COMMENTARY

Bilingualism and naming: Implications for cognitive assessment

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Abstract

The article by Gollan, Fennema-Notestine, Montoya, and Jernigan (2007, this issue) raises important issues about the, effects of bilingualism on naming test performance in older adults. In particular, proficiency in their two languages determines the ability with which older bilingual adults can name pictures in each of those languages. This observation is important if cognitive status is inferred from naming performance. In this commentary we largely endorse the arguments made by Gollan and colleagues, although we point to some limitations in their experimental design. (*JINS*, 2007, *13*, 209–211.)

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For decades, researchers in cognitive psychology blithely posed questions, created models, and devised interpretations to understand the mind by collecting data from participants who were, on average, 18–21 years old, right-handed, largely male, and enrolled in Introductory Psychology classes at major universities. Needless to say, these research participants also tended to be English-speaking, middle class, and reasonably intelligent. From this miniscule swath of humanity came explanations of human perceptual processing, memory and attention, and logical problem solving, to name but a few.

The range of participant characteristics in psychology experiments has expanded since those earlier times, making research samples more representative of the general population and improving generalizability of research results. However, the assumption that research participants are monolingual speakers of English remains common. For these reasons, the recent explosion of research in bilingualism and its effect on cognitive and language processing (see papers in Kroll & de Groot, 2005) has expanded our knowledge of these processes, not only for bilinguals but more generally. The work of Gollan and her colleagues has contributed importantly to this enterprise.

In their previous research, Gollan and colleagues have reported deficits in the ability of bilinguals to provide rapid names for pictures (Gollan et al., 2005), generate items in fluency tests (Gollan et al., 2002), and resolve tip-of-the-tongue episodes (Gollan & Acenas, 2004). Performance on tasks measuring fluency is important because neuropsychological tests, such as FAS and category fluency, are routinely used diagnostically to assess cognitive functioning and cognitive impairment. Therefore, if an experience as common as bilingualism reliably alters performance standards on these tests, then it is imperative that appropriate norms be established and made available for clinicians working with these populations.

The article by Gollan, Fennema-Notestine, Montoya, and Jernigan (2007, this issue) is an extension of their earlier research, and examines the role of language dominance and cognate status on the ability to access correct labels in the Boston Naming Test (BNT) (Kaplan et al., 1981), focusing this time on older adults. The authors report three main results. First, naming performance in the dominant language depends on the individual's relative proficiency in the two languages (described as balanced or unbalanced bilinguals) in which balanced participants performed more poorly than less balanced participants in the dominant language; sec-

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ond, balanced bilinguals increase their naming score if they are credited for naming pictures in either language, and this increase rises as the two languages become more balanced (Gollan et al., this issue, see Fig. 2); and third, the relationship between lexical items in the two languages (described as cognates or noncognates) affects word naming in the dominant language for more balanced but not for less balanced participants. These results alert clinicians to the need to carefully consider the profile of language ability of patients involved in such neuropsychological testing for the assessment for cognitive functioning and cognitive decline.

The study is an important beginning to exploring these issues but is limited, and caution is needed in interpreting the results. First, the study is small scale, based on only 29 participants, with some analyses using only 20 of those individuals. Moreover, the participants are all Spanish-English bilinguals, with no means of connecting the results either to speakers of other language pairs or to monolingual speakers of either language. This limitation is especially important for the analyses of cognate status, which may be specific to Spanish and English. Most seriously, however, there is a confound between the classification of bilinguals as balanced or unbalanced and the language that is dominant for the participants. Because of this confound, it is possible that the results reported for differences in balance reflect instead conditions attributable to the level of English or Spanish proficiency in a particular environment and for speakers with a specific social and linguistic history.

Not surprisingly, all the participants had a dominant language and they achieved a higher naming score in that language. The dominant language, however, was largely the same for individuals in each of the groups classified as most balanced and least balanced: 80% of the participants in the balanced group was Spanish dominant and 80% of those in the unbalanced group was English dominant. This difference in language rather than degree of balance between the languages may account for some aspects of the results. For self-rated judgments of speaking ability, the participants in the most balanced group received an average score of 6.5 for Spanish and 5.0 for English; the participants in the least balanced group received an average score of 4.9 for Spanish and 6.4 for English, the exact reverse. Similarly, for verbal fluency, participants in the balanced group obtained a score of 36.7 in Spanish (dominant language) and 22.4 in English (non-dominant language); participants in the unbalanced group obtained 24.1 in Spanish (non-dominant) and 32.9 in English (dominant), again reversing the pattern of very similar scores. Using these descriptors, the groups were in fact similar in degree of balance, although their knowledge of each of the languages was clearly different. In the experimental task for the non-dominant language, the unbalanced group (Spanish non-dominant) performed poorly and the balanced group (English non-dominant) performed well; for the dominant language, the unbalanced group (English dominant) performed better than the balanced group (Spanish dominant). Therefore, the balanced group performed reasonably

