1 Cultural Neuropsychology
Current State and Future Directions

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International population trends portend an increased need for neuropsychological services around the world. The first trend is the aging of the world population. According to World Health Organization,\textsuperscript{1} the number of people over age 60 will reach 2 billion by 2050, which is almost double the current population (12\%-22\%). Moreover, persons aged 80 or older will be more than triple from 125 to 434 million. The greatest growth will occur in low- and middle-income countries where 80\% of the world’s older people live. Unfortunately, these countries have a relatively short time (20–30 years) to adapt to such drastic increases in the elderly and their risks for significantly more health problems and cognitive decline than younger populations. Morbidities not only impact the quality of life but also have significant economic implications. To address issues associated with the aging population, one of the current goals of the WHO dementia plan is to develop the capacity to diagnose 50\% of persons with dementia in 50\% of countries by 2025.\textsuperscript{2}

A second major trend is the increase in international migration. There were an estimated 272 million migrants in 2019, which represented an increase of 51 million since 2010. Migration is motivated by work opportunities, family reunification, and seeking asylum. International migrants comprise 3.5\% of the global population with roughly half residing in the following countries: United States (US) (51 million), Germany and Saudi Arabia (13 million each), Russia (12 million), United Kingdom (10 million), United Arab Emirates (9 million), France, Canada, and Australia (around 8 million each), and Italy (6 million). The leading countries of origin for migrants are India (18 million), Mexico (12 million), China (11 million), Russia (10 million), and the Syrian Arab Republic (8 million).\textsuperscript{3} A significant challenge for migrant hosting countries is providing access to healthcare, including psychological and neuropsychological services. As many migrants do not speak or are not fluent in the language of the host country, a major barrier to healthcare is the lack of interpreters and appropriate language services.\textsuperscript{4}

As these migration data indicate, there is a great need for neuropsychological services for diverse populations. In addition to many immigrants in the Hispanic (18.5\%) and Asian (5.9\%) communities, other US minority groups include African American (13.5\%) and Native American/Hawaiians (1.5\%), who together account for almost 40\% of the US population.\textsuperscript{5} Indeed, it is projected that ethnic minorities will outnumber European Americans by the year 2044.\textsuperscript{6}

A third and most recent occurrence is the sheer number of persons infected with COVID-19 around the world. As of January 2021, over 100 million persons were infected with the virus resulting in over 2.2 million deaths.\textsuperscript{7} Preliminary data indicate that COVID-19 is associated with cerebral vascular events, encephalopathy, and acute respiratory distress, often requiring a respirator for breathing support. Although results significantly vary as to how many experience long-term cognitive problems, early findings suggest enduring cognitive deficits for persons who suffered severe COVID-19 illness.\textsuperscript{8} In addition, patients of past pandemics have demonstrated diverse
neuropsychiatric symptoms, such as encephalopathy, psychosis, or demyelinating processes that can follow infections months or longer in recovered patients.9

This chapter describes in broad strokes how the world and the United States are dealing with the increased need for neuropsychological services for diverse populations. First, the state of current services around the world will be described. Next, initiatives in the United States for addressing cultural issues in neuropsychological training and assessment will be covered with a summary of current shortcomings and needs. The chapter closes with a discussion of future trends and recommendations to meet the increased need for neuropsychological services around the world.

Neuropsychology around the World

Neuropsychological practices around the world are highly variable and largely dependent on cultural, economic, and political factors, with most development occurring within the past 25 years.10 Growth is reflected in the increase in international contributors to the major clinical neuropsychology journals over the past 20 years: Journal of International Neuropsychology (2000–8 articles; 2020–46 articles), Archives of Clinical Neuropsychology (2000–9 articles; 2020–19 articles), The Clinical Neuropsychologist (2000–3 articles; 2020–18 articles). The globalization of neuropsychology and the development of infrastructure is also illustrated by the recent addition of mid-year International Neuropsychological Society (INS) conferences around the world, including Israel (2014), Australia (2015, 2021), the United Kingdom (2016), South Africa (2017), Czech Republic (2018), Brazil (2019), and the upcoming conference in Taiwan (2023).

