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# BILINGUALISM, THE BRAIN, AND CREATIVITY

Martin C. Taylor

This article amplifies ideas from “Implications of Bilingualism,” a chapter in the recently published work by Saul Sibirsky and Martin C. Taylor, *Language into Language: Cultural, Legal and Linguistic Issues for Interpreters and Translators*, McFarland 2010.

“To possess another language, Charlemagne tells us, is to possess another soul.”  
—John le Carré, *Absolute Friends*.<sup>1</sup>

**The monolingual vs. the bilingual** The purpose of this article is to demonstrate that in learning one or more foreign languages, individuals undergo modifications to the circuitry of the brain which result in enhanced cognitive and emotive abilities, potentially leading to greater creativity. These alterations affect interpreters and translators, who invest time, money, and effort in achieving bilingual and bicultural professional proficiency. For these professionals, enhanced creativity is beneficial and indispensable to success. Bilinguals can take satisfaction in knowing that their efforts lead to greater emotive and cognitive abilities, qualities that inhere to them but not necessarily to monolinguals. Tokuhamo-Espinosa, in the chapter “The Brain and Languages,” puts it succinctly: “[M]ultilinguals have better working memory capacity than monolinguals, presumably due to the need to maintain one language in the mind while quickly retrieving the second.”<sup>2</sup>

As a point of departure, consider the difficulties inherent in becoming merely monolingual. Monolingualism requires years of continual immersion in the native language, as well as prodding and clarifications from family, friends, teachers, and peers — persevering through trial and error to define sounds with clarity and use grammar and syntax with logic. David Crystal, eminent linguist from Wales, puts the effort into perspective in “Learning English as a

Mother Tongue” by pointing out that the monolingual needs to absorb some “...50,000 words, understand a thousand grammatical constructs, manipulate prosody, combine phrases for clarity, and, ironically, bend or break the previous rules.”<sup>3</sup> Using Crystal’s comments as a guide, one can imagine the compounded challenges in learning a second or third language.

**Bilingualism, sociology, and intelligence** Journalist and philosopher Carlos Alberto Montaner is not interested in promoting bilingualism on behalf of interpreters and translators, but rather to aid Latino immigrant groups. He stresses the sociological advantages of second-language learning because it serves to validate and uplift the economic and political status of those who seek a better life in America. He bolsters his argument (which is also the basic premise of this article), by focusing on

...the latest findings of psycholinguists [which] seem to demonstrate that bilingualism stimulates the development of intelligence by substantially multiplying the neuronal connections in certain regions of the brain. Researchers who measure and compare the intelligence quotients of people who are monolingual and multilingual usually confirm that relation: the more languages, the higher the IQ.<sup>4</sup>

In juxtaposing the sociological and the psycholinguistic, Montaner implies that as Spanish-speaking immigrants acquire English to improve their economic status, they not only enhance their own personal and educational status, but also are further enabled to serve the community and defend their rights when challenged by political opponents. Although Montaner focuses on the population of Latin Americans, he might have adopted a broader perspective. Training in English as a second language to promote bilingualism benefits all immigrants eco-

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**BEST ADVICE: LOVE WHAT YOU LEARN** *continued from page 3*

[Julie A. Sellers is a federally certified and Colorado certified court interpreter. A Spanish professor, she holds a Ph.D. in adult learning and technology and master's degrees in Spanish and international studies. Her research interests include, among other topics, the affective elements of learning.]

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**BILINGUALISM, THE BRAIN, AND CREATIVITY** *continued from page 1*

nomically, intellectually, and emotionally, and the United States becomes the greater beneficiary.

