

Dyslexia in the Arab World

Talal Musaed Al-ghizzi¹

Abstract

This article presents an overview of dyslexia, its types and their definitions, and the complicated issues it has raised in the Arab World.

Keywords: Dyslexia, Developmental Dyslexia, Trauma Dyslexia, Alexic, Dyseidetic, and Dysphonetic.

Dyslexia has been a subject of debate for many decades and still continues to be a contentious topic. Historically, the debate, in a form of argument rather than research, was between educationalists, some of whom questioned even the existence of the condition. Since those early days, however, there have been some insightful studies, which gradually accumulated evidence enough to convince even the most hardened skeptic. Although those research papers have classified different types of dyslexia and offered definitions, there are still some unresolved issues with respect to categorizing those types and on reaching an international agreement as to one definition. For example, according to Dyslexia (2003) there are only two major types: "Developmental" – "caused by biological anomalies, usually genetic, in the brain at various levels (i.e., morphological or syntactic) from prenatal through childhood development", and "acquired", which is "caused by brain trauma that may occur pre-natally or later", resulting in "behavioral characteristics" similar to the former type. Also, specialists have proposed different subcategories within the first type of dyslexia, three of which are listed in Dyslexia (2003). For Boder (1973), developmental dyslexia have three various subcategories. One is dysphonetic, which is defined as disabled readers who are able to read both exception words and regular words, which they know by sight, but are unable to sound out non words and unknown words. Two is dyseidetic, which indicates dyslexics who are capable of phonologically decoding non words and regular words by sounding them out slowly; yet, the sight reading of vocabulary was small for them, and they will experience a great difficulty in reading exception words. Three is Alexic/mixed dyseidetic and dysphonetic, which is the most severe type and in which participants are deficient in both phonological decoding and sight reading.

On the other hand, Medicin Net. Com (2012) lists only three kinds of dyslexia. First, "Trauma dyslexia", which usually occurs after "some form of brain trauma or injury to the area of the brain that controls reading and writing". Second, "primary", which is defined as being genetically inherited and interpreted as a dysfunction of left side of the brain (i.e., cerebral cortex) and does not change with age. Third, is "secondary/developmental", believed to occur more in boys than girls and to be caused by "hormonal development during the early stages of fetal development". This type lessens as the child matures.

With regards to dyslexia definitions, as mentioned before, there is no international agreement on one specific definition. The reasons for this are not only that there are many various "forms" (Lawrence, 2009, p. 1), "causes, and effects" which may be "unique to each individual" (Murphy, 2004, p. 3) and that a definition might be based on one or groups of dyslexics, but also that there are still some disputes surrounding the neurological origin of dyslexia. In other words, the "neurological factors associated with dyslexia have yet to be satisfactory established" (Lawrence, 2009, p. 1).

¹University College Cork, PhD Degree Candidate in Applied Linguistics, 0871709499. A lecturer at Al Imam Mohammad Ibn Saud Islamic University (IMSIU), College of Languages and Translation, Riyadh, Saudi Arabia. t-alghizzi-ie@hotmail.com

Moreover, there is another reason: whether dyslexia should be regarded as another technique of “learning” or as a “deficit”. The former stance has been supported by the outcomes of recent neurological studies which maintained that dyslexics’ right hemispheres are larger than their left, indicating that they would rely more on visual processing for learning rather than on orthographical factors, such as morphology, spelling, etc., which normal people tend to rely on. Furthermore, the concept of dyslexia as an alternate learning strategy has been supported by multiple intelligence theory, in the sense that dyslexics can be intelligent in ways other than linguistically. This is supported by documented cases of famous and successful people /scientists, such as Einstein (ibid).

