



Arabic is easy for the brain

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On Saturday morning I woke up to find my inbox inundated with emails linking to an article on the BBC's website entitled [Reading Arabic "hard for brain"](#) with an embedded picture of little Muslim girls in hijab reading the Arabic alphabet. Parents, somewhat concerned about the potential strain upon their children's brains, were inquiring about the validity of the claims made in the article. Having looked at the original research paper in the journal *Neuropsychology (Language Status and Hemispheric Involvement in Reading: Evidence From Trilingual Arabic Speakers Tested in Arabic, Hebrew and English)* written by Raphiq Ibrahim and Zohar Eviatar, published by the American Psychological Association 2009, Vol. 23, No. 2, 240–254), upon which the news item was based, I think there is a need for some clarifications that were, in the pursuit of sensationalism and perhaps anti-Arabic bias, ignored by both the researchers and the BBC science correspondent who authored the article, Dr Katie Alcock. I apologise in advance for the use of technical jargon but it is inescapable in this instance. This is a blatant and malicious attack posited within a scientific framework and therefore it requires, at least in part, a discussion in scientific terms. I will try to simplify my language as much as possible.

Reading "Israeli Arabic and logic" is hard for any brain

The problems with this research are too numerous to cover comprehensively in this short article, however there are a few conspicuous ones that can be dealt with succinctly. The first problem is that the Israeli researchers have violated a basic principle of authenticity in the representation of a language upon which they have issued this verdict of causal cognitive deficit. Instead of presenting their subjects, in the experiments, with written Arabic (to read) they created an entirely new orthographic configuration for the language in question. Arabic morphology is nonconcatenative and the forms of its letters vary considerably depending on their positions in a given word. Among the 28 letters of the Arabic alphabet, 20 have different orthographic positional representations. For example, the letter 'ayn in its final, middle, first and "standalone" forms are represented thus ع عع .

Therefore native readers of Arabic do not learn to read words comprised of letters in their standalone forms. This is different to English, where the orthographic forms found in the English alphabet are identical to those employed in English word constructions.

Despite mentioning this difference between the languages in the research paper, the sample stimuli sheet (Table C1. *Arabic*) clearly shows the Arabic used in the experiments was written without any consideration of the multiple positional forms of Arabic orthography. For example, the word *maktabah* was not written in Arabic as it should be (مكتبة) but instead presented as a string of separate standalone letters. See the word *maktabah* circled in red from the sample sheet below:

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Table C1. *Arabic*

Five-letter complex words	Six -letter complex words	Five-letter complex nonwords
مزرعة	مكتبة	مدرعة
محراث	صناعة	مكرات
تصعيد	مرتبة	دناعة
مجارى	مدرسة	مهارى

I could not believe my eyes when I saw this stimuli sample sheet in the appendix of the research paper. Initially, I thought it might have been a font recognition problem with my PDF reader but, on closer inspection, I discovered that that was not the case because the stimuli sheet was an image, i.e. a photographic snapshot of the original materials. What is even more astonishing is that there is no explanation whatsoever in the research for this bizarre choice of orthography. All they have to say on the point is that Arabic was presented to the subjects in Modern Standard Character Madinah S U Normal font. No mention is made of the fact that they had invented their own way of writing Arabic script i.e. by constructing separated letter strings which cannot be considered by any measure to be "Arabic words or Arabic text". Arabic speakers have no familiarity with this form of orthography.

If one's research methodology is flawed then one's results are bound to be flawed. The equivalent of this would be for me to present English speakers with a string of consonants without vowels, test their reaction times in milliseconds and then declare some cerebral deficit for those who speak English.

Another major problem is that the researchers do not consider the subjects' Arabic reading as first language (L1) competence. They regard the diglossia of *'āmmiyyah* (spoken Arabic) and *fuṣḥa* (Modern Standard Arabic) as two distinct languages for which they argue "*the two forms of Arabic are different enough from each other to result in the pattern typical of bilingualism*" and that the "*Adults can minimally be considered quadri-*

lingual, with SA [Spoken Arabic] as first language (L1), and MSA [Modern Standard Arabic], Hebrew, and English as additional languages. Because SA does not have a written form, all reading and writing are in the non-native language." For argument sake, if we were to agree with them on this point, then this raises a valid objection to the claim that their subjects were "native readers of Arabic".