**Bilingualism, psychology, and the brain** Montaner might have validated his beliefs by consulting the writings of, among others, Ellen Bialystok of York University, Canada, a leading psychologist. She specializes in analyzing the various psychological tests and brain-imaging devices whose purpose is to compare the cognitive abilities of monolinguals and bilinguals.<sup>5</sup> In her writings, Bialystok refers to the widely-used Stroop Color and Word attention test that assesses concentration abilities. Designed in 1935 by psychologist J. Ridley Stroop, the test has contributed to understanding and measuring bilingualism and its effects.<sup>6</sup> The Stroop test challenges the cerebral hemispheres to differentiate between a visualized color that belies and confounds the symbol it represents. For example, on a card Stroop wrote the word “red” in blue ink, thus temporarily confusing the reader and causing a time lag in identifying the word. Stroop’s revelations led to further studies comparing the brains of bilinguals and monolinguals for interference, time lag, attention, and fatigue. The results of these studies suggest, based on statistical inferences, enhanced cognitive and motor abilities of bilinguals over monolinguals. Employing the Stroop test, subsequent researchers have shown that bilinguals perform better than monolinguals on a variety of skill tests, taking into consideration specific variables, such as age, education, English proficiency, and multilingual ability.

**Bilingualism and brain-mapping/scanning devices** Psychologists use Stroop and analogous tests to measure the cognitive abilities of monolinguals and bilinguals, and from these results make inferences regarding the brain’s focus. Neurologists, neurosurgeons, and electro-neurophysiologists utilize the following brain-scanning and mapping instruments to examine the role of the brain during language activity:

- **EEG:** electroencephalogram
- **PET:** positron emission tomography
- **fMRI:** functional magnetic resonance imaging

**MESSAGE FROM THE CHAIR** *continued from page 2*

the profession itself. However, for NAJIT to advocate on broad social policy would be improper and far beyond the organization’s existing goals. Moreover, as noted above, such advocacy would affect our neutrality. And neutrality is a central tenet of our ethical code.

So does that mean NAJIT is indifferent to social issues? Not at all. The board, committee chairs and committee members work very hard to fulfill NAJIT’s mission: the promotion of ethical and professional interpretation in legal settings. That is a narrow focus, but it ultimately serves both justice and the public good. And while we may not please all of the people all of the time, we have and will continue to keep the best interest of the organization in mind.

Rosemary W. Dann, Esq.  
Chair, NAJIT Board of Directors

- **NIRS:** near infrared spectroscopy

How do they operate? In an EEG, electrodes are placed on specific areas of the head to measure electrical activity, which are recorded as “brain waves.” An EEG recording is useful in assessing sleep patterns, in diagnosing epilepsy and tumors, and in evaluating damage in the case of head traumas.<sup>7</sup> During cognitive processing, an EEG records event-related potentials (ERPs), as mentioned by Bialystok, which provide “a more faithful record of the intensity and timing of cortical involvement in a specific task, but little spatial information.”<sup>8</sup>

In a **PET** scan, the spatial information becomes clearer. PET detects in the blood the presence and flow of radioactive tracers injected in a dye solution. In this method, specific sites of major language activity are made visible, and brain regions involved with language appear illuminated.

Unlike the PET scan, which is invasive and produces dynamic images, the non-invasive **fMRI** utilizes a powerful magnetic field and radio waves to produce static images of blood flow in smaller areas of the brain.

**NIRS**, similar to fMRI in functionality, examines the role of the brain during language activity by using optical imaging technology to locate areas that detect bilingualism. NIRS illustrates, according to researchers at Dartmouth College, that the “human brain’s language centers may actually be enhanced when faced with two or more languages as opposed to only one.”<sup>9</sup> The researchers further assert that, although brains of monolinguals and bilinguals are similar (never identical because of different experiences), “bilinguals appear to engage more of the neural landscape available for language processing than monolinguals, which is a very good thing.” The scans reveal, according to Tokuhamas-Espinosa, that children who learn “two languages have a ‘distinct [cognitive/motor] advantage’ over monolingual children.”<sup>10</sup>

To sum up, instruments such as the EEG, PET, fMRI, and NIRS have opened new research pathways in brain studies and have led to discoveries about the brain’s interaction with language in general and bilingualism in particular.