The development of neuropsychology has taken variable paths across the world. For example, in Japan, neuropsychology developed from the country’s neurology and psychiatry disciplines.11 In Singapore, Hong Kong, Taiwan, or the Philippines, neuropsychology was developed by nationals who studied abroad in the United States or Australia and brought knowledge and technology back to their countries, whereas in countries, such as Israel, Brazil, and New Zealand, neuropsychology developed within the context of rehabilitation.10 In some low-resource countries such as many African nations, the driver of neuropsychology has been internationally funded research on neurological disorders such as HIV or malaria.12

Educational requirements and training for practicing neuropsychology are also highly variable and range from doctoral degrees (United States, Canada), to master’s level (Hong Kong, Finland, and South Korea), and bachelor’s degrees (Argentina, Mexico, and Spain).13 By contrast, in some countries such as those in Central and South America, Israel, and India, the practice of neuropsychology is often undertaken by other disciplines, including speech pathologists, occupational therapists, neurologists, and psychiatrists.10 For example, in Japan, neuropsychologists are psychometrists and only physicians can perform the assessments.11 Training requirements also differ. The United States uniquely requires a two-year postdoctoral residency for board certification in neuropsychology, while only 5 out of 14 countries surveyed reported processes for board certification.13

The most common neurological disorders seen by neuropsychologists around the world include vascular disorders, dementia, and traumatic brain injury (TBI) in adults, and Attention Deficit Hyperactivity Disorder (ADHD), and learning disorders in children. Each region also has disorders which are more prevalent in that region, for example, HIV-related neurocognitive impairment in some African countries.10 Neuropsychologists in many countries also manage diversity within their country’s population, including education, ethnicity, and language.13

Despite growth in the discipline, in actuality, neuropsychological services are available to a small minority of people, and generally in countries and for individuals who are economically advantaged. In Canada and Finland, the ratio of neuropsychologists to the population is about...
1 per 20,000, whereas in India, China, and South Africa, there is less than one neuropsychologist per 500,000 citizens. By contrast, in many Southeast Asian countries, such as Vietnam, Laos, or Brunei, or much of Central Africa, there are no practicing neuropsychologists.

Even when neuropsychologists are available, barriers exist for competent services, as there is an overreliance on Western tests, for persons who do not speak the country’s national language. In addition, there is often a lack of neuropsychologists or trained interpreters who speak the language of diverse regional populations.

State of Cultural Neuropsychology in the United States

In 2010, Rivera-Mindt et al. described challenges that the discipline of neuropsychology faces for providing competent services to ethnic minority populations. First is the relatively small number of ethnic minority neuropsychologists in relation to the general population (6% of neuropsychologists, 34% of US Population). This issue is salient for diverse populations due to health and diagnostic disparities, mistrust of providers, naiveté of cultural issues, and linguistic barriers to access services. Numbers in neuropsychology are also low in comparison to other clinical specialties, such as school, counseling, and clinical psychology. There are multiple reasons for the low numbers in graduate school pipelines, including economic issues such as direct costs of undergraduate and graduate school education and the increased need to work during school and after completion of the undergraduate degree. Working during school, which reduces the time for studying, can, in turn, contribute to academic issues such as failure to meet undergraduate requirements to graduate study in neuropsychology and lower Graduate Records Examination (GRE) scores that do not meet program standards, while lack of minority faculty role models and research opportunities for ethnic minorities may also make graduate education in neuropsychology less appealing. Second, despite encouragement toward multicultural competence from neuropsychology leadership and the American Psychological Association (APA), there is a paucity of details on the knowledge base or skills needed to develop competence or guidelines for training. Third is the low capacity to address linguistic diversity in the US population. Specifically, there is a paucity of neuropsychologists who are fluent in the languages spoken by numerous ethnic minorities, as well as a lack of adequately translated and normed tests. Fourth, ethnic minorities are under-represented in neuropsychological clinical research, which has implications for assessment. This includes questionable validity of neurocognitive models of brain functioning, lack of norms or validation for most neuropsychological tests, and an inability to account for performance differences between ethnic groups.