In addition to these problems, the researchers appear to be grossly ignorant of Arabic and its orthography. For example, they erroneously claim that *"In Arabic, 22 of the 28 letters in the alphabet have four shapes"*. Ask any child who can read the Quran, even in a backwater village in non-Arabic speaking India, to count the different forms of the letters and s/he will be able to demonstrate the ignorance of these so-called academic researchers. I am surprised that a prestigious journal like *Neuropsychology*, of the American Psychological Association, would publish such substandard research. Judging from the grammatical errors found in the paper (e.g. *"This pattern is discernable in Hebrew"*. p.250), I am guessing that even the peer review may have been compromised, perhaps for the sake of old-boy networks or Zionist back-scratching of some sort.

The brain naturally prefers left-hemisphere (LH) for languages

So what is the problem if Arabic speakers use the left hemispheres of their brains? There is an overwhelming body of research which shows that language is predominantly a left-hemisphere activity, even in the case of English (for a review, see Banich, 2004; Hellige, 1993, 2001; Hellige & Adamson, 2006). There is left-hemisphere superiority for processing printed English. For example, reading-related deficits are more likely and more dramatic after injury to the left hemisphere than after injury to the right hemisphere (for a review, see Banich, 2004; Hellige, 1993, 2001). Also, functional brain imaging studies show that cortical networks within the left hemisphere are more active than corresponding networks within the right hemisphere during the identification of words and pronounceable nonwords (e.g. see Binder & Price, 2001; Hagoort et al., 1999; Herbster, Mintun, Nebes, & Becker, 1997; C. Price et al., 1992; Puce, Allison, Asgari, Gore & McCarthy, 1996). In addition, words are identified more quickly and more accurately when they are flashed briefly to the right visual field (and, thus, directly to the left hemisphere: RVF/LH presentation) than when they are flashed briefly to the left visual field (and, thus, directly to the right hemisphere: LVF/RH presentation). Tasks have included such things as naming a briefly presented word or nonword (e.g. see Bradshaw & Nettleton, 1983; Chiarello & Nuding, 1987; Hellige, Taylor & Eng, 1989; Levy, Heller, Banich & Burton, 1983; Levy & Kueck, 1986; Lindell, 2003) and deciding whether a string of letters spells a word (e.g. see Babkoff, Faust, & Lavidor, 1997; Iacoboni & Zaidel, 1996; Mohr, Pulvermuller, & Zaidel, 1994).

Studies examining language processing in general and the processing of printed text in particular have demonstrated left-hemisphere superiority across many other languages, including other Western languages like Spanish and German, as well as a variety of non-Western languages like Urdu, and phonetic forms of Chinese and Japanese (e.g. see Faust, Kravetz, & Babkoff, 1993; Hagoort et al., 1999; Hellige & Adamson, 2006; Hellige & Yamauchi, 1999; Illes et al., 1999; Kuo et al., 2001; Nakamura et al., 2000; Rastatter, Scukanec, & Grillo, 1989; Sakurai, Ichikawa & Mannen, 2001; Sasanuma, Itoh, Moi & Kobayashi, 1977; Tzeng, Hung & Garro, 1978). They all show left-hemisphere dominance with only a small number of exceptions, such as the Japanese

Kanji pictographic system, which has been shown to have right-hemisphere dominance (e.g. see Coltheart, 1980; Nakamura et al., 2000; Sasanuma et al., 1977).

Even if the Israeli research was sound in its methodology, the claims made would still be equivalent to someone presenting Japanese pictographic letters to the left-hemisphere (RVF/LH) Kanji speakers and concluding not only that the Japanese have brain deficits but also that reading Japanese is "hard for the brain" which of course would be an absurd conclusion. It would be similar to me forcing a right-handed person to write with his left hand and when he fails, I declare that because some people are ambidextrous "writing is hard for the brain".