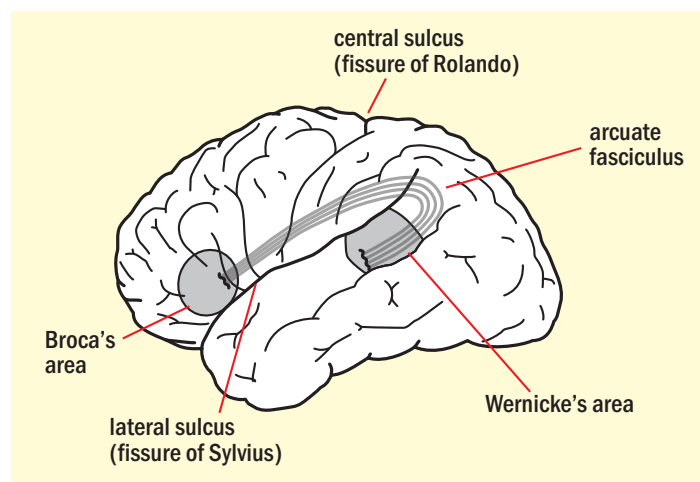
**Pioneers of brain research** These instruments were unavailable to Broca and Wernicke, 19th century theorists of the brain's role in language, who made great advances using the instruments and knowledge at their disposal. The present-day devices have validated, to a degree, the pioneering work of Pierre Paul Broca (1824-1880), neurologist, anatomist, and anthropologist. Broca's area, named after him, refers to the area of the left frontal lobe "close to the lateral cerebral sulcus [i.e., groove]," which he studied in 1861 as the part of the brain that was affected in persons afflicted with aphasia or the incapacity to speak.<sup>11</sup>

An area in the left temporal lobe was named in honor of Carl Wernicke (1848-1904), a German neurologist and psychiatrist, who conjectured in the 1870s about two aspects of language:

1. Motor aspect: The site of vocalization and the motor ability to produce speech, believed to lay in the motor cortex of the left inferior frontal lobe.
2. Sensory aspect: An area in the left superior temporal lobe believed to sense and understand the sounds entering from the auditory system.

Broca's and Wernicke's mutually-supportive theories regarding the left hemisphere held that when a person is ready to produce speech, Wernicke's area in the temporal lobe transferred thoughts forward through the parietal lobe to Broca's area in the frontal lobe via the subsequently discovered *arcuate fasciculus* — the separate neural connection that links the two areas.

#### THE BRAIN FROM TOP TO BOTTOM<sup>12</sup>



Broca's & Wernicke's Areas, Arcuate Fasciculus, Sylvian Fissure

Modern researchers highlight the greater complexity of the brain. Neurobiologist Lisa Eliot, among them, no longer subscribes totally to the belief that Broca's motor area produces language through speech or writing, nor to the hypothesis that Wernicke's sensory component is responsible for language comprehension. Dr. Eliot asserts that brain scans and mappings expand on Wernicke and Broca's theories and show that Wernicke's area is correlated with semantics and Broca's area with syntax. Finally, in updating the hypotheses of these two nineteenth century scientists, Eliot posits that a "broad central wedge in the left hemisphere," called

the perisylvian cortex (overlying the Sylvian fissure), constitutes the site of language ability in 95% of the population.<sup>13</sup>

According to neurosurgeon George A. Ojemann of the University of Washington, fMRI also shows that the right hemisphere shares with the dominant left hemisphere some language activity. He demonstrated via extensive brain mapping that some people have language capabilities in the right hemisphere and others in both. Ojemann states that "when people are gifted bilinguals [...] the brain develops separate, tightly organized essential areas for naming in each language. The same must be true for all language-essential areas. [...]"<sup>14</sup>

Dr. Franco Abro of the University of Trieste, using fMRI on a simultaneous translator/interpreter of Italian and English, found that the two languages, initially, were "strangely lateralized in the left brain .... but, after training, the English appears to have shifted to the right side ... perhaps to avoid competing for essential language areas on the left [permitting the interpreter] to shift instantly from language to language."<sup>15</sup>