well in English (although not as well as the unbalanced group in English) and better in Spanish (although not as well as the unbalanced group in their dominant language, English) (Gollan et al., this issue, see Fig. 1). What could account for these differences?

The participants were all part of a study cohort at the University of California in San Diego, living in an English-speaking country, although also part of a Spanish-speaking community. More importantly, however, those in the most balanced group had lived in the United States for an average of 48 years, having arrived when they were approximately 26 years old, whereas those in the unbalanced group had lived in the United States for an average of 65 years, having arrived at approximately 8 years old. The unbalanced group had also received more education than their balanced counterparts (13.2 years as opposed to 11.4 years), although the difference was not statistically significant. However, the most important difference between the participants in the two groups is that those considered to be unbalanced were educated in the United States, presumably in English, reinforcing their proficiency in the dominant language of the culture and society. In contrast, those in the balanced groups arrived after they had completed schooling (in Spanish) and had to gain English proficiency because they were assimilating into a new culture and building a new life. Proficiency in English was undoubtedly essential to a successful transition into this life. To the extent that these profiles capture experiential differences between participants in these two groups, it is reasonable to assume that the non-dominant Spanish would be less fluent, more poorly developed, and less accessible for those in the unbalanced group than non-dominant English is for those in the balanced group. For the former, Spanish is somewhat optional, but for the latter, English proficiency is an integral feature of daily life. These social differences may have produced the specific relationship between language dominance and language balance found in these participants. This configuration also corresponds well to the pattern of results obtained on the BNT, with no need to consider the participants in terms of linguistic balance.

One further reservation about the present method is that participants named all 60 BNT pictures first in their dominant language and then in their non-dominant language. It is likely that the first pass through the test primed the concepts represented by the pictures and facilitated retrieval of the names the second time, especially in the case of cognates. This design feature may account for the large advantage of cognates over noncognates (Gollan et al., this issue, see Fig. 3 top) in the non-dominant language that was used for the second naming run. The cognate advantage for balanced bilinguals in the dominant language (Gollan et al., this issue, see Fig. 3 bottom) cannot be attributed to priming in the normal sense, because these items were named first, but it may reflect access to the name in the second language (relatively well known in the case of the balanced group), which in turn prompted retrieval of the name in the language being tested.

An interesting finding from the Gollan et al. study is that balanced (but not unbalanced) bilinguals knew the names of some items in one language but not in the other (the "either-language" advantage, see Fig. 1 and 2). This asymmetry suggests that balanced bilinguals may live in two rather separate cultural milieux (e.g., work and home) with words appropriate to each setting known only in the language of that setting. Gollan et al. draw attention to the fact that the bilingual disadvantage in naming may result in the cognitive status of older adults being underestimated. Given that successful retrieval of names declines with age (Wingfield & Stine-Morrow, 2000) and depends strongly on recency of access (Light, 1992), the possibility that certain items are typically encountered in only one cultural or linguistic setting is likely to exacerbate the problem for bilinguals, and underlines the importance of carrying out naming tests in both languages.

The results reported by Gollan et al. are an important beginning to investigating the way that language experience and language proficiency interact with cognitive performance in older age. It is becoming increasingly clear that bilingualism has a profound effect on some aspects of cognitive processing, notably executive functioning, altering its development in children (Bialystok, 2001), and modifying its decline in older age (Bialystok et al., 2004; Bialystok, Craik, & Ryan, 2006). Progress in understanding the mind depends on taking seriously these issues and incorporating them into our explanations. Theoretically, our models of cognitive processing are incomplete if they exclude an account of the role of language and the effect of specific language experiences like bilingualism. Practically, our assessments of language proficiency are inevitably inaccurate if they fail to account for proficiency in all the languages known by the individual. Clinically, our ability to diagnose cognitive failure and dementia depends on a clear understanding of what performance would have been like for bilingual patients before the onset. Much research is needed, but at least the right questions are starting to be asked.

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