Lingua Franca and Beyond

SECTION EDITOR

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Editing for non-native speaking medical writers

Maria asked: "Write an article about editing for non-native speaking medical writers. … does not need to be long, and preferably 'lightly' written. … [with] funny but at the same time educational stories to share in *Lingua Franca* …"

And that set me thinking.

Is editing for native English writers so different from editing for non-native English writers? Just because someone wasn't born and brought up speaking English doesn't mean that the quality of writing is inferior to that written by native English speakers. In fact, I've come across some native English speakers who are great experts in their particular field but whose ability to write clear and logical text in English eludes them. In addition, I've had the pleasure of working with experts who can present well-structured text but just can't spell … thank goodness for the spelling and grammar checker in Word; one of these co-workers had a job title of *Principal Statistician* but they would often sign off as *Principle Statistician*, an error that wouldn't be spotted by a spell checker.

Yes, there are some tell-tale signs when a text has been prepared by non-native English speakers; for example:

- Sentences that are extremely long with the verb appearing near the end; often, these have been written by someone from a country in mainland Europe.
- Colloquial terms from a writer's native language that don't translate well into English.

I suggest, however, that whatever you are editing and whoever has prepared it (text and images), key messages of editing apply, such as:

- Consider your reader – what's the message you want to get across to them and what do they need?
- Be consistent unless there's a good reason not to be so.
- Keep your text short and simple.
- And finally, try to retain the voice of the author(s).

For examples and if you'd like to know more, read the articles in this special issue of *Medical Writing* and look out for the Language and Writing workshops at EMWA conferences.

So, is there a fundamental difference between editing for native English writers and non-native English writers? You tell me or better still – tell Maria!

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New language: A matter of brain?

A language challenge

Have you ever struggled with a new language? Have you ever felt frustrated when other people talk and you don't understand or when you have something to say but you *cannot find* the right words? I did. English is *lingua franca*; all scientists must speak and write English adequately if they want to present their data or communicate with other researchers.

Does the ability to learn English depend on ethnicity (similar cultural roots) or biology? In other words: should those from Mediterranean countries be punished unlike North Europeans just because of a different cultural background? This might be part of the issue but probably not the most important one. When I was a teenager, I attended at a language high school in Milan: I studied English, French, and German. According to the *theory of roots*, we should be very good at French and less proficient at German and English. This is not always the case; one girl in my class was able to learn every language straightaway, as soon as she heard the first words. All of us were impressed (and a bit jealous) and I have always wondered why it was so easy for her to speak foreign languages as if she were a native speaker while we had to study hard and sweat trying to pronounce correctly.

A few years later when I started my PhD in the UK, I couldn't pronounce the word thaw, a four-letter word!!! How could I say that I had to take my cells out of the freezer? I used to say defrost, which is not the correct word, I know, but it was helpful to make me understood. Is there a scientific explanation for this? Have those superheroes a divine gift? No panic, no divine gift or superheroes and probably no penalty if you are Greek or Spanish or Italian. What really makes the difference is just our brain. A newborn can potentially speak every language in the world: I speak Italian because I grew up in Italy and my parents spoke to me in Italian but if I grew up in China or in an Amazonian tribe I would speak their language because humans are not born with speech but learn it through listening activities.[1] Newborns listen to a language and try to repeat it (babbling), activating the brain areas involved in language.

The human brain has two important sections: Broca's area and Wernicke's area, found in the left hemisphere (Figure 1). Specifically, Broca's area is located in the inferior frontal gyrus and involves the ability to speak one or more languages; Wernicke's area is located in the posterior superior temporal lobe and allows us to understand languages. Therefore, the more we practice, the more we stimulate Broca's area and the better will be our speech. This might explain why sometimes we can understand a language (involvement of Wernicke's area) but we cannot speak that language (involvement of Broca's area). This theory looks very handy: if we live for a while in another country, we will learn the host language. Is this enough?

New neurobiological models

The Broca and Wernicke system provides a very simple explanation but science is always progressing; recent studies using modern techniques suggest new complex models through which our brain can learn languages. Chang and colleagues[2] reviewed two models explaining similarities and differences: the first is the Hickok-Poeppel model and the second the Rauschecker-Scott model. Both argue a *dual stream* process for the stimuli starting from the auditory area and proceeding through Wernicke's area (Figure 2). The models also suggest a sensorimotor integration of the information. However, they differ in one feature: the Hickok-Poeppel model proposes a bilateral process with the involvement of both hemispheres while the Rauschecker-Scott model raises the possibility of a process occurring only in the left dominant hemisphere.[3] The dual stream models open a new scenario in *language learning* because we can now prove the involvement of multiple parts of the brain and not only the *classic areas* – Broca's and Wernicke's. Briefly, learning a new language is a complex process that involves all of the brain and indicates a generation of new connections.[1]