In this fast-evolving field, the research of Antonio Damasio, professor of psychology and neurology at the University of Southern California, has gone beyond discoveries by Broca, Wernicke, and Ojemann. Damasio argues, based on brain mapping, that instead of language emanating from separate zones, "convergence zones" are at work pulling together sounds that make sense [phonemes] from one area, to join with learned logical syntactic units from another area, coupled with meaningful visual units [graphemes/morphemes] from another brain area, which together merge into spoken and written language.<sup>16</sup> As described in *The Human Brain Book*, a bilingual's two languages — the mother tongue (L1), and the second language (L2), are generated from separate areas of the brain, which, on the one hand, impedes interference, and on the other, enables functionality of one or the other language following trauma or disease.<sup>17</sup> In accordance with this architecture, Damasio's "convergence zones" lend credence to the theory that neural connections in both hemispheres function simultaneously and reciprocally to permit two languages to function seamlessly.

**Bilingualism and culture** All the evidence demonstrates that a bilingual person has access to a more ample cultural and linguistic menu to express thoughts and feelings than does a monolingual individual. The bilingual person's greater creativity stems from an ability to reconfigure information and knowledge from more than one language and culture and to utilize them in novel ways. Biculturalism, according to University of Florida neurologist and scholar Kenneth Heilman, provides a comparative advantage in decision-making.<sup>18</sup>

Professor Christopher Thiery, who has done extensive research on second-language learning, affirms that factors often associated with culture are expressed better in the native language than in a foreign one:

A bilingual in attempting to convey an idea which has *not* found concise formulation in the language he is using will in fact be giving his audience some insight into the structure of the other society. Much can be learned by observing how people ask each

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other for the time in the street in London, Paris, or Dublin.

Everything is different: choice of words, voice, posture, distance between speakers and so on.<sup>19</sup>

In summary, an individual endowed with double linguistic skills becomes enriched by perceiving a second culture in a way similar to that of a native, a pre-requisite for an interpreter or translator but absent in a monolingual/monocultural person.

**Bilingualism and creativity** The thesis of this article, i.e., that bilingualism, brain activity, and creativity interlock and affect each other, finds strong evidence in psychologist Anatoliy Kharkhurin's research. In extensive testing on Russian-English and Farsi-English students *vis-à-vis* monolinguals, he found, as have others mentioned here, that "bilinguals showed greater performance on fluency, flexibility, and elaboration in divergent thinking."<sup>20</sup> The bilinguals' success in thinking prompted Kharkhurin to link bilingualism to "creativity," defined by him (in slide 3 of his Powerpoint presentation) as "an ability to initiate multiple cycles of divergent and convergent thinking, which creates an active attention-demanding process that allows generation of new, alternative situations characterized by novelty ([i.e.,] original or unexpected), and appropriateness ([i.e.,] useful or meeting task constraints)."

By way of definition, psychologist Spencer Rathus asserts that divergent thinking is characterized by "attempts to generate multiple solutions to a problem" whereas in contrast, convergent thinking "attempts to narrow in on the single best solution to a problem."<sup>21</sup> In line with this reasoning, creativity could be defined as the ability to generate novel and appropriate solutions, applying both divergent and convergent thinking.

Kharkhurin's conclusions that multilingualism leads to greater creativity find further validation in a 24-page "Compendium" sponsored by the European Commission's Directorate on Education and Culture.<sup>22</sup> This "Compendium," reviewed by three Spanish doctors of medicine and compiled by nine psychologists from seven countries, gathers documentation from dozens of internationally-reputed psychologists and neuroscientists. The evidence-based report starts off cautioning that "relatively little research exists which specifically focuses on any relationship between creativity and multilingualism," but concludes by validating the linkages based on psychological tests, and brain scans and mappings.<sup>23</sup> The committees of experts believe that "the multilingual mind differs in some respects from the monolingual mind, but in what way, with what outcomes is at present an open question."<sup>24</sup> The compilers state that those who know more than one language enjoy "a greater potential for creativity..."<sup>25</sup>, then progress through the evidence to the conclusion that individuals who view the world through more than one set of lenses — their word is "binoculars" — especially in the Information Age, gain a "more extensive range of affordances or interpretations [that] can lead to increased choices."<sup>26</sup>