So, what is the best most comprehensive definition for dyslexia? Clearly, it is not the one which correlates it with intelligence, as does the definition in Medilexicon’s online medical dictionary: “impaired reading ability with a competence level below that expected on the basis of the person’s level of intelligence, and in the presence of normal vision, letter recognition, and recognition of the meaning of pictures and objects”. Instead, it would seem to be the one provided by the Board of Directors of the International Dyslexia Association (IDA):

Dyslexia is a specific learning disability that is neurobiological in origin. It is characterized by difficulties with accurate and/or fluent word recognition and by poor spelling and decoding abilities. These difficulties typically result from a deficit in the phonological component of language that is often unexpected in relation to other cognitive abilities and the provision of effective classroom instruction. Secondary consequences may include problems in reading comprehension and reduced reading experience that can impede growth of vocabulary and background knowledge. (IDA, 2002)

Reading ability has been always associated with literacy and although dyslexia is an international phenomenon which has existed in every language - and can sometimes cross the borders between two different languages -, most of the research in the field has been focused on English-speaking dyslexics. Nonetheless, some Arab specialists in dyslexia, citing similarities between English and Arabic, theorized that the outcomes of such research would be similar if conducted on Arabic-speaking subjects. To date, though all studies conducted in the Arab world have been few and fairly recent. For example, Aboudan, Eapen, Bayshak, Al-Mansouri and Al-Shamsi (2011) investigated dyslexia among postgraduate female students at UAE University. All the participants were bilingual, having Arabic as their mother tongue, and English as their second language. The outcomes indicate that dyslexia existed among higher education students and that it crosses “language boundaries” in the sense that dyslexic informants have problems in reading abilities in both languages, regardless of their differences in linguistic features (p. 64). This was a groundbreaking achievement since, at the postgraduate level, such research had never been tackled by Arab specialists before.

Nevertheless, after analyzing the results of ten different kinds of studies on dyslexia that were conducted in Arab countries or at least using Arabic informants, it is clear that the general objectives of those studies were as follows: 1. to replicate/refute the results of research conducted internationally or locally; 2. to identify the best predictors/causes/characteristics of Arabic dyslexics; 3. to determine the validity and suitability of using special, universal dyslexia test measurements on Arabic dyslexics; 4. to provide profound analyses for specialists/educationists to design remedies for effective intervention or even tests for diagnostic purposes; or 5. a combination some or all of the aforementioned. As regards the first objective - and probably one or two aspects of the others - there is an ongoing argument as to whether to consider phonological awareness - “refers to children’s ability to reflect, process, conceptualize and manipulate the sub-lexical segments of spoken language such as syllables, onset and rimes, and phonemes” (Elbeheri and Everatt, 2007, p. 273) -, and morphological awareness - “focuses on children’s conscious awareness of the morphemic structure of words and their ability to reflect on and manipulate the structure” (Carlisle, 1995, p. 194) -, as predictors for the levels of reading ability or not. This dispute has arisen since there is a belief that dyslexics have problem in some skills which are independent of these types of awareness (Nicolson & Fawcett, 1995).

Elbeheri and Everatt (2007) investigated the correlation between Arabic phonological processing and reading ability at word level in a sample of “353: 167 females, 186 males” Egyptian primary school students. The age range was from “9. 3 months to 11. 6 months” (p. 280). Participants were assessed on identification of “rhymes, delet(tion of) individual phonemes from words, reading pseudo-words, retain(ing) and manipulat(ing) sequences of digit names, decod(ing) novel letter strings, distinguish(ing) similar words, identify(ing) words within letter chains and correctly spelling dictated text, etc.,” (ibid). All of the above were without short vowelization (i.e., Arabic short vowels which are indicated by diacritics).

The results reveal that not only are there relationships between "literacy ability, decoding" and the level of "phonological processing", and the fact that there are differences between dyslexics and non-dyslexic participants in those respects/aspects, but that phonological awareness can indicate and possibly cause dyslexia. This is consistent with the results of Symthe's et al., (2008) study, where the word-level literacy of grade 3 children from different nationalities was examined: "107 Arabic, 84 Chinese, 79 English, 60 Hungarian and 47 Portuguese (Brazilian)-speaking" (p.174). It was found that "measures of decoding and phonological-processing skills were good predictors of word reading and spelling among Arabic and English speaking children" but not for the children of other nationalities (p. 170).