Results from a 2014 survey of the US and Canadian neuropsychologists examining issues with providing services for diverse patients identified similar concerns. The greatest challenges identified were the lack of appropriate norms, tests, and referral sources, the lack of multicultural training, and the underrepresentation of ethnic minorities in the field of neuropsychology.

Next, the current state of the identified challenges for cultural neuropsychology will be described, including concerns about the development of a pipeline of ethnic minority neuropsychologists, multicultural education and training, capacity to assess linguistic minorities, availability of translated, normed, and validated tests, and research on ethnic minority populations.

Ethnic Minority Pipeline Issues

There have been a number of initiatives by major neuropsychological societies to support ethnic minority students, trainees, and professionals. The National Academy of Neuropsychology’s (NAN) Culture and Diversity Committee established the Tony Wong Diversity Award for
graduate students or postdoctoral fellows, mentors, and early career professionals in 2013 to recognize excellent ethnic minorities at different career stages. The American Academy of Clinical Neuropsychology (AACN) Relevance 2050 initiative includes travel grants to the annual conference, diversity focused research awards and develops webinars to assist underrepresented minority students and early career professionals into the board certification process. APA's Division 40 Ethnic Minority Affairs Subcommittee has a mentorship program for trainees, travel grants for the annual APA Conference, and diversity focused awards for research and practice. The INS established a student-run committee to address student and trainee needs and facilitate student involvement and contributions to neuropsychological science. The INS Science Committee has offered student awards for students in developing countries. Recently two ethnic minority organizations, the Asian Neuropsychological Association (ANA), and Society for Black Neuropsychology (SBN) have joined the established Hispanic Neuropsychological Society (HNS) to provide additional community-based support for trainees and neuropsychologists.

Current demographic data on neuropsychologists indicate a promising trend for increased numbers of ethnic minorities in neuropsychology training programs, although they remain underrepresented (see Table 1.1). Per 2017 APA Division 40/Society for Clinical Neuropsychology membership data, there are still large gaps between the number of ethnic minority neuropsychologists (5.1%) and the percentage of ethnic minorities in the psychology workforce (15%) and US population (42.1%). In comparison to overall percentages of minority neuropsychologists, there are higher percentages of ethnic minorities who are board certified in clinical neuropsychology (8.4%) which would suggest many achieve high levels of clinical competency. There is no specific demographic data collected by APA or the Association of Postdoctoral Programs in Clinical Neuropsychology (APPCN); however, two recent surveys indicate that ethnic minorities make up slightly more than a fourth of current graduate students or trainees in neuropsychology (27%–28.2%). Although these numbers are still significantly lower than the percentages in the US Census (42.2%) or psychology graduates in general (38%), the numbers portend a strong influx of ethnic minority neuropsychologists in the near future. Of note, increases are particularly pronounced for Asian Americans, where percentages in neuropsychology training programs are higher than the overall percentage of Asian Americans in the US Census, while African Americans and Latinx are still underrepresented. It should be mentioned that despite the relatively high numbers of Asian American neuropsychology trainees, because of the heterogeneity within this group, which is comprised of 19 specific ethnicities, many Asian Americans, particularly in the smaller ethnic groups, will still lack services from providers who speak their native language.