The researchers finally link multilingualism to an analog, a newly-minted term called "multicompetence." Multicompetence consists of three dimensions:

The first is the idea that a bilingual is not the equal of two monolinguals. An individual who possesses L1 (the mother tongue), and L2 (the second language), is not equivalent to two individuals who possess separately L1 and L2. The two languages in one individual, through synergy, create a force where the result becomes more than the sum of the parts, in effect opening up "forms of added values which go beyond the languages themselves."<sup>27</sup>

This reasoning, based on the compiled evidence, leads to the second dimension, which is that multicompetence is linked to creative potential.

The third dimension gleaned from the "Compendium" is that reviewers and researchers who followed the results of psychological tests, brain scans and mappings assert that "multilingualism generates a higher number of neuronal connections and stimulates multiple neuronal webs, both intra- and inter-hemispheric, which would lead to a higher capacity for generating new (creative and innovative) processes."<sup>28</sup> Thus multilinguals have the capacity to be potentially more creative than monolinguals.

**Concluding remarks** The important hypotheses of 19th century classical theorists Broca and Wernicke on brain damage and its effect on language have been superseded by 20th and 21st century psychologists, neuropsychologists, neurosurgeons, and electro-neurophysiologists. By using instruments such as Stroop's test, EEGs, PET scans, fMRI mappings, and NIRS optical images, they have demonstrated that bilingual persons display greater neural activity and synapses than monolinguals, and an increase in synaptic transmission. These findings have paved the way for investigations into how bilingualism may enhance human creativity. Persons learning a foreign language or who are already gifted in more than one tongue will show greater cognitive and motor advantages over those who are monolingual, thus increasing their potential for creativity. Furthermore, pragmatic proof comes from second-language speakers in the U.S. and other countries who perform better in language-proficiency tests, such as those required for certification as interpreters. The benefits of being bilingual outweigh the benefits of remaining monolingual: this can be affirmed for tourists perusing their Berlitz manuals, for foreign language teachers and their students, for immigrants to a foreign country, for executives in the exercise of leadership, and certainly in the case of interpreters or translators whose efforts are centered on capturing the *bon mot* in order to faithfully represent and transmit the ideas of another culture.

### Acknowledgments

I thank the editor of *Proteus* for inviting me to submit this article. James Flynn, reference librarian at the Southwest Regional Library, Pembroke Pines, FL, offered encouragement and suggested changes. Mr. Flynn introduced me to Dr. Cheryl C. Purvis, associate professor of anatomy in the College of Medical Sciences, who teaches neuroanatomy at Nova Southeastern University, in Fort Lauderdale, FL. Dr. Purvis strengthened the article with her expertise and recommendations.

Sincere appreciation to Irwin Gray at the New York Institute of Technology for his penetrating critiques. Dr. Gray's observations linked the present subject to the field of management decision-making, as illustrated in Michael H. Dickmann's and Nancy Stanford-Blair's, *Connecting Leadership to the Brain*. (Thousand Oaks, CA: Corwin P, 2002) 21, 234. ▲

