the main concern of the present study was the way of writing transliterated road signs.

B. Implications

The results have an implication to reading theory, especially to comprehension of printed graphemes, mental interpretation of coded printed material and scanning strategies. Moreover, the results facilitate decision makers and governmental bodies responsible for developing and improving traffic signposts with evidential data that help them take proper actions. They also form a basis for theoretical consideration of adopting syllabification technique in transliterating words from one language to another for facilitating correct pronunciation of these words. They may also constitute a starting point for projects that aim at syllabicating other signposts, such as shopping nameplates, tourists' guides, restaurant menus, and common names of halls, schools and universities, etc. Moreover, they have certain implications to cross cultural communications, where transliterating words into another alphabet contribute to cultural understanding, cultural rapprochement and cultural adjustment.

A valid question may be posed here concerning the applicability of the results to other road users who other languages than Arabic and English. Leaving aside the UAE citizens who definitely speak Arabic and Arabs living in the UAE, the people who use the roads and in contact with the road signs most frequently are the taxi drivers. As mentioned earlier, 68% of the population of the UAE is from Asia and the majority of them are Indians, Pakistanis, Bangladeshi, Afghanis and Iranians (The Free Encyclopedia, 2013). Those people are either familiar with Arabic alphabet because of their religious background or their mother tongues use Arabic alphabet (i.e., Urdu, Shahmukhi, Pashto, and Persian). According to the Free Encyclopedia, "Pakistanis in UAE dominate the transport sector i.e. from logistics to crane operators and up to taxi drivers" (2013, Pakistanis in the United Arab Emirates). Besides, those drivers may not be qualified to read Roman letters. In other words, those drivers neither need the road signs to be transliterated into English, nor do they need them to be syllabicated. The remaining expatriates are either native speakers of English or use Roman letters in their writings.

C. Further Research and Conclusions

The findings of this study represent a threshold stage of the topic under investigation. Further research is needed to measure the time consumed in reading transliterated road signs written in both ways: syllabification and whole word. Besides, other studies are required to tackle the same issue but with a large sample of drivers from different nationalities. Furthermore, tackling English road signs transliterated into Arabic seems also an important future research. More research is also needed to tackle the issues of consistency of road signs transliteration in the UAE such as the one conducted by Kharusi and Salman (2011). Moreover, conducting a research to investigate the level of difficulty in pronouncing transliterated words associated with the number of syllables in each word would bring great support to the finding of this study.

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Available online @ www.academians.org

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It will be of great value if a research might be conducted using Transliteration Assistant program that was developed by Microsoft (Basic Technology, 2012) for the sake of consistent transliteration of Arabic road signs. Another future research of great value will be in comparing the use of strict transliteration or ALA-LC (American Library Association - Library of Congress) method (Library of Congress, 1997) and the standard transliteration developed by the United Nations Group of Experts on Geographical Names or UNGEGN (2002) in transliterating Arabic road signs. While UNGEGN standard system provides symbols that represent sounds without details (diacritics, such as accents, underscores and underdots, etc), ALA-LC transliteration provides such details to explain the precise pronunciation of a word, especially phonemes that have no correspondents in Latin graphemes.

In conclusion, the present study tried to answer the question whether syllabicating transliterated road signs results in better pronunciation of these signs by non-native speakers of Arabic than writing them as whole words. With the length of stay proven to have no effect, the data collected from the participants showed a significant difference favoring the syllabification technique. The results have certain implications for reading theory and cross cultural communication. More research, however, is needed to divulge more results and to support the results of the present study.

References

Abu Dhabi International Offset Conference (2013). *About the UAE*. Available from http://www.adioc.ae/abu-dhabi/information.aspx

Barkat-Defradas, M, Hamdi, R, Ferragne, E and Pellegrino, F (2004): Speech timing and rhythmic structure in Arabic dialects: a comparison of two approaches, *In Interspeech 2004, the 8th International Conference on Spoken Language Processing (ICSLP)*, Jeju Island, Korea. pp 1613-1616.