**Education and Training**

Progress has been made in education and training as there are more resources to assist graduate schools and training programs in developing training curriculums. For example, the revised AERA Standards for Psychological Testing describe specific conditions that must be met for psychological tests to be fair to diverse examinees, including examinee comfort with the testing situation, minimalization of testing biases, accessibility in responding, and validity of testing for its intended purposes. The ECLECTIC framework further assists neuropsychologists in developing a context for conceptualizing culturally diverse examinees to guide assessment approaches for collecting accurate data, interpreting data, and making useful recommendations. Both tools emphasize that test scores should be conceptualized as performances on Western tests, and in combination, provide concrete strategies for meeting neuropsychological training standards.
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<th>2016 Psychology workforce&lt;sup&gt;c&lt;/sup&gt;</th>
<th>2020 AACN Survey&lt;sup&gt;d&lt;/sup&gt;</th>
<th>2020 Association of Postdoctoral Programs in Clinical Neuropsychology Survey&lt;sup&gt;e&lt;/sup&gt;</th>
<th>2018 Psychology Graduate Students&lt;sup&gt;f&lt;/sup&gt;</th>
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Notes:

<sup>a</sup> APA (2017).<sup>16</sup>
<sup>b</sup> Personal communication, Rob Davis September 1, 2020.
<sup>c</sup> Lin et al. (2018).<sup>23</sup>
<sup>d</sup> Guidotti-Breting et al. (2020).<sup>24</sup>
<sup>e</sup> Domen et al. (2020).<sup>25</sup>
<sup>f</sup> Michalski et al. (2019).<sup>26</sup>
<sup>g</sup> US Census Bureau (2019).<sup>6</sup>
There has also been an increase in cultural neuropsychological educational resources. A number of cultural neuropsychology books have been published on various topics, including Asian Americans, diverse populations, bilingualism, rehabilitation, assessment of African children, culturally informed neuropsychological assessment, and cultural neuroscience. Testing and cultural resources have been posted on the NAN website. The new edition of the study guide for board certification in clinical neuropsychology includes a chapter describing issues when working with ethnic minorities and persons with disabilities. The Baylor College of Medicine sponsors a weekly continuing education webinar, “Taquitos de Sesos” that is open to all neuropsychologists. Finally, the AACN Relevance 2050 Committee sponsors a cultural CE presentation at every AACN Conference and recently instituted mandatory requirements for including cultural issues in all continuing education presentations.

Despite the progress that has been made, training is still lacking as cultural guidelines for practicum training remain broad and lacking in specifics. In addition, a survey of APPCN training directors reported that although ethnic minorities comprise 52% of clinical cases, only 27% of directors rate themselves as having advanced skills in cultural neuropsychology and 33% are not satisfied with the diversity training that they offer.

Linguistic Capacity
Competent neuropsychological assessment of linguistic minorities requires conducting the evaluation in the examinee’s best language and administering tests that are translated into this language. There have been several developments in these areas. As indicated in the previous section, increasing the numbers of ethnic minority neuropsychologists, particularly from immigrant populations, will be key for providing services to patients whose primary language is not English. Although increasing, the ratio of minority neuropsychologists to the population for many ethnic minority groups is still inadequate.

If a neuropsychologist who speaks the examinee’s language is not available, the neuropsychologist performing the evaluation is ethically obligated to use an interpreter. There have been several advancements in promoting the availability, knowledge, and skill base of this discipline. National certification of health care interpreters in the United States began in 2009. Since then, there has been a 42.2% growth of health care interpreter jobs between 2010 and 2020. In addition, there have been increasingly specific discipline guidelines for interpreters for psychology and neuropsychology.

A third requirement is the availability of adequately translated tests. To facilitate this goal, the International Test Commission recently revised their guidelines for translating and adapting tests in order to maximize equivalency and minimize biases. Tests such as the Montreal Cognitive Assessment have been translated in over 80 languages, and the Bilingual Aphasia Test has been translated into 74 languages. Although progress has been made, there is still a paucity of translated tests to provide services to the population of linguistic minority examinees, particular for those from low resource countries.