On the other hand, Abu-Rabia (1997a) contended that in order for specialists to use lists of words (without contexts) to test phonological awareness/ reading accuracy, they have to embellish them with short vowels. Otherwise, these lists would be meaningless for Arabic readers, whether dyslexic or not, since many of the Arabic words would be visually identical and could have distinct pronunciations according to their meanings. He supported this hypothesis by conducting three studies (1996, 1997b, and 1998). The first one, however, is irrelevant because its participants were normal readers. Thus, the focus for explanation will focus on one of the other studies. Abu-Rabia(1997b)tested the influence of Arabic short vowels on the reading accuracy of 39 poor readers and 70 skilled ones. Informants were requested to read newspaper articles and narrative stories in four reading conditions for each text type: vowelized text, unvowelized text, vowelized word naming and unvowelized word naming. The outcomes showed that short vowels were important in facilitating word recognition for all types of participants.

In addition, with a contradictory point of view from that mentioned above, Abu-Rabia (2007) investigated the role of Arabic orthography: morphology and spelling, and short vowelization in the reading accuracy and comprehension of "140 participants in grade 3, 6, 9 and 12". In each grade, there were 30/30 dyslexics and non-dyslexic subjects (p. 95). In the study, he used two types of measurements: "a phonological measure" (i.e., "short vowelization of words in sentences), and "a syntactic awareness measure" (i.e., "short vowelization of ends of isolated words") (p. 102). To test participants' abilities in morphological identification and production, the tool he used was adapted from Ben-Dror et al. (1995). For Identification, participants were asked to look through a 30-item written test - under each item there were three words only two of which used the same root - and identify the ones that shared the same root. For production, participants had to consult a list consisting of 30 roots and derive two new words - nouns or verbs - for each item. As regards spelling, each group had a list of "80" words which the tester dictated to the participants using full vowelization and in sentences. Participants had to write only those words without vowelization (p. 97). The results indicate that despite these measures' yielding results similar to the literature: (e.g., Siegel & Ryan, 1988, Bradley & Bryant, 1983, etc.), in the sense that they distinguish between normal and dyslexic readers, "(they) failed to predict reading accuracy of isolated words and reading comprehension across grades and reader types" (p.102). What were considered as being better predictors for reading accuracy and comprehension for all participants in all grades were orthographical factors: morphology and spelling. Remarkably, regarding the symptoms of Arabic dyslexics in reading accuracy, this study shows as well as that the significance of orthographical factors is similar to the outcomes of studies conducted on other "alphabetical languages" (e.g., Stanovich, 1991, Stanovich& Siegel, 1994, etc.) (ibid).

With respect to the rest of the research papers, their individual objectives will be outlined within the discussion of each one. In exploratory experiments, Al-Wabil and Al-Sheaha (2010) analyzed eye movements of eight subjects in reading Arabic texts: 4 dyslexics and 4 non-dyslexics. The age range of those participants was between 10 to 12 years and in educational level, they ranged between the 4th and 6th grades. The procedure of the study involved reading four Arabic passages: two were written in deep orthography (no diacritics), whereas the other two were written in shallow orthography (diacritics), at a third-grade reading level. The purpose of the study was to provide a thorough analysis of that area in which specialists can evolve "effective intervention and remedial programs for students with reading difficulty" (p. 31). The results reveal differences in the intensity of eye gaze and reading patterns between the two kinds of participants in the sense that dyslexics have "longer fixation duration, shorter saccades, and more regressions". Also, the results suggest that "the eye movement patterns are a reflection of the cognitive processes occurring when reading" the different orthographical types of Arabic texts (p. 25).

In Farrag, Khedr and Abel-Naser's(2002) research, it is stated that some scholars believe that dyslexic children, regardless of their nationalities, have a visual impairment which is a result of a deficit in the magnocellular system. These researchers also mentioned that since this system contains two parallel subsystems: magnocellular – “made up of large cells that have high conduction velocity and high sensitivity to movement and rapid stimulus changes” (p. 359), and parvocellular – “consists of small cells that are sensitive to color and fine spatial details” (Livingstone & Hubel, 1988, etc., as cited in Farrag et al., 2002, p. 359)-, it would be an overgeneralization and inadequate to relate the cause for dyslexia to the former system. In other words, a fourth grade class of 93 Egyptian students: 52 dyslexics and 41 normal, was tested, the results indicated that Arabic children's having reading problems is due to a deficiency within the parvocellular pathway rather than the magnocellular one.