## END NOTES

1. John le Carré, *Absolute Friends*. (Boston: Little, Brown, 2003) 46.
2. See Tracey Tokuhama-Espinosa, *Living Languages: Multilingualism across the Lifespan*. (Westport, CT: Praeger, 2008) 123.
3. In Crystal's *The Cambridge Encyclopedia of the English Language*. (Cambridge: Cambridge UP, 1995) 426. For an overview, see Crystal's *How Language Works. How Babies Babble, Words Change Meaning, Languages Live or Die*. (NY: Overlook, 2005).
4. Carlos Alberto Montaner, "Bilingualism Strengthens America." *The Miami-Herald*. (17 June 2007) 19A. In "The Relationship of Bilingualism to Intelligence," E. Peal and W. E. Lambert reported that "the bilinguals did better on virtually all the tests, including nonverbal intelligence." See *Psychological Monographs*, 76 (27 Whole No. 546), (1962) 1-23.
5. Ellen Bialystok analyzed the field, including Stroop, EEG/ERP, PET, and fMRI, in *Bilingualism in Development: Language, Literacy, and Cognition*. (NY: Cambridge UP, 2001) 91-95, 147. Note the complex article by Daniela Perani, et al., "The Bilingual Brain: Proficiency and Age Acquisition of the Second Language," *Brain*, 121 (1998) 1841-1852. See Judy Foreman's overview of the research: "Bilingualism is Great for the Brain" (10 Sept. 2002), retrieved at [http://www.myhealthsense.com/F020910\\_bilingualism.html](http://www.myhealthsense.com/F020910_bilingualism.html).
6. J. R. Stroop explained his methodology in "Studies in Interference in Serial Verbal Reactions," *Journal of Experimental Psychology*, 18 (1935) 643-662. Stroop is supported by C. M. MacLeod, "The Stroop Task: the 'Gold Standard' of Attentional Measures," *Journal of Experimental Psychology: General*, 121, 1 (1992) 12-14.
7. References in the text to the functioning of EEG, PET, and fMRI are supported by the research of John Nolte, in "Watching Changes in Blood Flow: Images of the Brain at Work," *The Human Brain: An Introduction to its Functional Anatomy*. (Philadelphia: Mosby Elsevier, 2009) 135. I am indebted to Dr. Cheryl Purvis for providing this information.
8. Bialystok, 92. I thank Dr. Bialystok for her e-mail (31 Dec. 2009), which clarifies the text, in that the EEG is used to measure ERPs.
9. The Dartmouth College Office of Public Affairs summarized the investigations by faculty members Laura-Ann Petitto, Mark Shalinsky, and Ioulia Kovelman, in "Dartmouth Researchers Find a Neural Signature of Bilingualism." See [www.dartmouth.edu/~news/releases/2006/10/17a.html](http://www.dartmouth.edu/~news/releases/2006/10/17a.html).
10. See Tokuhama-Espinosa, chapter "Languages across the Lifespan," 25-61.
11. From Gerard J. Tortora and Bryan Derrickson, *Introduction to the Human Body: The Essentials of Anatomy and Physiology*. (NY: Wiley & Sons, 2010) 271, 272. With regard to aphasia, the ailment on which Broca and Wernicke based their theories, Tortora and Derrickson add: "Damage to Broca's speech area results in *nonfluent aphasia*, an inability to properly form words. ... Damage to Wernicke's area, the common integrative area or auditory association area, results in *fluent aphasia*, characterized by faulty understanding of spoken or written words." *Sulcus*, in Latin, means an indentation; the word evolved into the Spanish *surco*, or rut, wrinkle, groove. A brain fissure is longer and wider than a sulcus. In the textual quote, some researchers would substitute fissure for sulcus, viz., "close to the lateral fissure."
12. Drawing retrieved at: [http://thebrain.mcgill.ca/flash/d/d\\_10\\_cr/d\\_10\\_cr\\_lan/d\\_10\\_cr\\_lan.html](http://thebrain.mcgill.ca/flash/d/d_10_cr/d_10_cr_lan/d_10_cr_lan.html).
13. See Eliot's chapter, "Language and the Developing Brain," in *What's Going On In There?: How the Brain and the Mind Develop in the First Five Years of Life*. (NY: Bantam, 1999) 354-390. Dr. Cheryl Purvis, citing Netter's Neurology, adds that Wernicke's area also receives visual information from the occipital lobe, contributing to the recognition and comprehension of written language. She refers to H. Royden Jones, et al., in "Cognitive and Language Evaluation," *Netter's Neurology* (Philadelphia: Elsevier Saunders, 2005) 40-52. See Arturo E. Hernandez and Elizabeth Bates, who produced the relevant "Bilingualism and the Brain," in *The MIT Encyclopedia of Cognitive Sciences*. (Cambridge, MA: MIT Press, 2001) 80-81.