What does it mean in terms of neurobiology? Golestani's team in 2007 studied the differences in learning a new language in both fast and slow learners.[4] Scientists studied the ability of 65 native French speakers to understand the Hindi dental-retroflex contrast. Results, obtained with magnetic resonance imaging and diffusion tensor imaging, show that fast learners have a greater volume of white matter than grey matter and an anatomical asymmetry in the auditory cortex due to the larger amount of white matter in the left than the right side. Consequently, these people have more fibres, *fibre tracts*,[5] and more connections between the left auditory cortex and the language regions than slow learners. Furthermore, a study performed in 2013[6] demonstrated that white matter in children developed and stabilised at age 3-4 suggesting that teaching young children a new language may result in better-speaking adults. Therefore, if we learn a new language late in childhood or in adulthood, we have passed the more favourable time for brain connections and the babbling phase and go straight to sentence production.

Does the amount of white matter influence the ability to write? In other words, can we predict whether an individual is going to be a good medical writer by the amount of white matter in their brain? In my opinion, this scenario is quite frightening because it doesn't consider creativity and motivation. Does the willingness to communicate science and to clearly deliver messages that can be difficult to understand for a lay audience depend on how much white matter is in our brain? I don't think so but maybe this topic can be discussed in another editorial.

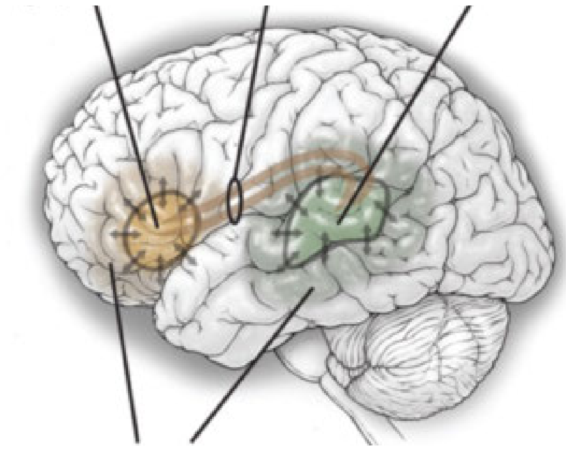


Figure 1.
Classical model of language organisation in the left hemisphere of the brain. Broca's area (gold) is located in the inferior frontal lobe and Wernicke's area (green) in the posterior superior temporal lobe, connected by the arcuate fasciculus. Language concepts (shaded) surround each canonical language area. Arrows represent diffuse cortico-cortical connections between Broca's/Wernicke's area and the widely dispersed language concepts. Copyright Edward F. Chang. Published with permission.