In a unique language such as Arabic, where the language is written cursively and most of its alphabetical letters - such as /ا/: /h /- change their forms according to their position in the word: beginning as /هـ/, middle as /حـ/, and final as /اـ/, and due to the fact that there is the possibility of word migration - changing the sequences of letters in one word can transform it to another word, as in the case of جاهر (Gahz: Ready), and جهاز (Ghaz: device), Friedmman and Haddah-Hanna (2012.) conducted a study to determine the significance of these aspects on a special type of dyslexia: Letter Position Dyslexia (Henceforth LPD). LPD is “a deficit in the orthographic-visual analysis system that selectively impairs the ability to encode the relative position of letters within words and causes letter position errors” (p. 193). Subjects were 10 Arabic monolingual speakers with developmental LPD, and one bilingual Arabic and Hebrew speaker with acquired LPD (pp. 196-198). All of them were tested at word levels. The outcomes of the monolingual speakers vis-à-vis the bilingual in the rate letter migrations - changing the letter form or not changing the letter form - showed that all participants made “85%” letter position errors in the latter, whereas the former “almost never occurred”. Most interestingly, although the bilingual participant had a smaller error rate in Arabic than in Hebrew, the rate of error was similar between the two languages when the migrations led to change in letter form. Finally, the study suggests that “the diagnosis of LPD in Arabic should consider the effect of letter forms on migration errors, and use stimuli that are migratable words that do not require letter-form change” (p. 193)

Upon consideration, after discussing in some depth some of the studies that examined dyslexia in the Arab world, and mentioning their different objectives, it is clear that although some efforts have been made, they have been driven by the researchers' personal interests. That is to say that none of these studies were funded by Arab organizations or ministries of education. The reason for this is probably that there is a persistent belief that the percentage of Arabic dyslexics is far lower than that of Western countries (Farrag, El-Behary&Kandil, 1988), which is estimated to be 5 to 10 percent (Habib, 2000).

Yet, according to the United Nations Development Programme (2012), the prevalence rate is high because in 2002, when the Kuwait Dyslexia Association conducted a two-year survey on Kuwaiti primary, intermediate and secondary students, it was found that 6.29% of them have developmental dyslexia. Unfortunately, to date, this is the only survey that has ever conducted for a whole population of school-age students in all the Arab countries. Therefore, an increase of this percentage could reasonably be expected in countries where the number of students is higher.

Finally, since Arabic educational authorities call for the equality of learning opportunities and an increase of literacy among all the population, they have to start funding specialists to investigate the types, causes, symptoms and predictors of dyslexia in the Arabic language, which can then be used to design curricula and to select the most appropriate texts, ones that are “tailored to the needs of” both normal and dyslexic students “to get the best possible result” (Murphy, 2004, p. 1).

References

- Aboudan, R., Eapen, V., Bayshak, M., Al-Mansouri, M. and Al-Shamsi, M. (2011) 'Dyslexia in the United Arab Emirates university – A study of prevalence in English and Arabic' **International Journal of English Linguistics** 1/2, pp. 64-72.
- Abu-Rabia, S. (1996) 'The role of vowels and context in reading of highly skilled native Arabic readers' **Journal of Psycholinguistic Research** 25/6, pp. 629-641.
- Abu-Rabia, S. (1997a) 'Reading in Arabic orthography: The effect of vowels and context on reading accuracy of poor and skilled native Arabic readers' **Reading and Writing: An Interdisciplinary Journal** 9/1, pp. 65-78.

