Issues of Diversity in Clinical Neuropsychology

J. Mark Davis
Rik Carl D'Amato *Editors*

Neuropsychology of Asians and Asian Americans

Practical and Theoretical Considerations

Springer

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Preface

The rapid globalization and proliferation of accessible information provide exciting opportunities to explore cultures with which we may have relatively less familiarity. As psychologists and clinicians, we are interested in understanding the experiences and perspectives that have led to the identity of clients we see in practice. As clinical neuropsychologists, we want to understand the diverse sociocultural factors that impact our clients and our work with them. It is, of course, our ethical obligation to educate ourselves about the socio- and biocultural characteristics of the people with whom we work, but interest in understanding all of the factors that make up a client's life is also an integral part of who we are as scientist-practitioners.

This book aims to provide information critical to understanding variables that are essential to working with people of Asian heritage. In part, it is important to better understand this population because of sheer numbers: Asians comprise the majority of the world's population, as reflected by the fact that six of the ten most populous countries in the world are in Asia (see asiafoundation.org), and Asians are projected to be the majority group in the United States of America by 2050.

This book is generally divided into two halves. The first half (Chaps. 1, 2, 3, 4, and 5) provides background information about Asians that is essential for any mental health clinician working with this population, not just clinical neuropsychologists. It is our strong belief that clinical neuropsychologists must first be good clinicians. In Chapter 1 ("Overview of Issues Related to Serving Asian and Asian American Clients"), Davis reviews important demographic characteristics of Asians and Asian Americans to provide a context for the remaining chapters. Relevant ethical guidelines, the limits and capabilities of the clinical neuropsychologist, and controversies involving the use of interpreters are discussed by Dugbartey in Chapter 2 ("Ethical Considerations in Neuropsychological Assessment of Asian Heritage Clients"). In Chapter 3 ("Linguistic Factors and Language Assessment of Asians"), Moody, a professor of linguistics, identifies features of English that interfere with nonnative speakers' learning and expression of English. Awareness of such features is critical to properly interpret errors that appear in nonnative speakers' English and

to guard against interpreting them as signs of pathological language processing. Moody provides a brief summary of linguistic theories relevant to understanding language acquisition and, in particular, learning English as a second language. Although rarely addressed in applied neuropsychology texts, we believe that reviewing linguistic theory provides clinical neuropsychologists a more complete understanding of errors they will encounter when interviewing and assessing Asian clients. The religious and philosophical bases of most Asian societies (e.g., Confucianism, Buddhism, and Taoism) continue to heavily influence social mores, personal identity, and individual and collective worldviews. These issues are explored by Guo and Uhm in Chapter 4 ("Society and Acculturation in Asian American Communities"). In Chapter 5 ("Mental Illness from an Asian American Perspective"), Uhm discusses lay beliefs about mental illness, cultural differences in symptom expression, diagnostic nosology, differences in prevalence rates of mental illnesses, and differences in rates of treatment seeking between Asian and Western cultures. These factors are also essential to understanding the worldview of Asian clients.

The second half of the book is more specifically related to clinical neuropsychology. In Chapter 6 ("Understanding Differences in Cognition Across the Lifespan: Comparing Eastern and Western Cultures"), Zaroff, D'Amato, and Bender survey the literature on cognitive processing (e.g., attention, memory, problem-solving, reasoning, etc.) in Asian populations, examining cross-cultural differences and similarities across the lifespan (e.g., children, adults, and the elderly). The focus of this chapter is on studies using behavioral paradigms rather than measures of brain activation. Brain activation is the focus of Chapter 7 ("Understanding the Neuroscience of Clients with Asian Heritage"). In that chapter, Semrud-Clikeman and Bledsoe summarize the literature in the exciting, and relatively new, field of cultural neuroscience. Reviewing studies of cross-cultural differences in brain morphology and activation, Semrud-Clikeman and Bledsoe identify the impact of cultural background and ethnicity on attention, language, emotional processing, and visual perception. Because the clinical interview is an essential component of neuropsychological assessment and assumes greater importance in situations where standardized tests are lacking, Chapter 8 ("Clinical Interviewing and Qualitative Assessment with Asian Heritage Clients"), written by Lau, is devoted to interviewing and qualitative assessment. This chapter summarizes cultural and social factors that may influence client presentation and collection of collateral information, and strategies for interviewing and qualitative assessment. In Chapter 9 ("Neuropsychological Test Selection with Clients Who Are Asian"), Riccio, Yoon, and McCormick focus more specifically on individual tests and test battery selection. These authors highlight the need to supplement any assessment battery with measures of acculturation and language proficiency, and they provide examples of tests that may be appropriate for inclusion in a clinical neuropsychological assessment with Asians. Riccio, Yoon, and McCormick acknowledge that there are no Asian American–specific normative databases for standard neuropsychological tests or fixed test batteries. They provide information about language-minimized/nonverbal tests as well as measures/fixed batteries that

have been adapted and/or translated in Asia and that may be appropriate depending on the level of acculturation of the client. The book concludes with Chapter 10 by D'Amato, Wang, and Davis ("What Do We Need to Know before Serving Asian and Asian American Clients?") which summarizes and synthesizes the main points from the book. In addition, D'Amato, Wang, and Davis underscore the need for evidence-based multimodal and multimethod assessment and discuss the important topic of meeting standards for admissibility of scientific evidence in legal proceedings.

Our volume provides information about ethical, cultural, social, linguistic, cognitive, neurological, psychiatric, and psychometric considerations that clinical neuropsychologists need in order to make informed decisions about assessment with Asian and Asian American clients. It consolidates a broad but necessary set of topics into one resource and supports the efforts to ensure that clinical neuropsychologists follow guidelines for evidence-based neuropsychological practice. Chapters progress from information about social, ethical, and cultural factors that are important for understanding the client's perspective and presentation (e.g., their role in the family and community, communication patterns, religious/philosophical influences on culture, attitudes toward mental health and mental health professionals, and factors related to acculturation) to information about cognitive and neuropsychological functioning in this population.

We would like to thank Grace Hio Wa Mak for her assistance proofreading and formatting the book; Elaine Fletcher-Janzen, Ph.D., for her encouragement and constructive advice; and Janice Stern (Senior Editor, Health and Behavior) at Springer Science+Business Media for her support and guidance throughout the process of producing this book. Finally, we would like to recognize the impact that the late Tony Wong, Ph.D., had on the field of clinical neuropsychology as well as his contributions to understanding neuropsychology with Asian American clients. He was a most enthusiastic supporter of this book during its initial stages of conceptualization and was working on a substantial contribution to it when he passed away.

It is our belief that to remain current in our changing world, it is necessary to commit to lifelong learning and we hope this book helps clinical neuropsychologists in that endeavor.

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Chapter 1
Overview of Issues Related to Serving Asian and Asian American Clients

J. Mark Davis

Abstract The Asian population in the USA is expected to increase by 79 % between 2000 and 2050, and the Asian population grew faster than any other racial group, expanding from around 10 million to approximately 15 million, between 2000 and 2010. At the same time, estimates suggest that minorities comprise only 7.2 % of the American Psychological Association (APA) membership and 6.8 % of the Division 40 membership. Only 1.7 % of individuals certified by the American Board of Professional Psychology have Asian surnames, admittedly a crude estimate of the number of neuropsychologists of Asian heritage. The National Academy of Neuropsychology (NAN) directory lists fewer than 20 clinical neuropsychologists who report proficiency in Asian languages. With nearly 15 million people in the USA self-identifying as "Asian," it is unlikely that an Asian American who presents for neuropsychological assessment will be served by a neuropsychologist from their racial, ethnic, and/or linguistic background. Clinical neuropsychologists who are not from Asian backgrounds need to learn about factors that likely influence assessment and treatment with Asian American clients. This chapter provides an overview of demographic characteristics of major Asian groups (except those from the Indian subcontinent) and sets the stage for more in-depth discussion of cultural, linguistic, ethical, cognitive, and psychometric factors later in the book. Clinical neuropsychologists who lack knowledge of cultural variables and appropriate procedures and norms specific to Asians or Asian Americans are at risk for failing to engage clients and for making assumptions and conclusions based on faulty, inadequate, or inappropriate information.

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1.1 Introduction

The United States of America (USA) is clearly a multicultural stew of people and it is becoming more diverse every year. Even in fairly conservative estimation equations, this minority population is expected to become the majority between 2040 and 2050 (Ortman & Guarneri, 2009). The Hispanic population is expected to double and the Asian population is expected to increase by 79 % between 2000 and 2050 (Ortman & Guarneri). This is an astonishing change in the basic demographics of the country. Health care providers, including neuropsychologists, can expect to see more people from a variety of cultural and ethnic backgrounds in their practices over the coming years. They must educate themselves about these cultural and societal dynamics to remain relevant, to have something of value to offer their increasingly diverse clientele, and to provide ethically sound services.

Since 1997, the USA Office of Management and Budget (OMB) has mandated that data on Hispanic origin and race be collected separately (Office of Management and Budget [OMB], 1997). Thus, the 2000 and 2010 USA census surveys record race separately from Hispanic origin. Of the 15 main categories of race, seven are Asian (Asian Indian, Chinese, Filipino, Japanese, Korean, Vietnamese, and Other Asian). "Asian" according to the USA Census Bureau includes people with origins from the Far East, Southeast Asia, or the Indian subcontinent (including Pakistan; Reeves & Bennett, 2003). There is more diversity than this description implies; at least 32 groups fall within the category of "Asian" (Wong & Fujii, 2004).

The 2010 census indicated that 308.7 million people lived in the United States on April 1, 2010 (Humes, Jones, & Ramirez, 2011). According to these authors, approximately 224 million (72 %) reported their race as White alone. Nearly 15 million (4.8 %) reported their race as Asian alone and nearly three million more identified themselves as Asian plus some other race. Between 2000 and 2010, the Asian-only population grew faster than any other racial group, expanding from around 10 million to approximately 15 million (an increase of 43 %). Of the 33.5 million foreign-born USA residents in 2003, 25 % were from Asian countries, a rate surpassed only by people from Central America (Larsen, 2004). According to the Census Bureau FactFinder (http://factfinder2.census.gov), data from the 2010 census and 2010 American Community Survey indicated that self-identified Chinese were the largest Asian-alone group in 2010 (3.3 million or 22 % of the Asian population), followed by Asian Indians (2.8 million; 19 %), and Filipinos (2.1 million; 17 %). The other two large groups consist of people of Vietnamese (1.6 million; 11 %) and Korean descent (1.4 million; 10 %). Population figures for other groups are provided in Table 1.1. As noted by Moody (see Chapter 3 *Linguistic Factors and Language Assessment of Asians* in this text), Chinese languages are the most common languages spoken world-wide, with Mandarin (spoken by 845 million people) being the most common Chinese dialect. Asians make up 60 % of the world's population (Sue, 2002). Clearly, neuropsychologists can expect increasing numbers of clients from Asian backgrounds in the future.

Table 1.1 Asians living in the USA according to the 2010 census

Rank	Self-identified group	Census count	% of Asian population
1	Chinese (except Taiwan)	3,291,388	22.35
2	Asian Indian	2,765,155	18.77
3	Filipino	2,512,686	17.06
4	Vietnamese	1,625,365	11.04
5	Korean	1,456,076	9.89
6	Japanese	774,600	5.26
7	Other Asian[a]	496,039	3.37
8	Pakistani	356,939	2.42
9	Cambodian	264,080	1.79
10	Hmong	245,807	1.67
11	Laotian	210,571	1.43
12	Thai	177,445	1.20
13	Taiwanese	165,524	1.12
14	Other Asian, not specified[b]	133,763	0.91
15	Bangladeshi	115,037	0.78
16	Indonesian	77,104	0.52
17	Sri Lankan	40,285	0.27
18	Malaysian	20,438	0.14
	Total	14,728,302	–

[a]Identified two or more groups
[b]Answered "Other Asian" on census but did not identify a specific group

1.2 Cultural Competence

While ethnic and cultural diversity grows at a rapid pace in USA society, diversity within the community of clinical neuropsychologists has not. Echemendia (2004) notes that neuropsychologists in the USA are predominantly white and English-speaking, resulting in a mismatch between service providers and clients. Neuropsychologists in California, the District of Columbia, Hawaii, New Mexico, and Texas (states where over 50 % of racial minorities reside; Humes et al., 2011) are most likely to be called on to serve minority clients. Arizona, Florida, Georgia, Maryland, and Nevada had between 40 % and 50 % of their populations self-identify as a racial minority in 2010, and 15 states had declines in the number of residents identifying as non-Hispanic White (Humes et al.). This underscores the need for neuropsychologists to educate themselves about the culture, society, and perspectives of their diverse clients.

It is difficult to determine exactly how many minority neuropsychologists there are in the USA. Hill-Briggs, Evans, and Normal (2004) examined the number of students representing different race/ethnicity groups in graduate psychology departments in the USA. In 1999–2000, 9 % of students identified themselves as Hispanic, 7 % as African American, 4 % as Asian American, and less than 1 % as American Indian/Native Alaskan; 16 % of applicants to internships in 2001–2002 were

minorities. Given that clinical neuropsychology graduates represent only 2 % of graduates of all psychology doctoral programs, it is unlikely that the field will see a sizeable number of new minority clinical neuropsychologists any time soon. Briggs et al. (2004) also examined percentages of American Psychological Association (APA) and Division 40 members who reported race/ethnicity status. Minorities comprised 7.2 % of the APA membership and 6.8 % of the Division 40 membership, with no specific group comprising more than 1.7 % (a large number, 27.4 %, of APA members did not specify their race/ethnicity). Fujii (2011a) combed the membership rosters of the International Neuropsychological Society (INS) and American Academy of Clinical Neuropsychology (AACN) for Asian surnames to determine rough estimates of minority neuropsychologists belonging to those organizations. He identified that around 3 % of INS members from the USA and Canada had Asian surnames. Examining the AACN directory, he determined that there are four Japanese, three Chinese, two Korean, and two Asian Indian board certified clinical neuropsychologists in that organization, representing 1.7 % of individuals certified by the American Board of Professional Psychology (ABPP). Examining the locations of these individuals, Fujii determined that 46 states likely *do not* have an ABPP-certified clinical neuropsychologist. Examining the National Academy of Neuropsychology (NAN) directory, he identified less than 20 clinical neuropsychologists who reported proficiency in Asian languages. There are almost 15 million self-identified Asians in the USA (see Table 1.1). That is not an optimal ratio.

According to the American Academy of Clinical Neuropsychology (AACN), clinical neuropsychology is "an applied science that examines the impact of both normal and abnormal brain functioning on a broad range of cognitive, emotional, and behavioral functions" (American Academy of Clinical Neuropsychology [AACN], 2007, p. 211) which involves "the use of objective neuropsychological tests, systematic behavioral observations, and interpretation of the findings based on the knowledge of the neuropsychological manifestations of brain-related conditions" (p. 212). As part of the process, "neuropsychologists are aware that cultural, linguistic, disability, and other demographic and socioeconomic factors influence individual's participation in the process … and may alter the meaning of information obtained from testing" (p. 216) and "recognize threats to validity that can occur" (p. 217) when working with ethnic minority clients. Thus, clinical neuropsychologists are expected to be knowledgeable about client factors that will influence assessment and treatment as well as be knowledgeable about the psychometric characteristics of the assessment tools that they use. These expectations are set forth in the practice guidelines established by AACN as well as other standards such as the *Guidelines for providers of psychological services to ethnic, linguistic, and culturally diverse populations* (American Psychological Association [APA], 1990) and the *Standards for educational and psychological testing* (American Educational Research Association, American Psychological Association, & National Council on Measurement in Education, 1999). Meeting these expectations when working with ethnic minority clients is an incredibly difficult task. As we will see throughout this book, there are numerous variables that may potentially impact work with ethnic minority clients.

Mindt, Byrd, Saez, and Manly (2010) comment that "the field of neuropsychology has been slow to respond to the clinical needs of ethnic minority clients" (p. 429) and that "neuropsychologists will be increasingly called to provide services to ethnically diverse clients" (p. 434), including those of Asian descent. Mindt et al. (2010) urge neuropsychologists to increase their cultural competence "through enhanced education and training, reliance on evidence-based practice, and increased research on the psychometric properties of neuropsychological tests in ethnic minority populations" (p. 440). Clinical neuropsychologists who lack knowledge of cultural variables and appropriate procedures and norms specific to ethnic minorities are at risk for failing to engage clients and for making assumptions and conclusions based on faulty, inadequate, or inappropriate information (Wong & Fujii, 2004).

Culture, ethnicity, and race have been shown to influence neuropsychological test performance (Brickman, Cabo, & Manly, 2006). Ardila (2005) defines culture as "a set of learned traditions and living styles, shared by the members of a society" (p. 185) that includes internal representations (e.g., knowledge, values, attitudes, and beliefs), modes of behavior (ways of relating to others), and "cultural elements" (p. 185) that include objects such as clothes and ornaments. Ethnic minority groupings in the USA have typically been tied to the census and, over the years, have included white/Caucasian, black/African American, Hispanic/Latino, Native American Indian/Alaska Native, Asian/Asian American, and Native Hawaiian and other Pacific Islanders (Mindt, Byrd, Saez, & Manly, 2010). In a strict sense, there are three racial groupings – Asian/Mongoloid, Black/Negroid, and White/Caucasian – but some scientists place little stock in these distinctions because of a lack of genetic trait differentiation between the groups (Gasquoine, 2009) and note that race is more of a socially or politically determined distinction than one based on significant genetic variation (Brickman et al., 2006). In practice, ethnicity and race become intertwined. Culture is not synonymous with race/ethnicity, though, and cultural influences go well beyond racial/ethnic distinctions (Gasquoine, 2009). This book focuses on developing a greater understanding of the cultural factors that influence clinical neuropsychologist's work with one of the most rapidly growing groups in the USA – Americans with ties to Asia. Assessment with Asian American clients poses ethical challenges. Relevant ethical guidelines, the limits and capabilities of the clinical neuropsychologist, and controversies involving the use of interpreters are discussed by Dugbartey in Chapter 2 of this text, entitled *Ethical Considerations in Neuropsychological Assessment of Asian Heritage Clients,* and revisited by Riccio, Yoon, and McCormick in their discussion of factors to consider in test selection (Chapter 9 entitled *Neuropsychological Test Selection with Clients Who Are Asian*).

1.3 Who Are "Asian Americans"?

As noted above, "Asian" according to the USA Census Bureau refers to people with origins from the Far East, Southeast Asia, or the Indian subcontinent (Reeves & Bennett, 2003). For the sake of this book we will stick with this simple definition.

"Asian American" refers to people who identify themselves as Asian and who are residing in the USA. In the USA, it includes refugees and immigrants (Uehara, Farwell, Yamashiro, & Smukler, 2002) from other countries as well as people from Asian ancestry born in the USA. There are multiple sources of heterogeneity within this group. The USA Committee for Refugees and Immigrants (n.d.) defines a refugee as a person who flees their country because of well-founded fear of persecution based on a variety of factors such as race, religion, nationality or political opinion; it can also include people fleeing war or other armed conflict. Pre-migration factors of a refugee are likely much different than those of someone pursuing more usual processes of immigration (which is probably more accurately labeled naturalized citizenship; for an overview of the rather complex process by which someone can become a naturalized USA citizen, see the USA Citizenship and Immigration Services website at http://www.uscis.gov/portal/site/uscis). The reasons for settlement in the USA by refugees and immigrants are usually dramatically different, and pre-migration variables for each group need to be explored. Likewise, second- and subsequent-generations of foreign-born USA citizens have a different set of variables with which to contend. For example, newly arrived Asian immigrants are more likely to experience acculturation stress while USA-born Asians are more likely to experience stress due their bicultural status (Sue, 2002). The remainder of this section provides a brief overview of some characteristics of several Asian countries from which Asian Americans bring their experiences, and characteristics of select Asian groups residing in the USA. Space limitations prevent detailed descriptions, or descriptions of all Asian groups. We focus on Far East and Southeast Asian groups.

As seen in Table 1.1, Chinese Americans are by far the largest group in the USA. It is also a diverse group. Early migrants from China (late 1800s and early 1900s) were mostly from Southeastern China (the Quangdong province) and spoke primarily Cantonese or Taishanese (Wong & Fujii, 2004). They had minimal formal education and were primarily laborers in the mining and railroad industries. Recent immigrants are more diverse with regard to their region of origin within China (as well as Chinese from other countries/administrative regions such as Hong Kong and Taiwan), are more likely to speak other dialects (such as Mandarin, the national language), and are more likely to have some proficiency in English (Wong & Fujii). In 1977, the People's Republic of China began allowing emigration, resulting in more professionals migrating from the mainland to the USA (Wong, 2011). Their level of English proficiency varies considerably. English as a second language was not commonly taught in mainland Chinese schools prior to the end of the Cultural Revolution; now it is a compulsory second language (Wong). Chinese Americans, however, can include people migrating from areas other than mainland China. Not only is English a compulsory language in Hong Kong schools, because of British colonial rule it permeates Hong Kong society. Macao, although heavily influenced by Portuguese rule from the 1500s until the city was returned to the People's Republic of China in 1999, has many English-instruction primary and secondary schools, and the only public tertiary educational institution provides instruction for most programs in English. Taiwan also has English as a compulsory second language (Wong). Depending on the socioeconomic and cultural background of Chinese migrating from these regions, English proficiency may vary significantly.

Filipino Americans are the third largest group in the USA, after Chinese and Asian Indians. Most people in the Philippines are multilingual, speaking English in addition to their regional dialect (Tagalog being most prevalent), and English is the main language taught in schools after the third grade (Wong & Fujii, 2004). As such, they are likely to have good English comprehension and expression skills but comprehension tends to be stronger (Wong & Fujii). It has been said that Filipinos from their native country often align themselves more with Hispanics/Latinos and African Americans than Asian Americans because of their history of being colonized by Western countries (first Spain from the sixteenth century and then the USA in 1899 as the result of the Spanish-American War; Nadal & Monzones, 2011). As an example of the strong Western influence, the overwhelming majority of Filipinos are Roman Catholic (Nadal & Monzones). As reported by Wong & Fujii (2004), a large wave of migration from the Philippines took place between 1978 and 1998 and many well-educated and middle-class Filipinos who were unhappy with the Ferdinand Marcos administration left for better opportunities in the USA. Earlier waves included laborers in the early 1900s and Filipino servicemen and their families who were granted citizenship for fighting for the USA in World War II.

The next largest Asian group, Vietnamese, are relatively recent immigrants, coming to the USA after the Vietnam War. Their migration pattern is similar to Cambodian, Hmong, and Laotians, the ninth, tenth, and eleventh largest Asian groups in the USA, who also arrived following the end of the Vietnam War. Dinh (2009) noted that many people from these areas were already refugees prior to leaving South East Asia. Political and military conflicts including the Japanese invasion during World War II, the French Indochina War in the 1940s and 1950s, the Vietnam War from 1959 to 1974, and the Khmer Rouge regime and reign of terror in Cambodia from 1975 to 1979 led to 40 years of turmoil and devastation of communities and families. The first wave of large-scale migration from Vietnam occurred immediately following the fall of Saigon in 1975 (Dinh). This group tended to be well-educated, wealthier, Western-trained, more familiar with the English language, had connections to the USA government, military, or companies, and included around 132,000 people (Dinh). The second wave from 1977 to 1982 (the so-called "boat people") included around 400,000 people who fled Vietnam to refugee camps in neighboring countries such as Thailand before receiving permanent asylum elsewhere, including the USA (Dinh). People in the third wave (around 530,000 from 1982 onward) were allowed to leave by the Vietnamese government because of an agreement with the United Nations that attempted to re-unite family members (Dinh). Vietnamese from the second and third waves were poorer, had much less formal education, and had low English proficiency compared to those in the first wave (Wong & Fujii, 2004). The largest group of refugees from Cambodia fled to Thailand and neighboring countries after the fall of the Khmer Rouge in 1979 (Dinh, 2009). Many eventually resettled in the USA in the mid-1980s, but not before spending years in refugee camps. Immigrants from Laos include the Highland Hmong and Lowland Lao. The first wave of Hmong to immigrate to the USA included many who were recruited by the USA government to fight for the USA during the Vietnam War but as with Cambodians, many lived in refugee camps in Thailand and neighboring countries before being allowed into the USA (Dinh).

Many Lowland Laotians, ethnically distinct from the Highland Hmong in Laos, fled the country after the Pathet Lao, a government backed by North Vietnam, took control of the country and imprisoned many members of the previous government, leading to approximately 10 % of the population fleeing the country (Fujii, 2011b). As with refugees from Cambodia and the Hmong, many ended up in refugee camps in Thailand before resettling elsewhere, including the USA (Dinh, 2009). Fujii (2011b) noted that the initial wave of Laotian immigrants to the USA were former government administrators and soldiers while later immigrants were less educated farmers/laborers. Decades of fighting in this region destroyed families and communities. The horrors of war and equally horrific experiences in refugee camps left many Vietnamese, Hmong, Cambodians, and Laotians traumatized. For example, it has been estimated that over 90 % of Cambodian refugees in the USA who experienced traumatic events and persecution during Pol Pot's regime developed Posttraumatic Stress Disorder (Rhee, 2009). Decades of conflict also impacted educational opportunities. Historically, the Vietnamese educational system was influenced by the Chinese and, beginning in the mid-1900s, the French (Ngo, Le, & Le, 2011). Both reserved education primarily for the elite of society. English proficiency is on the rise in Vietnam, but older Vietnamese who were educated under the French system may know more French than English. Educational opportunities in Cambodia and Laos were extremely limited during the best of times and decimated during the 1970s (Fujii, Yee, Eap, Kuoch, & Scully, 2011). As with Vietnam, the French influenced the education systems of Cambodia and Laos during their colonial period in the region, but continual wars through the 1960s and 1970s destroyed whatever stability existed during the time of the French. Stabilization of governments in these countries has improved their educational systems, and education is now compulsory until the ninth grade in Cambodia (Fujii et al., 2011). The Laotian government has attempted to set up universal primary education but resources vary considerably across rural and urban areas (Fujii, 2011b).

Korean Americans represent the fifth largest Asian group in the USA and are relatively more homogeneous compared to most of the other groups. Most Korean immigrants are, of course, from South Korea, and most Korean migration occurred after the Korean Conflict. The educational system in South Korea is similar to that of the USA, with 6 years of primary school, 3 years of junior high, and 3 years of senior high school. Students typically begin learning English in third grade but the emphasis is on grammar rules rather than conversational skills, leading to strong reading and writing but poor speaking skills and oral comprehension (Jo & Dawson, 2011). Education is highly valued in society and competition for university admission is intense. Korean Americans tend to be among the most highly educated Asian Americans (Wong & Fujii, 2004). Improving children's education is the most common reason for immigration (Jo & Dawson, 2011). While the children of first generation immigrants may have relatively good English proficiency (at least compared to other Asian groups), their parents may not. Wong and Fujii note that 90 % of Korean immigrants do not speak English when they arrive in the USA. Many left professional careers in Korea but language barriers led to underemployment in the USA, including

establishment of small family businesses, often in Korean enclaves (Jo & Dawson). An important variable for clinical neuropsychologists to be aware of is that babies are considered to be a year old at birth in Korea, and everyone gets 1 year older on January 1 (Jo & Dawson). Thus, someone from Korea may report themselves to be 2 years older than their USA peer even if both share the same December birth date (they are 1 year old at birth and gain another year a month later in January).

Of the 15 million Asian Americans living in the USA in 2010, 66.5 % (nearly 10 million) were born outside of the USA (see Table 1.2, which provides data from the 2010 American Community Survey by the Census Bureau). A little over a third arrived prior to 1990 and another third arrived in 2000 or later. Migration patterns vary significantly across groups. For example, 75.6 % of Laotians and 67.2 % of Cambodians arrived prior to 1990 while only 36 % of Chinese and 38.3 % of Vietnamese did so. Japanese are older (the median age is 47.6 compared to 37.2 for the USA population in general and 35.5 for Asian Americans in general) while Hmong, Cambodians, and Laotians are young (median ages of 20.7, 29.3, and 31.8, respectively). Twenty-three percent of Japanese Americans are 65-years-old or older, while only 3 % of Hmong fall in that age range. Chinese, Filipino, Korean, and Japanese Americans, as a group, are highly educated. Over 25 % of Japanese Americans have bachelor's degrees and 26.6 % have graduate or other similar advanced degrees. The number of Filipino (40.1 % and 8.4 %), Korean (34.5 % and 18.3 %), and Japanese Americans (31.9 % and 15.4 %) with bachelor's and graduate degrees are likewise impressive. The number of Laotian (10.1 % and 2.8 %), Hmong (11.5 % and 3.6 %), and Cambodian Americans (11.8 % and 3.8 % with bachelor's and graduate degrees) is much lower, and as seen in Table 1.2, these groups have much higher percentages of people over 25 who have less than a high school degree. English proficiency varies considerably across groups. Japanese Americans report speaking English comparatively better than other groups (only 22.5 % reported speaking English less than "very well"; in contrast, 54 % do so). English is the only language spoken in a greater percentage of Japanese American households (56.8 %) than other groups. The lowest is Hmong (10.6 % of households). Overall, Asian American households (median household income = $67,022) are better off financially than the general population ($50,046). Filipino ($78,202) and Chinese ($65,273) households had the highest median household income while Hmong ($45,169) and Thai ($46,560) had the lowest. Hmong also had the largest household size (5.48 people; all others ranged from 2.28 to 3.91). Family poverty rates were highest for Hmong (27.8 % of families) and Cambodian Americans (19 %), and Japanese (3.5 %) and Filipinos (4.4 %) had the lowest. They also had the lowest percentage of people that do not have health insurance. These are just a few statistics from the Census Bureau that highlight the variability across Asian American groups. These are factual comparisons. We now turn to less concrete or easily measurable factors. For the remainder of this chapter and much of the book, we take a Pan-Asian perspective. Because of cultural similarities between Far East and Southeast Asian societies, we focus on them rather than cultures from the Indian subcontinent such as India and Pakistan.

