The Great Disjoint of Language and Intelligence

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A stunning variety of languages has evolved in the world since the birth of civilization, with some forming a unique cornerstone of many cultures. To date, there has still not been an accurate census of the exact number of languages in the world. Street surveys throw up numbers in the several hundreds, while the Ethnologue organization, generally accepted to have the most extensive list thus far, catalogues an astounding 6809 distinct languages [1]. The study of the acquisition and mastery of any language offers fascinating insights into our neural circuitry and specific regions of the brain, as well as our cognitive processes. This has unfortunately led to equating linguistic ability with intelligence; but this article will try to dispel this notion, setting them up instead as two independent domains. This essay, however, seeks to set aside the diversity of languages and view them in a single unifying light for their role in cognition. Furthermore, this article proposes a need for education policy to be updated in line with new theories of cognition in the interests of students who might be unfairly penalized for simply lacking linguistic flair.

Linguistic Theories: Mould or Clock?

Of great interest is the exact nature of the relationship between language and thought. In the field of linguistic theory most theories can be classified in between two general categories at opposite ends of the spectrum. They are commonly referred to as "mould theories" and "cloak theories". Mould theories hypothesize that language is "a mould in terms of which thought categories are cast" while cloak theories theorize that "language is a cloak conforming to the customary categories of thought of its speakers" [2].

The Sapir-Whorf hypothesis, proposed by American linguists Edward Sapir and Benjamin Lee Whorf, belongs to the category of a mould theory. This theory consists of two closely associated concepts—linguistic determinism and linguistic relativity. Linguistic determinism holds that our thoughts are determined and constrained entirely by language, while the concept of linguistic relativity proposes that different languages will cause people to think and perceive the world differently. Experiments conducted with bilingual Japanese women living in America have provided interesting evidence. These women had American husbands, and spoke Japanese only when they met each other. Meeting twice with a bilingual Japanese interviewer, the first session was conducted in Japanese, while the second in English. Though questions asked both times were exactly the same, the answers given varied and seemed to depend on the language used instead of having the same answers in different languages as might be expected. In a particularly striking example, one woman said in Japanese that when her wishes conflicted with those of her family's, it was "a time of great unhappiness". However, her response to the same question in English was, "[I] do what I want" [3]. Proponents of the Sapir-Whorf hypothesis argue that this disparity can be accounted for by linguistic determinism and relativity, whereby the women's thoughts and perception of the world were dependent on the language spoken. However, these results present severe limitations as this experiment is unable to account for countless other confounding factors occurring in the period between interviews that could have caused different responses and shaped the women's views.

> **"[There is] a need for education policy to be updated in line with new theories of cognition"**

In sharp juxtaposition with the Sapir-Whorf advocates are the cloak theorists; their argument of "universalism" is the polar opposite of the Whorfian conjecture. It is best illustrated using the Neo-Classical idea that language is the "dress of thought". This theory has at its core the assumption that the same thought can be expressed exactly in a variety of ways. Therefore, it should theoretically be possible to express an idea in one language, and then precisely translate it to any other, putting paid to the phrase "lost in translation". In contrast, the Whorfian hypothesis emphasizes the difficulty of translation between languages, since some languages have words that have no exact translation as a single word in another language. For example, the Portuguese "geram" means "unbearably cute", while the German word "schaudenfreude" means "pleasure at the misfortune of others". Whorf argued for this difference in translations as evidence that speakers of different languages viewed the world through different prisms carved by their native language. For instance, in a translation of the English language to Apache, the sentence, "he invites people to a feast" translates roughly as, "he, or somebody, goes for the eaters of cooked food" [3].

While the Sapir-Whorf hypothesis might seem to invalidate the cloak theory of universalism through these counter examples, it is guilty of several flaws. The problem of translating directly from one language to another might seemingly strengthen the argument, but upon closer inspection it actually undermines the theory of linguistic determinism. When non-speakers of the German language come across the word "weltschmerz", used to represent the feeling of world weariness felt when recognizing the disparity between reality and an idealized world, they readily identify with the feeling. They are not impeded by their inability to speak German to recognize the feeling the word conveys, as they should if the Sapir-Whorf hypothesis holds true. This is testament to the existence of a system rich mental expression that transcends the boundaries of language. The idea that language is only a subset of our vast mental vocabulary forms the cornerstone of the book The Deeper Meaning of Liff by Douglas Adams. The book contains examples of unconventional words, for example "elecelleration", that is, the "mistaken notion that

the more often, or harder, you press an elevator button, the faster it will arrive" [4]. There exist other such actions or emotions that are as yet nameless, but the fact that they are not in our vocabulary does not preclude our noticing and feeling them. A more nuanced view of the extreme versions of the mould and cloak theories is thus required.