Test Norms
Related to the lack of translated tests is the paucity of test norms for minority populations. Similar to test translations, there has been a growth in internationally normed and validated tests. However, despite this increase in normed tests, there are many ethnic groups, particularly those that come from low resource countries and smaller communities, where no test
norms exist. This problem is more pronounced than the availability of test translations, as translation into a language such as Spanish could be used in many countries; however, norms may not be applicable. In addition, in low-resource countries, there may be a translation of a test, but no norms available since collecting normative data is more resource intensive. The lack of normed tests for the different populations that neuropsychologists serve has been identified as the biggest concern for neuropsychologists who provide services to examinees from different cultures.\textsuperscript{10,22,50}

As the resource intensive, necessary process of developing norms is underway, an interim alternative to relying on equivalent sample norms is the individual comparison approach, which uses estimates of an examinees’ premorbid functioning as a benchmark to interpret test scores using standard norms.\textsuperscript{55} However, to use this technique with ethnic minority examinees, there needs to be a manner of estimating premorbid functioning. Fujii\textsuperscript{29} developed a strategy to address this issue which entails finding an estimate of average cognitive test performance for people from the examinees country and then titrating the score based upon an estimate of the examinee’s functioning within that country. Country test performance estimates on Western tests can be made based upon scores on Western IQ tests.\textsuperscript{56} In addition, performance on international academic tests such as the Trends in International Mathematics and Science Study (TIMSS), Progress in International Reading Literacy Study (PIRLS), and Program for International Student Assessment (PISA) can also provide IQ benchmarks, as these tests demonstrate strong correlations with performances on Western IQ tests (0.81–0.88).\textsuperscript{57} Another recent development that supports this strategy is new test interpretation guidance which stresses that test performances are “scores” that must be interpreted by a neuropsychologist to determine its significance.\textsuperscript{58}

**Research**

Cultural neuropsychological research has also been increasing as evidenced by increases in the foreign publication in neuropsychological journals. Much of this research provides norms and adaptation of Western style tests for different countries. However, are tests developed in Western countries appropriate for measuring the impact of neurological disorders on populations with different linguistic backgrounds, educational opportunities, or exposure to Western concepts?\textsuperscript{10} For example, the growing literature on bilingualism has demonstrated early bilinguals have smaller vocabularies in each language but a composite vocabulary that is equal to monolinguals.\textsuperscript{59} Thus, evaluating vocabulary in one language may not accurately measure verbal skills in bilinguals. Understanding bilingualism is particularly important for cultural neuropsychological assessment as most of the world speaks more than one language: 43% are bilingual, 13% are trilingual, and 3% speak more than four languages.\textsuperscript{60}

Another growing research area that has significant implications for neuropsychological assessment is clinical cultural neuroscience which examines the cultural impact on brain functioning through functioning imaging data. For example, studies comparing visual perceptual skills of East Asians compared to Westerners report that Westerners perform better on tasks requiring focus on a focal object, while East Asians perform better when the task entails integrating both focal object and background information.\textsuperscript{61} This bias was illustrated in a study where European Americans demonstrated increased brain activation in the frontal-parietal areas when asked to attend to both object and context when judging line sizes, while East Asians demonstrated a similar activation pattern when asked to ignore the context and attended solely to the object. In each case, using processing strategies incongruent with cultural preferences resulted in more effortful
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perceptual differences are consistent with the differences in cognitive styles and values. Westerners tend to be individualistic, with cognition that is more analytic and emphasizes taxonomic object categorization. By contrast, East Asian cultures are more interdependent, with cognition that emphasizes holistic perception. These differences are believed to fundamentally reflect Greek, and Confucian and Taoist values, which are highly influential in Western and East Asian cultures, respectively.

Future Directions

The COVID-19 pandemic and Black Lives Matter Movement (BLMM) of 2020 have left an indelible mark on the world, American society, as well as on the discipline of psychology. COVID-19 has disproportionally impacted African American, Latinx, and Native American populations, uncovering health disparities for many ethnic minority populations. It has also changed the practice of clinical psychologists with a new reliance on telepsychology for treatment sessions, virtual meetings, and major conferences in order to reduce the risk for spreading infection during face-to-face sessions and large public gatherings. The BLMM increased White majority awareness of institutional racism and demanded support for implementing changes to increase equity in systems. The dual comfort and intrigue with technology and mobilized support of majority populations, in combination with the emerging growth and voice of ethnic minority neuropsychologists appear to have energized the discipline’s momentum in achieving the 2010 “Call to Action.”