Table 1.2 Characteristics of the USA population and select Asian groups from the American Community Survey (ACS) 2010

	USA total	Asian total	Chinese	Filipino	Vietnamese	Korean	Japanese	Cambodian	Hmong	Laotian	Thai
Age											
< 18 years old (%)	24.0	22.0	19.9	19.1	24.3	19.3	11.0	25.5	41.5	25.8	16.0
≥ 65 years old (%)	13.1	9.6	10.8	11.5	8.2	10.4	23.3	6.5	3.0	6.5	7.0
Median (years)	37.2	35.5	37.6	38.9	35.8	36.7	47.6	29.3	20.7	31.8	36.8
Household size	2.63	3.10	2.87	3.40	3.59	2.64	2.28	3.91	5.48	3.80	2.64
Family size	3.23	3.60	3.39	3.82	3.97	3.22	3.00	4.19	5.80	4.19	3.33
Education (≥ age 25)											
< 12 years (%)	14.4	14.6	18.8	7.7	30.4	8.0	5.2	33.9	35.5	32.8	15.2
H.S. diploma (%)	28.5	16.0	15.2	14.7	21.8	18.7	19.7	27.4	22.3	29.2	19.3
Some college (%)											
Bachelor's degree (%)	17.7	29.6	25.3	40.1	18.5	34.5	31.9	11.8	11.5	10.1	26.7
Graduate/higher degree (%)	10.4	20.3	26.6	8.4	6.6	18.3	15.4	3.8	3.6	2.8	17.2
Foreign born (%)	12.9	66.5	69.0	65.9	68.4	74.4	38.0	59.4	40.4	58.6	75.7
Of foreign born, entered before 1990 (%)	38.1	36.8	36.0	43.2	38.3	44.6	40.5	67.2	51.1	75.6	43.6
Of foreign born, entered in 2000 or later (%)	34.7	36.2	36.5	31.9	24.0	32.8	41.0	20.7	19.7	9.6	39.3
English spoken less than "very well" (%)	8.7	35.5	46.0	22.3	54.0	44.9	22.5	41.7	37.6	40.8	43.9
Only English spoken at home (%)	79.4	23.1	17.8	32.9	11.9	21.4	56.8	19.5	10.6	17.3	23.4
Income (dollars)											
Household (median)	50,046	67,022	65,273	78,202	52,153	50,316	64,551	48,585	45,169	52,370	46,560
Per capita	26,059	28,930	30,748	28,953	20,633	26,417	38,939	15,993	10,715	18,100	22,801
Public health insurance (%)	29.7	20.2	21.3	18.0	27.2	17.0	25.7	31.4	41.2	25.1	17.9
No health insurance (%)	15.5	15.7	14.3	11.7	20.3	26.8	6.1	20.9	16.9	19.3	22.8
Unemployed (≥ age 16; %)	6.9	5.6	5.1	5.9	6.8	4.8	2.8	6.9	9.9	8.8	5.5
Family poverty rate (%)	11.3	9.1	9.4	4.4	13.2	11.8	3.5	19.0	27.8	12.3	13.1

Note: Data were extracted from the American Community Survey using the Census Bureau's American Fact Finder (http://factfinder2.census) on January 22, 2012 and have margins of error, which are available on the website. One-year projections from the 2010 survey are reported. Racial groups include only those identifying one group (e.g., "Thai alone"). Due to space limitations, not all Asian groups are included. The "Asian Total" group reflects individuals who self-identified as "Asian alone"

1.4 Cultural Variables That Influence Neuropsychological Services

Two main categories of influences of cultural variables on neuropsychological services: those related to characteristics of the Asian American client (e.g., pre/post-migration experiences, literacy, education, acculturation, worldview, etc.) and those related the properties of tests/test batteries (e.g., indigenous vs. adapted, appropriate normative sample, sufficient reliability and validity, etc.). Certainly this is a simplification of the situation, but for the purposes of this review the variables will combined in this manner.

1.4.1 Client Characteristics

Ardila (2005) provides a thorough and insightful overview of the numerous cultural variables that influence cognitive testing (and by extension, neuropsychological assessment). He identifies variables that fall into three heuristic domains: values, modes of knowing, and factors related to communication. These apply to all interactions between the psychologist and client, not just those specific to cognitive testing, and include the one-to-one relationship of the assessment-related situation (i.e., this situation may be alien to people from more collaborative societies); the degree of authority afforded the examiner/neuropsychologist; assumptions that the examinee is expected to "do one's best" (which may make more sense to individuals from more competitive cultures); intimacy of the isolated testing setting (which may be inappropriate in some cultures); formal style of communication; emphasis on speed (some cultures value a slow and methodical process over speed); intrusiveness of asking about internal or personally private matters, familiarity/unfamiliarity of the objects (blocks, figures, etc.) used in the testing process; dynamics related to age of the examinee and examiner (e.g., some cultures see older people as experts while others see younger generations as more up-to-date); gender matching/mismatching; and the ethnic match/mismatch between examinee and examiner. In a similar vein, Wong (2000) identifies factors embedded in Asian cultures that influence neuropsychological assessment and intervention, including intercultural issues that may impact rapport, communication, and understanding; immigration history and level of acculturation; beliefs about mental illness and help seeking; the family as the most important unit (rather than the individual); and expectations regarding interactions with the "expert" health professional. Ardila (2005) notes that test instructions themselves are ambiguous and open to interpretation by the examiner, and such interpretation is influenced by the culture of the examiner. He concludes that "Cognitive testing represents a social situation that – as any social situation … is one governed by implicit cultural rules" (p. 193). It behooves the clinical neuropsychologist to become as familiar as possible with the rules. Ardila goes on to state that the "relationship between the examiner and examinee, the type of environment,

the style of communication that is maintained, and the activities carried out … are embedded in a cultural context … Understanding these cultural assumptions … represents a major endeavor for twenty-first century neuropsychology" (p. 193). Wong and Fujii (2004) warn that "neuropsychologists and others who work with Asian American clients would be well advised to be aware of … factors such as acculturation, language or English proficiency, [and] migration history … not only for the purpose of facilitating an atmosphere of understanding and rapport, but also for providing the appropriate context … by which to determine an appropriate assessment and eventual interpretation of such" (p. 25).

Several demographic variables have been shown to impact cognitive test performance, including age, sex, education, and socioeconomic status. Much has been written about these factors, and many of our tests and test batteries provide normative data stratified by at least some of these variables. Level of language proficiency and acculturation have also been shown to impact neuropsychological test performance (e.g., Manly, Byrd, Touradji, & Stern, 2004). Asian languages have unique orthographic and phonological characteristics that will impact clinical neuropsychological assessment of Asian American clients, a topic explored thoroughly in Chapter 3 of this text, entitled *Linguistic Factors and Language Assessment of Asians*, by Moody.

Cultural beliefs, including philosophical underpinnings of those beliefs (e.g., Confucianism, Buddhism, and Taoism) and behavioral styles may impact interactions between Asian American clients and the neuropsychologist, and response biases could influence interpretation of paper-and-pencil personality/symptom questionnaires. It is important for clinical neuropsychologists to understand these influences, and to determine the extent to which their clients are impacted by traditional Asian versus Western values. This includes an estimate of the client's level acculturation, which necessitates an understanding of available measures of acculturation. These issues are explored in depth by Guo and Uhm in Chapter 4 of this text, entitled *Society and Acculturation in Asian American Communities*. Clinicians must strive to understand the unique worldview of each client in order to best serve them.

Although relatively more "medical" than other branches of psychology, clinical neuropsychological assessment usually includes identification and classification of mental illness and subsequent treatment recommendations. More and more, neuropsychologists are involved in providing psychotherapeutic services to clients and their families. Thus, the client's (and their family's) attitudes toward mental illness and toward the legitimacy and utility of psychological services will likely influence the provision of clinical neuropsychological services. Understanding beliefs toward mental illness can help the neuropsychologist understand the context within which an Asian American client presents as they do, including the impact of psychological or neuropsychological problems on family, community, and societal role fulfillment. Uhm, in Chapter 5 of this text (entitled *Mental Illness from an Asian American Perspective*) explores these beliefs more fully.

1.4.2 Variables Related to Tests and Test Batteries

Manly (2008) argued that neuropsychological measures do not have acceptable accuracy for use with culturally and linguistically diverse people, and that this is a "critical vulnerability" (p. 180) in the field. It is essential to determine what cognitive functions our neuropsychological tests assess, and determine if tests measure the same things across nations or cultures. This complex and critical topic is beyond the scope of this introductory chapter but is explored by Zaroff, D'Amato, and Bender (Chapter 6 *Understanding Differences in Cognition across the Lifespan: Comparing Eastern and Western Cultures*) and Semrud-Clikeman and Bledsoe (Chapter 7 *Understanding the Neuroscience of Clients with Asian Heritage*) in this text. Riccio, Yoon, and McCormick (Chapter 9 *Neuropsychological Test Selection with Clients Who Are Asian*) provide information about language minimized/nonverbal tests as well as measures/fixed batteries that have been adapted and/or translated in Asia and that may be appropriate depending on the level of acculturation of the client. The information in these chapters can help address the critical vulnerability identified by Manly and highlight areas in which there is still much to research and learn.

1.5 Conclusions

This is an exciting time to be a clinical neuropsychologist, especially for those with interests in cross-cultural neuropsychology. This book summarizes much of what we know but also identifies a lot of what we do not know about providing clinical neuropsychological services to clients of Asian heritage. There is much to be learned but worldwide social dynamics (e.g., migration, instant communication across nations and societies) will aid the process. At the same time that there is an essential need for greater understanding of cross-cultural issues in clinical neuropsychology, these dynamics will provide collaborative opportunities to do so. This book itself reflects the collaboration of psychologists from three continents – Asia, North America, and Australia. It is hoped that colleagues from relatively more developed areas of the world where resources for research and practice are already established will partner with psychologists from other parts of the world to pursue sharing of information and collaboration on research.

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Chapter 2
Ethical Considerations in Neuropsychological Assessment of Asian Heritage Clients

Anthony T. Dugbartey

Abstract This chapter discusses some of the main ethical aspects of providing clinical neuropsychological services to clients who are culturally different than the clinician. These issues include the relationship between values and ethics, the imperfect correlation between ethics and actual behavior, moral principles which constitute the basis of ethical standards for most health professions (and differences in relative importance of the principles in different cultures), use of interpreters in assessment (including documentation of the credentials of any interpreters used), and competency as regards knowledge of cultural factors relevant to the client receiving services.

2.1 Introduction

You learn a lot about your own culture by learning about someone else's. 'The world has shrunk!' is a euphemism one often hears these days. But for some clinical neuropsychologists, however, this statement may spark apprehension because it evokes a sense of dread about the challenges involved in providing competent neuropsychological services to the culturally different. While our collective sensitivities seem to be getting ever more delicate for matters of professional ethics in clinical neuropsychology, the same cannot be said for cross-cultural applications of neuropsychology. Few neuropsychologists would disagree that ethics is an important subject matter in our field. And yet, little systematic attention is paid in the published research and clinical literature to ethical issues in cross-cultural

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neuropsychological practice. The effect of the increasing rates of immigration to the United States in the past few decades (U.S. Census Bureau, 2000) is believed to have an impact on the country's health care systems (Saha & Fernandez, 2007; Saha, Fernandez, & Perez-Stable, 2007), and neuropsychology is no exception. This effect is particularly noticeable among culturally diverse population groups with limited proficiency in English. The objectives of this chapter are quite modest, and include an exploration of some topical ethical issues involved in the professional practice of neuropsychology with Asian Americans.

It is perhaps worth starting with two general principles. First, ethical knowledge does not necessarily result in ethically appropriate conduct and behavior (Smith, McGuire, Abbott, & Blau, 1991). And second, not all ethical issues can be fully resolved by relying exclusively on our current ethical codes.

2.2 The Importance of Values in Cross-Cultural Neuropsychology Practice

Despite the rapid growth of clinical neuropsychology in the past few decades, there continues to be a disquieting dearth of information regarding challenges and innovative solutions associated with the provision of cross-cultural neuropsychological services. A quick review of the published articles in some of the major neuropsychology journals (i.e., Applied Neuropsychology, Archives of Clinical Neuropsychology, Journal of the International Neuropsychological Society, and Neuropsychology) shows that a mere 5 % of the articles which were published in all of these journals in 2011 were devoted specifically to cross-cultural neuropsychological issues. Does this paucity of published articles reflect the values of mainstream clinical neuropsychology? And what are values anyway?

In general vernacular, values reflect what a person cherishes. The seeds of ethically appropriate conduct are sown in values. This is because values are the crucible in which those beliefs and attitudes which provide direction to our daily lives are nurtured. The values we hold and espouse signify what is important to us, and so these values may be reflected in the contemporary themes, for instance, of the kinds of articles which appear in our major neuropsychology journals described above. One of the best descriptions of values was offered by Rokeach, who defined it as "an enduring belief that a specific mode of conduct or end-state of existence is personally or socially preferable to an opposite or converse mode of conduct or end-state" (Rokeach, 1973, p. 5). So then, it is fair to assert that our professional codes of conduct; quite like the kinds of research endeavors which are suffused in our professional journals, reflect our values as psychologists.

Another way of considering the fundamental importance of values may be illustrated in the following aphorism: for every rule (or standard in the code of conduct for psychologists) there is a reason; and behind every reason there is a value. Oftentimes, those underlying reasons and values are not explicitly stated but they exist nevertheless. Take for example the development and application of

neuropsychological tests of information processing speed. In spite of empirical research indicating that tests of information processing speed are a useful measure of white matter cerebral integrity, we also know that all societies do not place equal value on rapid pace of life as an attribute with inherent value (Levine & Norenzayan, 1999). As such, when the neuropsychologist assesses a person from a cultural background which values accuracy over speed, timed tests may not reflect cultural equivalence in the cognitive construct being assessed. Another illustration of the importance of values was explicated by Brandt (2007), who argued that simply ascribing low neuropsychological test scores to brain impairment without considering the underlying reasons for the low test scores, including different cultural values, is inappropriate and that this reflects our unfortunate tendency to equate measurement with interpretation. Of course, this latter practice continues to be quite a deeply entrenched activity (and hence reflects our values) in clinical neuropsychology.

2.3 Culturally Invariant Ethical and Moral Principles

Ethics are moral principles which provide rules for right and proper conduct. Broadly speaking, there are six moral principles which constitute the basis of ethical standards for most health professions: autonomy, non-maleficence, beneficence, social justice, dignity, and truthfulness (honesty). While these six principles may be universally accepted, it is their ranking order of importance that varies across cultures. For instance, autonomy may be the most valued principle among many individualistic Western societies, while social justice may assume higher ranking over autonomy in certain non-Western pluralistic societies. One often hears about the stereotype that individuals from Asian societies tend to value the worldview of collectivism over rugged individualism which, if valid, would have implications for cross-cultural neuropsychology practice. How, for example, would a well meaning clinical neuropsychologist respond to the request by a Pakistani immigrant with early stage Parkinson's disease that each of her seven adult children review and sign the consent form for neuropsychology assessment before she agrees to proceed?

2.4 Internationalization of Psychological Ethics

Leach and Leong (2010) strongly argue that although most psychologists in the United States are largely oblivious to this, there has been a growing movement toward internalization of psychological ethics. This heartening trend has already yielded very fruitful results. In particular, the Universal Declaration of Ethical Principles for Psychologists (Gauthier, Pettifor, & Ferrero, 2010) provides a very compelling framework to assist neuropsychologists in reflecting on the degree to which their professional practices may be consonant with various Asian-American subpopulations. The six steps to ethical decision making which is explicated by

Gauthier and his colleagues (2010) is a very helpful guide. These steps (taken word-for-word from Gauthier et al., p. 185) are:

1. Identify the individuals and groups potentially affected by the decision.
2. Identify the ethically relevant issues and practices, and the nature of the dilemma, including whether there is conflict between principles, values, or the interests of those involved in the situation.
3. Analyze how your personal biases, stresses, self-interests might influence your choice of a course of action.
4. Develop alternative courses of action and analyze the potential benefits or harm associated with each one of them.
5. Choose a course of action, act, evaluate the results, and if necessary, re-engage in further decision making.
6. Consider if any actions on your part might prevent this kind of problem from occurring in the future.

A question which often bedevils cross-cultural psychologists is the extent to which psychological constructs are equivalent when they are transplanted from one socio-cultural milieu to another. While it may be tempting for skeptics to consider the internationalization of psychological ethics as a movement that is already dead before it even takes root, any such consideration may be premature. In fact, the internationalization movement is not an attempt at unifying, or somehow exerting an imperial domination of some dominant cultural national values on others. Quite the contrary. An interesting study by Leach and Harbin (1997) demonstrated that while there are areas of dissimilarity between the American Psychological Association's (APA) prevailing Code of Conduct for psychologists relative to the codes of ethics of other countries, there was near universal agreement in the ethical principles of beneficence and nonmaleficence, as well as the individual ethical standards for privacy and confidentiality. Among the 24 countries included in this study were China, which had the least similarity with the APA code of conduct, Hong Kong (the survey was conducted prior to Chinese reunification), and Singapore.

2.5 Neuropsychology and the Interpreter

While the use of interpreters has only recently become a focus of scientific inquiry, this practice goes back to antiquity (Hermann, 1956/2002) and the use of interpreters in medical settings is also not new (Angelelli, 2004). Asian Americans are an ethnically heterogeneous group of individuals from different countries with a wide variety of linguistic backgrounds. The neuropsychologist whose language of proficiency does not match that of the client faces an initial and vital ethical challenge: what should be the best language to use for the evaluation? Even when there is a language match between neuropsychologist and client, differences in dialect may impose significant challenges to the professional encounter. Judd and colleagues (2009) make an important distinction between the functions of the interpreter (as one who interprets spoken language), translator (one who translates written language),

and sight translation (the process of reading a document aloud in a language other than the language in which it is written). Many polyglots have varying levels of proficiency in the various languages they speak and write. This imposes an additional level of complexity for the neuropsychologist who may have oral fluency in one language in which the client is fluent, but not a second in which that same client may have better written language proficiency. Not all Asian Americans are native English speakers. Furthermore, an important ethical question may arise because of the intrinsic difference when the language of the administration of a neuropsychological test is different from the language on which the neuropsychological test employed was standardized and normed.

2.5.1 Use of Interpreters

The decision to rely upon an interpreter is fraught with ethical challenges. The first potential predicament is whether to enlist the assistance of the client's family member who is proficient in the examining neuropsychologist's primary language, or whether to enlist the services of a professional interpreter. And in small communities, the professional language interpreter may have a social acquaintanceship or other pre-existing relationship with the client or the client's kin. When the neuropsychologist decides to use the services of a language interpreter, the most ethically defensible course of action would be to use the services of a professional interpreter over the client's family member, because of the potential for bias involved in asking about sensitive personal and family relationship matters. Of course, when there is no professional interpreter service available, it may be prudent for the neuropsychologist to Weigh the potential costs and benefits of relying on family members (and which specific family member at that) to conduct the interpretation. With the increased availability of videoconferencing, teleconferencing, and other technologically sophisticated tools for accessing professional interpreter services in telepsychology, it may not be appropriate to use family members as the first option when one decides to conduct neuropsychological services via an interpreter.

Not all professional language interpreters are created equal. Some have excellent skills in medical and mental health settings, and others may not. Some professional interpreters are locally certified and others are not. The ethically astute neuropsychologist would consider interpreter credentials as paramount evidence of their basic professional competency. Neuropsychologists who decide to utilize language interpreters when working with Asian Americans may wish to consider using an appropriately certified interpreter. The International Medical Interpreters Association (IMIA) has a very cogent code of ethics by which its members are required to abide. Of course, the IMIA is not the only recognizable body, but I use this as an example to illustrate that the neuropsychologists who utilize language interpreters must assure themselves that the interpreter is appropriately credentialed to perform that professional service. The use of qualified interpreters not only makes good sense in clinical practice, but also can be considered a cost-effective procedure when one considers the potential costs associated with depriving the client from

receiving the neuropsychological service because of a language barrier in the first place, or inadequate diagnosis and sub optimal treatment recommendations as a result of improper interpretation. One may, in fact, argue that to deprive the client of needed neuropsychological service because of a language barrier may be a potential infringement on the client's right to appropriate health care services.

2.5.2 Ethical Duties of the Interpreter

It is the ethical duty of the neuropsychologist to inform the interpreter of the expected ethical parameters of the neuropsychological interface involving the interpreter. Searight and Searight (2009) have provided excellent recommendations which neuropsychologists who use the services of interpreters must consider. They recommend that the psychologist clarify the duty of confidentiality with the interpreter even before the session with the client starts. This, of course, would extend to requiring the interpreter to keep strictly confidential any neuropsychological test items and related protected material which the interpreter becomes aware of during the course of the professional encounter. I would suggest that the neuropsychologist follow up this discussion with a requirement that the interpreter attest to adhering with these conditions in writing via a duly signed informed consent form. As Judd and colleagues (2009) have suggested, it is a good idea that neuropsychologists identify the interpreter and his/her qualifications in the clinical records. In fact, because the validity of the entire neuropsychological enterprise depends quite heavily on the adequacy of the interpretation, it is ethically indefensible to desist from stating very clearly the fact that the professional service was an interpreter-mediated activity.

The neuropsychologist who relies on the services of a language interpreter must consider that he or she is basically delegating this professional activity to the interpreter, and as such must exercise care in ensuring that the interpreter is only able to perform those activities that are within the interpreter's professional competence. It would, therefore, be ethically quite inappropriate to ask or expect the language interpreter to perform a neuropsychological interpretation of the test findings, unless of course the interpreter is both a professionally qualified interpreter and neuropsychologist. In such an event, it would nevertheless be curious why the case is not referred to that neuropsychologist/interpreter in the first place!

2.6 Some Issues Pertaining to Specific Ethical Standards

The limitations of the APA code of conduct (American Psychological Association [APA], 2002, 2010) as it pertains to the practice of neuropsychology has been extensively discussed (see Bush & Drexler, 2002), but there are added ethical issues that must be considered when the neuropsychologist works with Asian-American clientele.

2.6.1 Competency

While the general standards for competency certainly do come into force when the neuropsychologist embarks upon the task of assessing or providing treatment intervention service, there must be an added level of cultural competency that comes into play as well. In other words, it is simply not enough to maintain neuropsychological competency: the neuropsychologist who works with the Asian American client must also possess a good knowledge of the unique cultural values and mores of the particular ethnic group of the client with him he or she has the professional relationship. In addition to having such cultural knowledge and skills, the neuropsychologist must also be sensitive to his or her own personal values and biases and how these may influence perceptions of the client. A willingness to consult with other knowledgeable social, clinical, and cognitive psychologists who are intimately familiar with the client's ethnocultural background is another step that the neuropsychologist can take to enhance his or her cultural competency skills.

2.6.2 Informed Consent and Confidentiality

It is the duty of the neuropsychologist to provide the client with appropriate informed consent about any neuropsychological services the prospective client may receive, as well as protect client privacy and confidentiality. As mentioned above, this confidentiality requirement extends to the interpreter, if one is utilized. As well, the neuropsychologist must bear the burden of advising the client about parameters of disclosure of privileged information to unauthorized persons without duly executed informed consent. Clearly articulating such limitations to the client and any other parties involved at the outset of the professional encounter often helps avoid miscommunication.

2.6.3 Assessment Procedures

As Wong (2006) wisely observed, the lack of agreement about such basic aspects of neuropsychological assessment as test selection preferences of neuropsychologists, administration modalities (e.g., testing limits and other departures from standardized protocol), and test interpretation approaches, all have ethical ramifications. Furthermore, there is even less agreement about what constitutes minimal competency for competent neuropsychological assessment of individuals with cultural backgrounds that are dissimilar to those for whom the tests were originally developed. As well, one cannot assume that tests developed for the native Singaporean may be transported and administered without modification to an Asian-American of Singaporean descent.

Note that Riccio, Yoon, and McCormick in Chapter 9 discuss the *Standards for educational and psychological testing* American Educational Research Association, American Psychological Association, and National Council on Measurement in Education (1999), as they relate to selection of tests for assessment of Asian Americans, in detail. That discussion will not be repeated here. However, I do want to emphasize that it is essential to be familiar with those *Standards* when making decisions about whether to assess an individual and what measures to use if an assessment is to be pursued.

2.7 Some Summary Considerations

It is perhaps worth concluding by repeating the following sage admonishment by Wong (2000) to the Westerner who provides neuropsychological services to Asian Americans: be aware of, and show respect for cultural nuances; know and be sensitive to cultural taboos; pay close attention to establishing rapport with the patient; be respectful of, and facilitate cultural preferences that are not harmful; reassure (and safeguard) confidentiality; and remember the central importance of the family unit in Asian culture. It is hoped that the information provided in this book helps neuropsychologists heed Wong's admonishments.

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Chapter 3
Linguistic Factors and Language Assessment of Asians

Andrew Moody

Abstract Asian languages have unique linguistic characteristics that may influence clinical neuropsychological assessment of Asian American clients. Likewise, factors related to bilingualism should be considered, as clients will differ in their English proficiency. Examination of the unique features of English and two Asian languages – Chinese and Japanese – suggests the extent to which language differences may interfere with the clinical interview and collection of collateral information.

3.1 Introduction

One of the most rewarding activities in the human experience is to learn a second language as an adult. The process of using a second language, however, can be frustrating. Differences in pronunciation, word forms and meanings, grammar and pragmatics between the first and second language make it nearly impossible to use the second language in sustained conversation without some linguistic mistake or 'error' in usage. Presumably these 'errors' become less frequent over time when effort is spent on language learning, but it also appears to be nearly impossible to learn a second language without some feature of the first language showing up in usage of the second. The experience of learning a second language, however, can nurture within us an appreciation for the complexities of our own language and the challenges faced by Asian Americans who are not first-language speakers of English.

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For the native speaker who has little experience communicating with non-native speakers, the initial response to non-native English can be harshly negative. It is understandably difficult for native speakers of English to appreciate how sounds, words, expressions or sentences that can be produced by themselves without effort or explicit thought can pose difficulties to non-native speakers of English. Consider, for example, how a native speaker might explain the difference between the two clauses in (1) below:

1. (a) Eat dinner for an hour
   (b) Eat dinner in an hour

In (1a) there is an implied meaning that the dinner is not finished, and that to eat something *for an hour* does not require that it reach a state of completion. To eat dinner *in an hour*, however, requires that the dinner be completed. But the only difference in the two clauses is the use of the prepositions *for* and *in*, and there is nothing within the canonical meaning (i.e., the dictionary meaning) of these two prepositions that signifies completion or incompletion. Although the meaning of particular structures may be known intuitively to native speakers of a language, they may lack transparent meaning to non-native speakers.

Linguistics is the scientific study of language and one of the fundamental goals of linguistic science is to understand how meanings are represented within a language and how individuals become native speakers of their language. The forms of language that appear in non-native speakers' English – forms that are sometimes referred to as 'errors' – are rarely random; they usually result from typological differences between English and the speakers' first languages. To the degree that it is possible to understand some of these differences and how they might interfere with the clinical interview and collection of collateral information, this chapter will introduce some of the unique features of English that often interfere with non-native speakers' learning of English and will demonstrate some of the unique features of Asian varieties of English. In order to do this, however, it will be necessary to briefly introduce the theoretical basis for understanding how linguistic features are acquired and how they might interfere with the production of a second language like English.

3.2 Theoretical Foundations in Linguistic Science

The earliest studies of what today is called linguistics began as a result of contact between two or more languages (Lepschy, 1994). When faced with the task of learning and using a second language, our attention is inextricably drawn to the structural differences between languages. All languages contain structures of contrasting meaning: the study of sound structures is called *phonetics* and *phonology*; the study of word structures usually takes place in the disciplines of *lexicology* and *morphology*; the study of grammatical structures takes place primarily in the study of *syntax*; and the examination of other types of meanings, including those from units larger than a sentence, are taken up in the study of *semantics*, *pragmatics* and *discourse*.

In the last half of the Twentieth Century and beyond the central question that has framed much of linguistic inquiry and dominated the development of paradigms for understanding language acquisition and use has been to ask *how does every human child become a native speaker of a language and what properties are both common and variable in all languages* (Chomsky, 2000).

3.2.1 The Language Acquisition Device (LAD)

Chomsky (1965) formally introduced the notion that all human languages are essentially determined by a set of constraints called *universal grammar*. These constraints have been conceived in a variety of ways since their introduction into what has become known as Principles and Parameters Theory (Chomsky, 1988). Earlier and later incarnations of the theory have used a variety of different names, such as Transformational Grammar, Generative Grammar, Transformational Generative Grammar (i.e., TG Grammar), Government and Binding Theory and more recently Minimalism. Despite various criticisms of and alternatives to Principles and Parameters Theory (PPT), it has emerged as the standard model of language acquisition and language description. Because language is held to be an innately human ability, Chomsky (1965) proposed that this ability must be constrained by the physical and mental capacities that the human brain is capable of. Structures that require processing or analysis that the brain is incapable of will simply never emerge or appear within natural languages. This means that the natural languages that have developed within human history all follow some set of common rules that both constrain the number of possible linguistic structures, but at the same time allow for infinite variability between languages.

One common misunderstanding about the Language Acquisition Device (formerly known as *universal grammar*), however, is the notion that the device has productive power to create a language. The Language Acquisition Device (LAD) is not the same as a natural language grammar, but instead the rules of any language's grammar must conform to the principles and parameters defined by the LAD. Therefore, if it can be shown that *all* languages have mechanisms for referring to objects (conventionally known to as *nouns*) and events or states (conventionally known to as *verbs*), then we can know that objects and events/states are fundamental qualities of the LAD. But this only paints for us the picture of language in the broadest strokes, and it does not easily help us to understand the specific differences between languages. For example, if French, English and Spanish all use articles, it does not necessarily mean that articles must be present in all languages, and indeed they are not. The LAD allows for a language that uses articles (like English *a*, *an* and *the*, French *le* and *la* and Spanish *o* and *la*), but it does not require all languages to use articles. Hence, the LAD also allows possible natural languages like Chinese, Japanese or Thai, which do not have articles. Rather than producing or generating possible natural languages, therefore, the LAD constrains and prohibits impossible languages.

3.2.2 The Critical Period Hypothesis

If the Language Acquisition Device does not have the productive ability to spontaneously generate a natural language, where, then, does language come from? Language is not exactly like many of the biological abilities like learning to walk or acquiring the ability to focus both eyes in a single direction, but there are a number of important similarities. These biological abilities, walking and focusing, are universal in human beings as are languages, and the acquisition of language and motor skills can be very similar. However, unlike most motor skills languages require cultural transmission from one generation to the next. Take, for example, the motor skill of learning to sit upright. Pinker (1994) describes the way that the !Kung San culture of southern Africa places special importance upon this particular skill and consequently parents will pile sand around their infants in order to 'teach' them this particular skill. Indeed, every one of the children does acquire the ability to sit up on their own, but this also happens in cultures that do not actively 'teach' children to sit up. The skill to balance ones body while sitting is essentially acquired by every physically capable developing human infant regardless of whether or not the infant receives explicit instruction in how to sit up. The skill is, in fact, nearly impossible to prevent children from developing, and the skill is almost always developed within a window of developmental opportunity from about 3–6 months of age. Some infants may develop the skill somewhat earlier, and some may develop the skill somewhat later, but all develop the skill with equal ability, and you cannot, for example, look at a couple of 2-year old children and know that one began sitting up on her own when she was 3 months old and the other began when he was 6 months old. Once the skill is acquired within the critical period of acquisition, it is permanently part of the child's abilities.

Similarly, it has been hypothesized that language is acquired during a critical period of development, and that after the period acquisition is impossible (see Lenneberg, 1967). Unlike many of the other critical period skills, however, language acquisition requires cultural transmission from other speakers of the language. Although cases in which children had not received cultural transmission of language (i.e., children who have no linguistic interaction with other humans) are rare and unusual, researchers thought that they had effectively found a case of a 'feral child' when Genie was discovered by research workers in 1970 (Rymer, 1993). Genie was 12-years old and had spent most of her life in an impoverished linguistic environment where she probably received very little linguistic interaction. The result was that she was largely unable to use language, and her ability to acquire language also seemed to be nearly lost (Curtiss, 1977). Although it is not clear exactly how many developmental impairments Genie suffered and how these impairments collectively may have affected her ability to use language, the case is often used to illustrate the nature of the critical period of linguistic development.