Basic Technology (2012). *Automatic Recognition and Transliteration of Foreign Names into English*. Available from http://www.basistech.com/transliteration-assistant/?_kk=%2Barabic%20%2Btransliteration&_kt=dcc4e5cf-78b3-4a8f-b30e-39bfe42ec178&gclid=CNi4u5Tg0LQCFU3HtAodWDEAcw

Beesley, K (1997/98). Romanization, Transcription and transliteration. *The Document Company*. Available from http://open.xerox.com/Services/arabic-morphology/Pages/romanization

Bhattacharya, A (2006). Syllable-Based Reading Strategy for Mastery of Scientific Information *Remedial and Special Education Vol*(27) No. 2, pp 116–123.

Bhattacharya, A, & Ehri, L (2004). Graphosyllabic analysis helps adolescent struggling readers read and spell words. *Journal of Learning Disabilities*, *Vol*(37), pp 331–348.
Bialystok, E. (1997). Effects of Bilingualism and Biliteracy on Children's Emergent Concepts of Print. *Developmental Psychology Vol*(30) No. 3, pp 429–440.

Canney, G and Schreiner, R (1976/1977). A study of the effectiveness of selected syllabication rules and phonogram patterns for word attack. *Reading Research Quarterly Vol*(12) No. 2, pp 102.

Docstoc Premium (2010). *Explicit teaching of syllabification strategies in reluctant readers*. Available from http://www.docstoc.com/docs/42022470/Explicit-teaching-of-syllabification-strategies-in-reluctant-readers

DuBay, WH (2007). *Smart Language: Readers, Readability, and the Grading of Text*. Costa Mesa, California: Impact Information

Ellis, NC (Ed.) (1994). *Implicit and Explicit Learning of Languages*. London: Academic Press.

Expatriates in the United Arab Emirates (2013). *The free encyclopedia Wikipedia*. Available from http://en.wikipedia.org/wiki/Expatriates_in_the_United_Arab_Emirates
Finney, M. A. (2005). Perception of Errors in Second Language Syntax: Acquisition or Processing Difficulties? *Proceedings of the 4th International Symposium on Bilingualism*, ed.

J. Cohen, KT, McAlister, K, Rolstad, and J MacSwan, 751-767. Somerville, MA: Cascadilla Press.

General Authority for Telecommunications Regulatory (2013) *Paved Highways 3800 km length*. Available from http://www.uaepedia.ae/index.php/transportation #.UQ4RZx2R-So.

Hancock, L (1995). *How Do You Spell Nunavut?* Canada, Nunavut: Available from http://connection.ebscohost.com/c/articles/11970937/how-do-you-spell-nunavut

Holloway, S (2012). *Principles and Purposes of Transliteration.* Available on line at: http://scriptsource.org/cms/scripts/page.php?item_id=entry_detail&uid=x799qyq3ky

Hunt, MJ (2004): Speech recognition, syllabification and statistical phonetics In *Interspeech 2004, the 8th International Conference on Spoken Language Processing (ICSLP)*, Jeju Island, Korea. pp.57-60.

Instructional Assessment Resource (Website) (2007). One-group pretest-posttest design *University of Texas at Austin.* Available from http://www.utexas.edu/academic/ctl/assessment/iar/research/

Kharusi, NS & Salman, A. (2011) The English Transliteration of Place Names in Oman. *Journal of Academic and Applied Studies Vol*(1) No.3, pp 1–27 Available online at: www.academians.org

Kirk, R (2009). Experimental Design. In r. Millsap & A. Maydeu-Olivars (Eds.), *Sage handbook of quantitative methods in psychology.* CA; Sage Publications (pp. 23-45). Available on line at: https://www.researchgate.net/publication/232905758

Krashen, S (1981). *Second Language Acquisition and Second Language Learning*. New York: Pergamon Press.

Krashen, S (1994). The input hypothesis and its rivals. In Ellis, Nick. (Ed.) *Implicit and Explicit Learning of Languages*. London: Academic Press. pp. 45–77.