This next section will describe current and proposed initiatives and projects to advance cultural neuropsychology that have been influenced by the confluence of ethnic minority and majority leadership, energized institutional support, and the impact of technology for increasing access to services to underserved populations and educational and training opportunities to neuropsychologists to develop cultural competency within the discipline.

The past few years have seen a significant increase in ethnic minority involvement in shaping the direction of neuropsychology. Ethnic minority neuropsychologists are increasingly holding leadership positions in major neuropsychological associations: Tony Puente served as President of the APA (2018–2019), Anita Sim (2016–2021) served on the AACN Board of Directors and chaired the Relevance 2020 Committee, Marc Norman served on the ABCN Board of Directors (2016–2021), and is currently the Executive Director of INS (2020–20__), Laura Renteria (2017–2022), Veronica Edgars (2019–2024), and Clemente Vega (2020–2025) serve on the ABCN Board of Directors, Anthony Stringer served on the ABCN Board of Directors (2008–2015), was President of ABCN (2015–2017), and is serving on the AACN Board and the new Relevance 2050 Chair (2021–2026), Ozioma Okonkwo serves as the treasurer for INS (2020–2025), and Desiree Byrd is an INS Member at Large (2020–2023). In parallel, the HNS has been a leader in advancing cultural neuropsychology. The organization has sponsored educational opportunities open to all neuropsychologists, including two Neuropsychological Conferences (2015, 2019). Research leaders have been instrumental in publishing Latinx norms for numerous neuropsychological tests. HNS leadership has also developed cultural training guidelines from their Houston to Austin Conference summit (Monica Rivera-Mindt, personal communication, 9/13/2020). Future plans include co-hosting conferences with the ANA and SBN.

In addition to increased awareness of institutional racism and support for systemic change, there has been increased movement for increasing the representation of ethnic minority neuropsychologists in decision-making. Perhaps the most significant initiative is the Inter-Organizational Practice Committee (IOPC) approval for the creation of an Inter-Organizational Diversity Committee (IODC), modeled on the IOPC. This new entity gives ethnic minority stakeholders
decision-making power for influencing how clinical psychological services are provided to our diverse population. Currently, David Lechuga, Christine Salinas, and Anna Reyes are organizing the development of a Cultural Neuropsychological Council (CNC) comprised of representatives from major neuropsychological organizations to determine practice issues pertaining to culture and diversity that delegates/representatives can bring to the IODC. Issues may include increasing the ethnic minority pipeline, providing guidance for education and training curricula from undergraduate to postgraduate levels, research, legislative and professional practice advocacy, mentorship, fundraising, and liaising with other major neuropsychology (Lechuga, personal communication, 8/24/20).

The major US neuropsychological associations have also introduced new initiatives to address diversity issues. INS is establishing the Black, Indigenous, or Persons of Color (BIPOC) Justice and Equity Task Force to explore the lived experience of being an ethnic minority neuropsychologist to guide institutional reforms for reducing marginalization and microaggressions (Anthony Stringer personal communication, 9/10/20). Similarly, the AACN listserv has initiated Equity Forums to facilitate an exchange of diverse perspectives with the goal of promoting professional development (Anita Herrera-Hamilton, personal communication, 8/8/20). A multiorganizational effort is underway to revise the Houston Conference Training Guidelines (HCTG) with a focus on updating guidelines for cultural neuropsychology training curriculums (Anthony Stringer, personal communication 9/5/20). The APPCN Committee on Diversity and Inclusion is developing projects for recruiting and onboarding international students and updating recruitment procedures for ensure equitable opportunities for students from diverse backgrounds (Amy Heffelfinger, personal communications 9/21/20).

Another ramification of the COVID-19 pandemic is the implementation and acceptance of teleneuropsychology as a viable alternative to traditional face-to-face assessments. Although the technology has received support from validation studies, it was not until the restrictions of the pandemic has the practice become widespread. Concomitant has been the addition of tele-mental health codes and loosening of state licensure requirements for clinical practice across state lines. These two developments have the potential for revolutionizing how cultural neuropsychology is taught and practiced on a global level.