Most researchers, therefore, believe that there is a biologically defined 'window of opportunity' during which a native language can and must be acquired. Although there is no precise understanding of when this period is, most researchers believe

that acquisition should begin before age 6 and that if it begins after age 12, a native language cannot be acquired (Fromkin, Rodman, & Hyams, 2003). Although there is no apparent reason why the critical period would end at age 12, researchers sometimes suggest the end of the critical period may be related to brain lateralization, which also takes place at this age. Languages acquired during the critical period are referred to as *first languages* (i.e., L1) and it is assumed that every human acquires at least one L1, also called a *native language*, during this time period. It should also be noted that it is possible and, in fact, quite common, to acquire more than one native language during the period of acquisition.

3.2.3 Language and Linguistic Features Defined

Language is, therefore, seen as an innate human characteristic that is expressed in two specific ways: L1s, which are acquired as native languages, and L2s, which are learned as non-native languages. The qualitative differences between L1s and L2s will be discussed later, but first we need to clarify our understanding of what a native language is according to the PPT framework. If a language is acquired during the period of acquisition, the native speaker has intuitive knowledge about how the language is to be used, and Chomsky (1965) refers to this type of knowledge as *linguistic competence*. Linguistic competence, however, should not be confused with what Chomsky calls *linguistic performance*, which instead refers to what we normally think of as a user's ability to use a language. Linguistic performance, usually referred to as *proficiency*, can be measured according to external norm- or criterion-referenced tests of language ability, and a speaker may be understood to have high or low proficiency in a language. Competence, on the other hand, refers to the intuitive knowledge about the linguistic structures that the speaker uses, and cannot be effectively measured. Because competence is the skill that is acquired by the LAD, it may express itself in highly individual, but in no way 'incorrect', forms. For example, native speakers of American English would be more likely to produce the sentence in (2a) below, whereas native speakers of British English would be more likely to produce the sentence in (2b).

2. (a) She spent 10 days in the hospital.
   (b) She spent 10 days in hospital.

Since both sets of native speakers have competence in their own varieties, we cannot describe either of these two sentences as mistakes. They are, instead, simply the result of different competences, or of different grammars. One grammar produces native speakers of American English, while the other grammar produces native speakers of British English. When there are differences between the native languages of two groups of individuals, therefore, we can only assume that the native competence is equivalent, but that the grammars of the two languages are different. This means that language variation is not produced by an impairment or

deficiency of speakers, but by simply acquiring grammars that are different. Consider, for example, the various American English sentences cited below in (3):

3. (a) He don't know nothing about that.
   (b) Everyone should enjoy their life.
   (c) That restaurant be serving the best food in town.
   (d) I filled the car with 10 gallon of gasoline.

Each of the sentences might be considered 'incorrect' according to the rules of Standard English, but the speakers who produce the forms are competent native speakers of the varieties that produce these forms. The only way to understand the divergences from what we think of as Standard English, therefore, is to say that the language of speech which is acquired natively, is not exactly the same as Standard English, and that everyone is a competent native speaker of their own variety.

What, then, is acquired when a native speaker acquires their L1? According to a biologically constrained LAD, the speaker acquires a grammar that generates all the possible grammatical sentences within their language variety and, at the same time, does not generate any sentences that are ungrammatical. This grammar, however, functions as a set of knowledge about the language and it operates below the native speaker's awareness of the rules. Linguistics is probably one of the only disciplines that explicitly examines *intuitive knowledge* as the primary and most preferred data, and this focus on intuition is a markedly different approach to descriptive or prescriptive grammars of language.

Finally, it should be noted that the acquisition process applies to language *features* and that a grammar of a language is simply a set of features that are allowed by the LAD. These features might be (1) sounds (i.e., phonetic features), (2) words (i.e., lexical features) or (3) grammar (i.e., morpho-syntactic features). Once a feature in the native language is acquired, it becomes part of the competence of the speaker. But consider how the speaker knows what features to acquire. The LAD allows all possible features of every human language, and, therefore, it is possible that a child in a sufficiently rich linguistic environment could grow up to be a native speaker of any language. There is no reason, for example, why ethnic Chinese children cannot develop to become native speakers of English, and it happens all the time. There is, therefore, no innate connection between a speaker's race or ethnicity and the language that they speak; environment instead makes one a native speaker of their native language. But the acquisition of a language is constrained by the LAD in such a way that, to become a native speaker of a language, one loses the ability to acquire features that are not within ones native language. This is easily illustrated by looking at the acquisition of sounds. In English there are two sounds that are produced by the letters 'th', and these sounds are usually represented in International Phonetic Alphabet (IPA) as /θ/ and /ð/. Both sounds are interdental fricatives, which means that they are produced by placing the tongue between the teeth and making a vibrating sound with the passing air. Native speakers acquire the ability to make this sound during the critical period of acquisition by acquiring the two features: (1) interdental point of articulation and (2) fricative manner of articulation. Interdentals, however, are relatively rare in world languages, and most

people who do not acquire English as a native language have not acquired the interdental point of articulation. If a speaker does not acquire this feature during the critical period of acquisition, it is unlikely that they ever will, and this is the reason why the 'th' sound is such a difficult sound for most non-native speakers of English to produce. Similarly, Chinese uses four canonical tones to contrast words that may otherwise appear to be identical. Since native speakers of English do not acquire these four tones during the critical period of acquisition, they become quite difficult to produce and even more difficult to perceive when learning Chinese as adults. The acquisition of a native or non-native language, therefore, is the acquisition of features, and the native language necessarily constrains the possible features that will be acquired.

3.2.4 Native Versus Non-native Languages

The generative model of language that is proposed by PPT explains a number of the differences that we find between native L1s and non-native L2s: native languages are *acquired* effortlessly and without explicit study during the critical period of acquisition and non-native languages are *learned* with rigor and discipline after the critical period; speakers have intuitive knowledge of the L1, but not of an L2; all the necessary features of an L1 form the *competence* (i.e., the native ability) of a speaker, but a speaker does not have all the needed features of an L2 and can therefore never have *competence* in an L2. These and other differences between the L1 and L2 suggest that L2 acquisition (sometimes called *Second Language Acquisition* or SLA) is not simply slower or more difficult that L1 acquisition (also called *First Language Acquisition* or FLA), but that the two types of acquisition are qualitatively different from one another (Strozer, 1994). Because this chapter is specifically interested in outlining some of the ways that native speakers might misinterpret the speech characteristics of non-native speakers, it is important to recognise that the process of acquiring an L1 is radically different from the process of learning an L2. The intuitive knowledge of the L1 is not necessarily available to an L2 speaker of that language, and the knowledge of an L2 is usually much more explicit and used with greater self-awareness of forms.

3.2.5 L1 Interference and Transfer

Much of the current understanding of the influence of a speaker's L1 upon the learning of an L2 results from a programme of research called *Contrastive Analysis* (CA) of L1 and L2 structures (see Cook, 1993; Dulay, Burt, & Krashen, 1982; Lado, 1957). The CA hypothesis proposes to explain difficulties in learning L2 features – whether they be phonetic, lexical or morpho-syntactic features – according to an understanding of the speaker's L1 system as an LAD that has been entirely adapted

to the L1. When this happens, L2 features that cannot be correlated to features in the L1 contrast with the L1 grammar. The CA hypothesis proposes that features in the L2 that are different from the L1 will present more difficulty in learning than features that are similar, and this difficulty is referred to as *interference*. Dulay et al. (1982) discuss various uses of the term 'interference' within the literature, but note that the CA hypothesis takes the position that 'a learner's first language "interferes" with his or her acquisition of a second language, and that it therefore, comprises the major obstacle to successful mastery of a new language' (p. 97). For example, as introduced above, Chinese uses a system of lexical tone in which every word is assigned a canonical tone value that corresponds to one of four possible tones. English, however, uses tonal discourse inflection to signify, for example, a question with rising tone at the end of a sentence or a statement with falling tone at the end of a sentence. The CA hypothesis, therefore, would predict that, when learning Chinese, English speakers would impose the system of tonal discourse inflection on Chinese sentences and thereby form words that are ungrammatical (i.e., unacceptable). The form of this type of interference may result in, say, a question sentence with rising intonation on the final word, where native speakers would not use this kind of intonation. Similarly, Japanese uses a canonical word order that is Subject – Object – Verb (SOV), a word order that contrasts with English's canonical Subject – Verb – Object (SVO) word order. Again, the CA hypothesis predicts that L1 speakers of English when learning Japanese as an L2 will erroneously produce Japanese sentences that are SVO.

Keeping in mind that 'language' here has been defined as a set of features (phonetic, lexical and morpho-syntactic) that both correspond to and constrain the parameters of the LAD, interference from specific features is called *transfer*. To the degree that features in the L1 are identical to features in the L2 (e.g., both English and French use canonical SVO word order), then the transfer is described as *positive transfer* and causes little difficulty in learning the L2. When, however, features in the L1 and L2 are different, the transfer of forms from the L1 to the L2 may be considered as *negative transfer* and the transfer will produce errors in the performance of the L2.

3.2.6 Interlanguage and Fossilisation

Selinker (1972) introduced the *Interlangage* (IL) hypothesis to understand the developmental aspects of how negative transfer has a generally diminishing effect across time when learning a second language. The IL hypothesis has been attacked by theorists who complain that it offers an insufficient and prejudicial understanding of world Englishes (see discussion in Sect. 3.6 below), but the hypothesis has nevertheless developed and continues to offer reasonable explanations of second language learning in many learner contexts (Selinker, 1992). The IL hypothesis predicts that L2 learners will attempt to minimise the effect of negative transfer during the learning process and that this will largely take the form of error correction. For example,

Chinese does not allow the formation of consonant clusters (i.e., two consonants used adjacently in a single syllable) and syllables in Chinese can only end in a vowel, /n/ or /ŋ/. Consequently, we would expect that, as a result of negative transfer, a Chinese learner of English would likely produce English *sleep* /slip/ with three syllables, as in [səlipə]. In learner contexts, however, where native speaker (i.e., L1 speaker) norms are highly preferred and encouraged in the L2 learning process we would expect to see the Chinese learner of English to gradually change their pronunciation, first to [səlip], then eventually to [slip]. Taking the native production of the language as the target for pronunciation, the L2 learner will, over time, create a series of interlanguages for use. Successive versions of the interlanguage will minimise the effect of negative transfer and move closer and closer to the target of native L1 norms. This transition, however, will not be immediate; it will require that contrastive features the L2 be learned incrementally in relation to their difficulty.

The IL hypothesis works very well at explaining learner development in contexts where progress is frequently measured and evaluated, such as in student environments. In these environments, however, it is frequently noted that a student may stop developing interlanguages that are more similar to the target norms and in many cases a student may fall back to an earlier stable interlanguage (Tollefson & Firn, 1983). This process is referred to as *fossilisation* and it is used to explain why few learners actually achieve proficiency that is identical to a native speaker's proficiency. Interestingly, the causes of fossilisation are not fully understood, but they may be neuropsychological or sociolinguistic.

3.3 Features of English That Frequently Pose Problems to L2 Speakers

The task of an L2 speaker of any language is to develop a proficiency that will allow them to be communicative with other L2 and L1 speakers of the language. English is a language that is learned by an increasingly large number of individuals and many, though not all, of these communicative purposes are consistent with the models of language learning outlined above (Graddol, 2006). Speakers must attempt to reduce the interference from their L1 and construct interlanguages that will minimise the effect of negative transfer from the L1. Contrastive analysis can be used to examine the difference between individual speakers' L1 (i.e., the constrained LAD) and the English variety that they are exposed to. In many ways, the process of contrastive analysis is highly individualised because no two speakers' L1s will be identical. Likewise, the variety of English that speakers are exposed to is neither consistent nor without variation. There are, however, a number of characteristics of American English that are relatively different from other languages, and especially Asian languages. This section, therefore, will identify some of the phonetic, lexical and morpho-syntactic features of English that are different from most Asian languages and therefore responsible for a large degree of negative transfer. A summary of these features is included in Table 3.1 below.

Table 3.1 Common features of non-native varieties of English

Features	Examples
Phonetic and phonological features	
Consonants	
Substitution of interdental fricatives /θ, ð/ with /s, z/ or /t, d/ or /f, v/ or some other combination	*Three* /θri/ pronounced as [sri], [tri] or [fri] *There* /ðɪs/ pronounced as [zɪs] or [dɪs]
Merger of liquid consonants /l, r/ or substitution with /ɾ/ or /w/	Rare /rɛɹ/ pronounced as [ɾɛɑ] or [wɛɑ] *Read* /rid/ or *lead* /lid/ both pronounced as [rid] or [lid]
Vowels	
Merger of tense and lax vowel pairs	*Meet* /mit/ and *mit* /mɪt/ both pronounced as [mit] *Mate* /met/ and *met* /mɛt/ both pronounced as [met] *Pool* /pul/ and *pull* /pʊl/ both pronounced as [pul]
Unstressed vowels receive full phonetic value rather than reduced central vowel	*Success* /səksɛs/ pronounced as [suksɛs] *Freedom* /fridəm/ pronounced as [fridom]
Supra-segmental phonology	
Irregular placement of stress when word classes change	Words like *electrical* pronounced as e-lec-ˈtri-cal rather e-ˈlec-tri-cal on analogy of pronunciation of *electricity* as e-lec-ˈtri-ci-ty
Syllable-timed speech replaces stress-timed	All syllables given equal length
Lexicon-related features	
Native and borrowed vocabulary	
Regularization of irregular verb and noun forms	Past tense of *go* as **goed* rather than *went* Pluralisation of *sheep* as **sheeps*
Derivational morphology	Formation of **monolateral* by analogy with *monolingual*, *monosyllable*, etc.
Noun characteristics	
Distinction of countable and non-countable nouns	Formation of forms like **musics*, **informations* or **researches* Formation of forms like **some book* or **some forest*
Distinction of definite and indefiniteness	Formation of forms like **an information* or **the England*
Morpho-syntactic features	
Prepositions	
Preposition constrained by verb choice	Formation of forms like **arrive for 10 min*
Preposition constrained by noun choice	Formation of forms like **ride on a taxi*
Subject-verb agreement	
3rd person singular-*s*	Formation of forms like **He like old movies.*

3.3.1 Pronunciation: Consonants

The study of L2 pronunciation is informed by the sciences of *phonetics* and *phonology*. Whereas the former is the study of sounds and how they are articulated within all human languages, the latter focuses on sound systems and how they function within specific languages. An individual acquires the sounds of their L1 by adapting

the universal features of the LAD to the specific features of a particular language. Therefore, when we look at a particular sound, we can know that the analysable features of that sound have been acquired within the speaker's L1 competence. Correspondences between L1 and L2 phonemes are less important than correspondences between particular features. For example, Cantonese Chinese has a series of plosives /p^h, t^h, k^h/ that are analysable as voiceless aspirated stops. English also has voiceless stops /p, t, k/, but aspiration is not a contrastive feature of these phonemes within the sound system of English. Because there is correspondence between the features (i.e., both sets of stops are voiceless and aspirated), English speakers should, in most circumstances, be able to produce the Cantonese sounds without difficulty. At the same time, however, Cantonese has a contrasting set of non-aspirated voiceless stops /p, t, k/. The feature of ± aspiration contrasts in Cantonese, but it does not contrast in English. The difference between /p^h/ and /p/ is meaningful in Cantonese and produces words with the two sounds in Cantonese, for example /p^h a/ and /pa/, is to produce two separate words in that language. This contrast, however, is not meaningful in English and the two words would not necessarily sound like or be perceived as different words to an English speaker. Therefore, we can know that the ability to use the feature of aspiration to distinguish phonemes is a universal characteristic of the LAD. In Cantonese speakers this feature has been *activated* and is therefore meaningful within the language. For English speakers, however, the feature has not been activated and, consequently, there is no contrast between the two words /p^h a/ and /pa/.

There are two contrastive features that have been activated in English speakers, but are missing in most other Asian languages. The first was briefly introduced above, the voiced and voiceless interdental fricatives /θ, ð/. These are the two sounds that are usually represented by the letters 'th' and the two sounds can be heard in words like *three* /θri/ and *this* /ðɪs/. There are within these two sounds three sets of contrasting features: ± voicing, interdental (point of articulation) and fricative (manner of articulation). Both ± voicing and fricative are very common in many Asian (and, indeed, world) languages, but the interdental point of articulation, where the tongue vibrates between the teeth, is relatively rare. Consequently, speakers who do not have this point of articulation activated in the L1 competence will usually find another way to realise the sound. Mandarin and Japanese speakers will typically realise the voiceless fricative as an 's' sound [sri] for *three* and the voiced fricative with voiced counterpart, a 'z' sound [zɪs] for *this*. Cantonese speakers, however, will realise the voiceless fricative with a voiceless labiodental fricative, an 'f' sound as in [fri], resulting in a pronunciation of *three* that is identical to the pronunciation of *free*. Interestingly, Cantonese speakers do not usually produce the voiced labiodental counterpart [v] for the voiced interdental /ð/, but instead produce a voiced alveolar stop, a 'd' sound, as in [dis] for *this*. Similarly, Thai and Vietnamese speakers will usually produce the voiced and voiceless alveolar stops [t, d] for the fricatives. Each of these different strategies of pronouncing the 'th' sounds preserves or approximates the sound according to the sounds that are available to the speakers in their L1. Mandarin Chinese and Japanese speakers preserve the ± voicing and the fricative features, but approximate the point of articulation, where the sibilants /s, z/

are alveolar and very close to the teeth. Cantonese speakers also preserve the ± voicing and fricative features, but approximate the point of articulation with a labiodental fricative. This strategy of approximation is quite understandable because the labiodental and interdental features both use the teeth. Finally the third approximation strategy suggested here is to replace the interdental fricatives with alveolar stops [t, d]. Again, this strategy preserves the ± voicing feature and approximates the point of articulation to the alveolar ridge, just behind the teeth. The substitution of a stop for a fricative, however, also seems to be a good strategy, especially when we consider that fricatives are not so frequent in world languages as stops are.

The second consonant feature of English that is somewhat rare produces the liquid consonants /l/ and /r/. These sounds are sometimes called 'semi-vowels' because of their vocal qualities and because they each tend to interact with preceding vowels. Consider, though, the difficulties in learning these sounds in languages that do not have these same liquid consonants. First, the sounds are produced very differently whether they occur at the beginning or end of a word. In a word like *little*, the first sound is articulated with the tongue against the teeth or alveolar ridge. The final sound of the word, however, is a 'dark l' with almost no constriction of airflow (hence the labelling as a semi-vowel). The two sounds of *little* can be represented phonetically as [lɪtəɬ]. The differences in the 'r' sound can be illustrated in a word like *rare*. Although neither sound fully constricts airflow during articulation, the second 'r' becomes little more than a retroflexed quality of the vowel, which is represented as [rɛɹ]. To make matters even more difficult, not every variety of English treats the post-vocalic 'r' in the same way. Standard British English has lost rhoticity of most vowels and transforms them into diphthongs, and a number of American English varieties, such as Southern American, New York and African American English, are also at least partially non-rhotic. Perceiving these consonants and deciding how to produce them, therefore, can be a daunting challenge for many L2 learners and users of English.

3.3.2 Pronunciation: Vowels

The English vowel system is likely to present a great number of difficulties in learning to recognise and produce contrasts. Most native speakers of English would think that there are five vowels in English, corresponding to the five vowel letters *a*, *e*, *i*, *o* and *u*. These letters, however, don't represent all the possible sounds that can be made in English. Consider, for example, the different sounds made by the letter *a* in *hay* /he/, *hat* /hæt/, *father* /fɑθəɹ/, *law* /lɔ/ or *errand* /ɛrənd/. In each word the letter *a* produces a phonemically different sound. Although the inventory of vowels is highly variable among native speakers of English, most American English speakers will produce 11 or 12 vowels and 3 diphthongs, which are vowels that function as a single vowel (i.e., as one vowel sound per syllable), but, in fact, glide between two sounds. As with consonants, vowels can be analysed into features that are universally constrained as part of the LAD. The features of vowel quality that are found in all languages are the relative openness or closedness of the vowel (i.e. the height of

the vowel) and the frontness or backness of the vowel. In addition, most languages allow for various types of lip rounding in vowel production.

The English feature of ± tense/lax, however, is an unusual feature of English that is relatively difficult for most L2 speakers to learn to recognise or produce. Six English vowels come in pairs that are usually described as *tense* or *lax*. This description of the vowel focuses on the tonal quality of the vowels, although it should be noted that some writers instead focus on the duration of the vowels and describe lax vowels as *short* vowels and the tense vowels as either *long* vowels or diphthongs. The three tense/lax pairs of vowels are /i, ɪ/ as in *meet* /mit/ and *mit* /mɪt/, /e, ɛ/ as in *mate* /met/ and *met* /mɛt/ and /u, ʊ/ as in *pool* /pul/ and *pull* /pʊl/. Because the quality of lax vowels is relatively rare in world languages, many L2 speakers of English have trouble both perceiving and producing the lax vowels of these pairs. Consequently words *city* /sɪti/ might be pronounced as [siti], where the vowel of the first syllable is the same as the vowel of the second.

Another feature of English vowels that tends to present a number of problems to non-native speakers produces the central vowels /ʌ, ə/, found in stressed position in words like *bud* /bʌd/ or *tub* /tʌb/ or in unstressed positions in words like *success* /səksɛs/ or *freedom* /fridəm/. Two factors complicate the production of these central vowels. First, few Asian languages have a central vowel that is not part of a diphthong, and this sound as a pure sound (i.e., a monophthong) is consequently difficult to produce. Second, phonological rules of English provide very specific environments where the unstressed vowel appears. While many Asian languages do not use a system of lexical stress like English's, the selection of the unstressed /ə/ is difficult to anticipate. Consequently, unstressed vowels are often given their full value, such as *success* [suksɛs] or *freedom* [fridom] in the examples cited above.

3.3.3 Pronunciation: Supra-Segmental Phonology

When learning a second language, most teachers emphasise the importance of the segmental phonology of the second language, which primarily focuses on the correct pronunciation of vowels and consonants within the language. Therefore, most L2 speakers of English will have had extensive training on the pronunciation of features like those introduced in Sects. 3.3.1 and 3.3.2 above. The supra-segmental phonology of English, however, is often overlooked because it is somewhat harder to teach. Nevertheless, the stress, intonation and rhythm of a language are important features of learning an L2, and native speakers of English may unfairly judge the proficiency of an L2 speaker unless they consider the structural complexity of English. In particular, English has an unusual system of assigning lexical stress, and English is usually described as a rare *stress-timed* language.

Every word in English is given a primary stress, and English stress is realised by all four of the primary characteristics of stress: magnitude, amplitude, pitch and duration. For example, the stress in the word *error* is on the first syllable, and the first vowel will differ from the second in the four ways: they magnitude of frequencies will be greater; the volume will be produced at a greater amplitude; the vowel

will have a higher pitch; and the length of time producing the first vowel will be longer than the second. Where the stress falls within a word, on the ultimate, penultimate or antepenultimate syllable, is generally not governed by any good generalisable rules, and native speakers must learn the primary and, in the case of American English, the secondary stress of a word lexically when they acquire the word. Without having learned English words from childhood, L2 speakers must memorise the placement of stress when the word is learned.

But the placement of stress may change when derivational morphology is used to change the meaning or category of a word. For example, consider the placement of stress in *electricity* on the antepenultimate syllable – *tri* –. When this word is transformed into *electrical*, however, the stress shifts to the syllable – *lec* –. The same syllable is stressed in words like *electrify* or *electrification*. But when the word *electrician* is formed, the stress shifts back to the syllable – *tri* –. The difficulty in generalising rules for stress placement means that L2 speakers must learn stress with each transformation as if they were completely different words. Unfortunately, when this aspect of English is difficult to master, L1 speakers often have difficulty understanding the reasons why English stress is difficult to assign to specific syllables.

A second problem posed to most L2 speakers of English is the timing of the language. Unlike most languages in Asia, English is a *stress-timed language*. This means that there is a more or less equal timing between stresses when words are formed into sentences. Because stressed syllables are timed more or less evenly between one another, unstressed syllables must be squeezed into the remaining time between stresses. For example, in the sentence in (4) below there are five lexical words that have a primary stress: *Mary*, *received*, *mail*, *booklet* and *ideas*. The lexical stresses of these five words are written in all capital letters in (4b) to represent the consistent 'beat' throughout the sentence. Note that *received* is counted as two syllables, the same as *receive*, because the addition of *-ed* does not add a syllable. Within the sentence, the time between MA – and – CEIVED will be the same as the time between – CEIVED and MAIL, and so on. Every other syllable within the sentence, whether it is part of a lexical word or a function word, is unstressed. (4c) marks the stresses with (S) and labels the number of unstressed syllables that intervene between stresses. There are two syllables between the beats of *MA-* and *-CEIVED*, *-ry* and *re-*. These unstressed syllables must each receive half the amount of time as *MA-* and *-CEIVED* in order to not disrupt the rhythm of the sentence. Similarly, there are two syllables between the beats of *-CEIVED* and *MAIL*, *in* and *the*, and each of these must also receive half the amount of time in order to not disrupt the rhythm of the stresses. Between *MAIL* and *BOOK-*, however, there is only one unstressed syllable. In order not to disrupt the rhythm of the sentence, this syllable received the same amount of time as a stressed syllable. Finally, there are three intervening syllables, *-let*, *of* and *i-*, between *BOOK-*and *-DE-*, which means that each syllable can only receive one third the time of a stressed syllable.

4. (a) Mary received in the mail a booklet of ideas.
   (b) MAry reCEIVED in the MAIL a BOOKlet of iDEas
   (c) S 1 2 S 1 2 S 1 S 1 2 3 S 1

The stress timing of English presents a number of problems to L2 speakers. There is no easy way to predict where the lexical stress will fall in a word when it is outside of a sentence, but inside a sentence lexical stress is removed from function words (as it is removed from *in*, *the*, *a* and *of* in (4) above). Secondly, the placement of stress creates irregular timing of unstressed syllables in the sentence, where they may receive the same amount of time as a stressed syllable, half, one-third, or even less. For L2 English users who speak *syllable-timed* languages as their L1s, this aspect of English is extremely difficult to master. Consequently, most English speakers who speak an Asian language as an L1 instead produce syllable-timed speech in English. This type of timing is sometimes described as a 'machine gun' style of speaking because every syllable, regardless of whether it is stressed or not, is given the same value of duration in time.

3.3.4 Lexicon: Native and Borrowed Vocabulary

English belongs to the Germanic branch of the Indo-European family of languages, and consequently most of the language's *core vocabulary* (i.e., the earliest vocabulary learned by children and the grammatical words that are used with the greatest frequency) is directly transmitted into English from Anglo Saxon (a.k.a. Old English). The earliest texts written in Anglo Saxon date from the Seventh or Eighth Century A.D. and over the 1,500-year history of English a number of changes in the vocabulary of the language have been introduced (Baugh & Cable, 2002). Loanwords from French were borrowed heavily from 1100–1500 during what is known as the Middle English Period, and loanwords from Latin, often influenced by their French spelling or pronunciation, were borrowed into English in the Sixteenth and Seventeenth Centuries, during the Early Modern English Period. At the same time, throughout the written history of English there is a clearly identifiable trend for the language to lose its inflectional morphology. Whereas Anglo Saxon was a heavily inflected language that would distinguish gender, number and case of nouns and adjectives and a variety of person, number and tense inflections for 'strong' and 'weak' verbs, Present-Day English retains almost none of this inflectional morphology, except as scattered remnants of the historical changes in the language (Millward, 1996).

While the acquisition of English as an L1 incorporates a number of historically different forms of varying degrees of complexity into a single coherent language, non-native speakers of the language must learn the rules that produce regular forms in English in addition to the numerous irregular noun or verb forms. For example, a simple past-tense rule to add *-ed* to a verb in order to form the past tense can quite simply change verbs like *talk*, *live* or *add* into *talked*, *lived* and *added*. It does not explain, however, the ungrammaticality of **goed* from *go*, which instead requires the seemingly unrelated past tense form of *went*. Similarly, the plural *-s* rule works with many words like *hand*/*hands*, *inch*/*inches*, *duck*/*ducks* or *cow*/*cows*, but not with *foot*/**foots* (*feet*), *goose*/**gooses* (*geese*) or *sheep*/**sheeps*. Neither does the

plural *-s* rule work to explain irregular plurals like *medium*/*media*, *cow*/*kine* (although archaic) or *child*/*children*. Each of these irregulars results because of one of two reasons: either the irregular derives from an inflected Anglo Saxon form that has not been regularised, or the irregular was borrowed into English from another language. Because native speakers learn these irregular verb and noun forms very early within the acquisition process, L2 speaker errors may appear surprising, or even highly unlikely. The forms are, however, difficult to learn.

Similarly, English has borrowed a very rich derivational morphology from Latin and Greek in order to allow new words to be easily generated. For example, adding *pre-* or *post-* to a noun that represents an action, such as *game*, *publication* or *election*, yields forms that signify the time before or after an action: *pre-game*/*post-game*, *pre-publication*/*post-publication* and *pre-election*/*post-election*. Similarly, most native speakers would be able to correctly identify that *mono-* refers to 'single' and that *bi-* refers to 'two', and that the functions of these morphemes are largely duplicated in *uni-*for 'single' or *di-* for 'two', as in *unilateral* or *diurnal*. However, few native speakers would be able to explain why forms like **monolateral* or **biurnal* are ungrammatical. L2 speakers of English must learn these forms as individual words, and the tedious process may easily lead to errors that L1 speakers find difficult to fully appreciate.

3.3.5 Lexicon: Noun Characteristics

There are two characteristics of English nouns that are constrained by the LAD and, therefore, subject to native intuitions about their use, but relatively unusual in world languages. As with most language features that are part of an L1 speaker's intuitive knowledge, most native speakers of English are unaware of these features and are not likely to be sympathetic to the challenges posed by them: the count/non-count distinction and the definite/indefinite distinction. The first feature is a lexical feature of nouns, and each noun, when it is learned, must be learned as either *countable*, or *non-countable*. Countable nouns are common nouns that can take an indefinite article *a*/*an* or can be pluralised. For example, consider nouns like *book*, *chair*, or *forest*. Because all the possible forms *a book*, *books*, *a chair*, *chairs*, *a forest* and *forests* are grammatical, these nouns are countable nouns. When we attempt to apply these tests, though, to nouns like *furniture*, *music* or *information*, the forms **a furniture*, **furnitures*, **a music*, **musics*, **an information* and **informations* are all ungrammatical. This is because *furniture*, *music*, *information*, *grass* and many other nouns belong to another class of nouns that are non-countable nouns. These non-countable nouns can instead use the definite article *the* or *some* to quantify mass quantities; hence, *the furniture*, *some furniture*, *the music*, *some music*, *the information* and *some information* are all grammatical, where as **some book*, **some chair* or **some forest* (when referring to quantities) are ungrammatical. Native speakers of English learn the distinction between countable and non-countable nouns and use it without any awareness of how complicated the distinction is, because, in addition to the

nouns listed above that can only be countable or non-countable, there are also a large number of nouns that can be either countable or non-countable, as in (5) below:

5. (a) The wall is built with bricks
   (b) The wall is built of brick.