Every language has its own particular effect on the brain. Subjecting speakers of one language to the peculiarities of another in order to establish differences is interesting and scientific but to issue verdicts of deficits on the basis of these differences and to accuse a language of being hard for the brain is not only unscientific but malicious. If some orthographic characters in English or Hebrew are processed in the right hemisphere of the brain, then that is an idiosyncrasy of those languages, in the same manner as the pronunciation of the letter *ḍāḍ* is unique to Arabic. Imagine the furore that would ensue if I were to ask Hebrew speakers to pronounce the Arabic letter *ḍāḍ* and, when they fail to do it correctly, I declare in the headlines that speaking Hebrew inhibits phonetic capacity in the brain. The ridiculousness of this whole exercise and the spin put upon it in the media by Dr Alcock suggests that there is an ulterior motive.

The real target seems to be the Quran

Arabic is not only the mother tongue of some 200 million Arabs but is it also the sacred medium of Devine communication for nearly 2 billion Muslims around the world. Through Arabic, Muslims experience the presence of the Words of God in the Quran. It is the language of our five daily prayers and the source of names we choose for our children. Arabic is sacrosanct in the worldview of a Muslim: through it we receive guidance from our Creator and with it we worship Him and pray for His Mercies.

The relationship between Arabic and our faith – Islam – is inseparable. Without Arabic we would have no Quran, and without the Quran we would have no Islam. Therefore for those who speak Arabic as their mother tongue, their connection to the Quran is direct and profound. They experience not only the supreme literary aesthetics of the Quran but also the power of the Divine words upon every fibre of their being. In the words of one baffled Christian observer, *"It is difficult to understand the fascination that the Quran exerts without mentally putting oneself in the place of the Muslim, who finds God when he recites it, looks to it for guiding principles and for whom the Quran is the presence of God"* (Jomier, J., 1978, *Eng trans* 1997. p.124).

In is no secret that in recent times there has been a consorted global campaign to create distance between Muslims and the Quran. This onslaught has come in a wide variety of guises, ranging from calls for reformation to malicious and direct interventions. Where these attempts – by way of postmodern mumbo jumbo philosophy, music and entertainment – have failed to distract Muslims from the Quran, school curricula have been manipulated to remove Quranic content under the pretext of modernisation and preventing terrorism.

The attack on Arabic by the Israelis and the BBC appears to be part of this same campaign. If Muslims were to believe that reading Arabic is overly burdensome or tiring for the brain, then they would become reluctant to send their children to learn to read the Quran. Muslim children, regardless of the language they speak, learn to read the Quran at a tender age in the mosques across the world. This experience creates a lifelong bond between the child and the mosque. This is one of the reasons why our mosques are overflowing at the seams while other places of worship are struggling to survive.

The Israeli motive for attacking Arabic could not be clearer. In [1987](#), they got the Palestinian Authority to agree to Israel's annexation of 80% of Palestine and now they are currently holding "peace talks" in Washington to grab more concessions over the remaining 20% of the land including Al-Quds al-Sharif and Masjid al-Aqsa. [Big pronouncements](#) about peace do not hide their malicious intent. The fact that the BBC is being used to attack Arabic in late 2010 during Ramadan with research that was published in 2009, suggests that there are other timetable considerations in play here.

Dissuading Muslim children from reading the Quran concurs with the '*doctrine of pre-emption*'. The argument runs as follows: if Muslim boys and girls around the world are kept away from reading the Quran for fear of brain damage or mental strain, their belief will receive less focus in their lives. As such, their belief in the Quranic sanctity of Jerusalem and the *Al-Aqsa* Mosque will be eroded. As a result, their stance against Israeli oppression will be neutered.

The Quran and its Arabic is made easy

Had Arabic been a strain on the human brain, then whole populations in countries such as Iraq, Jordan, Palestine, Syria, Lebanon, Egypt, Tunisia, Libya, Algeria, Morocco and Sudan would not have become Arabic speakers. It was primarily their zeal to understand the Quran that led people to give up their native tongues and adopt Arabic as their main language. The Quran emphasises its Arabic nature in no less than eleven different verses (12:2, 13:37, 16:103, 20:113, 26:195, 39:28, 41:3, 41:44, 42:7, 43:3, and 46:12) Allah (swt) says:

۲ :

"We have sent it down as an Arabic Qur'an, in order that ye may learn wisdom." (Quran 12:2)

Together with this repeated emphasis on the Arabic nature of the Quran the Believers are also informed repeatedly, in no less than six different verses (19:97, 44:58, 54:17, 54:22, 54:32, and 54:40), that the Almighty has made it easy for them.