Teleneuropsychology can significantly increase ethnic minority patients’ access to treatment from culturally and linguistically competent neuropsychologists, as many bilingual ethnic minority neuropsychologists live in different locations. Teleneuropsychology allows these patients to receive neuropsychological services directly by these distant providers, or local neuropsychologists can use technology for consultation and collaboration with out-of-state cultural experts.

Technology also has far-reaching implications for education and training. Most major neuropsychological conferences in 2020 were virtual conferences. New virtual platforms allow for increased accessibility to continuing education, including cultural neuropsychology, to many ethnic minority students, trainees, and clinicians who would not normally attend due to costs. It could also increase the opportunity for presenting research at conferences and meetings, which are important factors for acceptance into competitive neuropsychology training programs for trainees and tenure/promotion for academic faculty. Training programs that provide services to a diverse population, but lack a diverse faculty, can also benefit from virtual platforms by recruiting ethnic minority neuropsychologists living in other states to assist in providing education, supervision, and mentoring to trainees. Diverse neuropsychologists could be attracted to join training programs through offers of adjunct professorships, stipends, or research collaborations with programs that have access to specific ethnic minority populations.

The aforementioned initiatives can help address ethnic minority pipeline issues, as the lack of minority faculty role models and research opportunities with ethnic minority issues
are factors that prevent minorities from specializing in neuropsychology.\textsuperscript{17,18} Technology can increase the ability to provide such opportunities and facilitate the recruitment of ethnic minorities at the undergraduate and graduate level by providing virtual talks with university psychology organizations such as Psi Chi or the American Psychological Association of Graduate Students (APAGS).

Finally, technology has significant implications for developing neuropsychology internationally. For many countries, the educational requirement for practicing psychology is a master’s or bachelor’s degree and many practicing international neuropsychologists have little formal training in the specialization.\textsuperscript{10} Moreover, international professionals may not have the resources to attend conferences such as INS for continuing education. With virtual platforms, educational opportunities are accessible to more of the world’s neuropsychological providers. Technology also has the potential for facilitating a cross-fertilization of information and ideas. Linguistically and ethnically diverse neuropsychologists in high-resource countries can provide education, training, and mentoring to colleagues from their country of origin to increase the availability of neuropsychological services around the world. Conversely, international colleagues can educate Western neuropsychologists on pertinent cultural factors for understanding and performing assessments with ethnic minorities. These collaborations can also facilitate the development of translated and normed Western tests, as well as indigenous tests.

**Summary**

There is an increased need for developing competence in cultural neuropsychology on both global and national levels. Many objectives need to be accomplished to meet needs, including increasing the numbers of ethnic minority providers to service ethnically and linguistically diverse minorities, developing better education and training models, increasing accessibility of education and training, increasing the number and availability of translated tests and norms, and increasing cultural neuropsychology research. Although there have been advancements in each of these areas, there is still much to accomplish to address healthcare disparities in neuropsychology for ethnic minorities. The year 2020 has been pivotal for cultural neuropsychology due to the technologies developed to provide services during the COVID-19 pandemic, increased awareness of institutional racism from the BLMM, and growing diversity in leadership. This has energized efforts for increasing the availability of competent neuropsychological services for ethnic minority patients.

This book contributes to the advancement of culturally competent neuropsychological services by providing pertinent cultural information for understanding patients from different ethnic groups as well as identifying testing resources. This information will be useful for developing a culturally informed conceptualization and context for collecting accurate data, interpreting data, and making useful recommendations. This resource can be used in both education and training, as well as guiding clinical practice.

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60. Multilingual People [Internet]. place unknown: ilanguages.org; [cited 2020 Sep 27]. Available from: http://www.ilanguages.org/bilingual.php#:~:text=Bilingual%3A%20A%20person%20using%20or%20able%20to%20use,of%20world%20population%20speak%20more%20than%204%20languages%29