Both (5a) and (5b) are grammatical uses of *brick* as both countable and non-countable nouns.

The second feature of nouns is *definiteness*, and the definite or indefinite status of a noun can be measured by the use of the definite article *the* or the indefinite article *a*/*an*. The feature of definiteness is not common in world languages and, therefore, frequently difficult for most L2 speakers to use without a great deal of study. As demonstrated above, the selection of definite or indefinite articles is partly constrained by whether the noun is a count or non-count noun. It is also constrained by the noun's number (plural or singular) and whether the reference of the noun is specific or generic (Quirk, Greenbaum, Leech, & Svartvik, 1985). While these features are learned and used by native speakers of English with very little thought, L2 speakers do not learn them easily.

3.3.6 Morpho-Syntax: Prepositions

Prepositions are used in English to express a wide variety of grammatical relations between noun phrases and between verbs and noun phrases. Quirk et al. (1985) list the meanings of prepositions as various kinds of relations: spatial relations, time, cause and purpose, means and agency, accompaniment, support and opposition, etc. While there is a core meaning to English prepositions, they can be used in a number of ways that are not related to that core meaning. For example, the core meaning of *in* is a relation that expresses a location that is specifically enclosed by another object or location, as illustrated in (6a) and (6b) below. But there are a number of other, sometimes metaphorical, meanings that can be attached to *in*, as illustrated in (6c) – (6e):

6. (a) Mary's wallet was *in* her purse.
   (b) New York City is *in* New York state.
   (c) Tom will arrive *in* 10 minutes.
   (d) *In* case of emergency, break the window.
   (e) The rental car seemed to be *in* good working order.

As with other features of English, it is very difficult to generalise rules of meaning, much less usage, about prepositions, and the grammatical relations expressed by English prepositions are somewhat unique to English. Whereas Japanese uses a small number (i.e., five used for most relations) of 'post-positions' to express most of the grammatical relations in English, Chinese and other Asian languages use words that function more like verbs to express these grammatical relations. It is not unusual, therefore, for L2 speakers of English to find prepositions especially difficult to use correctly.

3.3.7 Morphosyntax: Subject/Verb Agreement

One typical feature of Indo-European languages is that verb inflections signify the person and number of the verb. While these features are quite common in Indo-European languages, they are not familiar to most speakers of languages from Asia, and verb inflections are one of the first features that L2 speakers must learn. In some Indo-European languages the subject pronoun can be dropped with no change in meaning because the person and number are recorded within the verb ending. English has, as mentioned in Sect. 3.3.4 above, undergone a long history of inflection loss, so much so that the only verb inflection denoting person or number that remains in regular English verbs is the 3rd person singular *-s*. The rich variety of verb forms that used to exist in English is suggested in the forms of the verb *to be*, represented in (7) below:

7. *To be* (infinitive form)

	Singular	Plural
1st person	*Am/was*	*Are/were*
2nd person	*Are/were*	*Are/were*
3rd person	*Is/was*	*Are/were*

Even with this verb, however, there has been a great deal of reduction of forms. The loss of inflection in English, however, has meant that the subject pronoun cannot be omitted from the sentence. With the retention of subject marking of case and person and the retention of verb marking, there is redundant information in the 3rd person singular verb phrase. While this redundancy of information is a very common feature of language and should not pose unique difficulty to L2 learners of English, L2 learners also look for consistency across the different forms. Therefore, it is not unusual to hear the reduction of the 3rd person singular *-s* in the speech of L2 learners, and one way to interpret this feature of L2 speech is to note that it brings consistency to the verb forms by eliminated redundant information.

3.4 Case Studies of Two Asian Languages

While there are a number of features that are peculiar to English and pose problems to most L2 learners from Asia, it is also useful to look as some of the special features of Asian languages from the point of view of English language learning. The CA hypothesis suggests that the learning experiences of individual L2 users is strongly affected by the structures that are already part of their L1 competence. Although it is not realistic to look at all the possible Asian languages, two that are widely spoken in Asia are Chinese and Japanese.

3.4.1 Case Study: Chinese

Ethnologue (Lewis, 2009) lists 14 major varieties of Chinese languages, which are all members of the Sino-Tibetan family of languages. With more than 1,292,000,000 speakers, Chinese languages are the most widely spoken languages on the planet. This collection of languages contains a wide degree of dialect variation, and many of the dialects are not mutually intelligible with one another, although they are historically related to one another (Norman, 1988). There are, therefore, linguistic reasons why these languages should be considered as different languages rather than dialects of the same language, a judgement that is sometimes used to reinforce claims of political autonomy. Among the different varieties of Chinese, Mandarin is spoken as an L1 by more than 845 million speakers, making it by far the most spoken language in the world. There is dialect variation in Mandarin Chinese, and, as with Chinese generally, many of the dialects of Mandarin are not mutually intelligible (Norman, 1988). However, the Twentieth Century saw the standardisation of Mandarin into *Putonguha*, as it is known in the People's Republic of China (PRC), also known as *Guoyu* in Taiwan. The standardisation of spoken Mandarin minimises much of the phonological, lexical and syntactic variation found within the language (Chen, 1999).

The writing system that is most frequently used with all the Chinese languages is the *Han script*. This writing system is often referred to as the world's oldest continuously used writing system (Yule, 2006), although a number of historical changes have transformed the script into its current forms. The script is generally used in one of two forms: a *simplified* form of characters is used in the PRC and Singapore, and a *complex* form of characters is used in Taiwan, Hong Kong and Macao (Chen, 1999). The script is usually considered to be logographic in that each character represents a word within the language. More precisely, each character represents a syllable, and syllables may be considered as words with the proviso that it is also possible for two, three or more characters/syllables to form complex words (Chao, 1968). In addition, each syllable in Mandarin Chinese is assigned one of four canonical tones in addition to the *light*, or *neutral*, tone. One of the four tones is a level tone with no changes of pitch throughout the syllable's articulation. The other three tones are contoured tones that change pitch throughout the articulation of a syllable. There are also various *tone sandhi* rules that govern the phonetic variation of tones when used in speech.

3.4.1.1 Chinese Phonetics and Phonology

The most unique feature of Chinese phonetics and phonology is the use of lexical tone, as described in Sect. 3.4.1 above. Each syllable is assigned one of the four canonical tones, and these four tones contrast with one another. In other words, a syllable pronounced as /mɑ˥/ with a high level tone may mean 'mother', and this would contrast with, say, /mɑ˧˥/ with a mid to low to rising tone, which may mean 'horse'. The result is that lexical tone cannot be neglected when producing

discourse intonation. Discourse intonation, which is very important in English, may be somewhat difficult for Chinese speakers to perform. For example, English questions usually have final rising intonation at the end of a clause to signify that it is a question. Chinese speakers may find this feature difficult to perform as a feature of discourse because tone, in Chinese, is primarily used to differentiate words.

Another feature of Chinese phonetics and phonology is the restricted formation of syllables. Chinese syllables may end in vowels, /n/ or /ŋ/. English, however, allows words to end in any phoneme (with the exception of /ʒ/) without restriction, and it is easy to see why Chinese speakers might find works like *judge* or *wait* difficult to pronounce. Without correlates in Chinese, speakers are likely to add an epenthetic syllable at the end of the word, producing some thing like [dʒʌdʒə] or [wetə] instead of /dʒʌdʒ/ or /wet/ (see Deterding, 2006). Furthermore, Chinese, for the most part, does not allow consonant clusters, such as those in *especially*, *apt* or *want*. In the first two examples, Chinese speakers are likely to add an unstressed vowel between the consonants of the cluster, thereby adding an additional syllable to form [ɛsəpɛʃəli]. In the case of *apt*, the vowel could be added between /p/ and /t/, but this would require a final vowel to end the syllable in an acceptable way, such as [æpətə]. Finally, *want* would likely be interpreted as two syllables, the first ending in /n/ and the second in a vowel, as in [wɑntə].

3.4.1.2 Chinese Lexicon

Unlike Indo-European languages, it is somewhat difficult for Chinese to borrow vocabulary from other languages. Any new words borrowed into Chinese must fit the strict conventions of forming syllables with Consonant-Vowel or Consonant-Vowel-Consonant (i.e., CV or CVC) structures, where the second consonant can only be /n/ or /ŋ/. Given the restriction on how Chinese words can be formed, few words have been borrowed from English into Chinese, and learners cannot easily rely on loanwords when learning English.

3.4.1.3 Chinese Morphosyntax

Chinese is a highly *analytic* language and does not contain any inflectional morphology that will change number or case for nouns, or person or tense for verbs (Li & Thompson, 1981). Consequently, these aspects of Indo-European languages like English are difficult for Chinese speakers to master. When speaking English, Chinese L1 speakers frequently omit past tense marking on verbs (Bolton, 2003), although the past tense may be clear from adverbs like *already* or adverbial noun phrases like *the day before yesterday*. Chinese speakers also frequently omit plural marking of nouns. In particular, it should be noted that there is no distinction of gender in the spoken form of Chinese pronouns, where /tɑ˥/ functions for *he*, *she* or *it*. Consequently, when using English pronouns Chinese L1 speakers frequently use the wrong form: especially *he* for female referents or *she* for male referents.

3.4.2 Case Study: Japanese

There are approximately 122 million speakers of Japanese worldwide and, although there are Asian languages spoken by larger populations, Japanese is one of the most frequently spoken Asian languages in the United States. Despite the relatively large amount of scholarly attention that has been given to Japanese, there is no definitive classification of Japanese into a family of languages, although Lewis (2009) notes that Japanese is probably closely related to Korean. Similarly, Takeuchi (1999) explains that most historical linguists suppose that Japanese is probably related to the Altaic family of languages. Japanese is not related to Chinese, although Japanese also uses the Han script (with simplifications that are sometimes similar to simplified Chinese script, although often unique) in addition to two other syllabary scripts, *Katakana* and *Hiragana*, both of which are derived independently from Han script. Either Hiragana or Katakana is sufficient to serve as the sole writing script of Japanese, but Han script (i.e., *Kanji*) has been retained despite movements to abolish its use (Shibatani, 1990). Instead, the three scripts are retained in complementary ways, where most lexical words are written in *Kanji* and *Hiragana* is used for the grammatical inflections or other functional vocabulary. *Katakana* is used exclusively for non-Han script loanwords. Shibatani further notes that the use of multiple scripts is often cited as a challenge to literacy in Japanese.

3.4.2.1 Japanese Phonetics and Phonology

Unlike Chinese, Japanese neither restricts the length of a word to one syllable, nor does it use contrastive lexical tones. These features, therefore, do not generally pose problems to Japanese L1 speakers when using English. But there are other features of Japanese that do complicate proficiency in English. Perhaps the clearest of those difficulties is the inventory of vowels and consonants within Japanese. As noted in Sect. 3.3.2 above, American English has 11 or 12 monophthongal vowel sounds; Japanese has only five vowels (Tsujimura, 1996). For the English learner, Japanese L1 speakers are faced with the need to produce many more distinctive vowel sounds than are already within their repertoire of vowels. Likewise the number of consonant phonemes in Japanese, that is, consonants that pair with a vowel to form a syllable, is only 15, compared to 24 English consonants. The result is that Japanese speakers must learn to produce many more sounds in English than there are in their native language. One of the English contrasts that Japanese speakers do not have has been described in Sect. 3.3.1 above, the contrast between /l/ and /r/. Japanese uses neither of these sounds, but instead uses an alveolar flap /ɾ/, which is the 't' sound in the word *letter* when most American English speakers say it quickly and unself-consciously. The phoneme sounds more like a [d] to most English speakers. Because Japanese speakers have no phoneme corresponding to /l/ or /r/, the sounds may appear to native speakers of English to be interchanged when Japanese speakers use English. Similarly, Japanese does not have a labiodental fricative /f/ or /v/.

The voiceless bilabial fricative [ɸ] approximates the voiceless labiodental /f/ and is often used with little disruption in understanding, but English's voiced labiodental /v/ is frequently realised as Japanese bilabial [b], sometimes causing confusion to English speakers.

Like English, Japanese does not use lexical tone, but instead uses tone as a feature of stress that is lexically determined and subject to applications of discourse stress. In addition, the mora-timed structure of Japanese (slightly different from the syllable-time structure of most languages) allows for a long/short vowel length contrasts that may easily support the added duration applied to stressed vowels in English (Kubozono, 1999). However, like Chinese, Japanese syllables are highly restricted in their endings, allowing only vowels and /n/ to end a syllable. This is likely to have an effect on the articulation of English by L1 Japanese speakers, although the possible endings of syllables and consonant clusters is expanded somewhat by the phenomenon of vowel devoicing (see Hibiya, 1999).

3.4.2.2 Japanese Lexicon

Japanese has no restrictions on multi-syllable words and, in fact, monosyllable words often signify that the word has been borrowed from Chinese. It is perhaps this aspect of Japanese that has structurally allowed so much borrowing from Indo-European languages, and English in particular. Both Miller (1967) and Loveday (1996) offer accounts of the influence of foreign languages upon Japanese, especially through the mechanism of lexical borrowing. Honna (1995) notes that roughly 10 % of the words in a standard Japanese desk dictionary are loanwords from English, that 13 % of the words that ordinary people use are loanwords and that 60–70 % of the neologisms in Japanese dictionary revisions are from English. There is, simply speaking, a large number of English words in Japanese and some scholars suggest that these words might assist Japanese learners of English (see Daulton, 1998; Underwood, 1999). At the same time, over-reliance on this strategy for using English may present some difficulties. While loanwords come from a variety of European languages, there is a tendency to assume that they all are from English. Therefore, the use of *arubaito* 'part-time work' (from German A*rbeit* 'work') or *pan* 'bread' (from Portuguese *pão* 'bread') may confuse English speakers. Furthermore, there is nativization of meanings when the words are borrowed into Japanese and these may not correspond to the English meanings of the source vocabulary. For example *apaato* (from English *apartment*) refers to a rented apartment, whereas *manshon* (from English *mansion*) refers to a purchased apartment. Finally, the most dramatic potential effect of English loanwords on the learning of English to Japanese speakers is that they may actually inhibit the learning of English pronunciation. Because the loanwords are all nativized to follow the phonological rules of a language with far fewer phonemes, there is a great deal of simplification, or loss of sounds, that takes place when a word is borrowed into Japanese. Consequently, Japanese speakers may sometime sound much less fluent in English than they, in fact, are.

3.4.2.3 Japanese Morpho-Syntax

Japanese is a highly inflected *agglutinative* language, like many Indo-European languages (Takeuchi, 1999). A verb stem and a 'dictionary form' of every verb must be memorised in order to know the correct way to inflect a verb for tense and aspect. However, there is no subject/verb agreement in Japanese, as Japanese verbs do not inflect for person or number. Another feature of Japanese that is unique – although it has not been shown to disrupt the learning of English very much – is the very strict Subject-Object-Verb (SOV) canonical word order of Japanese.

3.5 Testing English Proficiency

The theoretical model of language learning that has been assumed in this paper, a model based upon generative perspectives, separates linguistic competence from linguistic performance. Whereas *competence* describes a native speaker's intuitive knowledge of her native language, *performance* is represented by the use of language. Chomsky (1965) argues that it is impossible to assess a speaker's linguistic competence; everyone is a native speaker of a language and, therefore, fulfils the conditions of competence. Performance, however, can be assessed according to external measurements of ability, but this assessment of *linguistic proficiency* should not be confused with competence. Proficiency refers to a speaker's ability to use a particular type of language, and there are several measurements that can be used for either native or non-native speakers of English. However, it should be emphasised that language proficiency can only be measured against specific conceptualisations of a standardised variety of English, and these standardised varieties are specific to certain registers and domains of use.

One commonly used measure of language proficiency that is frequently used for native speakers of English, and could also be applied to non-native speakers, is the Flesch Reading Ease measure of a written text (Flesch, 1948). This measure of readability examines the number of words per sentence and the number of syllables per word in order to calculate the level of difficulty. The exact formula, listed in (8) below calculates a score that is usually between 15 and 100, where the lower the score, the more difficult the text.

8. Flesch Reading Ease Score

$$\left(\frac{\text{total words}}{\text{total sentences}}\right)-\left(\frac{\text{total syllables}}{\text{total words}}\right)=\text{score}$$

For example, the Flesch Reading Ease Score for the first paragraph of Sect. 3.5 above is calculated in (9) below:

9.

$$\left(\frac{170}{6}\right)-\left(\frac{304}{170}\right)=26.55$$

The score of 26.55 is relatively low and indicates that the text is difficult to read. The Flesch Reading Ease Score and the accompanying Flesch-Kincaid Grade Level calculations are such popular methods of calculating proficiency levels that they are included as optional calculations within many word processing software programs, like Microsoft Word®.

More typically, however, non-native speaker proficiency in English is evaluated by one of several standardised tests that are specifically designed for the purpose. The most frequently used of these tests are the Michigan Test of English Language Proficiency (MTELP, 2012), the Test of English as a Foreign Language (TOEFL, 2012) and the International English Language Testing System (IELTS, 2012). The first two are usually used for college admission and placement in the United States of America (USA), with a more widespread use of TOEFL for admission, and IELTS is frequently used in the UK. While there is often firm commitment to one or the other tests within an institution, Davidson and Bachman (1990) review the content and factor structures in the two most widely used of the test – TOEFL and IELTS – and conclude that, despite differences in UK and USA measurement traditions, there are few differences between the two tests, and that this is likely a result of an 'internationalisation' of the population taking the two tests. Despite the widespread use of these three tests, however, it should be noted that all three of these tests are best used for assessing proficiency in the standardised variety of *academic* English. This is not a language that has broad use or value in speech communities other than those associated with institutions of higher education. Furthermore, Tomlinson (2010) discusses some of the ramifications related to the use of tests that do not adequately account for the institutional status of English in many societies. One ramification is that these tests may inaccurately measure the English proficiency of speakers of institutionalised varieties of Asian Englishes.

3.6 Asian Englishes

The theoretical point of view that has driven much of the description of language differences in this chapter has been a *developmental* view of English speakers from Asia. This developmental view entails several assumptions that are outlined in (10) below:

10. (a) English is spoken as a non-native language in Asian countries.
    (b) The primary purpose for learning English in Asian countries is to communicate internationally.
    (c) English learners will attempt to acquire a 'native variety' of English (such as American English or British English) as the target norm.
    (d) While there are mechanisms for explaining why this target is not learned perfectly (i.e., fossilisation, the Interlanguage Hypothesis, comparative analysis), the role of the target is invariable in Asian countries.

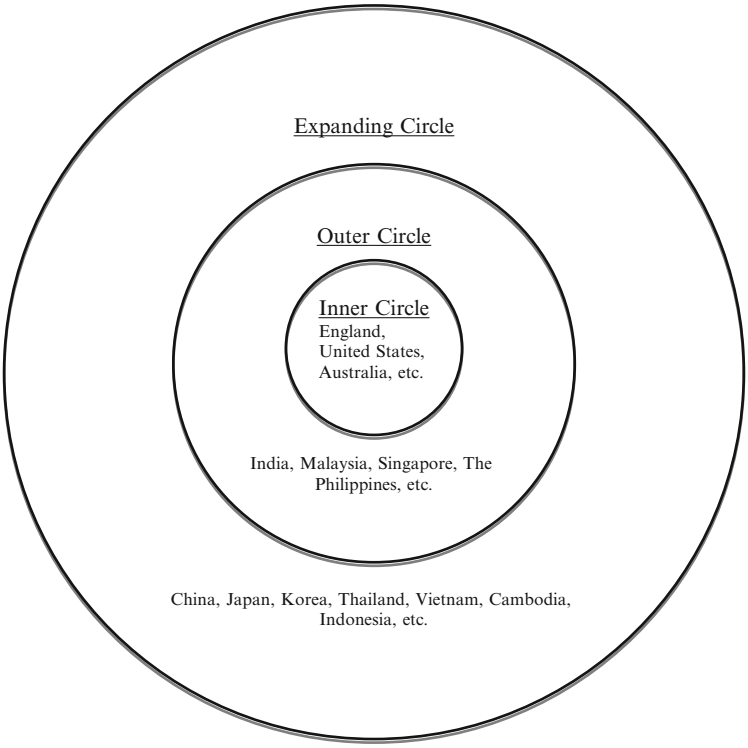

Fig. 3.1 Kachru's (1985) inner, outer and expanding circles of English users

Braj B. Kachru (1985) model of world Englishes offers a different point of view that should be considered when working with Asian English speakers. The World Englishes paradigm characterizes the global spread of English as a series of diaspora (B. Kachru, Y. Kachru, & Nelson, 2006) that have produced three 'circles' of English users (see Fig. 3.1). The 'inner circle' of English users was created through the spread of English settlement communities to North America, New Zealand and Australia. These Englishes are, generally speaking, used as the sole national language, speakers are monolinguals in English and much of the target norms for International varieties of English come from these varieties. The 'expanding circle' of English users has been largely created within the last half of the Twentieth Century and is related to the globalizing spread of English internationally. The characteristics of this circle of users are those listed in (10) above, and Asian speakers from the 'expanding circle' usually include Chinese, Japanese, Koreans, Thais, Vietnamese, Cambodians and Indonesians.

The 'outer circle' of English users, however, deserves special consideration in this chapter. This circle was created through the colonial presence of English, mostly in Africa and Asia, and is fundamentally different from both the 'inner

circle' and the 'expanding circle' of English users. Unlike the 'inner circle' of English users, English was not brought as a matter of settlement, but as instruments of trade and colonial administration. Therefore, there is usually an institutional presence of English in both 'inner circle' and 'outer circle' societies. But, whereas English is usually used monolingually in the 'inner circle', in the 'outer circle' it is decidedly multilingual. 'Outer circle' Asian societies of English speakers include India, Bangladesh, Sri Lanka, Malaysia, Singapore, The Philippines, etc. (see Kachru, 2005; Kachru & Nelson, 2006). The 'outer circle' of English users also contrasts with the 'expanding circle' of users in the ways outlined in (11) below:

11. (a) English is spoken as a native language.
    (b) English is adopted for intranational communication, in addition to international communication.
    (c) Learners acquire a 'local variety' of English (such as Singapore English or Philippine English) as the target norm.
    (d) The variety of English developed in 'outer circle' societies is a fully functional variety and differences from 'inner circle' varieties cannot be explained in terms of the Interlanguage Hypothesis or fossilization.

'Outer circle' varieties are known in the scholarly literature by a variety of different names: 'new Englishes', nativized varieties, indigenous varieties of English, etc. Despite the variation in terminology, however, these varieties are distinctly different from the 'expanding circle' varieties that have been assumed throughout most of this chapter. They are endonormative in the sense that speakers do not refer to targets outside their community when speaking English. To do so is instead a characteristic of the exonormative varieties of the 'expanding circle' (Kachru, 1985). In other words, Japanese or Chinese speakers are trying, as much as is possible, to sound like and to imitate British or American English speakers. They do not want to sound like Japanese English or Chinese English speakers, as their target norms are outside of their community (i.e., the varieties are exonormative). Singaporean, Malaysian or Philippine English speakers, however, are not necessarily trying to sound British or American. They are, instead, trying to sound like Singapore English, Malaysian English or Philippine English speakers, and their target norms are those of their community (i.e., the varieties are endonormative). For the practitioner who is unfamiliar with the difference between 'outer circle' and 'expanding circle' varieties in Asia, it would be wrong to assume that individuals from both types of societies face the same challenges in using English; they do not. Native speakers of English, for precisely the reason that the 'outer circle' variety is endonormative, may not easily understand a highly proficient speaker from the 'outer circle', and the speaker may not easily accommodate to American or British English norms. By contrast, an English speaker from the 'expanding circle' is eager to adopt the norms of American or British English, and may do so to a degree that masks the overall lack of proficiency.

3.7 Conclusions

Anyone who has had the experience of trying to learn a foreign language understands the challenges that learners face. The more different that the languages are, typologically speaking, the more difficulties one can expect to encounter. Unfortunately, most Americans' experience of learning a second language is to learn another Indo-European language, like Spanish, French or German. Asian languages, however, represent a greater diversity of language families and typologies, and, therefore, a greater number of obstacles for learning. By accounting for the challenges presented in learning and using English, however, we have the chance to mollify negative reactions toward non-native usage patterns and instead focus on accurate and effective neuropsychological diagnosis and treatment.

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Chapter 4
Society and Acculturation in Asian American Communities

Tieyuan Guo and Soo Yun Uhm

Abstract The purpose of this chapter is to help readers to gain an understanding of cultural factors that may impact clinical neuropsychological work with Asian American clients, and to lay the groundwork for later chapters that are more specifically targeted toward neuropsychological practice. We introduce Asian religions and philosophies and discuss how they may shape the values, attitudes, beliefs, emotions, and interpersonal behaviors of Asian Americans. We further discuss how Asian Americans might assimilate into the host American culture and how the acculturation process and the level of acculturation may affect the mental health status of Asian Americans.

Asian religions and philosophies dramatically depart from those in the West. As cultural legacies, Asian religions and philosophies have profound influences on contemporary Asian American's values, beliefs, emotional experiences, emotion expression, motivation, and their roles in the family, community and society. Understanding such influences is very important for interviewing, testing, and interpreting information in clinical settings. Therefore, understanding Asian religions and philosophies is critical to treating Asian clients.

The purpose of this chapter is to provide an overall understanding of Asian culture and how Asian culture may shape the way Asian clients think, feel, communicate, and behave. In this chapter, we will begin by briefly introducing the major religions and philosophies in Far East and Southeast Asia, including Confucianism, Taoism, and Buddhism. Then we will talk about how these religions and philosophies influence the worldviews, values, attitudes, beliefs, emotions, and interpersonal behaviors of

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contemporary Asian Americans. Finally, we will talk about acculturation. Specifically, we will discuss how acculturation influences clinical neuropsychological assessment and then provide strategies for measuring levels of acculturation.

4.1 Asian Philosophies and Religions

4.1.1 Confucianism

Confucianism was first conceived by Confucius, a philosopher and moralist who lived from 551 to 479 BC. The teaching of Confucius focuses on social ethics and ways of life. In Confucianism, one's existence is defined by one's interpersonal connections with other members of the society (Ji, Lee, & Guo, 2010). In Confucianism, *wu lun*, or the five cardinal relationships, are considered as the fundamental relationships in a society. Specifically, the five cardinal relationships are the relationships between ruler-minister, father-son, elder brother-younger brother, husband-wife, and friend-friend. An individual is connected with others in a society in certain ways. Confucius' teachings emphasize the fulfilling of one's role in a society and the understanding that how one carries out one's role affects how others carry out theirs. Thus, people are obligated to do the right things and to fulfill their own duties in society because doing so keeps the relations harmonious and prevents one from hurting others.

It is worth noting that the first four fundamental relationships are not simple horizontal connections between individuals. They are in hierarchical orders. The relationships are ordered by the relative status among the individuals in the relationships. The individuals at a relative low status (i.e., ministers, sons, younger brothers, and wives) are expected to show respect toward and follow orders from the individuals at a relatively higher status (i.e., rulers, fathers, elder brothers, and husbands) (Cheng, Lo, & Chio, 2010). Thus, one is not surprised to find that Confucian heritage cultures tend to have high power distance among individuals. That is, individuals in Confucian societies tend to feel and accept the large distance between themselves and a person at high status.

Ren, or benevolence, is the foundation of dealing with all relationships in Confucianism. According to Confucius, being benevolent is to love others. Confucius emphasized that one should take other people into consideration and treat others as if treating oneself. "*Now the man of perfect virtue*, *wishing to establish himself*, *seeks also to establish others*; *wishing to be enlarged himself*, *he seeks also to enlarge others*" (Analects, Book 6, Chapter 28, see Legge, 2005). In order to achieve benevolence, one should put oneself in others' shoes. If there is something that one is unwilling to do oneself, one should not force other people to do it as well. That is, "*what you do not want done to yourself*, *do not do to others*" (Analects, Book 15, Chapter 23, see Legge). In Confucianism, it is emphasized that individuals at high status in the four cardinal relationships should be benevolent toward individuals at low status. That is, the rulers, fathers, elder brothers, and husbands should take care of, and be kind toward, the ministers, sons, younger brothers, and wives, respectively.

In Confucianism, family is put at a privileged place for the development of morality. *Xiao*, or filial piety, requires people not only to feed and help their elder

parents, but also to establish oneself and bring glories to one's parents and ancestors (Goldin, 2011). In Confucianism, filial piety is considered to be a process of moral self-cultivation within the family. Being loyal toward parents and ancestors is considered to be a prerequisite for a person to be moral and to fulfill his or her social responsibilities. For example, in Confucianism culture, filial piety is seen as closely related to loyalty. A person who does not exercise one's filial piety toward the parents may be seen as less likely to be loyal to the empire or to friends. In the *Han* dynasty in ancient China, the government selected people who had strong reputations for filial piety as government officials. Extended from the idea of filial piety, Confucianism also emphasizes the importance of respecting elder people.

The *zhong yong*, or the doctrine of the mean, is another important concept in Confucianism. The doctrine of the mean emphasizes looking at the whole picture, considering things carefully in different aspects and from different perspectives, avoiding going to extremes, behaving in situation-appropriate ways, and maintaining harmony (Wu & Lin, 2005; Yang & Chiu, 1997). Indeed, the doctrine of the mean encourages people to keep moderate (*zhong*) and indistinguishable opinions from others in the group. Trying to fit in, instead of standing out, is considered to be wise.

The Confucian philosophy, as well as Taoism and Buddhism, which will be discussed below, does not just involve dead ideas. The ideas continue to have profound influences on the values, worldviews, thinking styles, and ways of living of contemporary Asians. For example, the emphasis on family in Confucianism makes contemporary Asians have a strong family orientation. Parents' expectations play critical roles in Asian children's motivation (Iyengar & Lepper, 1999). The doctrine of the mean may stop Asian students from speaking and expressing their unique ideas in class. Similarly, consistent with the idea of *yin and yang* expressed in Taoism, contemporary Chinese people tend to accept contradictions and prefer dialecticism in their thinking and reasoning (Peng & Nisbett, 1999). In line with the ideals of Buddhism, Chinese people prefer to experience peace, rather than excitement in their emotions (Tsai, Knutson, & Fung, 2006). The influences of such Asian traditions are impacting American values as well (Dyer, 2007). The potential influences of such Asian traditions on Asian clients will be discussed after we introduce Taoism and Buddhism.

4.1.2 Taoism

The teaching of Taoism can be found in *Tao Te Ching*, a text presumably written by a philosopher by the name of Lao Tzu in the third century B.C. *Tao* can be roughly translated as "the way", or "the path", as well as "the law", or "the principle." It refers to the intangible, unnamable, and undefinable laws or principles that govern the nature of everything in the universe (Peng, Julie, & Zhong, 2006). *Tao* can keep the universe in balance and order. Because humans are part of the universe, *Tao* is considered to govern humans and the society as well.