"Mentalese" as a Common Mental Language

A more moderate view of the Sapir-Whorf hypothesis is the first step towards a new understanding of the relationship between language and thought. Instead of rigidly assuming that thinking is restricted to the straitjacket of language, it is important to recognize the potential for language to influence rather than determine thinking. In his book The Language Instinct, Stephen Pinker extends the idea of a rich mental world that language can never entirely encompass. Pinker proposes a form of mental language that he terms "mentalese", a kind of internal language we all possess, and which we convey to others by means of language as a vessel. Pinker references cases of "languageless" adults—deaf people who by force of circumstance or otherwise, have been isolated from the verbal world. This is where the extreme form of the Sapir-Whorf hypothesis is refuted. If thought is confined by language, it would make sense to conclude that the reverse is also true, that without language there can be no thought. However, these deaf adults display ability to process and learn things, and are not impeded from "thinking" in the cognitive sense of the word [5]. It could thus be said that language serves as a conductor of "mentalese", albeit a dynamic vessel whose potential to influence cannot be entirely discounted.

Implications for Education Policy

A particular medical condition provides a striking illustration of how different language and intelligence are in the brain. In children with Williams syndrome, which is accompanied by varying degrees of mental retardation, early medical observers had noted the "friendly and loquacious" nature of their subjects and their "unusual command of language [in speech]". Despite this, a vast majority of adults with Williams syndrome possess only "rudimentary skills in reading, writing, and arithmetic". In a study conducted at The Salk Institute for Biological Studies and the UCSD School of Medicine, researchers sought differential assessment of specific domains of function to isolate language from cognitive performance. Subjects with Williams syndrome were contrasted with those with Down syndrome and matched for age, sex, and mental function on IQ measures. The study noted the equivalent cognitive impairment of subjects with both conditions, stating that they are "markedly impaired on a range of purely cognitive tasks such as conservation, concept formation, and problem solving". However, amid the background of general cognitive impairment, Williams syndrome children differed from their Down syndrome counterparts in their ability to express language. The study cites the "spontaneous and fluent speech" of an 18 year old Williams syndrome adolescent with an IQ of 49. She was said to show "great facility with language, being able even to weave vivid stories of imaginary events and compose lyrics to a love song". Yet in another stark example of the "unusual dissociation of language from other cognitive functions", she has the academic skills of a first-grader and requires a baby-sitter for supervision [6].

The evidenced lack of a correlation between language ability and intelligence also has serious practical implications for education. Singapore's Minister Mentor Lee Kuan Yew said recently that he had come to see the error of the Republic's method of implementation of bilingual education policy which requires students to have almost equal proficiency in both their first language and mother tongue. Because, he said, it is not possible to master two languages at the same level, Singapore's method of teaching Mandarin to English-speaking children using Mandarin itself turned generations away from the language [7]. It is important for education policy makers to realize the lack of a link between language mastery and intelligence. If this gap in association is not recognized, children who possess mathematical or scientific aptitude but lack linguistic flair might be unfairly marginalized in the education system. For example, in the GCE 'O' level examination at the end of secondary education in Singapore, the final score is computed based on the grade of one language subject and five others from distinct subject groups. In this system, even if a student scores a top grade of A1 in the other five subjects, a poor grade in the languages could still pull the overall score down enough to deny the student entry into top schools. While this observation in no way seeks to undermine the importance of all-rounded education and performance, language research could someday persuade legislators to tweak the system so that it is more accommodating to students of varying abilities.

This disproportionate language ability despite obvious mental impediments ties in with Pinker's theory of "mentalese" as an entirely separate domain of thought and cognition. When this rich mental world is sometimes hidden by the cloak of expression that we call language, it can be underappreciated. Simply put, language can act as a vessel, albeit an unsatisfactory one, that holds and transports as best it can this vivid mental landscape in which exists an infinite number of emotions and concepts, countless of which have not yet had a name put to them. This mental world is larger than language itself. Intelligence and cognitive abilities remain similarly in a separate domain, perhaps tied intricately with "mentalese", the native language of the brain. As we grow more knowledgeable about these findings, it will be important for education policy to evolve alongside them. Furthermore, this could be the first step in developing more accurate measures of cognitive ability. ■

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