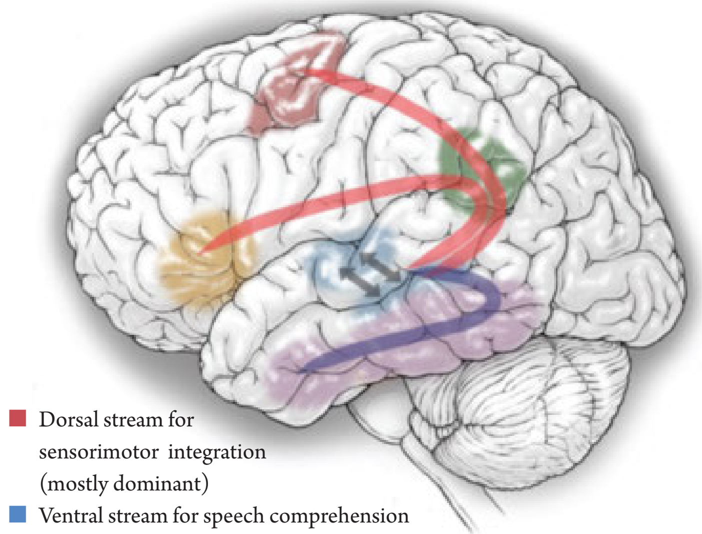
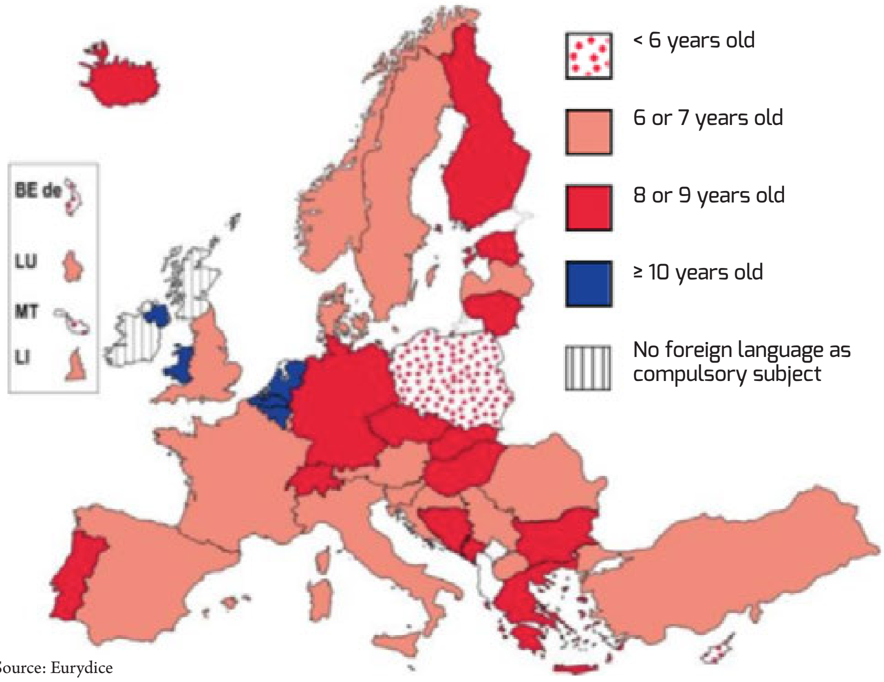
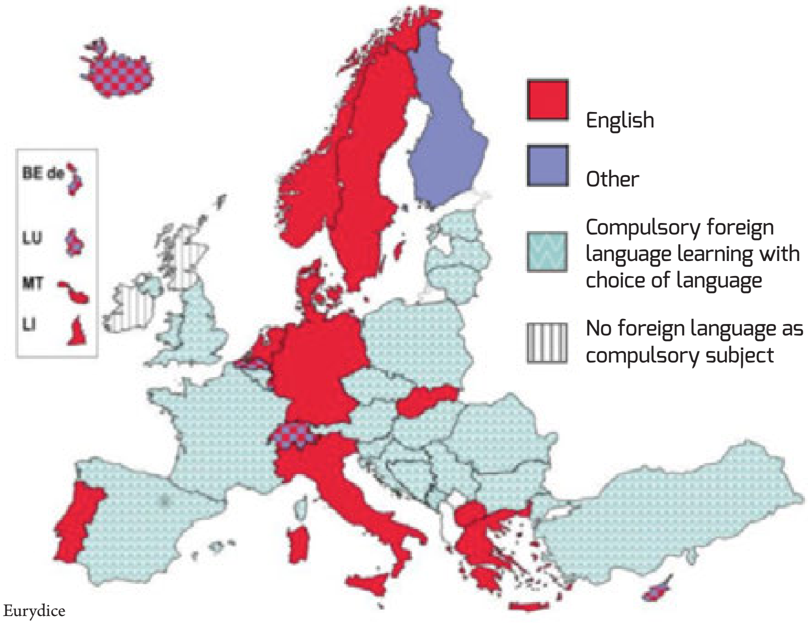


Figure 2.
Dual stream model of language. Regions shaded blue represent initial cortical processing of language in the STG (superior temporal gyrus) and STS (superior temporal sulcus), engaging in spectro-temporal and phonological analysis, respectively. The ventral stream (dark blue) flows through to the anterior and middle temporal lobe (shaded purple), and is involved in speech recognition and the representation of lexical concepts. The dorsal stream is believed to carry out sensorimotor integration by mapping phonological information onto articulatory motor representations. The premotor cortex (shaded red), inferior frontal gyrus (shaded gold), and the parietotemporal boundary region (shaded green) are involved in dorsal stream processing. Copyright Edward F. Chang. Published with permission.



Source: Eurydice

Figure 3. Starting age of the first foreign language as a compulsory subject, 2015/16



Source: Eurydice

Figure 4. Mandatory foreign languages during compulsory education, 2015/16

Conclusions

In conclusion, the ability of an individual to learn a new language more easily than others is dependent on the anatomy of their brain and the possibility of generating new connections between several parts of the brain itself. Studies show that the sooner we expose our auditory cortex to new words and sounds, the better we learn them. English is the *lingua franca* in many fields – for example, economics, science, technology – and probably for this reason most countries in the European Community decided to introduce compulsory English teaching in school by the age of 6 (Figures 3 and 4).[7] This is a very good result compared with a few years ago when children started learning English later in childhood. More can be done, however, to ameliorate this trend to allow our little citizens to benefit more from a foreign language if learned at the age of 3 as we saw previously. Hopefully, more governments will understand the scientific basis of language learning and give their pupils the opportunity to build a solid future in a more connected and more unified Europe, also from a communicative point of view.

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