The intangible *Tao* is manifested in the alternation of two opposite states, such as day and night. The alternation of opposite states is explained by the alternating

influences of *yin* and *yang*. *Yin* is the principle of cold, passivity, negativity, and femininity, whereas *yang* is the principle of warmth, activity, positivity, and masculinity (Holt & Steingard, 1990). The *yin* and *yang* are in opposition to each other. Meanwhile, they are mutually dependent on each other. Neither can exist without the other. The alternating influences of *yin* and *yang* determine the state and nature of everything in the universe, including human beings. The idea of the coexistence and penetration of opposite states, and the constant and active transformation between opposite states (e.g., from *yin* to *yang* and vice verse) is fully expressed in *Tao Te Ching*. Similar ideas are also expressed in another Chinese classic, *I Ching* (or Book of Changes), which was believed to be closely associated with both Taoism and Confucianism.

At the heart of the Taoism teaching is the notion of *wu wei*, or not doing, not intervening. In Taoism, the universe is governed by *Tao* and works harmoniously. When someone exerts one's will and acts against *Tao*, harmony will be disrupted. In order to regain harmony and order, one needs to withdraw those actions against *Tao*, and place one's will and actions in harmony with *Tao*. This way, *Tao* can manifest itself and the universe can regain harmony and be in order. It is worth noting that *not intervening* does not mean inaction or passivity. Rather, the purpose of *not intervening* is to do and achieve many things. People should act spontaneously and should always adjust their behavior to fit the situation. Through *not intervening*, one can balance the *yin* and *yang*, and gain harmony with the universe.

4.1.3 Buddhism

Buddhism is a religion originating in India. It has many sub-branches and has influences over Asia and around the world. The doctrinal foundations of Buddhism are the Four Noble Truths, which refer to (a) life is suffering; (b) suffering is caused by craving; (c) suffering can have an end, which happens when craving ends; and d) the way to end suffering is to follow the path laid out by Buddha.

In Buddhism, time is conceived as cyclical rather than linear (Prebish & Keown, 2006). Individual beings live a life from conception to death, then become another form of being through the process of rebirth. The rebirth process runs over and over in endless circles. Meanwhile, Buddhism embraces the fundamental concept of constant change. Everything in the universe is in a state of constant flux. For example, Buddhism denotes that there is no such thing as a permanent self, or an unchanging, eternal soul.

Interestingly, sharing a somehow similar view as the doctrine of the mean in Confucianism, Buddhism endorses The Middle Way practice. The Middle Way in Buddhism refers to the way that leads to liberation neither in the pursuit of pleasure, nor in the pursuit of ascetic self-deprivation. Both hedonistic pursuit and ascetic pursuit reflect cravings (e.g., the craving behind the ascetic pursuit is the desire for fame), which will inevitably lead to suffering (LaFleur, 1988). The practice of Buddhism should avoid adopting the two extremes. One should try to avoid both the hedonistic and the ascetic imbalance, and avoid taking extreme positions.

4.2 Values, Beliefs, Emotions, and Interpersonal Behaviors of Asians

The Asian philosophies and other Asian cultural legacies exert great influences on the contemporary values, attitudes, beliefs, emotions, and interpersonal behaviors of Asians. Such influences should be carefully examined and taken into consideration because these cultural factors may impact both neuropsychological assessment and treatment (Ardila, 2005; Wong, Strickland, Fletcher-Janzen, Ardila, & Reynolds, 2000).

4.2.1 Valuing Learning and Education

Learning and education are highly valued in Confucian traditions (Lee, 1996). Asians may have high achievement goals in education and be generally willing to invest a lot of time in learning. Meanwhile, effort and persistence are emphasized in the Confucian way of learning. For example, Chinese parents, teachers and students firmly believe in the power of effort in improving academic performance and contributing to academic success (Ji, 2008; Ji, Guo, Zhang, & Messervey, 2009; Stevenson & Lee, 1996; Stevenson & Stigler, 1992).

Because of the emphasis on education and beliefs in the effectiveness of effort in learning, it may be routine for Asians to invest much time and effort in practicing required skills before a test. They may feel anxious in a neuropsychological testing situation because such testing does not provide opportunities for practice beforehand. Asian clients may feel that they are unprepared, and resultant anxiety may affect their performance. Neuropsychologists may need to spend extra time explaining the assessment process and reassuring their Asian clients that it is not possible to practice or prepare for a neuropsychological assessment.

4.2.2 Family Orientation

Confucianism places great importance on family relationships. It is in the family where a child first learns to deal with problems and to communicate with others. Through learning and education in the family, children can become good members of society.

In Confucian cultures, individual goals and needs are expected to fit with the goals and needs of the family. Thus, parent's expectations and wishes have great influence on the goals and motivations of children. Research has shown that when Asian American children believed that a task had been chosen for them by their parents, they were just as willing to work on the task as when they had chosen it themselves. However, when a task was seen as being chosen for them by a stranger,

Asian American children responded negatively and were unwilling to work on the task (Iyengar & Lepper, 1999). In neuropsychological testing, the testing tools and tasks are selected by an examiner, not by the client or his or her family members. Asian clients may not be motivated to participate in testing if the examiner is seen as just a stranger rather than as a trusted authority figure who cares about them. Thus, when dealing with Asian clients, it might be a good idea for the neuropsychologists to spend more time than usual with the client to establish a strong sense of trust before conducting an assessment (or beginning a treatment program) or spend time establishing a relationship with the client's family when possible.

4.2.3 Interdependency

Confucianism emphasizes the interdependency among the people in a society. Buddhism shares a similar opinion and teaches that everything in the universe, including humans, acts as both a source of influence and a recipient of external influences. The interdependency among individuals in a society and collectivistic values are emphasized in Asian cultures. Activities are more likely to be conducted in a societal way and goals of the society are central. The interdependent and collectivistic way of living may contradict with the neuropsychological testing practice, which is usually based on a one-to-one relationship between an examiner and an examinee (Ardila, 2005). The isolated environment in neuropsychological testing and treatment (i.e., the testing or therapy room) may place additional challenges on Asian clients because meeting with a stranger (i.e., the examiner or the doctor) in a private room may make them feel uncomfortable (Ardila).

4.2.4 Power Distance

Consistent with Confucian teaching, large power distance is expected in Asian cultures (Hofstede, 2001). Individuals feel and accept the large distance between themselves and the person in power. People have a sense of respect, or even feel a sense of awe, toward people in power. Being accustomed to the large power distance, Asian clients may show great respect toward, and sometimes a sense of fear of, the neuropsychologist, who is an authority figure in a medical or quasi-medical setting. As a result, Asian clients may see themselves as having very little power to voice their own problems unless the neuropsychologist directly asks them. This is especially true with Asian clients who are new immigrants and not fluent in English. Asian clients may be seen as being very submissive, or deferential, by a neuropsychologist if he or she is not aware of the cultural values behind such behavior.

Extended from the concept of *xiao*, or filial piety, respecting elders is considered as a virtue in Asian cultures (Sung, 2001). Old people tend to be seen as having wisdom and knowledge, and as being trustworthy. Meanwhile, males tend to

have more power than females in Asian cultures. Influenced by such Asian cultural values, Asian clients may have even more respect of the neuropsychologist when the neuropsychologist is older than themselves and when the neuropsychologist is male. In contrast, when the neuropsychologist is female and young, trust issues may arise because Asian clients may see the young female neuropsychologist as being less authoritative, and thus may not fully trust the expertise of the neuropsychologist.

4.2.5 Face Saving

Confucian doctrine denotes a system of proper conduct in interpersonal relations. Inappropriate conduct in the presence of others leads to a feeling of loss of face, or a sense of damage to one's public image (Hwang & Han, 2010). Maintaining face is essential for a person in an Asian culture to function properly in society (Ho, 1976).

The concern of protecting one's face may hinder Asian clients from seeking help from mental health professionals because revealing personal problems in front of others leads to possible loss of face (Taylor et al., 2004). For the same reason, the strong emphasis on face in Asian cultures may also stop Asian clients from talking about their personal problems, especially when their problems involve awkward or unusual behaviors that may lead them to lose face in front of the neuropsychologist. Without understanding the cultural differences regarding the emphasis on saving face, European American neuropsychologists may not encourage the client to identify all of their problems. They may mistakenly interpret Asian American clients' behavior as passive or indicative of social withdrawal. Thus, neuropsychologists need to understand how the cultural background may impact Asian clients' willingness to reveal personal problems, and to do so spontaneously.

4.2.6 Indirectness in Communication

The norm of communication is shaped by cultural values. Indirectness in communication helps communicators avoid hurting others and prevent embarrassment. The emphasis on harmony and preserving face in Confucianism leads to greater use of indirectness in communication (Cheng et al., 2010). Making obscure or ambiguous statements is an example of indirect communication. Holtgraves (1997) has provided empirical evidence that Koreans are more likely to communicate indirectly and to look for indirect meanings in conversation than Americans. Misunderstanding is likely to occur in indirect communication when the communicators are from different cultural backgrounds and have a different focus on relational concerns (Sanchez-Burks et al., 2003). Thus, by understanding the tendency of Asians to communicate indirectly, neuropsychologists can avoid misunderstandings in their communications with Asian clients.

4.2.7 Avoid Going to Extremes and Moderate Emotions

Consistent with the doctrine of the mean, Asians try to avoid having and expressing extreme emotions, because extreme emotions are harmful for maintaining social harmony. Instead, Asians are encouraged to have peaceful or moderate emotions (Ji et al., 2010). Similarly, compared to Christianity, Buddhism also emphasizes the avoidance of extreme emotions. In Buddhism, cravings are regarded as the causes of all suffering. Thus, extreme emotions and desires associated with cravings should be repressed. Empirical evidence has shown the link between Buddhism and moderate emotions. In one study, Tsai, Miao, and Seppala (2007) examined best-selling Christian and Buddhist self-help books and found that the Buddhist self-help books endorsed low arousal positive emotions such as calm, relaxed, and peaceful, relatively more and high arousal positive emotions such as excited and enthusiastic, relatively less than the Christian self-help books. They also found that Buddhists valued low arousal positive affect more and high arousal positive affect less than Christians.

Consistent with the doctrine of the mean and Buddhist doctrines, research has shown that Hong Kong Chinese and Chinese Americans ideally prefer to have low arousal positive affect more than European Americans, who prefer high arousal positive affect (Tsai et al., 2006). Such cultural differences start early in childhood (Tsai, Louie, Chen, & Uchida, 2007).

Given that Asians ideally prefer to have peaceful or moderate emotions, it is not surprising to find that they actually experience more moderate emotions as well. In one study, Mesquita and Karasawa (2002) asked Japanese and American participants to report the emotions experienced several times per day for a week. Japanese participants were more likely to report that they had not experienced any emotions. Similarly, Soto, Levenson, and Ebling (2005) found that Chinese Americans reported experiencing significantly less extreme negative and positive emotions than Mexican Americans.

4.2.8 Acceptance of Contradictions, and Mixed Emotions

Taoist doctrine denotes that extremely opposite states often coexist with each other. Influenced by Taoist thinking, East Asians tend to have dialectical thinking styles (Peng & Nisbett, 1999). Compared to Americans, they tend to be more accepting of contradictions. Holistic thinking contributes to East Asians being more likely to attend to broad context and see negative consequences from a seemingly positive event and positive consequences from a seemingly negative event (Ji, Nisbett & Su, 2001).

Consistent with Taoist doctrine, East Asians are more likely to experience positive–negative mixed emotions than European Americans. For example, Schimmack, Oishi, and Diener (2002) examined the frequency of positive emotions and the frequency of negative emotions in Asian and Western cultures and found that the correlations between negative and positive emotions in Asians were less negative than

in Western countries. Furthermore, Miyamoto and Uchida (2010) examined the co-occurrence of pleasant emotions and unpleasant emotions. In one of their studies, Japanese and European Americans read mixed-emotion situations and reported how they would feel if they were in those situations. They found that Japanese reported more mixed emotions than Americans when the mixed emotion situations were predominantly pleasant. In practical terms, a tendency to moderate emotional experiences and emotional expression could result in Asian clients seeming to minimize the impact of negative situations.

4.2.9 Suppression of Emotional Expression

Due to the prevalence of collectivism and the emphasis on interpersonal and social harmony in Asian societies, strong norms governing emotional expression have been established since ancient times. The expression of intense emotions, particularly the expression of interpersonally disruptive emotions such as anger, is more likely to harm interpersonal and social harmony than expression of moderate emotions. Meanwhile, expression of intense emotions is also detrimental to social order and hierarchy, which are emphasized in Asian cultures (Matsumoto et al., 2008). As a result, regulating and suppressing one's extreme emotions are usually encouraged in Asian cultures. Matsumoto et al. investigated emotion regulation in 23 countries and found that emotion suppression was higher in countries high on power distance, hierarchy, and long term orientation, such as China, Hong Kong, and Japan. Similarly, Tsai and Levenson (1997) found that compared to European American dating couples, Chinese American dating couples had more emotion moderations in their conversation. Given that Asian Americans are influenced by their Asian cultural legacies, they were more likely to suppress emotions such as anger than European Americans (Cheung & Park, 2010).

Thus, Asians' emotional experiences and the emotion expression rules are dramatically shaped by their Asian cultural background. Knowledge of their experience and expression of emotion is vital to understanding and evaluating Asian clients. For instance, the observed relatively flat emotions and mixed or contradicting emotions of Asian clients may just be the natural outcomes of Asian cultural legacy instead of being symptoms of mental illness.

4.3 Holistic Thinking and Test Performance

Validity of neuropsychological tests that were specifically designed for European Americans may be at risk when administrated to Asian clients. Culture shapes the way people think and reason. Influenced by their home country culture, Asian clients may think and reason differently than European Americans. As a result,

performance on tests may not represent the integrity brain structures or functioning but rather the cultural background of the client. Take, for example, the process of categorization. Categorization tasks are widely used in neuropsychological assessment. For example, the Halstead-Reitan Neuropsychological Battery (HRNB) uses the Category Test, on which test-takers need to find underlying principles that group presented geometric figures. The Category Test is considered to be effective in detecting brain damage (Reitan & Wolfson, 2004).

Considering that Asians tend to pay attention to contextual details and relationships between objects whereas European Americans tend to focus on the objects themselves and disassociate focal objects from the background, it is not surprising that Asians and European Americans show distinct differences on categorization tasks (Ji, Zhang, & Nisbett, 2004; Norenzayan, Smith, Kim, & Nisbett, 2002). Research has shown that compared to European Americans, East Asians tended to categorize objects based on the relationships between the objects, rather than on taxonomic attributes (Ji et al., 2004). In one study, Ji et al. provided Chinese Americans and European Americans with sets of three words. In each set of the three words, the thematic relationship grouping and the taxonomic grouping were both meaningful. For example, for the triad of words *monkey*, *panda*, *and banana*, the grouping would be based on thematic relationship if *monkey* is grouped with *banana* (*monkey eats banana*). In contrast, a taxonomic grouping happens when *monkey* is grouped with *panda* (*monkey* and *panda* are animals). They found that Chinese Americans showed a stronger preference for thematic or relational grouping than did European Americans. Similar findings were obtained for Chinese fourth and fifth graders (Chiu, 1972).

In neuropsychological testing, categorization tasks are usually based on specifically designed underlying rules, which may put Asians at a disadvantage because they tend to focus on physical resemblance, rather than analytical rules, and involve exemplar-based categorization (Norenzayan et al., 2002). In one experiment, Chinese and Korean students from an American university and European Americans students from the same university categorized a target imaginary animal into one of two categories. When rule-based categorization conflicted with exemplar-based categorization, that is, when rules suggested categorizing the target animal into one category and physical resemblance suggested categorizing the target into the other category, Chinese and Korean students were less likely to rely on rules and more likely to rely on physical resemblance than European Americans.

Furthermore, Asians may be put at a disadvantage when the neuropsychological test involves formal reasoning, especially when the formal reasoning conflicts with intuition. As shown by Norenzayan et al. (2002), Chinese and Koreans prefer intuitive reasoning more and formal reasoning less than European Americans. Similarly, Buchtel and Norenzayan (2008) found that Koreans regarded reasoning based on intuition as being more important and reasonable than logical reasoning. Thus, it is helpful for neuropsychologists to be aware of such cultural differences in reasoning when designing or selecting test for Asian clients. Chapter 6 further explores cultural influences on cognitive processing.

4.4 Response Biases

Cultural values influence how one responds to questions in an assessment, especially when rating scales are involved. Comparing scores on rating scales of Asian clients to European American clients can be problematic because the clients' responses might have been altered by different cultural values. Stated another way, using European American normative databases for Asian clients is problematic.

One set of problems relate to moderacy and extremity response biases. Some researchers believe that due to collectivism (Chen, Lee, & Stevenson, 1995) and dialectical thinking (Hamamura, Heine, & Paulhus, 2008), East Asians tend to choose the middle points on rating scales while Americans prefer the extreme values on the same scales independent of the content of the items. For example, Chen et al. (1995) found that the middle points were chosen more frequently by East Asian participants than by American participants on eight different rating scales. Neuropsychologists should keep this in mind when interpreting test results of Asian clients that involve rating scales.

Acquiescence bias should also be taken into consideration when interpreting test results of Asian clients. Acquiescence bias refers to the tendency to agree with a statement regardless of the content of the statement. The doctrines of Taoism and Buddhism posit that things in the universe are intertwined and are in constant change. Thus, most statements have some thread of truth in them. Meanwhile, the emphasis on harmony and power distance also fosters the tendency to agree with other's statements (Fischer, 2004). Compared with European American clients, Asian clients may be more subject to acquiescence biases. Neuropsychologists should keep the acquiescence bias in mind especially when a test involves binary responses such as true-or-false or apply-not-apply types of items.

4.5 Acculturation

For the clinical neuropsychologist outside of Asia working with clients from Asian heritage, the degree to which a particular client is influenced by the aforementioned religious and philosophical variables will in part be determined by their level of acculturation in mainstream society. Acculturation is an essential factor to assess in neuropsychological assessment or therapy/rehabilitation.

Proponents of delivering culturally competent mental health care for racial/ethnic groups encourage integrating contextual factors with individual level variables. Multicultural guidelines routinely outline the necessity of understanding the cultural background and the worldview of one's client as an essential step towards fulfilling an ethical obligation of a psychologist (American Psychological Association [APA], 2003; Hansen, Pepitone-Arreola-Rockwell, & Greene, 2000). Hence, there have been clarion calls to disaggregate the overarching label Asian Americans and study the unique characteristics and background of Asian ethnic

groups (Srinivasan & Guillermo, 2000; Uehara, Takeuchi, & Smukler, 1994). For most psychologists, however, fulfilling the multicultural guideline, from which they are to approach their ethnically different Asian client, may seem daunting. Many cross-cultural and multicultural researchers note the great variability between the 20 different Asian American ethnic groups (Sue & Morishima, 1982). Moreover, the diversity within these ethnic groups is far greater than the number of ethnic groups it is comprised of. For instance, Asian Americans speak more than 100 different languages and dialects; they may be recent immigrants or they may be the 6th generation offspring of Asian immigrants.

Culture specific variables may offer the vital link between ethnicity and mental health outcome. In addition to the nominal classifications of ethnicity and race, one of the culture specific variables, acculturation, may enable researchers to account for the wide within-group variability found in the Asian American population (Sue, Ino, & Sue, 1983; Sue & Zane, 1987). By incorporating the construct of acculturation, one may uncover the commonalities between Asian ethnic groups as well as the factors that make each ethnic group distinct. The inclusion of this moderating variable could also prevent overgeneralization and unnecessary stereotyping of Asian Americans. In order to address the challenges of providing optimal psychological care to Asian Americans, the construct and measurement of acculturation will be discussed, followed by recommendations to assess acculturation in a clinical setting.

4.5.1 Acculturation Theory and Measurement

Acculturation plays a prominent role in the fields of cross cultural, multicultural, and counseling/clinical psychology (Chun, Balls Organista, & Marín, 2003; Trinh, Rho, Lu, & Sanders, 2009). Researchers regularly attribute differences between two or more Asian American ethnic groups to differential rates of acculturation and assimilation into the mainstream American culture. Acculturation remains one of the most often cited, researched, and lauded culture specific factors to explain Asian American mental and physical health. Accordingly, Hall and Eap (2007) state, "the relevance of psychotherapy for Asian Americans is likely to be a function of acculturation" (p. 453). Aspects of assessment are likewise probably impacted by acculturation.

Currently, the predominant definition of acculturation cited by researchers includes changes in both the host and minority cultures as a consequence of sustained long term contact.

> Acculturation comprehends those phenomena which result when groups of individuals having different cultures come into continuous first-hand contact, with subsequent changes in the original cultural patterns of either or both groups. (Redfield, Linton, & Herskovits, 1936, p. 149)

Researchers, however, have criticized the inherent problem of psychology's use of this sociologically derived but foremost cited definition (Rudmin, 2009, 2010; Rudmin & Ahmadzadeh, 2001); the definition requires a two way process of change

and/or a group level change. Therefore Rudmin proposed that the definition of acculturation pithily be "second culture acquisition" or a "cultural learning process" to study the more frequently occurring individual level acculturation. Historically, how researchers defined and viewed the acculturation process has evolved considerably. In the early twentieth century, Park (1928) and Stonequist (1935) believed that a person with dual cultures would be challenged and "marginal" in both cultures. They indicated that a person straddling two cultures would inevitably suffer negative outcomes and consequences such as low self-esteem and low self-concept as a result of their dual membership. Redfield et al. (1936) deemed "psychic conflict" to be unavoidable in immigrants with a bicultural stance or strategies. Child (1943) also outlined the frustrations and conflict of bicultural adaptation and living. These negative frameworks of second culture contact were eventually replaced with new paradigms in which immigrants could be active agents, where preferences could be made, and positive functioning could be attained. Berry (1980, 1997, 2003) posited that minority members may adopt one of four different strategies:

1. Assimilation – majority culture acquisition and minority culture loss
2. Separation – majority culture rejection and minority culture retainment
3. Integration – majority culture acquisition and minority culture retainment
4. Deculturation/marginalization – majority and minority culture rejection

This linear framework, however, has since been challenged with an orthogonal/bilinear model of acculturation.

Contemporary scholars note that retaining the culture of origin and acquiring knowledge and competency of the majority culture are two separate dimensions. Acculturation involves processes of both assimilation to the United States culture and enculturation to the original Asian culture (Kim & Abreu, 2001; Kim, Atkinson, & Yang, 1999). Consequently, orthogonal assessments are widely considered to better account for the complexities and multidimensionality of second culture acquisition. If a proxy or single dimensional measures is used, it would be difficult to extrapolate bicultural psychological functioning from the measure alone due to its inability to capture and operationalize the orthogonal acculturation construct. That is, Asian Americans can report via single dimensional acculturation measures that they have acquired the behaviors of acculturation to United States mainstream culture, but they cannot report their retention, maintenance, or adherence to Asian cultural values. Moreover, substantial evidence has accumulated regarding the influence of values on acculturation. Kim et al. (1999) has articulated that values acculturation occurs much more slowly than behavioral acculturation. Due to the slower process of values acculturation, subsequent immigrant generations may acquire the behavioral components of acculturation but still retain the traditional value orientation of their ancestors. A content analysis of acculturation measures used in the field of Counseling Psychology corroborates this shift (Yoon, Langrehr, & Ong, 2011). The Suinn-Lew Asian Self-Identity Acculturation Scale (Suinn, Ahuna, & Khoo, 1992; Suinn, Rickard-Figueroa, Lew, & Vigil, 1987) is a uni-polar or linear measure of mostly behavioral acculturation, and a measure which was most often used in research with Asian Americans prior to 2006 (Yoon et al., 2011). Reflecting the

current state of acculturation theory, the use of bilinear measures of acculturation have been proliferating while no linear measures of acculturation were used in major American Psychological Association and American Association Journals after 2005.

4.5.2 Acculturation Assessment

It is vital to conduct accurate assessments because meaningful and relevant interventions and treatments are born out of assessment precision. Moreover, assessments in and of themselves can be therapeutic. There are currently many operationalizations of the acculturation process for Asian Americans, including comprehensive reviews, measurement characteristics, and guidelines (e.g., Schwartz, Unger, Zamboanga, & Szapocznik, 2010; Yoon et al., 2011; Zane & Mak, 2003). Clinicians are encouraged to implement these measures in accordance with their client's acculturation process. However, although acculturation measures for Asian Americans and for the general ethnic minority populations abound, they have been mainly designed for research purposes. Hence, clinical interviews and qualitative assessments of clients' acculturation level and its associated stressors are important augmentation of the quantitative process. An unfortunate caveat is that there is no clear consensus on which dimensions, within the umbrella term acculturation, must be assessed to understand the worldview of an Asian American client (Zane & Mak). Nevertheless, practitioners may consider the following frequently cited domains in their assessment and treatment of Asian Americans.

Although Asian American immigrants and U.S. born Asian Americans share cultural characteristics, values, and worldviews (Uba, 1994), for Asian immigrants, it is helpful to understand their acculturation contexts in terms of their divergent experience prior to immigration, immigration, and (re)settlement (Cabassa, 2003). Readers are referred to the questions below, as a starting point and a demonstration of the layered questions necessary to understand the client and to help the client feel understood and valued.

- Was the immigration voluntary or involuntary?
- What were their reasons for immigrating?
  - To seek refuge from persecution, genocide, or war?
  - To seek better educational opportunities for their children?
  - Or for marriage or family reunification?
- How old were they when they immigrated?
- Did they immigrate with their family intact or alone (typically men or "parachute kids")?
- How did they immigrate?
  - Was the migration process a chaotic scene in which family members were only able to leave with the clothes on their backs?
  - Were they split from family members and/or members' whereabouts unknown?
  - Or were immigration preparations years in the making with settlement preparations occurring also by extended relatives in the host country?

Furthermore, clinicians are encouraged to inquire about clients' economic, educational, and religious factors as well as their economic and social standings in their community relative to others in their country (perceived social standing) prior to their immigration. There are tremendous mental health implications depending on responses to these questions. The likelihood of refugees, having witnessed multiple traumatic events and unimaginable torture or slaying of family members, who are subsequently contending with post-traumatic stress disorder, depression, and other problematic symptoms and behaviors is very high (Kroll et al., 1989; Marshall, Schell, Elliott, Berthold, & Chun, 2005; Petry, Armentano, Kuoch, Norinth, & Smith, 2003; Wong et al., 2006; Yee & Thu, 1987), whereas voluntary immigrants who have come seeking educational opportunities, for example, exhibit more positive psychological outcomes (Chen, Gee, Spencer, Danziger, & Takeuchi, 2009). However, because researchers have found that even for ostensibly positive migrations such as family reunification, the effects can be problematic (Chen et al.), clinicians' assumptions about the antecedents (e.g., in this case, family specific factors) of their clients' psychological well-being should be consistently evaluated. Other scholars have bolstered contra intuitive findings for immigrant and US born Asian Americans (e.g., Mossakowski, 2007). In support of the "immigrant paradox" or the "healthy migrant effect", Mossakowski found that Filipino American immigrants had lower depressive symptoms than American born Filipinos. The age at immigration has been found to be particularly critical in terms of its mental health link. The age at which Filipino immigrants left for the United States was a significant predictor of depression such that leaving after childhood buffered the effects of depression. A study on a nationally representative sample of Asian Americans also found that immigrants who arrived as children, as well as American born Asian Americans, were more likely to suffer from psychiatric disorders (Takeuchi, Hong, Gile, & Alegría, 2007).

Analogous to the pre-immigration and immigration questions clinicians may ask, post-immigration questions also need to be gauged. Inquiring whether clients have settled in predominantly ethnic, Asian, or White neighborhoods could further conversations regarding their psychological adjustment, social support network, and socioeconomic status. Asking whether they were forced or volunteered to resettle upon entry into the United States to increase social or economic standing, or for family unification, are more subtle but significant avenues for discussion. Indeed, inquiring about the context of their immigration push and pull factors and assessing consequent difficulties and positive outcomes will augment the therapeutic working alliance, assessment, and treatment.

As mentioned previously, consideration of Asian American clients' socioeconomic status, English language proficiency (see Chapter 3 *Linguistic Factors and Language Assessment of Asians*), generation level, and other cultural and sociopolitical variables either directly or indirectly will further the assessment of acculturation of an Asian American client. These variables also enhance our understanding of the psychology of Asian Americans above and beyond their ethnic labels. Obtaining a client's generation level, for instance, may elucidate many aspects of their acculturation level. However, knowing the generation level of the client will necessitate further evaluation to unearth the full picture of the client. For example, the first wave of Vietnamese Americans consisted of their country's elite, much different in economic and educational attainment and even the means by which they

left Vietnam than the following waves of Vietnamese Americans (Kibria, 1993). This first group of Vietnamese Americans may be comparable to Korean immigrants from the 1980s, representing college educated, urban city dwellers looking for educational opportunities for their children, or recent Filipino immigrants with a strong command of the English language. Subsequent Vietnamese immigrants may be comparable to recent Korean immigrants from the lower economic strata, pushed out by the country's dwindling opportunities.

Generally, a first generation client's acculturation level and strategy will be vastly different from a 6th or 7th generation client. But there are further generational gradients to appreciate. The 1.5 generation terminology was coined to illustrate the Korean and Vietnamese American experience. The 1.5 generation label was deemed a necessary indicator to illustrate how the acculturation level of an Asian American who immigrated before the age of 11 or 12 is different from a first generation immigrant who migrated as an adult, and yet different again from an Asian American born in the United States. But again, generation levels do not equate neatly to acculturation markers such as English language fluency. Clinicians may assess or treat clients who are 6th generation Asian Americans who have settled in ethnic enclaves (e.g., Chinatowns, Koreatowns). In this setting, their English proficiency may be comparable to first generation Asian immigrants. The types of stressors encountered may also differ. They may not endure the chronic day to day difficulties of interacting with English speaking service providers or individual level racism, but they must still manage the typical ghettoization of ethnic towns and its ensuing poverty, and grapple with the more subtle and difficult institutional racism (Jones, 1997).

Other types of acculturative stress may be evaluated. Intergenerational stress from generational role reversal due to the parents' lack of English proficiency, downward social mobility, and divergent acculturation levels within the family (e.g., daughters are the fastest to acculturate) are important constructs to also assess. Because respect and deference to one's parents, particularly the father, is a strong trait in the Asian culture (Uba, 1994), changing roles, dynamics, and socioeconomic status can wreak havoc on traditional gender and filial roles. Acculturative stress can be further heightened due to the cultural distance between two given cultures. Accordingly, greater distance between cultures has been found to be associated with poorer mental health outcomes (Miller, Kim, & Benet-Martínez, 2011).

Scholars note the importance of using racial hierarchy and race dynamics as the context from which to study acculturation (Carter, 2003). Discrimination in all its myriad forms is still a fundamental barrier for Asian Americans, which not only impacts their day to day lives, but can also negatively impact the client-clinician relationship (Cardemil & Battle, 2003; Sue et al., 2007). No matter how many generations removed from immigration, Asian Americans' inability to be viewed as American and assimilable often forces them to consider their ethnic or racial identity (Phinney, 2002). Implicit Association Tests corroborate this subtle but damaging form of discrimination as researchers found that the concept of "American" equaled White for most White respondents (Devos & Banaji, 2005). Asian Americans are also aware that they may not be seen as American (Huynh, Devos, & Smalarz, 2011),

leaving them to explicitly embrace the host culture (integration) or change their behavior to be accepted by the host culture as a reaction to their marginalized status (Cheryan & Monin, 2005; Rumbaut, 2008). This acute awareness also negatively impacts their ethnic identity, and lowers their sense of hope and life satisfaction (Huynh et al., 2011). Also, what happens globally, particularly in Asian nations, or nationally, impacts Asian Americans locally. When Japanese business executives purchased the Rockefeller Center – a quintessentially U.S. symbol, and when a Chinese American scientist Wen Ho Lee was accused of spying, there were negative reverberations across the Asian American landscape. Controversial national conversations that ensued following Amy Chua's publication of her book, *Battle Hymn of the Tiger Mother*, conjured the persistently detrimental "model minority" stereotype. These incidents reveal that the stereotypes of Asian Americans can vacillate greatly subsequent to national and international debates, over time periods, and generations.