۹۷ :

"So have We made the (Qur'an) **easy** in thine own tongue, that with it thou mayest give Glad Tidings to the righteous, and warnings to people given to contention." (Quran 19:97)

"And We have indeed made the Qur'an **easy** to understand and remember: then is there any that will receive admonition?" (Quran 54:17)

The easy and appealing nature of the structure of the Arabic is recognisable by anyone who genuinely studies the language without bias or malice. This is so even among non Muslims, such as the world renowned Harvard professor Jaroslav Stetkevych, who wrote:

"[T]he fact that Arabic long survived and still had the vitality to burgeon anew might be due to religious and social factors, but the quantitative ability to expand and the qualitative capacity to attain perfection and to maintain its essential characteristics are merits of the language exclusively."

He also explained what he meant by this claim: *"To the Western student unfamiliar with the schematic morphological structure of Semitic languages, the first experience with Arabic suggests an idea of almost mathematical abstraction. The perfect system of the three radical consonants, the derived verbal forms with their basic meanings, the precise formation of the verbal noun, of the participles - everything is clarity, logic, system and abstraction. The language is like a mathematical formula. This is, of course, a first notion but it also is the ultimate truth. In between there lies the great body of language: rich and various, with its pitfalls and puzzles, but what impresses itself upon the mind is the abstract idea."* (Jaroslav Stetkevych, (1970) *The Modern Arabic Literary Language*. University of Chicago Press, p.1.)

If Arabic were a strain on the human brain, then it would not have been able to serve as the main international language of science and intellectual thought for nearly a thousand years. Modern Western scientific advances owe an enormous debt of gratitude to the Arabic language for its contributions to science.

Conclusion

This BBC news article was a calculated and malicious attack on Arabic in the blessed month of Ramandan when those responsible know that Muslims – men, women and children, around the world – would be spending long hours in the days and nights of Ramadan reading the Quran in Arabic. Most Muslims try to read the complete Quran during this month and many complete it several times before the month is over. Children are encouraged to read and memorise as much as possible in this month. So it comes as no surprise that those who would wish that Muslims abandon the Quran would choose this month to publicise their spurious and malicious theories regarding one the most revered languages in the world.

Reading Arabic is not more strenuous for the brain than watching a series of flickering pixels on a screen to create pictures in our minds. If we are permit our children to spend hours glued to pulsating screens (TVs, computers, consoles, mobile devices etc), then sending them to learn to read the Quran in Allah's house (*masjid*) will not only serve as a relief and respite for their brains but it will also be a nourishment for their hearts and fortification for their faith and souls.

When the Quran is made easy for us by the Almighty, who then in the world can make it hard? If you feel that in order to enter the modern scientific world you must abandon Arabic and adopt some European language, then know that the Japanese who are not bonded to their language through a Divine revelation like the Quran, have mastered modern technology, risen to the pinnacle of science and current modern standards of living without abandoning their language.

One way to defeat this relentless onslaught of attacks on our faith, attacks on our sacred texts, attacks on the dignity of our Prophet (*sallallaahu alaihi wasallam*), attacks on our women, attacks on the clothes we wear and attacks on our sacred language, is to deny the instigators their ultimate target, which is our children. They have made our children their primary target. Put your ears to ground and you will hear them say that this is a "generational struggle". What this means is that they have given up on trying to take me and you away from Islam but the effort is now firmly focused on disconnecting the next generation from the legacy of the Prophets of Allah and from the heritage of received wisdom in Islam. Creating distance between our children and the Quran is vital to their effort. Do not allow them that chance. Fortify your children's hearts with the Quran and preserve your sacred language by making sure your children will be able to teach it to your grandchildren.

٤٦ :

Mighty indeed were the plots which they made, but their plots were well within the sight of Allah, even though they were such as to shake the mountains.

٥٤ :

They plotted and planned and Allah is the best of planners

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