14. On Ojemann, see Sandra Blakeslee's chapter, "Brain Yields New Clues on its Organization for Language," in Nicholas Wade, ed., *The Science Times Book of Language and Linguistics*. (NY: The Lyons P, 2000) 135-136. Ojemann and A. A. Whitaker wrote "The Bilingual Brain," *Archives of Neurology*, 35 (1978) 409-412.
15. See Blakeslee, 137, for the reference to Franco Abro. Tortora and Derrickson clarify, 274, Abro's allusion to "lateralization" as the "functional asymmetry" of the brain's two hemispheres, since they have "anatomical differences" and different specializations.
16. On Damasio, see Blakeslee, 139-140. Damasio explains his theory in *The Feeling of What Happens: Body and Emotion in the Making of Consciousness* (NY: Harcourt Brace, 1999) 13, 110-112, 329.
17. See Rita Carter, et al., *The Human Brain Book*. (London: DK Publishing, 2009) 151. In the same section, "Reading in your Mother Tongue," Carter asserts that "damage to one area of the brain can result in the loss of one language, while the other remains intact. The brain of a second language learned later in life operates differently from the mother tongue. A language that has been absorbed from infancy has wider and more intense associations than [the] second, so the brain is more active when the person reads in the mother tongue than in any other language."
18. Dr. Heilman, author of *Creativity and the Brain*, (London: Psychology Press, 2005), reported this in a phone conversation (07 Dec. 2009). He added, in support of biculturalism, that bilingualism was the necessary accompaniment.
19. Christopher Thiery, "True Bilingualism and Second-Language Learning," in D. Gerver, and H. Wallace Sinaiko, eds. *Language, Interpretation and Communication*. (NY & London: Plenum, 1978) 147, 151.
20. These are Anatoliy V. Kharkhurin's conclusions after using various testing methods to measure convergent and divergent thinking, indices to determine creativity. His 36-slide Powerpoint illustration is at <http://www.aus.edu/fdc/documents/Kharkhurin>, which derives from "The Effect of Language Acquisition and Length of Exposure to a New Cultural Environment on Bilinguals' Ongoing Divergent Thinking," in *Bilingualism: Language and Cognition*, 11, 2 (2008) 225-243.
21. From Spencer A. Rathus, *Psychology in the New Millennium*. 8th ed. (NY: Harcourt, Brace, 2009) 237. For details, see J. Baer, *Creativity and Divergent Thinking*. (Hillsdale, NJ: Lawrence Erlbaum, 1993).  
The scholar Mihaly Csikszentmihalyi, in *Creativity: Flow and the Psychology of Discovery* (NY: Harper Perennial, 1997), discusses at length the characteristics of creativity in 91 international leaders in the arts, sciences, and commerce. The author does not discuss bilingualism or the brain directly, but a review of the leaders' backgrounds reveals that 34%, or more, are presumed to be bilingual, with English as the common language. To be labeled creative, each possesses the defining qualities of "openness" to new ideas and knowledge of the rules governing their specialty, as well as "obsessive perseverance" in developing unique talents to produce an idea or product that can be validated by the specialty's "gatekeepers" (326). "Openness" could well equate to "divergence" and "perseverance" to "convergence."
22. David Marsh, et al., compilers. Doctors Tomás Ortiz Alonso, Fernando Mulas Delgado, and Máximo Carlos Etchepareborda, reviewers. The full title is "Study on the Contribution of Multilingualism to Creativity: Compendium, Part One." (Brussels: European Commission, Directorate General Education and Culture, 16 July 2009). Retrieved from [www.eacea.ec.europa.eu/llp/studies/documents](http://www.eacea.ec.europa.eu/llp/studies/documents).