Thus, clinicians must be aware of what it means to be a part of a stereotyped, stigmatized and marginalized minority group. It behooves them to attend to their dynamics, particularly in those in which the psychologist and the client are culturally distant from each other. Although it is impossible to master the intricate issues of every Asian minority group or every acculturation variable, challenging the universality of our perspectives is an important first step. When working with clients, it is crucial to assess worldviews:

1. How similar or discrepant they are
2. How, if at all, do they contribute to clients' psychological dysfunction
3. How might they affect assessment or treatment interventions that are usually based on Western assumptions.

For example, to establish credibility, therapeutic alliance, and positive outcomes with a client particularly foreign to Western assessment procedures or treatment, extra steps should be taken to orient the client to the assessment or psychotherapeutic process, and frame psychological difficulties and coping mechanisms in a culturally relevant manner.

It is important to underscore individual variations. Acculturation need not be inherently stressful (Rudmin, 2009), nor salient for all Asian Americans, particularly for those who are a generation or more removed from immigration. Practitioners must be aware and sensitive to those Asian American clients who may not identify as Asian American or even Asian ("I'm American"), nor understand what acculturation is, and believe they are far removed from the impact of discrimination. In fact, either directly or indirectly, the clinician may be the first person to label their life experiences as such. There are Asian Americans who may wrestle with the tension of their dual-culture identity and acculturative stress, while others seamlessly integrate into the majority culture. The terms discrimination, acculturation, and acculturative stress may be meaningless to them for various reasons - sometimes self-protective in nature. Yet, with the inclusion of socio-cultural factors such as acculturation in clinical assessments, practitioners have the opportunity to consider the rich and varied lives of Asian Americans.

4.6 Conclusions

According to the U.S. 2010 Census, the Asian American population was the second largest minority race in United States (U.S. Census Bureau, 2010). The Asian American population increased in recent years, from 3.6 % of the entire U.S. population in the 2000 Census to 4.8 % of the population in the 2010 Census (U.S. Census Bureau, 2002, 2010). The need to provide culturally appropriate mental health services to Asian American clients, as emphasized in Chapter 1, is increasing with the growth of the Asian American population. Fundamental to providing appropriate mental health services is an understanding of the cultural factors, including the acculturation process, that influence the values, attitudes, beliefs, emotions, and interpersonal behaviors (including test-taking behaviors) of Asian American clients.

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Chapter 5
Mental Illness from an Asian American Perspective

Soo Yun Uhm

Abstract A neuropsychological assessment necessitates a thorough evaluation of the clients' overall mental health and functioning. Understanding the cultural lens with which the client views the world and their well-being undergirds an accurate assessment. In this chapter, various issues in Asian American mental health (i.e., underutilization of mental health services), Asian mental health (i.e., classification of mental illness), Eastern psychology (i.e., mind-body connection, self-denial), and the intersection of the three (i.e., culture bound syndromes) are used as a framework to examine Asian Americans' differential mental health attitudes, beliefs, and symptomology from Western perspectives. Lastly, Morita therapy, an alternative treatment modality, which may potentiate current models and interventions for the general populace, is used to illustrate the integration of salient philosophical and religious tenets from East Asia.

5.1 Introduction

One of the great dilemmas researchers and clinicians have encountered in the area of Asian American mental health is to explicate Asian Americans' underutilization of mental health services (Abe-Kim et al., 2007; Le Meyer, Zane, Cho, & Takeuchi, 2009; Matsuoka, Breaux, & Ryujin, 1997; Snowden & Cheung, 1990; Sue, Fujino, Hu, Takeuchi, & Zane, 1991; Sue & McKinney, 1975). Asian Americans also present for services when their symptoms are more severe, implicating a longer wait before seeking treatment (Leong, 1986; Leong, Chang, & Lee, 2007). One of the factors often cited for the lower rate of help seeking and longer waiting periods is

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the cultural worldview of Asian Americans – the differential attitudes, beliefs, and causes of mental illness from Western norms. Although the heterogeneity of Asian Americans cannot be overemphasized, it is also critical to understand the philosophy and traditions that have seeped the collective Asian psyche from generation to generation despite migration within and from Asia (Chan, 1991; Takaki, 1998; Uba, 1994). Understanding Asian Americans' beliefs about mental illness is vital because not only can it influence utilization rates, it can also affect every factor in the treatment process (e.g., working alliance, agreement on treatment goals, management of mental health care, treatment satisfaction, early termination). A client's likelihood to perceive their clinician as credible, accept the mental illness rationale, be motivated to engage in the treatment process, expect relief from symptoms, and expect positive outcome all stem from conceptualizing mental illness from either the client's lay beliefs or from a "shared worldview" between the client and clinician (Fischer, Jome, & Atkinson, 1998). Thus, being informed about Asian Americans' attitudes, beliefs, and how mental illness may be expressed would optimize the care and treatment of this underserved population.

This chapter first compares the prevalence rates of psychiatric disorders between Asian countries and the United States as a springboard to discuss how the cultural worldview of Asian Americans may both elucidate and challenge the various prevalence rates presented. Second, a discussion regarding the role of the Western classification system and Asian and Asian Americans' attitudes toward mental illness, beliefs about the causes of mental illness, and expression of distress symptoms ensues. Third, this chapter explores an alternative treatment modality called Morita Therapy to illustrate the integration of salient concepts for Asian Americans. For the earnest and eager clinician, the chapter concludes with a caveat that, although culturally congruent clinical services are paramount, culture alone cannot account for the variability in service underutilization and in the treatment process (e.g., client engagement, premature termination).

5.2 Prevalence Rate of Mental Illness in Asia

Some mental disorders, including schizophrenia, bipolar disorder, and major depression, cross national and cultural boundaries. For example, although prevalence rates of schizophrenia (Saha, Welham, Chant, & McGrath, 2006; Tandon, Keshavan, & Nasrallah, 2008; Torrey, 1987) and bipolar disorder (Merikangas et al., 2011) vary across nations, these disorders indiscriminately affect people all over the world. The impact of mental illness is worldwide, but substantial international variations in prevalence rates have been found. In a cross-national study consisting of approximately 38,000 community based participants from 10 countries (the United States, Canada, Puerto Rico, France, West Germany, Italy, Lebanon, Taiwan, Korea, and New Zealand), the rate of major depression diverged greatly across countries, with the Taiwanese sample reporting the lowest rate of major depression for both lifetime and the previous year (Weissman et al., 1996). Although

Weissman and her associates (1996, 1997) found that both bipolar and panic disorders were relatively consistent across numerous countries including those in Asia, North America, and Europe, the Taiwanese sample again reported the lowest rates. Likewise, Demyttenaere and his colleagues (2004) surveyed 60,463 residents across 14 countries between the years 2001–2003. They found that the prevalence rate of having any psychiatric disorders in the previous 12 months was much lower in East Asian countries than in the United States (e.g., 4.3 % in Shanghai vs. 26.4 % in the United States). This chapter will discuss this issue later.

Overall, multi-national epidemiological investigations reveal lower incidences of psychiatric illnesses among Asians vis-a-vis other national groups. Could this account for the lower help-seeking rate of mental health services among Asian Americans? Can healthier Asians in their respective native countries equate to healthier immigrants and offsprings? Perhaps protective factors, such as the salience of family and intergenerational co-habitation, keep distress at bay? Or do only the hearty and resilient immigrants seek new lives in distant lands? One must inquire beyond these ostensibly logical conclusions to the complexity and the nuanced nature of the mental health classification system and the role of culture to appreciate the underutilization of mental health services among Asian Americans.

5.3 Nosology and the Medical Model

Mental disorders in the prevalence studies mentioned previously were assessed using definitions and criteria from the Diagnostic and Statistical Manual of Mental Disorders, 4th Edition (American Psychiatric Association [DSM-IV], 1994) and the World Health Organization's International Classification of Diseases 10th revision of Mental and Behavioral Disorders (World Health Organization [ICD-10], 1994). Scholars articulate that the diagnostic and classification system in the DSM-IV (currently DSM-IV-TR; American Psychiatric Association, 2000) is culturally bound and based on a Western centered socio-cultural context (Lee, 2001). The Chinese Classification of Mental Disorders, 3rd Edition ([CCMD-3], as cited in Stewart, Lee, & Tao, 2010), converges with the DSM-IV-TR, and includes psychiatric disorders particularly salient in China (e.g., neurasthenia) and excludes rarely diagnosed or recognized disorders such as borderline personality disorder (BPD) (Chen, 2002; Lee, 2001); however, the exclusion of BPD is not without controversy and its omission is being contested for the fourth edition (Zhong & Leung, 2007). The existence of the CMCD is a testament to the cultural biases inherent in DSM and ICD classification systems despite the contributors' remarkable efforts to be relevant to the international community. The ICD-10 also closely converges with the DSM-IV-TR, but it does differ in the inclusionary practice of some disorders.

One such disorder is neurasthenia, known as *shenjing shuairuo* in China, and *shinkei suijaku* in Japan. It is probably the best known culturally bound syndrome (Kleinman, 1986). Although it is recognized in ICD-10 and the CCMD-3, it is simply listed in the appendix of the DSM-IV-TR. Neurasthenia has similar symptoms as

mood disorders but it does not fully overlap. In Asia, it is mainly considered a physical disorder of the nervous system with the possible root causes of *qi* imbalance and hot and cool (*yin* and *yang*) imbalance. Symptoms of neurasthenia include physical and mental fatigue, excessive worry, headaches and dizziness, and sleep disturbance.

A striking study by Cheung and Lau (1982), however, demonstrated that when asked, Chinese respondents with physical ailments were able to articulate their emotions and were aware of the interpersonal relationship problems that may have triggered their somatic symptoms. It appears the Chinese are able to use language and/or present with somatic symptoms according to the appropriateness of the setting. Patients suffering from the physical ailments of *hwa-byung*, a Korean culture bound syndrome, could also identify the cause of their somatization and symptoms, namely interpersonal problems, and report their emotional symptoms of sadness and pessimism (Kim, Kim, & Kelly, 2006; Lin, 1983). Moreover, patients could articulate the subsequent anger that they must restrain. Nonetheless, based on a sample of 1,747 Chinese Americans from the Chinese American Epidemiological Study conducted in 1993 and 1994, 6.4 percent of respondents met the criteria of ICD-10-defined neurasthenia while only 43.7 percent of these respondents fit any of the current or lifetime DSM-III-R diagnoses, leading the researchers to propose neurasthenia as a clinically distinct illness (Zheng et al., 1997).

The DSM-IV (and the current DSM-IV-TR) may have been biased against diagnosing Asians in the aforementioned studies or mislabeling their illnesses. Similarly, Asian Americans have historically been underdiagnosed using the DSM categories (Chang, 2002). The intensity and symptom duration required for a DSM diagnosis often miss Asian Americans who would have otherwise been categorized as needing services based on their symptoms. In the last few years, the multitude of research evidence accumulated using the National Latino and Asian American Study (NLAAS; Alegria et al., 2004), the first nationally representative community household survey that estimates the prevalence of mental disorders and rates of mental health service utilization by Latinos and Asian Americans in the United States, has provided unprecedented knowledge and understanding of Asian Americans' mental health. The researchers involved have attempted to reconcile the discrepant findings of previous research consequent to using college samples, and diverse Asian ethnic samples from varied locales and acculturation levels, as is common due to limited resources in ethnic minority research. These analyses, however, primarily involved Western expressions of mental illness as outlined by the DSM-IV-TR (2000).

Takeuchi and his associates (2002) emphasize the need for multiple indicators of psychological distress (e.g., neurasthenia) due to differences in cultural expressions of distress. Divergent indicators could determine whether immigrants do indeed present with lower rates of psychological problems than acculturated or native born counterparts. If psychological problems could be assessed to reflect the physiological symptoms that immigrants from their native countries would more typically express, then mental health status among Asian Americans could be accurately gauged (Takeuchi, Chun, Gong, & Shen, 2002).

Asians and Asian Americans, particularly less acculturated Asian Americans, may view mental health services to be culturally incongruent with their worldview

(Atkinson & Gim, 1989; Fischer et al., 1998). The belief that the Western and Eastern views of the etiology and treatment of mental illness are at odds with one another is widely shared. Clients may presume the role of a typical patient at a medical facility where medications and direct feedback from an "expert" are provided after a brief 10–20 min encounter (Chang, Tong, Shi, & Zeng, 2005). Lin and Lin (1981) consider the Western model of psychotherapy to be in direct conflict with the Chinese's understanding of a biological or organic cause to mental illness, resulting in clients' tendency to somatize. Their tendencies to somatize their symptoms (Hinton, Park, Hsia, Hofmann, & Pollack, 2009; Kleinman, 1977; Lin & Cheung, 1999; Weiss, Tram, Weisz, Rescorla, & Achenbach, 2009), illustrate the medical model's influence on Asian Americans' conceptualization of mental illness and its relationship to culturally sanctioned ways of expressing mental illness.

Hinton et al. (2009) identified anxiety-related distress syndromes commonly seen in various countries in East, South, and Southeast Asia and in Asian refugees. They found that many respondents share physical syndromes and "catastrophic" thoughts about weakening, depleting, and losing energy from various parts of the body (e.g., kidney, brain, heart, semen loss). Hence, there is a preponderance of energy-related vitamins, drinks, medications, and supplements available to redress this fear of energy loss from the body and resume physical and mental health. The DSM-IV-TR appendix of culture bound syndromes validates the numerous non-Western expressions and the mind-body interplay of mental illness.

Lin (1994) has pointed to the paucity of mental health workers in China as a consequence and confirmation of the Chinese's acceptance of the medical model. The facts are startling. The ratio of mental health practitioners to the general Chinese population is a stark one to 100,000 (Chang et al., 2005). Thus, idioms of distress (Kirmayer, Dao, & Smith, 1998; Nichter, 1981), such as neurasthenia, are not only the outcome of cultural familiarity and fit, but are also likely to be associated with the availability and accessibility of mental health care (Kirmayer & Young, 1998; Weiss et al., 2009). In settings where psychological or talk therapy is not available, it would behoove the patient to respond physiologically or somatically in order to get the type of help that is available. Lastly, there have also been reports in China and Japan that doctors, in collaboration with the patients' families, diagnose their patients as suffering from neurasthenia, in lieu of the more apt but stigmatizing diagnosis of schizophrenia (Lin & Cheung, 1999), implicating an undercount of mental disorders in the region.

5.4 The Role of Eastern Philosophies

Because the majority of Asian Americans in the United States are foreign-born (U.S. Census Bureau Release, 2010) and cultural beliefs and values are slow to dissipate, Confucianism, Buddhism, and Taoism, the three major Eastern philosophies (see Guo and Uhm, Chapter 4 of this text), still pervade the day-to-day attitude and conduct among Asian Americans and serve as a significant backdrop for their health

beliefs and behavior. Each philosophy and its doctrines contribute to form the basis of both ancient and modern views of Asian Americans. Although there are points of contention among them, the teachings espouse many common aspirations. Confucianism embodies cultivation of morals and virtues, with emphasis on filial piety, the social order and social harmony via hierarchical relationships, and most of all, display of humanity and the ability to attain these lofty goals through education and discipline. Buddhism purports to liberate by teaching moderation and acceptance of one's current state, including hardship and suffering. Suffering in particular continue as a consequence of wants and desires, lack of mindfulness and awareness, and failure to recognize life and the state of being as is. And because past, current, and subsequent generations are interconnected through good and bad deeds, it is therefore in one's best interest to lead a positive, ethical, and virtuous life. Lastly, like Buddhism, Taoism emphasizes humility and moderation.

The lay belief that stems from these teachings for many who espouse them is that mental illness may be a consequence of previous or current family members' ill-will or behavior, or a consequence of their own inability to attain virtuous and collective goals. Current familial or ancestoral deviation from the social order and norms are also implicated (Lin & Lin, 1981). Consequently, Asian Americans may find visiting professionals who treat mental illness as too shameful or stigmatizing (Lau & Takeuchi, 2001). Having the label of being mentally ill or diagnosed with a psychiatric disorder can markedly and negatively influence the family's standing in their community, whereby even the children of those who are mentally ill will be deemed unacceptable for marriage (Kleinman, 1977).

Taoism, Buddhism, and Confucianism extol the virtue of moderation in behavior and emotions, and self-denial for the collective good of the family and community, which are considered the keys to good health (Bond, 1993). If emotions are disruptive, extreme, or self-centered, shame and other tactics are used to socialize the offender. Kitayama, Markus, Matsumoto, and Norasakkunkit (1997) found that the use of shame was more prevalent among East Asians. East Asians with a collective and interdependent sense of self value and use shame to reinforce cohesiveness and cultivate the collective self. Western expressions and symptoms around disorders such as depression are discouraged because the emotive focus is on the self (Weiss et al., 2009). Emotional restraint, particularly suppression of problematic emotions, is considered a sign of maturity and other-orientedness.

Due to their embrace of Confucianism and other cultural ethos, Koreans value the suppression of emotions, particularly anger, despite centuries of foreign invasions, brutal regimes, and most recently, the division of Korea after the Korean War (Min, 2009). *Hwa-byung*, a Korean culture-bound somatization disorder, which literally translates to "anger disease," is more suitably defined as a disorder that stems from the suppression of anger. It is born out of *haan* – suppressed individual and collective anger, unexpressed grudge, grief, and profound regret. Haan characterizes Koreans' deep and enduring depth of individual and national suffering (Min, 2009). Hence, Korea's history and geographical location undergirds the collective nature of their anguish and evokes their Korean identity.

Koreans are also discouraged from expressing anger regardless of their individual suffering, often related to their economic and social standing. Women in particular have and are expected to endure hardships (Kim, 1998; Park, Kim, Schwartz-Barcott, & Kim, 2002; Sohng & Song, 2003). In the past and in traditional Korean families, a daughter was not considered family because she would one day leave her family of origin to live with her husband and take care of his family. If a woman could not bear a son, she again faced extraction from the family. Given the salient role of family and social networks, when women's grim lives were cemented, with no viable hope for improvement, they were left to accept and suppress their anger and suffer from their demise (Chung, 1990; as cited in Son, 2000). In fact, it is a Confucian virtue to endure the pain and realize one's fate and destiny. Contemporary women continue to suppress their anger reflected in hwa-byung's prevalence among middle age women (Park, 2006; Park, Kim, Kang, & Kim, 2001; Park et al., 2002). Although they may suppress their anger, if they cannot truly accept their situation, it can lead to symptoms of *hwa-byung*: epigastric masses in the throat, aches, pains, fear of impending death, fatigue, and insomnia.

Indeed, *hwa-byung* is most often diagnosed in married Korean immigrant women who are middle-aged and have lower socioeconomic status (Kirmayer & Young, 1998; Pang, 1990), and who are often in inescapable situations (Lin et al., 1992). These characteristics are indicative of the marginalized state in which Korean women often find themselves with limited means to affect their standing. One study found that the prevalence rate of hwa-byung among Korean Americans in the Los Angeles area was three times higher than among Koreans in Korea (Lin et al., 1992). The transition of immigration (e.g., loss of social network and family) and other immigration stressors, including underemployment, changes in family roles and dynamics, and incongruent norms and behaviors to the mainstream culture, are some of the factors that can hinder smooth transitions to the United States and contribute to the elevated rate of hwa-byung.

What a specific culture values is directly related to the somatic symptoms and complaints exhibited by the people of that culture. There is a collectivistic component to many of the culture bound syndromes – in particular, anxiety related to the fear of offending others, losing face (Mak & Chen, 2006), and the desire to be seen as part of the normative group. More aptly, Triandis and colleagues (1985) have labeled this an allocentric tendency, a psychological dimension that corresponds to the cultural dimension of collectivism in Hofstede's (1980) landmark cross-national research. *Taijin kyosusho*, a Japanese culturally specific syndrome, is the intense fear of offending others through some imagined body defect such as body odor or odd behavior (ICD-10). The anxiety is strongest amidst acquaintances and not close friends, family or strangers. Therefore, it strikes most often in banal but everyday settings, often at school and work (Maeda & Nathan, 1999). Kirmayer and Young (1998) elegantly state, "…somatic symptoms express discomfort and distress in ways that are intelligible within the individual's social milieu…" (p. 424). In the East, a person is defined by their relationship to others and has been socialized to submit their own individual desires and goals for the collective good (Markus & Kitayama, 1991).

This socialization facilitates circumventing interpersonal problems and others' disapproval, and counters potentially jeopardizing relationships.

An example of the Korean society's value of harmonious, other-oriented relationships is the Korean family members' cultivation and reinforcement of a concept called *noon-chi*. *Noon-chi* is a Korean term used to describe a heightened sense of awareness of the subtle, nonverbal, and implicit cues of one's social surrounding. In a hierarchical society like Korea, a highly developed noon-chi guides Koreans in the simple but critical tasks of knowing how to address new acquaintances, anticipating the practical needs of one's houseguests, and showing emotional constraints in discordant interpersonal situations. Chung and Cho (2006) argue that the culturally bound syndrome *hwa-byung* could not exist without *jeong*, the emotional and psychological bond between Koreans because haan arises due to the loss, betrayal, or fissures in the relationship – a violation of *jeong*. *Jeong* is such a special and profound concept among Korean Americans that, "without jeong, life would be emotionally barren, and persons would feel isolated and disconnected from others" (Kim et al., 2006, p. 152). Akin to the lack of differentiation of the mind from the body, the self and others are also integrally related.

5.5 Morita Therapy

In as much as the core concepts from Confucianism, Buddhism, and Taoism affect mental illness expressions, they can also drive treatment modality. Morita Therapy was developed by a Japanese psychiatrist, Shoma Morita (1874–1938) in the 1910s, to treat anxiety-related problems. He designed his therapy to treat *shinkeishitsu* clients that included any of the following dispositions: shyness, hypersensitivity, excessive self-focus, feelings of inferiority, introversion, perfectionistic self-expectations, dogmatic worldviews, and emotionally directed behavior or avoidance (Ishiyama, 1988). The *shinkeishitsu* disposition is seen as a combination of inherent nervousness and learned cognitive patterns of anxious self-preoccupation and is comparable to DSM-IV-TR's anxiety disorders and somatoform disorders.

Morita therapy views fixed egocentric awareness or self-preoccupation as the fundamental root of anxiety, particularly social anxiety. Patients suffer because they fail to appreciate the positive meaning of their nervousness and instead try to fight or anticipate anxiety, which further aggravates the anxiety to continue yet another vicious cycle. In contrast, Morita therapy views anxiety as a normal human emotion and reinterprets client's anxiety as the desire to live fully, to be well thought of, or to live to the best of their ability. Morita believed that anxiety should not and could not be controlled but could be experienced whilst making human connections and taking action. Morita therapy consists of emotional acceptance, positive reinterpretation of anxiety, decreased self-attention focus, and emotional transcendence through constructive action taking.

In essence, Morita therapy aims at appreciating and accepting anxiety and reducing preoccupations with the self. Anxiety is used as information and as a basis to

control those things that are controllable, for instance, tasks that need to be accomplished, activities that can be approached and completed, and other ways in which the client can live industriously. Therefore, instead of resisting anxiety, the client is taught to accept it. Paradoxically, accepting anxiety usually decreases it and the client who is engaged in productive activity increases their understanding that immersing oneself in one's life can be compatible with feeling anxiety. The client, then, discovers the joy that comes from losing oneself when fully engaged in a task and becomes a meaningful and productive member of society despite the presence of discomfort, interpersonal fears, or lack of confidence.

Morita therapy was originally designed and is best known for its "orthodox" inpatient residential treatment modality (Reynolds, 1976, 1982; Shinfuku & Kitanishi, 2010). Inpatient Morita therapy begins with a week of absolute bed rest. During this first phase, the patient is forbidden to receive visitors and remains in sensory isolation. The second stage consists of participating in practical task-oriented activities, including raking leaves and writing in a journal, but the patient is still not allowed to entertain visitors. The third stage consists of patients conversing with others and participating in heavier work, like gardening. By the third week, shinkeishitsu symptoms recede to the background, the patient is far less preoccupied with the self and their non-accepting internal dialogue, and forms and desires behavioral work and engagements, including social interactions (Ishiyama, 1988; Reynolds, 1982). In the final stage, patients are prepared to resume their lives by broadening their activities and returning to work, and may also return to the residential center in the evenings. The average length of treatment is 30 days but treatment can last up to 120 days (Reynolds, 1976). An outpatient form of Morita therapy has evolved which incorporates some of the principles of orthodox Morita therapy into a brief Morita intervention (Kitanishi & Mori, 1995). Again, the objective is to move the client away from a mood-based to an action-oriented lifestyle and participate more fully in life events.

Outpatient and brief Morita Therapy may appear similar to standard behavioral therapy or cognitive behavioral therapy. However, Morita Therapy is more closely aligned with the third generation cognitive behavioral therapies (e.g., Acceptance and Commitment Therapy, Dialectical Behavior Therapy), though it significantly predates the third generation therapies. Resembling the third wave of therapies, Morita therapy aims at redirecting and transcending anxiety instead of eliminating it. Human suffering is considered normal and the more people try to manipulate or resist suffering, the more anxious and fearful they become. Morita therapy does not advocate practice or homework just for practice sake. Instead, all activities, even practice, must be conducted with purpose and genuineness.

Unlike practitioners of western therapies, Morita therapists believe that problems stem completely from the individual and not their environment or context. The individual is not considered supreme and reduction in suffering is not its aim. Moritists emphasize that although anxiety may dissipate, this is not the goal of Morita therapy. The goals are for clients to accept all of their emotions, maintain awareness (moving away from self-centerness or from self-preoccupied cognitive focus), and doing what needs to be done, which is to be a fruitful participant of humanity.

Because the only aspect that humans can control is their behavior and because human beings are believed to be interconnected, the goal is to strive to be productive members of their society (Chen, 2010).

Morita therapy has great potential to treat certain segments of our population that Western-centered psychology has historically inadequately served. Indeed, Morita therapy may prove to be beneficial or culturally relevant for those clients in which interconnectedness (collectivistic orientation) with others, becoming a vital member of society, and moving away from self-love are truisms.

5.6 Caveat

This chapter supports the U.S. Surgeon General's report (U.S. Department of Health and Human Services, 1999) and the supplement's (U.S. Department of Health and Human Services, 2001) imperative to consider race and culture in the mental health treatment of racial and ethnic minority members. For example, there is a preponderance of evidence that caution against asking allocentric clients in collective settings to suddenly become idiocentric (individualistic) in the realm of therapy when the rest of their lives and communities are organized and sanctioned in collective ways (Leong, 1986). However, most of the empirical studies cited have been conducted in East Asia and in East Asian American populations. Fortunately, investigations on understudied Asian American and Asian groups (i.e. South and Southeast Asian/Americans) are burgeoning. For example, there are unique sociopolitical backgrounds of Southeast Asian Americans (Chung & Kagawa-Singer, 1993), particularly refugees from Cambodia, Laos (i.e., Hmong, Mien) (Moore & Boehnlein, 1991) and Vietnam (Hinton, Tiet, Tran, & Chesney, 1997) that reveal unparalleled trauma and, hence, unique needs of this population.

Although this chapter outlines the lay beliefs of mental illness among Asian Americans, it is important for clinicians to be mindful of the clients that present before them. In earnest attempts to gauge the worldview of their clients, the clinician may inadvertently view patients through the lens of group generalizations, further stereotyping Asian Americans. Clinicians must strike the delicate balance between knowing the importance of group level variables (e.g., country of origin), while simultaneously considering and evaluating individual level variables (e.g., ethnic identity, acculturation).

Clinicians must also recognize that practical obstacles, including suboptimal service delivery to limited English proficient individuals and high cost of mental health care, have been found to be two of the most important considerations in Asian Americans' lower rates of utilization (Kung, 2004; Wong et al., 2006). Like other Americans, it may be structural barriers – exorbitant costs, lack of medical insurance and unavailable daycare – not cultural barriers that prevent Asian Americans from participating fully in their treatment plan and causing early termination from treatment. Le Meyer and colleagues' (2009) nuanced work on the role of primary and alternative care in Asian Americans' mental health service use add to

the richness of this discussion. Furthermore, lack of health care in their home countries may lead people to not seek services in the United States because they will not have the expectation of obtaining help.

The international stage is converging in surprising ways. Despite the dogged mind-body dichotomy of western medicine, the U.S. Department of Health and Human Services (1999) stresses the mutuality and inseparable nature of mind and body. In China where the behaviors of personality disorders are considered more socially and culturally explicable, Borderline Personality Disorder has been recommended to be included in the next revision of CCMD (Zhong & Leung, 2007). And, Chang et al. (2005) have documented the unlikely growth of psychoanalytic practitioners in China (as well as cognitive and behavioral mental health providers). Therefore, despite the multifaceted and nuanced challenges that must be addressed before delivering excellent and culturally congruent care, all signs point to thrilling Asian American mental health developments on both international and national stages.

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Chapter 6
Understanding Differences in Cognition Across the Lifespan: Comparing Eastern and Western Cultures

Charles Zaroff, Rik Carl D'Amato, and H. Allison Bender

Abstract In psychological research, an individual's approach to cognitive tasks varies across cultures. Nowhere is this more evident than in studies comparing performance between individuals from Asian and Western societies. The current chapter summarizes cognitive research comparing Asian and Western samples across the lifespan. The results indicate that there are differences in academic achievement, which appear largely sociocultural in origin. While there are few studies assessing cognitive skills cross-culturally in children, in adulthood, a consistent pattern emerges in which skills such as visual perception and reasoning are more context-dependent in Eastern cultures. In the elderly, there is greater evidence for culture-specific patterns of cognitive decline in pathological, as opposed to normal aging, which may reflect various genetic, neurobiological, and sociocultural influences. Etiology aside, these culture-based differences in cognition across the lifespan are evidence that far more research is needed. Furthermore, the validity of clinical neuropsychology as a field, which relies upon such research, is compromised when efforts are not made to study and utilize such cross-cultural data.

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6.1 Introduction

Cognitive processes such as attention, memory, language, and visual perception have been well studied in Western cultures. Research examining how variables such as age and education level influence cognitive abilities has led to the accumulation of much normative data. This in turn has enabled the growth and evolution of the field of clinical neuropsychology, as there are numerous research and clinical assessment tools now available. However, there is still a relative dearth of cross-cultural studies in clinical neuropsychology, and even more fundamentally, research into cognitive processes that may vary cross-culturally. The lack of such data represents rate limiting factors in the accuracy of assessment in clinical neuropsychology. Of great interest, therefore, are potential culture-specific cognitive processing strategies and skills which may eventually manifest themselves in normative data. Within multicultural societies such as the United States of America (USA), neuropsychological task performance can vary across different ethnic groups. This is certainly true when samples of Asian American individuals are compared to European American individuals. Available research suggests differences not only in neuropsychological normative data (Razani, Burciaga, Madore, & Wong, 2007), but in the very components of these skills that are eventually manifested in such normative data (Wang, 2009). Thus, a survey of current research investigating differences in cognition across Eastern and Western samples is clearly warranted.