- Abu-Rabia, S. (1997b) 'Reading in Arabic orthography: The effect of vowels and context on reading accuracy of poor and skilled native Arabic readers in reading paragraphs, sentences and isolated words' **Journal of Psycholinguistic Research** 26/4, pp. 465-482.
- Abu-Rabia, S. (1998) 'Reading Arabic texts: Effect of text type, reader type, and vowelization' **Reading and Writing: An Interdisciplinary Journal** 10/2, pp. 106-119.
- Abu-Rabia, S. (2007) 'The role of morphology and short vowelization in reading Arabic among normal and dyslexic readers in grade 3, 6, 9, and 12' **Journal of Psycholinguistic Research** 36/2, pp. 89-106.
- Al-Wabil, A. and Al-Sheaha, M. (2010) 'Towards an interactive screening program for developmental dyslexia: Eye movement analysis in reading Arabic texts' **Springer** 1680/2, pp. 25-32.
- Boder, E. (1971) **Developmental dyslexia: Prevailing diagnostic concepts and a new diagnostic approach**, in H. R. Mykleburst (Ed.), *Progress in Learning Disabilities* (Vol. II) Grune and Stratton, New York, pp. 293-321.
- Carlisle, J. F. (1995) **Morphological Awareness and Early Reading Achievement**, in L. B. Feldman (Ed.) *Morphological aspects of language processing* Hillsdale, NJ: Lawrence Erlbaum, pp 189-209
- Dyslexia (2003) **Types of Dyslexia** [online] Available: <http://www.maclester.edu/academics/psychology/whathap/ubnpr/dyslexia/types.html> [Accessed 23 Feb., 2012].
- Elbeheri, G. and Everatt, J. (2007) 'Literacy ability and phonological processing skills amongst dyslexic and non-dyslexic speakers of Arabic' **Reading and Writing** 20/3, pp. 273-294.
- Farrag, A. F., El-Behary A. A. and Kandil M. R. (1988) 'Prevalence of specific reading disability in Egypt' **Lancet** 2, pp. 837-839.
- Farrag, A. F., Khedr, E. M. and Abel-Naser, W. (2002) 'Impaired parvocellular pathway in dyslexic children' **European Journal of Neurology** 9/4, pp. 359-363.
- Friedmann, N. and Haddad-Hanna, M. (2012) 'Letter position dyslexia in Arabic: From 'form to position' **Behavioural Neurology** 16, pp. 193-203.
- Habib, M. (2000) 'The neurological basis of developmental dyslexia: An overview and working hypothesis' **Brain** 123, pp. 2373-2399.
- Lawrence, D. (2009) **Understanding Dyslexia: A Guide for Teachers and Parents** England: McGraw, Open University Press.
- MedicineNet.com (2012) **Dyslexia** [online] Available: <http://www.medicinenet.com/dyslexia/article.htm> [Accessed 23 May, 2015].
- MediLexicon Online Dictionary (2012) **Dyslexia** [online] Available: <http://www.medilexicon.com/medicaldictionary.php> [Accessed 23 May, 2015].
- Murphy, M. F. (2004) **Dyslexia an Explanation: An Explanation for the Signs and Symptoms of Dyslexia** Dublin: Flyleaf Press.
- Nicolson, R. and Fawcett, A. (1995) 'Dyslexia is more than a phonological disability' **Dyslexia** 1, pp. 19-36.
- Smythe, I., Everatt, J., Al-Menaye, N., He, X., Capellini, S., Gyarmathy, E. and Siegel, L. S. (2008) 'Predictors of word-level literacy amongst grade 3 children in five diverse languages' **Dyslexia** 14/3, pp. 170-187.
- The International Dyslexia Association (2002) **What is Dyslexia?** [online] Available: <http://eida.org/definition-of-dyslexia/> [Accessed 23 May, 2015].
- United Nations Development Programme (2012) **Promoting Awareness and Recognition of People with Disabilities** [online] Available: <http://www.kw.undp.org/content/kuwait/en/home/ourwork/humandevlopment/successstories/promoting-awareness-and-recognition-of-persons-with-disabilities.html> [Accessed 23 May, 2015].