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**HAITIAN CREOLE TRAINING** *continued from page 13*

and the U.S. In spite of all this diversity, all the participants shared one thing in addition to speaking Haitian Creole: a devotion to life-long learning. In the words of one of the participants, "I try to attend as many classes and seminars as I possibly can to better my work performance." Another summed it up similarly: "I continue to push myself in this field in order to be the best I can be. This training that is being offered by SSTI and NAJIT came at the right time.... Thank you for the opportunity!"

We at SSTI and NAJIT thank all the participants for their commitment to excellence, to litigants needing interpretation and to the profession as a whole. We wish them every success on the exams in Orlando and in their future interpreting careers.

**UPDATE:**

Unfortunately, the one-day refresher course in Orlando had to be cancelled due to serious illness in the instructor's family. The Consortium examination in Haitian Creole will still be offered on Sunday, May 16, 2010. ▲

[The author is vice president of SSTI and a NAJIT board member.]

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*continued from page 7*

23. Ibid., 5.

24. Ibid., 5.

25. Ibid., 7.

26. Ibid., 9.

27. Ibid., 18.

28. Ibid., 19.

**ADDITIONAL READINGS AND RESOURCES**

Altarriba, Jeanette, and Roberto R. Heredia. 2008. *An Introduction to Bilingualism: Principles and Processes*. London: Psychology Press.

Fernandez, Mercedes. "Neuropsychological Test Performance in Monolinguals: Advantages and Disadvantages of Speaking Two Languages." Talk at Nova Southeastern University (18 March 2010).

Harms, J., and M. Fernández. "Late Language Bilinguals Outperform Monolinguals on the Stroop Test." Speech at the National Academy of Neuropsychology, 2007.

Misdraji, E., N. K. Lim, and M. Fernández. "Language and Cultural Influences on a Confrontation Naming Test." Speech at the American Psychological Association, 2007.

University of Syracuse, New York, Department of Linguistics. 2009. Symposium, "The Bilingual Mind." (7-8 October 2009). View panelists and abstracts at <http://bilingualmind.syr.edu>.

[www.Multi-faceta.com/reference.html](http://www.Multi-faceta.com/reference.html). This website contains a bibliography of resource materials on many aspects of bilingualism.

[The author earned a Ph.D. in Hispanic languages and literatures at UCLA and taught at the universities of Michigan, California at Berkeley, Nebraska, and Nova Southeastern University. He has written on Gabriela Mistral, as well as on Borges, Cortázar, and other subjects.]

**In Memoriam****Susan E. Castellanos Bilodeau**

Susan E. Castellanos Bilodeau, a long-time member of NAJIT, suffered a stroke and passed away on March 16, 2010, in Concord, NH, at the age of 53. Born in California, the second child of Cuban immigrants, she grew up in Miami, Florida, and like many children of immigrants, her first experiences in interpreting were helping her mother navigate various bureaucracies. It wasn't until college that she began a serious study of Spanish.



Sue served as chair of NAJIT's nominations committee for three years, and attended nearly every annual meeting and educational conference from the time she joined the organization. She was a founding member and co-chair of NHITO and a member of the ATA and NETA.

Sue was a woman of many talents. Before becoming a professional judiciary and medical interpreter, she obtained associate's degrees in paralegal studies and computer science; when her two sons were older, she returned to school part-time and obtained a bachelor's degree in international business studies. She studied judiciary interpreting at the Agnese Haury Institute, as well as at the many seminars offered through NAJIT; she also participated in medical interpreting courses offered locally. She was in many ways an autodidact. If something needed to be done, Sue would research it and figure out how to do it. She redesigned and installed a tiled bathroom in her home that is worthy of a magazine spread.

While most of her travel consisted of road trips—which were always an adventure—she took the opportunity to attend two professional conferences in Cuba. Recently, she served as an interpreter for a humanitarian mission in the Dominican Republic. She was also a member of Red Cross Disaster Services. Always prepared for any eventuality, apart from interpreting, Sue gladly supplied the other participants with insect repellent, Tylenol, ointments or extra socks—none of which they had thought to bring.

Sue was a giving person, whose last act of generosity was the donation of vital organs to help five people live longer and better lives. I am grateful for the gift of her friendship for over a dozen years, and I will miss her.

Rosemary W. Dann

*Donations in Sue's memory can be made to SSTI, with the notation "Bilodeau memorial fund." Your generosity is appreciated. Checks may be sent to NAJIT, at official headquarters. All donations are entirely tax deductible. ▲*