Luria's (1931) expedition to study Uzbeki culture marks some of the earliest attempts to examine cognitive processes in Asia (Kotik-Friedgut, 2006). At that time, Luria found education-based differences in methods of reasoning, shown from individuals categorizing objects (Luria, 1933, as cited in Nell, 1999). To illustrate, Uzbekis with a greater degree of education preferred using taxonomy when asked to classify a group of objects, whereas those with lesser levels of education were guided more by knowledge of relationships between objects in everyday situations. In the latter group, classification was based solely on practical experience (Luria, as cited in Nell, 1999), so that universal premises in classification were not considered. Interestingly, this method of object classification can be observed today in some non-Western samples (Nisbett, 2003).

The field of cross-cultural psychology as a whole has certainly evolved since Luria's time (Murai, Hadano, & Hamanaka, 2002; Shah, 2007). However, much of the extant literature focused on fundamental aspects of behavior and cognition is based on findings in a group that is among the least representative available: Western, wealthy, educated, and residing in industrialized societies (Henrich, Heine, & Norenzayan, 2001). Efforts to broaden this knowledge base and obtain valid and reliable cross-cultural data may be hindered in some instances by culturally-based styles of interpretation, memory retrieval, and response editing (Pasick, Stewart, Bird, & D'Onofrio, 2001).

The present chapter will review the available data comparing cognitive functioning and processing styles in peoples of Asian and European descent. Differences will be discussed in terms of cognitive development, cognition in mature adults, and

cognitive decline in the context of normal and pathological aging. The chapter will conclude with a discussion about methodological concerns in cross-cultural studies of cognition and their implications for clinical practice, including the difficulties inherent in using a single term such as "Asian" or "Asian American" to describe a potentially broad array of cultures and cognitive processing styles.

6.2 Developmental Differences in Children and Adolescents

6.2.1 Academic Achievement

Research focused on cognitive developmental differences in children from Asian and Western societies often includes a discussion of academic achievement. Cross-cultural differences, when found, may vary with the skill being measured and the age at which academic achievement is assessed (Han, 2008). One of the more consistent findings is that mathematic proficiency tends to be better developed in children in Asian societies, even when education and level of intellectual functioning are taken into consideration (Geary et al., 1997; Stevenson & Lee, 1990; Stevenson et al., 1985). These differences appear to be a recent phenomenon as math competencies do not differ between older adults from the USA and China (60–80 years of age) to the same extent that they do in younger adults (Geary et al., 1997).

There are numerous hypothesized reasons for these differences in mathematic proficiency. The methods utilized by children when carrying out arithmetic operations differ across cultures in a way that puts students from the West at a disadvantage. Studies show that first grade students in China, Japan, and Korea, utilize knowledge of place value (i.e., based on its location in a number, a number signifies values in multiples of 'ones,' tens, 'hundreds,' etc.) when carrying out math problems, while students in France, Sweden, and the USA, did not (Miura, Kim, Chang, & Okamoto, 1988). Further, as a group, the studied sample of children in Korea were almost without exception able to correctly identify the trade between the one and the tens as a traded unit of ten, rather than its face value (Fuson & Kwon, 1992). While most of the third graders in Fuson and Kwon's study were able to identify the '1' written in the hundreds column as a value equaling 100, fewer than half of the third grade students in the USA display this knowledge (Kouba et al., 1988). Additionally, many of the second grade students in Fuson and Kwon's study solved multiple-digit problems despite not having received formal instruction regarding how to do so. These findings imply a difference in pedagogical approaches concerning the meaning of numbers, which may have implications for cross-cultural differences in academic achievement. Fuson and Kwon also cite the influence of cultural factors in Korea, such as the metric system, the ten-based abacus, and traditional phrases used to describe numerical writing processes which explicitly reference value increases when numbers are placed in different columns. Also of note, numerals and the pronunciation of numerals themselves are also likely contributing factors

to cross-cultural differences in arithmetic. The formal number system used in Korea is based on the Chinese system, which is more regular than the Arabic system. For instance, '12' is pronounced 'ten two' instead of 'twelve' (i.e., the word, 'twelve' having little apparent 'face logic' to its numerical equivalent). Accordingly, rote memorization of numeral-to-word associations may be an additional challenge for students learning the Arabic number system. Perhaps too, there are brain-related factors resulting from the early pictorial character (non-alphabetic) learning required in Asian cultures, which may then influence mathematics proficiency (D'Amato, Fletcher-Janzen, & Reynolds, 2005; Noggle, Davis, & Barisa, 2008).

Apart from direct pedagogical factors, there are also clear cultural differences in the overall emphasis on education, which theoretically could impact not just math ability, but overall academic achievement. Fuson and Kwon note that in Korea, successful school performance is viewed as the main path to higher education, and, as a result, supplemental enrichment workbooks to be used outside of the school environment are commonplace. Moreover, when comparing academic achievement factors in Taiwan, Japan, and the USA, Stevenson and Lee (1990) found several additional culturally-mediated differences in family attitudes towards school performance. For example, academic achievement was valued more by mothers from Taiwan and Japan than mothers from the USA; in contrast, mothers from the USA appeared more interested in fostering their child's overall cognitive development, and were not specifically focused on academic performance. Mothers from Taiwan and Japan also had higher standards for, and gave more realistic appraisals of, their child's academic performance. In contrast, American mothers overestimated their child's performance and expressed greater satisfaction with their child's academic achievement. Moreover, mothers from Taiwan and Japan stressed the importance of effort more than their American peers, suggesting that parents in some Asian societies may be more invested in their child's academic achievement than they are in the USA. Therefore, sociological variables may need to be explained.

Stevenson and Lee (1990) also examined pedagogical and general school factors. Children in the USA spent a greater percentage of in-school time engaged in non-academic activities. While in school, American children spent less than 50 % of their in-class time actively engaged in teacher-led learning activities, while this percentage was over 60 % in Taiwan and Japan (American children spent more time out of their seats and more time engaged in conversation with a peer). These in-class behavior differences occurred despite the fact that teachers in the USA had many more years of formal schooling than those from Taiwan and Japan. Children in the USA also experienced a shorter school year; the greater emphasis in some Asian cultures on preparation for university entrance examinations may serve to increase this discrepancy in total schooling hours cross-culturally. Perhaps most notably, children from the USA regarded school less positively, a finding which may be associated with the greater respect accorded authority figures in societies such as Japan. Stevenson and Lee (1990) concluded that while the emotional and motivational solutions to school performance problems in the USA may help nurture the feelings of children there, such nurturance occurs at the expense of improved academic performance. Interestingly, in Asian cultures, children themselves seem to view effort as of greater importance than children in Western cultures. To illustrate, in a study of children in

grades two through six, children in Japan differed from those in the USA, Europe, and Russia, as youths in Japan attributed their academic successes to their own effort and less to the teacher's role in their academic achievement (Little & Lopez, 1997). Perhaps not surprisingly then, in the study by Stevenson and Lee (1990), children in Taiwan obtained the highest reading level in first grade in comparison to their peers from the USA and Japan, despite the fact that the sample from Taiwan contained parents with the least amount of parental formal schooling, the least knowledge of reading before entering the first grade, and the lowest likelihood of having attended kindergarten. Thus, pedagogical factors, and cultural expectations and demands, appear to play significant roles in national performance patterns of academic achievement, and nowhere is this more evident than in some comparisons of Eastern versus Western cultures. Even more, these results indicate that great caution is needed when interpreting measures of academic achievement cross-culturally.

6.2.2 Cognitive Functioning

Much of the research in cross-cultural neuropsychology has focused on specific cognitive skills and processes. While early reports found advantages in global intellectual functioning for some samples from Asian countries relative to the West (e.g., Japan versus the USA) (Lynn, 1982), work since this time has highlighted the multifactorial nature of Intelligence Quotient (IQ) scores (Nell, 2000). Similarly, studies utilizing test batteries tapping multiple domains of cognitive functioning have yielded equivocal results in cross-cultural comparisons (Stevenson et al., 1985; Takeuchi & Scott, 1992). In contrast, research utilizing tests of discrete cognitive skill have been more insightful and have enabled a greater examination of potential etiological factors underlying culture-based discrepancies. For example, when Okamato, Case, Bleiker, and Henderson (1996) found obvious differences in the complexity of drawings completed by children from Japan and the USA, these differences were hypothesized to directly reflect the greater amount of time and emphasis devoted to the skill of drawing in Japan.

In children, some of the most consistently replicated cross-cultural discrepancies in cognition are observed in episodic memory (i.e., the ability to remember past experiences). In brief, these studies, many of which have examined and compared the memory of children from China and the USA, have shown greater elaboration and detail in the memories of children from the USA (Wang, 2004). The memories of children in the USA also contained a greater emphasis on their own roles, preferences, and feelings (Wang). On the other hand, children from China possessed episodic memories that were less detail oriented and frequently reflected the role of the child in a social context (Wang). Wang traced the origin of such episodic memory differences to culturally-based discrepancies in mother-child conversational styles. Conversations between 3-year-old children and their mothers in the USA tended to be cooperative and elaborative, whereas in China these conversations were generally more pragmatic and focused on information gathering (Wang, 2001a, 2001b). Wang suggested a connection between the richness of detail in mother-child

conversations and the salience of episodic memory. The role of culture in episodic memory was further highlighted in a study with residents of China and the USA, with some of the latter group having immigrated from China (Wang, 2006). Chinese participants residing in China and Chinese immigrants in the USA were, as expected, more similar to one another in their style of mother-child reminiscence than they were to the styles of mothers from European American families. Interestingly, children in China recalled more information than did their Chinese American counterparts as mothers residing in China were often more elaborative in their interactions than those mothers who immigrated to the USA Wang attributed these findings to Western influences in China, resulting in a greater adoption of Western values and social practices, particularly in urban areas. Conversely, first generation Chinese immigrants in the USA may have been more likely to maintain traditional Chinese values that they held in China prior to immigration (Chao & Tseng, 2002).

Wang has also contributed related research in the field of infantile amnesia. In samples from Korea and China, and of individuals of Chinese descent residing outside of China, the earliest life event an individual was able to recall dated to an age 6 months older (Wang, 2001a) than that reported in White adults from either the USA or Europe (Pillemer & White, 1989). In another study within China, adults with no siblings, who displayed a greater individualistic orientation, recalled earlier memories than adults with siblings (Wang, Leichtman, & White, 1998). This led Wang to suggest that an individualistic sociocultural perspective may aid in the encoding and storage of episodic memories. Wang also highlighted culturally-based differences in childrearing and associated expectations for childhood behavior, and their potential role in episodic memory. Children from the USA are essentially viewed as a blank slate, and are therefore given a slow and incremental course of training in socialization practices (Gralinski & Kopp, 1993). Chinese parents, in contrast, often raise their children in two discrete periods. The period before age 4 is dominated by innocence, and little in the way of demands, whereas from about age 4–6 years much greater conformity to societal mores is expected (Ho, 1986). Based on this information, (Wang, 2001a, 2001b) suggested that children in China may be experiencing a greater "overwriting" of old cognitive structures, and subsequently a potentially greater relative loss of information learned, compared to children in the West. Results from studies of episodic memory thus have great implications for the practice of clinical neuropsychology. At the very least, separate normative samples of individuals of Asian descent are needed. Just as importantly, new assessment measures are needed that capture hereby unidentified strengths in learners from Asia in the specific area of episodic memory.

6.2.3 Social Cognition

Childrearing practices and other developmental influences likely contribute to cultural differences in social behavior. For example, Chinese preschool teachers perceived quietude positively, and as reflective of self-control rather than passivity; therefore, they appreciated silence more than American teachers (Tobin, Wu, &

Davidson, 1989). In Japan, children actually emitted less vocalizations as compared to their North American peers (Minami & McCabe, 1995). Yet, interestingly, despite such culture-based differences in childrearing and social training, there is no evidence that children from China and the USA differ in the age at which they achieve certain social cognitive milestones. To illustrate such similarities, we will consider knowledge of false beliefs, one aspect of theory of mind. Knowledge of false beliefs refers to the understanding that another individual may possess an inaccurate belief; it requires an observer to take another's perspective. The age at which children first show knowledge of false belief is comparable across cultures in China and the USA (Sabbagh, Xu, Carlson, Moses, & Lee, 2006).

This similarity in age of development occurs despite the fact that mental state discourse, which is thought to lead to theory of mind, is not as pervasive in parent–child interactions in China as it is in the USA (Wang, 2001b). For instance, in a sample of 3- and 4-year-old children in China taught to talk about others during storytelling, references to others resulted in a direct improvement in theory of mind at a 1-year follow-up assessment (Lu, Su, & Wang, 2008). In children without such instruction, it may be that the more contextual memories of children in China play some role in theory of mind development, a role fulfilled in the USA by the greater frequency and elaboration of mother-child interactions. Children in China may also benefit from their more refined inhibitory behaviors relative to their American counterparts (Liu, Wellman, Tardif, & Sabbagh, 2008), which theoretically could help differentiate between one's own knowledge/beliefs and knowledge/beliefs possessed by others.

6.2.4 Adaptive Functioning

There is a paucity of literature evaluating cross-cultural differences in adaptive functioning via standardized, well-controlled measures (D'Amato et al., 2005). Wong and colleagues used the Functional Independence Measure for Children (WeeFIM) and compared samples of children in Hong Kong to a normative sample from the USA (Wong, Wong, Chan, & Wong, 2002). In all three domains of the measure, including self-care, mobility, and cognition, children in Hong Kong outperformed their American peers. The authors attributed the developmental lag in the sample from the USA to an earlier age of preschool attendance in Hong Kong, and to the advanced instruction received at such facilities (e.g., in reading, writing, and memorization). This explanation appears valid given that in this study, the USA children tended to catch up to their peers in Hong Kong at approximately 3–4 years of age.

6.2.5 Additional Influences on Culture-Based Differences in Cognitive Development

Factors unique to a child's native language may influence cognitive development. For instance, in an artificial grammar experiment, 8-month-old infants from Japan

and Italy displayed opposite word order preferences, which were consistent with the word order of their respective languages (Gervain, Nespor, Mazuka, Horie, & Mehler, 2008). This suggests a pre-lexical representation of word order in infants, in which the order of function and content words are monitored before speech is even displayed. Thus, representations of language structure already begin to diverge at a very young age. Other language variables that may affect cognition include monolingual versus bilingual status. Monolingual versus bilingual status influences academic achievement and cognitive functioning differently. For example, in a study with Chinese American children, monolinguals exhibited stronger academic achievement than bilinguals, while bilinguals outperformed monolinguals on a coding task (Hsieh & Tori, 1993). Executive control appears to develop earlier in bilingual relative to monolingual children (Bialystok, 2001; Kovacs, 2009) and may in fact be more efficient in young bilingual adults compared to their monolingual peers (Bialystok, Craik, & Ryan, 2006). Thus, research or clinical practice with Asian immigrants in Western countries should take bilingual/monolingual status into consideration when interpreting results.

The impact of societal variables on cognitive development has also been investigated. For instance, Grantham-McGregor et al. (2007) found an association between academic achievement and poverty, which is important because most children who fail to complete primary schooling in developing countries reside in either south Asia or sub-Saharan Africa. The relationship between brain development and poverty is clear (e.g., see D'Amato, Chittooran, & Whitten, 1992) and must be considered as a factor in cross-cultural cognitive development research. So too, Gauvain and Munroe (2009) examined the influence of modernity on 3–9-year-old children from the Garifune community in Belize, the Logoli community in Kenya, the Newar community in Nepal, and the Samoan community in American Samoa. Perhaps not surprisingly, contributions of modernity were most evident on cognitive tasks specifically related to schooling. However, modernity was also highly correlated with overall willingness to explore and with play behaviors. Thus, modernization influences not just academic achievement but fundamental aspects of a child's behavior and worldview.

6.3 Differences in Cognition in Mature Adults

6.3.1 Academic Achievement

Differences in cognitive processing continue to be evident, to varying extents, along the developmental line. Similar to what is observed in children in cross-cultural studies, young adults in Asian cultures generally outperform young adults from North America on simple arithmetic tasks (Geary et al., 1997). This difference is observed even when those individuals of Chinese descent have immigrated to Canada at a very young age or were born in Canada (Campbell & Xue, 2001).

Relatively weaker simple arithmetic performance in individuals of European American descent appears to be due to less efficient retrieval skills and greater use of procedural strategies (Campbell & Xue, 2001).

6.3.2 Cognitive Functioning

Cross-cultural studies of cognition comparing the performance of Asian and Western samples have investigated memory, perception, reasoning, and social cognition. Studies of memory have examined specific component processes including attention, episodic memory, and declarative memory. One of the more consistent findings is the superiority demonstrated by participants from China on tasks of auditory digit span (Chincotta, Hyona, & Underwood, 1997; Stigler, Lee, & Stevenson, 1986), often attributed to the shorter length of digits in Chinese, resulting in a shorter 'hold time' in working memory (e.g., the word-length effect). Studies of attention have found a similar underlying factor structure across cultures (Chan, Wang, Ye, Leung, & Mok, 2008), while there have been occasional differences in performance levels on memory tasks. For example, adults 16–74 years of age from Japan scored higher than a representative sample from the USA on visual recall tasks (Sugishita & Omura, 2001). Further, there was less evidence of an age-related decline in the sample from Japan (Sugishita & Omura). While Sugishita and Omura posited a connection between memorization/use of Chinese characters and robust visual memory, empirical investigation has thus far failed to yield statistically significant differences (Flaherty & Connolly, 1996), perhaps due in part to a lack of control over the modality (i.e., auditory versus visual) in which such information is encoded.

Compared to other aspects of memory, there is more data available concerning culturally-based differences in episodic memory. Much of this research, which can be traced to the work of Wang and colleagues, is associated with similar research in children. For instance, adults in Asia recalled significantly fewer personal events in comparison to adults of European descent across different retention intervals (Wang, 2009). In a similar study, undergraduate students from Japan recalled fewer autobiographical memories than their peers from the USA and Turkey, although the differences were not statistically significant (Rubin, Schrauf, Gulgoz, & Naka, 2007). Of great importance has been Wang's ability to show that her results were not due to differences in rates of forgetting, but rather to differences in encoding. That is, participants of Asian descent not only recalled fewer fictional events, but actually *perceived* fewer discrete episodes than those of European descent when reading a narrative (Wang, 2009). These results have profound implications for how *memory* can be evaluated cross-culturally.

In order to determine how episodic memory skills are culturally influenced, Wang examined the orientation of the self. As noted previously, adults in China with no siblings, who displayed a greater individualistic orientation, recalled earlier childhood memories than adults with siblings (Wang et al., 1998). In another study, Wang and Ross (2005) utilized priming to manipulate the orientation of the self, and

then examined episodic memory performance. They first primed either the "private" or "collectivistic" selves in USA residents of either European or Asian descent, and then subsequently collected their earliest childhood memories. Participants of European descent recalled more discrete events in which they played the central role than did participants who were of Asian descent. However, participants in the collectivistic priming condition were more likely to report social interactions in their earliest memories regardless of their cultural background. Priming was also utilized by Wang (2009) to study the recall of those USA participants of Asian descent whose prominent American sense of self tended to reflect more self-focused memories. To summarize this line or research, Wang suggested that the encoding and recall of discrete events may be more important to the individualistic sense of self, while the emphasis in Asian societies on social roles and context may predispose towards retention of generic knowledge.

In the study of memory, the content of material to be remembered may also affect recall differently across Eastern and Western groups. For instance, in one study examining consumer book review preferences, participants from North America showed greater recall of approach-focused content (e.g., book reviews containing positive information about the text in question) while participants from Japan recalled avoidance-focused information (e.g., book reviews containing negative information about a book) just as well as approach-focused information (Hamamura, Meijer, Heine, Kamaya, & Hori, 2009). Similarly, for participants from the USA, memories of success were more easily recalled than memories of failure, whereas rates of recall did not vary in a group of participants from Japan (Endo & Meijer, 2004). Priming effects, in which later learning and recall is potentiated due to prior stimulus exposure, have also been observed. For instance, when asked to imagine themselves in a tennis match, participants from the USA recalled more details when the match itself was framed as an opportunity for a victory, while participants from Hong Kong had better recall of details when the match was presented as an opportunity to avoid a loss (Aaker & Lee, 2001). These findings are in accord with the Eastern emphasis on avoiding negative outcomes (Ouschan, Boldero, Kashima, Wakimoto, & Kashima, 2007).

6.3.3 Visual Perception

An enlightening area of study in cross-cultural psychology is that of perception. Auditory perception may differ in individuals of Asian descent depending upon the age of immigration to the USA (Seife, 2000). However, results of Seife aside, the wealth of data in cross-cultural studies focuses on visual perception. Much of this research examines how contextual factors affect visual perception. The framed-line test (Kitayama, Duffy, Kawamura, & Larsen, 2003) has been used in several cross-cultural studies of visual perception. On this test, individuals are presented with a square frame, containing a printed vertical line. Next, another square frame is displayed and individuals are asked to draw a line identical to the original line in either

absolute length (the absolute condition) or in proportion to the height of the frame (the relative condition). On this task, participants from Japan were more accurate in the relative condition while participants from the USA were more accurate in the absolute condition (Kitayama et al., 2003). Further, the performance of a group from Japan was more compromised compared to that of a group from the USA when the target stimulus was presented against a novel background (as opposed to its original background) (Masuda & Nisbett, 2001). In an attempt to determine the etiology of these differences in visual perception, Ventura et al. (2008) examined contributing factors to the Framed-Line Test in participants from Portugal and Thailand. Participants were adults who were unschooled and either illiterate or "ex-illiterate" (taught to read outside of formal childhood schooling), or school literate. Participants from Portugal who were literate and schooled were more accurate in the absolute task, while participants from Portugal who were illiterate or ex-illiterate were more accurate in the relative task. At first glance, such data might appear to argue for the effect of formal education on visual perception. However, in the groups from Thailand, all participants performed better on the relative task regardless of literacy. Thus, Ventura et al. suggested that it is not passive exposure to culture that affects the ability to abstract from contextual information, but rather some component of schooling in a Western society. Further, given that participants from Portugal who were unschooled adopted a contextual perceptual style, Ventura and colleagues suggested that a contextual perceptual style might represent the default mode of human processing. Thus, it may be that schooling in the West alters visual perceptual processes by enhancing the ability to focus on detail, at the expense of context.

Moreover, the component sensory processes behind such perceptual differences have also been evaluated via eye fixation data. Such research has found that participants from the USA, in contrast to participants from China, tended to fixate sooner and longer on foreground objects, even when these objects were presented against a novel background (Chua, Boland, & Nisbett, 2005). This suggested a bias to foreground and specific object detail in individuals from the West, while individuals from Asia are more attuned to background and the relationship between objects and their context. Other studies of visual perception have found a culture-based split between global and local processing. For instance, earlier studies of Rorschach Test responses were notable for more whole responses in individuals from East Asia (Abel & Hsu, 1949). More recently, using Navon figures, participants from East Asia showed a strong global advantage compared to participants from the USA, an advantage which was maintained, albeit in a weakened state, in second generation immigrants to the USA from East Asia (McKone et al., 2010). Nisbett has suggested that these findings may reflect a Western tendency to atomize, in which the world is seen as comprised of discrete objects, while individuals from Asian societies tend to view the world as made up of continuous substances. For example, when participants varying in age from less than 2 years to adulthood were shown an object, and then asked to match the object to two comparison objects (e.g., same substance or same shape), the group from the USA was more likely to match the object based on shape and not substance (Imai & Gentner, 1997).

Culturally-based differences in visual perception have also been found in functional neuroimaging and electrophysiological data. Participants from the USA, relative to participants from East Asia, showed greater activity in cortical areas involved in visual perceptual processing when viewing focal objects (Gutchess, Welsh, Boduroglu, & Park, 2006). In an evoked response potential study in the USA, individuals of European descent displayed relatively greater P3 target amplitudes–a measure of attention to target events – whereas participants of East Asian descent displayed relatively greater novelty P3 amplitudes – a measure of attention to contextually deviant events (Lewis, Goto, & Kong, 2008). Of note, these researchers found that the interdependent self-construal mediated the relationship between culture and the novelty P3. This has led to the conclusion that *Western and Eastern perceptual processing styles are uniquely represented in neural function* (Goh & Park, 2009), *and that this relationship is bidirectional* (i.e., culture influences brain functioning and vice versa) (Ketay, Aron, & Hedden, 2009).

Dating back to Luria's work in the Uzbeki culture, studies of reasoning have examined how individuals classify objects. Similar to what Luria found in his Uzbeki subjects, children from China are less likely than children from the USA to categorize objects taxonomically, but instead categorize objects based on their relationship to one another (Chiu, 1972). In contrast, there is a bias toward taxonomy in individuals from the West, a bias which increases during development. For example, when asked to categorize others based on appearance, attractiveness, and material resources, participants from the USA increased the number of categories they used with age, while participants from Asia showed a lower number of categories (Crystal, Watanabe, Weinfurt, & Wu, 1998). These differences in classification tendencies, which may reflect both cultural and language effects (Ji, Zhang, & Nisbett, 2004), may not be as dichotomous in Asian cultures as they are in Western cultures. For instance, in one study, participants from East Asia showed reduction in reaction times when making categorical judgments regardless of whether the priming stimulus was relational or categorical, whereas the Western participants showed priming effects primarily for categorical items (Unsworth, Sears, & Pexman, 2005). Similar results have been shown with cognitive tests such as the Kaufman Assessment Battery for Children – II (D'Amato et al., 2005).

The predominance of dialectical modes of thought in Eastern societies has been investigated. Participants from Asia preferred proverbs containing contradiction, even when these proverbs were translated from a non-Asiatic language (i.e., Yiddish) (Peng & Nisbett, 1999). However, such findings are equivocal and may be explained by proverb content. For instance, Friedman, Chen, and Vaid (2006) used Peng and Nisbett's proverbs as stimuli and found that participants from China and the USA both rated dialectical proverbs as more likable, wise, and poetic, compared to non-dialectical proverbs, but not any more so. It should also be noted that dialectical thinking is not uniquely Eastern (Ho, 2000) and that proverbs and word phrases in English and other European languages do in fact contain contradictions (Furnham, 1987). Thus, the results to date regarding cross-cultural preferences for dialectical modes of thought are equivocal at best.

Other areas of reasoning that have been the subject of study in cross-cultural psychology include attributional style and intuition. Individuals in Asian societies tend to attribute behavior to context while individuals of European descent tend to attribute behavior to the individual. For instance, in one study, adults from India focused primarily on interpersonal context when describing behavior while adults from the USA focused on personality (Shweder & Bourne, 1984). Intuition, on which theories of reference are built, has been examined using the "Gödel" vignette of Kripke (1972). In this study, participants are read a vignette about how an individual named "Gödel," individual (A), is given credit for a discovery made by individual (B). In the descriptivist view, when the name Gödel is used the individual is actually referring to the original discoverer (B), because person (B) is the one who satisfies the description of being the individual who made the discovery. The causal-historical view is that use of individual (B) is a reference to the original bearer of that name. Machery, Mallon, Nichols, and Stich (2004) found that individuals from the West were more likely to report intuitions consistent with a causal-historical view rather than a descriptivist view.

These studies suggest that reasoning in Asian cultures is more contextually-based, descriptive, and potentially tolerant of contradiction, compared to what is observed in non-Asian cultures. Task demands and societal pressures may also contribute to differences in higher-level cognitive processes like reasoning. For example, Kim (2002) found that verbalizing problem-solving strategy aloud actually hampered the problem-solving efforts of participants from Asia or participants who were of Asian descent but residing in the USA, but did not do so in a group of European descent. This task impairment appeared to be due to a lack of internal speech in the participants of Asian descent. Kim's study also highlights cultural beliefs such as the value of silence and introspection in Eastern cultures. Related factors such as deference and conformity may also influence decision making processes differently in Eastern and Western cultures. While deference may be viewed as submissive conformity in Western societies, in Asian societies it is often perceived as tactful and socially appropriate. Thus, when making judgments of line length, 3- and 4-year-old children in the USA who were of Asian descent, were more susceptible to conformity to an incorrect adult consensus relative to their peers who were of European descent (Corriveau & Harris, 2010). These data suggest that subtle and perhaps unintentional cues from an examiner may unduly influence task performance in children of European and Asian descent in a culturally discrepant manner.

6.3.4 Social Cognition

In a social context, basic perceptual patterns may differ cross-culturally. For example, Blais, Jack, Scheepers, Fiset, and Caldara (2008) found cultural differences in face fixation patterns. There may also be cultural differences in the salience given to particular social/emotional stimuli. For instance, participants from Japan were more

susceptible to the influence of prosody (i.e., the more emotional aspects of speech) on the judgment of facial emotions as compared to participants from the Netherlands, but showed less influence of facial expression on judgments of vocal emotional tone (Tanaka et al., 2010). Comparable results were found in another study using a Stroop task, in which words were read in a tone incongruous with word meaning (D'Amato et al., 2005; Ishii, Reyes, & Kitayama, 2003). In the Ishii study, participants from Japan were more influenced by vocal tone than were participants from the USA, while the latter group was more influenced by word meanings.

Social awareness may also differ cross-culturally. In a study by Sanchez-Burks et al. (2003), greater awareness of indirect social cues in conversation and written messages were evident in participants of East Asian relative to European descent. In contrast, the analyses of the participants of European descent were based more on the surface value of the communications, rather than the potentially available implicit meanings. Perspective-taking may yet be another culturally-mediated skill. For example, asked to remember events in which they were the center of attention, those individuals of East Asian descent were more likely to report the event from a third person perspective as compared to those from Western backgrounds (Cohen & Gunz, 2002). In another study, participants from China were more attuned to the perspective of their partner than were a similar cohort from the USA (Wu & Keysar, 2007). Further, in Wu and Keysar's study, participants from China rarely failed to take their partner's perspective into consideration, an error frequently made by participants from the USA. Wu and Keysar emphasize that while members of both cultures are able to effectively distinguish between their own perspective and that of another, cultural patterns of interdependence may afford greater access/use of this skill to individuals from Eastern relative to Western societies. It is also conceivable that use of content- versus context-laden communication styles may influence perspective-taking. Regardless of etiology, this differential has potential implications for the psychotherapy process, suggesting that psychotherapy clients from the West may need greater emphasis on interpersonal skills as part of the psychotherapy process.