Landis, JR and Koch, GG (1977) The measurement of observer agreement for categorical data. *Biometrics Vol*(33), pp 159–174. Available from http://www.jstor.org/discover/10.2307/2529310?uid=3737432&uid=2&uid=4&sid=21101747953591

Lewis, MP (ed.) (2009). *Ethnologue: Languages of the World* (16th ed). Dallas, Tex.: SIL International. Available on line at: http://en.wikipedia.org/wiki/Language#The_brain_and_language.

Marchand, Y and Damper, R (2006). Can syllabification improve pronunciation by analogy of English? *Natural Language Engineering Vol*(13) No. 1, pp 1–24.

Marchand, Y, Adsett, CR and Damper, R (2009) Automatic Syllabification in English: A Comparison of Different Algorithms. *Language and Speech Vol*(52) No.1, pp 1-27.

National Bureau of Statistics UAE (2012) *Emirates in figures 2011*. Available at www.uaestatistics.gov.ae/EnglishHome/tabid/96/Default.aspx

Purcell, E and Suter, R (1980). Predictors of pronunciation accuracy: A reexamination. Language Learning *Vol*(30), pp 271-287.
Real Choice (Website) (2012). *About UAE*. Retrieved from http://www.dubaifirsthome.com/about-uae.

Richards, J, Platt, J and Weber, H (1985). *Longman Dictionary of Applied Linguistics*. Longman Group Ltd.

Roach, P. (2009). *English Phonetics and Phonology (4th Ed)*. Cambridge University Press.

Sarma, C, Talukdar, J and Talukdar, P (2012). A Rule Based Algorithm for Automatic Syllabification of a Word of Bodo Language. *International Journal of Computing, Communications and Networking Vol*(1) No. 2, pp 53-56. Available on line at http://warse.org/pdfs/ijccn01122012.pdf

Shim, RJ (1995). *The sensitive period for second language acquisition: An experimental study of age effects on universal grammar and language transfer* [abstract]. Unpublished PhD Dissertation at University of Illinois at Urbana-Champaign. Retrieved from https://www.ideals.illinois.edu/handle/2142/19928.

Shippen, ME, Houchins, DE, Steventon, C and Sarton, D (2005). A comparison of two direct instruction reading programs for urban middle school students. *Remedial and Special Education Vol*(26), pp 175–182.

Slavoff, G and Johnson, J (1995). The effects of age on the rate of learning a second language. *Studies in Second Language Acquisition Vol*(17), pp1-16.

Spector, P (1981). *Research designs*. NY: Sage Publications.

Syllabicating (entry) (2000) *The American Heritage Dictionary of the English Language (4th Ed)*, Houghton Mifflin Company.

The Business City Guide (2013). *United Arab Emirates*. Retrieved from http://bcg.thetimes.co.uk/Asia/United_Arab_Emirates#/Asia/United_Arab_Emiratesinfrastructure

Transcription (2003). *Longman Dictionary of contemporary English*. Essex: Pearson Education Ltd.

ISSN1925-931X

Transliteration (2003). *Longman Dictionary of contemporary English*. Essex: Pearson Education Ltd.

Manual of Style/Arabic (2010).*The Free Encyclopedia (Wikipedia).* http://en.wikipedia.org/w/index.php?title=Wikipedia:Manual_of_Style/Arabic&oldid=382399707

The Free Encyclopedia (Wikipedia) (2012). Traffic Sign. Available at http://en.wikipedia.org/wiki/Road_sign

The Library of Congress (1997). *ALA-LC Romanization Tables*. Avaiable on line at http://www.loc.gov/catdir/cpso/romanization/arabic.pdf

UAE interact (2012). *Social Development- Population*. Available at http://www.uaeinteract.com/news/default3.asp?ID=134#48889

United Nations Group of Experts on Geographical Names (UNGEGN) (2002). *Glossary of Terms for the Standardization*. UN publication: NY.

Vroomen, J. and de Gelder, B. (1999). Lexical access of resyllabified words: Evidence from phoneme monitoring. *Memory & Cognition Vol*(27) No. 3, p 413.

Zajonc, RB (1968). Attitude effects of mere exposure. *Journal of Personality and Social Psychology Vol*(9) No. 2, pp 1-27.