6.3.5 Influences Related to Individualism Versus Collectivism

The contributing factors to cross-cultural differences in cognition are multifaceted in nature. One factor that has received particular attention is the difference between a collectivistic and individualistic perspective. Collectivism assumes that individuals are bound by their larger group structure, and are given rights and obligations associated with their standing in a group. In contrast, individualism is defined more by the value placed on personal independence. While not exactly diametrically opposed, these categories are nonetheless often discussed as dichotomies. Given that some of the aforementioned studies find evidence that cultural perspective influences cognition (Aaker & Lee, 2001; Wang & Ross, 2005), it is important to understand how such perspectives may vary across cultures and what specific cognitive factors they may influence. In a meta-analysis by Oyserman, Coon, and Kemmelmeier (2002),

individuals in the USA who were of European descent were found to be more individualistic than collectivistic, although no more so than individuals in the USA who were of African or Hispanic descent. Furthermore, individuals of European descent were not any less collectivistic than individuals from Japan or Korea. Among Asian cultures, only samples from China showed large effects, tending as a group to be more collectivistic and less individualistic. Oyserman et al. (2002) then examined the influence of the collectivistic/individualistic divide on cognitive style, finding that those in individualistic societies tended to display judgment, reasoning, and causal inferencing geared more towards people rather than context. Of course within individual societies, there are other factors to consider when measuring cognition. For example, in a study of urban and rural high school students in Taiwan (Lee, Beckert, & Goodrich, 2010), gender, more so than cultural value identification, differentiated youths in terms of their cognitive autonomy (e.g., evaluative thinking and decision-making skill). Similarly, cognitive test results (Mann, Sasanuma, Sakuma, & Masaki, 1990; Sahai, 1989) and evoked potential studies (Schirmer, Kotz, & Friederici, 2005; Schirmer et al., 2006) have shown that gender may be as important an influence on cognition as orientation of self. These data underscore the need to account for gender in interpretation of assessment results.

6.4 Differences in Cognition in Older Adults

As noted by Chua, Chen, and Park (2006), much of the research on normal and pathological age-associated decline in cognitive ability has been conducted in Western samples. While there is no reason to believe that individuals in Asia do not undergo normal age-related changes in cognition with age, it is not clear if patterns of decline differ across cultures. For instance, Hedden et al. (2002) found an age-associated decline in processing speed and working memory in participants from the East and West. However, in a study of mild cognitive impairment, memory difficulties were more prominent in a sample from the USA whereas in the sample from China, more significant decline was noted within the language domain (Xu et al., 2004).

Park, Nisbett, and Hedden (1999) have theorized that there is a task-dependent tendency for cross-cultural differences in cognitive skills to increase or decrease with age. These authors posit that tasks requiring effortful and controlled processing may decline and show less of a cultural imprint than those which are based on more automatic processes and crystallized knowledge (i.e., accrued knowledge that is more resilient to brain-related pathology). In the latter, such differences may persist even during pathological and normal aging processes in the brain. This theory was examined using discrete samples of younger and older adults from the USA and China (Chua, Chen, & Park, 2006); however, results based on this hypothesis were equivocal. The goal of the aforementioned investigation was to measure recall in the context of binding, the bias to process contextual information. Given the highly contextually based Asian cultures, it was hypothesized that this bias may occur in their sample from China. However, they found similar age-related differences in

binding across cultures. In a study by Hedden et al. (2002), the superiority for auditory digit span observed in a group of younger adults from China (in comparison to their counterparts from the USA) was not observed in older adults. Conversely, Gutchess, Yoon et al. (2006) found cultural differences in cognition that increased with age. In this study, younger and older adults from the USA and China were read two word lists, one containing categorically unrelated words and another containing categorically related words. The sample from China showed predominantly less use of categories when recalling categorically related words, an effect that became more pronounced with age. It is possible that the visual encoding of characters from a pictographic language system contributed to these findings. Regardless, the amount of information recalled did not seem to be affected by information processing style.

While there is no clear, consistent evidence for or against differences in normal age-related cognitive processing in Eastern relative to Western samples, there do appear to be divergent trends in pathological aging. As noted earlier, in a study of mild cognitive impairment, memory difficulties were more prominent in the sample from the USA while language difficulties were more prominent in the sample from China (Xu et al., 2004). Xu et al. also found culture-based differences in progression to dementia. Participants from China were 1.7 times less likely to progress to dementia of the Alzheimer's type in comparison with participants from the USA, but 2.3 times more likely to progress to vascular dementia. This trend has also been observed in Japan as the prevalence of dementia of the Alzheimer's type was lower while the risk for stroke and vascular dementia was greater than in USA populations (Ikeda et al., 2001). These differences were observed despite comparable life expectancies and socioeconomic status (Ikeda et al.). Some have suggested that shorter life expectancies associated with lower socioeconomic status and variation in methodology are responsible for the lower prevalence of dementia of the Alzheimer's type in Eastern relative to Western countries (Suh & Shah, 2001). However, in the study by Xu and colleagues (2004), education levels were lower in the sample from China, a curious finding since education is often negatively correlated with the risk for Alzheimer's disease.

When cross-cultural studies utilize different ethnic groups residing in a single country, sociocultural factors in pathological age-related cognitive decline may be more obvious. For example, in one study within the USA, participants of Japanese descent scored higher than those of African descent, and lower than participants of European descent on a cognitive screening battery assessing such skills as attention, memory, and language, but the differences overall were greater for groups with lower education (Shadlen et al., 2001). Interestingly, after moving to Hawaii, a region in which Western lifestyles predominate, immigrants from Japan showed a sharp rise in the prevalence of dementia of the Alzheimer's type (White et al., 1996). These studies suggest that cultural factors may contribute to pathological aging. Contrary evidence also exists suggesting that genetic factors may be important in determining pathological age-associated cognitive decline. For instance, the tau H2 haplotype, a genetic variation associated with a greater risk for some cortical dementias, is predominantly found in individuals of European descent and rarely found in individuals of Asian descent, whereas the H1 haplotype, a genetic risk factor for progressive supranuclear palsy (Baker et al., 1999), predominates in

individuals of Asian descent (Evans et al., 2004). Conversely, the APOE 4 allele, a genetic risk factor for dementia of the Alzheimer's type, is less commonly found in populations from China and Japan in comparison to the APOE 2 allele, the latter being a possible protective factor for the disorder (Hallman et al., 1991). This may explain in part why dementia associated with Alzheimer's disease is more common among Western, relative to Eastern samples.

Any cross-cultural study of dementia prevalence needs also to consider how dementia-related disease processes are perceived across cultures. In some Asian cultures, the combination of respect for elders and stigmatization of mental illness may prevent caregivers from reporting disorders like dementia to medical providers or even family members (Lin & Fabrega, 1997; Kao & Stuifbergen, 1999). It may be common for close family members to minimize or deny potentially significant pathology in other family members. Thus, when Chow et al. (2002) found that presenting family members displayed less severe stages of dementia in the USA than did those in Hong Kong and Taiwan, factors such as illness knowledge and stigma were posited as contributing factors. Additionally, the knowledge a culture or society may have about a specific disorder may influence help seeking behavior. For instance, in the USA, groups from Asia and other ethnic minorities may simply possess less knowledge about dementia relative to individuals of European descent (Ayalon & Arean, 2004).

6.5 Influence of Acculturation, Language, and Related Factors on Test Performance

Normative data has been collected in groups from Asia and within the USA in individuals of Asian descent using standardized neuropsychological assessment measures published in the USA and Europe. Some specific skills such as simple processing speed appear comparable across ethnicities/cultures (O'Bryant, Humphreys, Bauer, McCaffrey, & Hilsabeck, 2007). Normative studies have also shown that variables associated with cognitive performance tend to be similar across cultures. Cognitive skills such as category fluency (Chan & Poon, 1999), overall language ability (Hua, Chang, & Chen, 1997), and mental status (Ishizaki et al., 1998) often decline with age, comparable to what is found in studies of individuals of European descent. Lee, Yuen, and Chan (2002) found age, gender, and education effects on measures of fluency, attention, and memory in a sample of younger and older Hong Kong Chinese participants. Lin, Chan, Zheng, Yang, and Wang (2007) studied healthy elderly from China, divided into a 60–70 year-old age cohort, and a group 70 years of age and older, and found greater education than age effects.

Yet, despite cross-cultural similarities in the factors associated with cognition, the validity of using actual raw test data across cultures is still highly questionable. For example, significant discrepancies in performance were noted across cultures on the Trail Making Test, even when age and education were controlled for (Fernandez & Marcopulos, 2008). In fact, in a study of normative responses to

naming specificity (i.e., the degree of detail elicited for object labels) utilizing adults from the USA and China, age differences were much less important than cultural factors (Yoon, Feinberg, & Gutchess, 2006). These studies suggest that while there are some universal factors associated with cognitive ability such as age and education, the ability to directly compare cognitive skill levels across cultures is questionable. In some instances, the magnitude of such differences may preclude the use of some neuropsychological assessment measures until culture-specific normative data is developed.

Of great current interest is the influence of acculturation, language, and related factors on cognitive performance in American immigrants and ethnic minorities residing in the USA. To evaluate the influence of such factors on cognition, Boone, Victor, Wen, Razani, and Ponton (2007) compared a group of adults who were of European descent to an ethnically diverse sample who were of African, Hispanic, and Asian descent. The ethnically mixed sample received significantly higher scores on measures of language, attention, and visual spatial skills when English was learned as a first language or concurrently with another language, as compared to when it was learned as a second language. However, researchers found similar conclusions with other language-related and sociocultural factors (see Razani, Burciaga et al., 2007; Razani, Murcia, Tabares and Wong 2007). In one study, an abbreviated intellectual assessment battery was administered to fluent English-speaking individuals who were of Hispanic, Asian, and Middle-Eastern descent, and scores were compared to a group of monolingual English speaking Anglo-American adults. The monolingual group outperformed the ethnically diverse group on verbal but not nonverbal subtests due to factors including acculturation, the degree to which English was used, and years of education obtained outside the USA. In contrast, no differences were observed between those ethnically diverse individuals who spoke English as a second language and those who learned English as their first language. Further associations were found between test performance and years of education in the USA, numbers of years residing in the USA, and the age at which conversational English was first learned. These results emphasize the greater importance acculturation factors have on task performance relative to variables such as language fluency. In another study by the same group (Razani, Burciaga et al., 2007), cognitive differences between fluent English speaking ethnically diverse individuals of Hispanic, Asian, or Middle-Eastern descent, and monolingual English speaking Anglo-Americans, were examined. The monolingual Anglo-Americans outperformed the ethnically diverse group on Part B of the Trail Making Test, Part B and C of the Stroop test, and on the 18 s delay condition of the Auditory Consonant Trigrams test. These results would appear to contradict reports of better developed executive functioning skills in bilingual relative to monolingual young adults (Bialystok et al., 2006). However, in such reports, acculturation levels were either omitted or described in only a cursory fashion. In contrast, in the report by Razani and colleagues, numerous acculturation variables were associated with neuropsychological test performance, including the score on a standardized acculturation scale, the amount of time educated outside the USA, and the amount of English spoken when growing up. At the very least, the work by Razani and colleagues suggests that

language fluency should not be used as a proxy for other acculturation variables. That is, clinical neuropsychological assessment may be invalid if measures of acculturation and education history are not taken into account (D'Amato et al., 2005).

These findings suggest that acculturation and related variables are performance moderators which are often ignored in studies of cognition in Asian Americans, although these factors may play a key role in performance. To illustrate, in the Hawaii Family Study of Cognition, there was a significant increase in cognitive task performance in the offspring of individuals of Japanese ancestry compared to their parents (Nagoshi & Johnson, 1993). This increase was posited to reflect improved educational opportunities, one potential consequence of acculturation. Complicating matters further are the differences across specific Asian cultures. For instance, Han (2008) studied over 14,000 children in the USA from various regions in the world. Overall findings were that children from East Asia and India showed higher reading and math scores than children of European descent, a difference that narrowed over time. However, in children from China, Japan, Korea, Malaysia, Indonesia, the Philippines, and India, child and family background factors, rather than school factors were important in the determination of their academic progress. However, for children from Vietnam, Thailand, Cambodia, and Laos, school-level factors were more influential. The authors theorized that such differences may be direct reflections of socioeconomic status, and more specifically poverty, as children from the latter group of geographic regions may not have the resources in the home available to those children in the former group. Therefore the ability to render conclusions regarding critical factors in the academic and cognitive performance of "Asian Americans" is limited to the extent that such an overarching term is appropriate for all individuals from such distinctly different cultural backgrounds.

6.6 Conclusions

A broad comparison between Asian and Western cultures including styles of cognition contains many inconsistencies, but some clear patterns do emerge. Levels of academic achievement may vary across cultures, depending upon the skill being assessed and the age at which children are evaluated. When cross-cultural differences exist, they are most commonly observed in arithmetic in which children of Asian descent outperform their peers from the West. It is not clear what, if any, differences exist cross-culturally in specific cognitive abilities in childhood given inconsistencies in methods and results. At present, it seems that episodic autobiographical memory is more elaborative in children from Western societies relative to Eastern societies. While the paths taken toward social competence vary cross-culturally, based on available data, there is no evidence that social skills are any stronger or weaker in Asian or Western cultures. A clearer picture emerges in adulthood. In adults, there appear to be cultural differences in cognitive processes, if not necessarily in the level of cognitive performance. These differences are most obvious in visual perception and reasoning. Visual perception is more global and more

dependent on context in Eastern relative to Western samples. Some may see this difference as simultaneous versus sequential processing or predominantly right-hemisphere-mediated processing versus predominantly left-hemisphere-mediated processing, which early on was mentioned by Luria (see Reynolds & French, 2005). Unfortunately, there are few studies that examine the potential impact a pictographic language has on cognitive processing, although the current results suggest that any potential impact might be secondary to the role that context versus content has on cognition. Further, higher order reasoning skills diverge. Individuals of Eastern descent veer more toward contextual-based modes of classification and attribution, whereas individuals from Western societies seem more taxonomic, person-centered, and focal in their reasoning processes. These cognitive discrepancies appear to manifest themselves in social cognition, in which some experimental studies show a greater availability and accessibility to perspective taking, and a deeper emotional processing in Asian relative to Western samples. However, there is no definitive evidence of any deficit or lack of specific social skills in Western samples. So too, cross-cultural studies appear to show a greater influence of culture and ethnicity in pathological aging as opposed to normal aging processes although in this area much more research is needed. While it would be helpful to recommend a specific neuropsychological battery or a specific set of core cognitive skills needing assessment in samples of individuals from Asia, limitations in the availability of normative clinical data precludes such an clear recommendation.

Taken together, there is obvious evidence of culture-based discrepancies in cognition between samples of individuals from Asia and the West. The etiology behind such differences may vary with age and the skill being measured. It seems reasonable to assume that differences in childhood academic performance are closely associated with societal mores and educational opportunities. On the other hand, studies of mature adults appear to suggest that one's worldview may influence a host of cognitive skills, from language to perception to higher reasoning. The potential influence of neurobiological and genetic factors appears most likely in pathological aging. However, important caveats must be heeded. As more data are accumulated, this current summary may appear to be somewhat oversimplified. Also, greater use of structural and functional neuroimaging is needed and may lead to increased insight into potential biological differences/similarities cross cultures. Similarly, increased awareness of methodological confounds, more specific examination of individual geographic regions and corresponding cultures, and a greater emphasis on acculturation, may bridge the gap between our assumptions and what is truly the case for cultural differences in cognition. Regardless of the etiology of such differences, the implications for both clinical and academic work in the field of neuropsychology are enormous. It is increasingly obvious that the use of normative data from participants who are predominantly White and from Western societies must not be used in the assessment of individuals of Asian descent without specific precautions. As a first step, acculturation measures may need to be part of every neuropsychological test battery. Next, whether the approach taken is one of altering test stimuli, excluding tests that may produce obviously divergent results in different cultural groups, or utilizing more culture-specific normative data, changes are needed.

Other factors needing consideration include priming, which has been found to modify a diverse array of thought processes and may directly influence test results. Regardless of the approach taken, it is clear that in order to keep pace with current population trends, clinical and experimental neuropsychology will need to accommodate the data emerging from the study of individuals in Asia and Asian Americans.

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Chapter 7
Understanding the Neuroscience of Clients with Asian Heritage

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Abstract Clinical neuroscience involves the assessment of emotional and cognitive processing, and its relation to the brain. Results are interpreted as a gauge of neurological integrity. Understanding differences in neuroscience functioning due to cultural and linguistic factors is necessary for accurate interpretation of neuropsychological data. This chapter will provide a primer on research techniques in neuroscience and discussion of results from findings of fMRI studies, including functional neuroanatomy and the impact of bilinguialism.

A new area of inquiry is that of cultural neuroscience. Cultural neuroscience has been defined as a combination of cultural psychology and neuroscience (Fiske, 2009; Han & Northoff, 2008). Cultural psychology generally uses an ethnographic approach while neuroscience utilizes technology to study discrete neural processes (Ames & Fiske, 2010). Cultural neuroscience suggests that culture changes neural networks as the child develops and includes areas such as language, spatial reasoning, emotion regulation, and social norms (Chiao, 2010). Understanding the biological underpinnings of culture is an important step in examining how the brain changes with experience and how it can vary based on different cultures and the cultural norms. Since this is an emerging field, there is not the wealth of information present in other areas and even less information understanding the neuroscience of Asian-Americans or those from an Asian background.

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The purpose of this chapter is to examine the research in cultural neuroscience in the various areas of culture. Included in this discussion is an overview of how culture and the development of neural networks may influence each other. It is likely that there is a transactional influence with culture influencing how different neural systems develop as well as the impact neural systems have on learning and development. The first section of this chapter will review the layers of culture and the influence culture has on brain development in Asian Americans and those of Asian descent. The second section will review the plasticity of the brain; namely how culture changes brain processing in the areas of arithmetic, spatial cognition, attention, self and other perception, and emotion and emotional regulation. Finally, we will discuss the neuroimaging findings as to differences in brain activation when solving problems in people from an Asian background. We are hoping to not only discuss the relevant research but also to map out new areas for additional research.

7.1 Cultural Neuroscience

The ability to understand the relation of culture and brain functioning is a recent phenomenon. Historically social factors were discounted as integral to brain development, structure, or neural networks (Zhou & Cacioppo, 2010). It was believed that brains develop similarly across cultures and geographical regions (Cacioppo, 2002). The fallacy of this assumption has led many researchers to believe that neural networks are similar independent of the social system in which the person lives. With the advent of neuroimaging it is now possible to evaluate this assumption and as can be seen in a later section of this chapter, there are real differences in brain activation.

Humans live in a social organization that is flexible and is organized around shared norms and contexts as well as genetic similarity (Cacioppo & Patrick, 2008). Such shared norms and contexts are known as the culture of a group. Culture has been defined as representations of worldviews and theories of the world that are shared across peoples and embodied in the institutions of the area as well as the practices and shared experiences that are present (Adams & Markus, 2004). Roepstorff, Niewohner, and Beck (2010) suggest that patterns of practice more fully describes what a culture entails than the sole word ‘culture’. In their model these patterns of practice are shaped by neural networks, belief systems, and cultural norms which in turn shape the patterns of practice. This transactional relationship is a dynamic relationship that changes with cultural patterns as well as with changes to sociological systems.

There are accepted ideas in cultural psychology that the patterns and ideas of a culture shape how behavior and thoughts are expressed within a group of people. Language is one aspect that has been studied and found to influence the experience and response to an environment (Ames & Fiske, 2010). Another aspect that has been studied is the mother-child bond. Scheper-Hughes (1992) found that women in Brazil did not bond with newborn infants as would be expected from Western culture. She linked this lack of a bond to the very high infant mortality rate and interpreted this finding as an adaptation to frequent losses of babies. Prior to this the

mother-infant attachment had been hypothesized to be a biologically determined train; Scheper-Hughes demonstrated that this attachment was biologically enabled and differed depending on culture. Similarly, Ng, Han, Mao, and Lai (2010) suggest that understanding of others and of oneself is shaped by culture particularly in social connectedness. Western participants were found to show increased brain activation when presented with pictures from their relationships compared to culturally laden pictures. In contrast, Chinese participants showed decreased activation to the personal pictures as well as the culturally-laden pictures. Such findings suggest that culture and affect brain activation as well as neural processing of information.

There are several areas that culture appears to particularly affect neural network formation. These are the explicit values in a culture, shared scripts, implicit psychological and neural tendencies shared across a culture, behavioral responses, and cultural and biological adaptation. Explicit values are those that are generally held beliefs and values within a culture. Examples of these explicit values are the independence and free will that are prized by Western cultures while Eastern cultures prize interdependence and fate (Kitayama & Park, 2010; Park & Huang, 2010). Shared scripts are conventions, routines and how to act in certain contexts that are accepted within a culture. In this case these cultural tasks form the self-identity of a culture. Similar to the independence prized by Western cultures are behaviors that can be construed as aggressive, argumentative, values of human rights of individuals and others. In contrast, Kitayama and Park (2010) list the values of social harmony, respect for elders, mutual understanding, and social consensus as part of the Eastern cultures. These explicit values and shared scripts shape how children are raised, what is valued and taught to children as the brain develops, as well as what is acceptable behavior. In turn, these teachings are laid down in neural networks and the networks will vary with the culture due to cultural patterning (Kitayama, Duffy, & Uchida, 2006).

Kitayama and Park (2010) suggest that exposure to a culture in infancy and childhood modifies and encourages certain types of neural networks and pathways. Experiencing and practicing behaviors and values inherent in a culture reinforce neural connections and the more times the infant and child experience this input, the network becomes more firmly established. As the culturally patterned neural networks are established and reinforced, the child becomes better able to navigate through the culture automatically knowing what is expected and how to perform. It is suggested that because these acts are spontaneous and automatic, the individual perceives them as internally motivated and as part of their own identity (Ryan & Deci, 2006). Such cultural neural patterning has been found to effect differences in brain activation between different cultures that are now able to be captured using Magnetic Resonance Imaging (MRI) technology.

7.2 The Influence of Culture on Psychological Processes

A question that has been recently explored is what areas of brain function may be influenced by a culture or pattern of practices. Some of the areas that appear to differ between Asians and Westerners include the information selected for attention,

perception, arithmetic, self knowledge, emotions, and perception of others. These have been studied both behaviorally and with functional MRI (fMRI). This section will describe the behavioral differences found between Asian and Western cultures with the following section discussing findings from fMRI.

7.2.1 Perception

Behavioral studies suggest that Chinese and Westerners use different perceptual styles to solve a visual task or to understand a visual scene (Ames & Fiske, 2010). Some have found that Chinese focus on the context and the backgrounds of pictures while Westerners focus on the objects without regard to the context (Chua, Boland, & Nisbett, 2005). This behavioral finding has been verified using fMRI. American participants showed stronger and more widespread neural activations compared to Chinese participants particularly in areas important for encoding word retrieval (middle temporal gyrus), spatial information (temporal/supramarginal gyrus), and object locations (superior parietal lobe) (Gutchess, Welsh, Boduroglu, & Park, 2006). Similarly Goh, Chee, and Tan (2007) found these brain activation differences were more pronounced for older adults compared to younger participants. This finding suggests more practice and more years of cultural immersion related to differences in brain activation patterns. Further studies have confirmed the findings that there are different perceptual styles that are related to cultural factors more than to developmental, neurobiological, or genetic factors (Lin, Lin, & Han, 2008).

Perception of facial stimuli has also been found to differ among Chinese and East Asians and Westerners. Blais, Jack, Scheepers, Fiset, and Caldara (2008) found that East Asians tended to focus on the central region of the face compared to Westerners who focused more broadly including both eyes and mouth. The authors suggest that part of these differences may be the reluctance of people of East Asian descent to establish eye contact. Similarly, with a different group of participants, it was found that East Asians were less successful at identifying fear compared to disgust partly due to a limited scanning of the face compared to Americans (Jack, Blais, Scheepers, Schyns, & Caldara, 2009). From this data it is possible to conclude that due to eye movement differences between Westerners and East Asian/Chinese participants, interpretation of facial expressions differs between the cultures as well as the likelihood that these different cultures may interpret complex visual stimuli differently. These findings are intriguing as they suggest that not only do cultures differ in how they understand objects and space, but they may also differ greatly in how they understand important facial expressions.

7.2.2 Attention

There have been far fewer studies on attentional differences between cultures. To study possible attentional differences, studies have tested East Asian/Chinese

and Westerners on tasks which are culturally non-preferred. The East Asian/Chinese group would be asked to use context-independent visual processing while the Westerners would use global, context-dependent processing. In order to accomplish this task the East Asians utilized prefrontal and parietal lobe attentional systems more when asked to process in culturally non-preferred manner compared to a culturally preferred manner. Similarly, Westerners used the opposite pattern (Hedden, Ketay, Aron, Rose Markus, & Gabrieli, 2008). Thus, as a task becomes less automatic and practiced (the culturally non-preferred manner of processing) more networks are required in order to process the information and it becomes more effortful (Milham, Banich, Claus, & Cohen, 2003).

The issue of whether these differences are present in early childhood or if they develop with exposure was explored in a study of attention in North American and Japanese children (Duffy, Toriyama, Itakura, & Kitayama, 2009). This study compared children aged 4–8 to children 9–13 from Japan and the U.S. on a task requiring focused attention to objects. As discussed above, Westerners use a focused attention strategy that evaluates the focal features of objects while Asians use a more divided attention strategy between the objects and the context. Children older than 6 years of age were found to show the expected cultural difference in attention in both groups. In contrast, no differences in attention was found for children younger than 6 between the two groups. The authors suggest that beginning of school at ages 5–7 fosters the development of cultural strategies for attention. These findings further suggest plasticity in neural connections that respond to enculturation particularly when instruction is provided during key developmental stages.

7.2.3 Arithmetic

Numbers and the relation between number concepts is an important area for cultures particularly for economic development and monetary advancement. Cultures have been found to differ in how numbers are understood. In East Asian countries the traditional approach has been the use of the abacus which continues to be taught in elementary schools in many countries (Kitayama & Park, 2010). It has been theorized the adept users of the abacus form a mental representation of it which is likely based on representing numbers spatially in terms of the locations of specific beads on the mental abacus (Hatano, Amaiwa, & Shimizu, 1987). If this is accurate then areas of the brain associated with spatial processing (parietal lobe) would be more activated. A study of Japanese participants with expertise in abacus compared to novices found differential brain activation when asked to image the use of an abacus to solve an arithmetic problem (Hanakawa, Honda, Okada, Fukuyama, & Shibasaki, 2003). The novices showed activation in the motor cortices as well as the left parietal lobe. In contrast, the experts showed bilateral parietal activation which increased with difficulty of the mental computation.

A study comparing Westerners and Eastern Chinese on arithmetic tasks using Arabic numerals found activation in the left perisylvian cortex for mental calculation in the Westerners (Tang, Zhang, & Chen, 2006). The Eastern Chinese

participants activated the premotor association area of the frontal lobe. The authors concluded that while the stimuli is similar for both groups, different neural networks were activated to solve the problem with the only group difference being culture. To further investigate why these differences are present, Lee et al. (2007) evaluated two methodological approaches to mathematical instruction in Singapore. The model method teaches children to represent word problems by using a diagram while the symbol method teaches transforming word problems into equations. Increased brain activation was found in the precuneus and superior parietal lobes bilaterally for the symbol method suggesting more attentional resources are needed for this type of arithmetic approach. Earlier findings from the abacus studies indicate improvement after use of the abacus in visuospatial tasks but increased vulnerability to distraction and attentional difficulties (Hatano et al., 1987).

7.2.4 Language

Findings have linked differential perceptual processing in infancy to the language of the culture in which they are born (Kuhl, Williams, Lacerda, Stevens, & Lindblom, 1992; Naatanen, Lehtokoski, & Lennes, 1997). Areas for language that are consistent across cultures include the inferior frontal gyrus and left superior/posterior temporal gyrus (Bolger, Perfetti, & Schneider, 2005). In contrast, brain activation differences were found for Chinese with activation of the inferior parietal lobe when reading Chinese characters (Tan, Laird, Li, & Fox, 2005) while English speakers activated the superior temporal gyrus when reading English words (Bolger et al., 2005). While these differences may be due in part to cultural effects, the form of the language is also likely responsible for some of these differences. Reading English requires translating forms to sounds while Chinese requires association between visual stimuli and meaning (Siok, Perfetti, Jin, & Tan, 2004). The difficulty found in learning these systems and the existence of learning disabilities appears to be independent of the orthographies present (Tzeng, 2007). There are few studies documenting what differences may be present in brain activation in children with LD who are Chinese compared to children with LD who are Westerners. Such findings would be interesting to evaluate whether different neural networks underlie such learning problems.

7.2.5 Independence and Interdependence

Several studies have found that Western and Eastern subjects activate the anterior cingulate and ventromedial prefrontal cortex when thinking about the self compared to others (Kelley et al., 2002; Zhang et al., 2006). A difference across these cultures was hypothesized given the emphasis on individuality in Western cultures and of interdependent in Eastern cultures. Similar findings on fMRI were present between

the cultures when thinking about the self (Ng et al., 2010; Zhu, Zhang, Fan, & Han, 2007). In contrast when thinking about one's mother differences arose with increased activation in the ventromedial prefrontal cortex only for the Chinese participants. These brain activation differences were interpreted to support the Eastern view that people who are close to one are part of one while the Western view separates the self from others no matter the relationship. These brain activations have been found to change depending on background. Bicultural participants who are primed to think in an individualistic mindset show activation similar to Westerners and when primed as an Eastern participant show activation similar to Chinese participants (Chiao, 2010). These findings suggest that cultural influences on how one sees oneself in relation to others make differences in brain activation patterns.

The nature of interdependent vs. independent understanding of self and others has been further studied to evaluate whether there are similarities in attribution of why a person is acting the way they are. A study presented European Americans and Asian Americans with photos of faces and a simple behavior (Na & Kitayama, 2009; reported in Kitayama & Park, 2010). Training was then provided that provided a trait to the pictures that was either congruent with the picture (happy face, happy word) or incongruent (happy face, action that is unfavorable). For those trials congruent reaction time was shorter for European Americans but not for Asian Americans. These findings were interpreted to mean that European Americans rely more on the context of the stimuli and ascribe an attribution to the behavior while Asian Americans rely more on what is presented and use less attribution of behavior. These findings are interpreted to support the idea that cultures may stress interdependence or independence as part of the interpretation of another person's behavior.

In Western cultures the individual is the main social perception while for Asians and Asian Americans the context is paramount (Kitayama & Park, 2010). Additional study of this phenomenon was accomplished with event related potentials. When a background scene is presented which is incongruent with the foreground, Asian Americans showed a more pronounced response compared to European Americans (Goto, Ando, Huang, Yee, & Lewis, 2013). These findings are interpreted to suggest that Asians and Asian Americans are more sensitive to the context of what is pictured than to the sole individual.

A related finding is the comparison of personal desires and needs juxtaposed with society's needs. One area that has been studied has been achievement motivation. In Asian countries it has been suggested that achievement is seen as a social obligation to society as well as to personal relatives (Yu & Yang, 1994). Differences are also present in intrinsic motivation where European American children have been found to prefer chosen tasks while Asian American children were more motivated by maternally chosen tasks (Iyengar & Lepper, 1999). Kitayama and Park (2010) hypothesized that when choices are public for Asians they become more important while for European Americans private choices are more important. This hypothesis is based on the interdependence/independence model. For European Americans choices that are personal and private are seen as more emotionally laden while for Asian Americans is the public choice that most threatens the sense of self. They further suggest that with continued exposure to cultural norms for these

decisions, the cues will become over learned; thus strengthening the underlying neural connections. An event-related potential (ERP) study provides some support for this hypothesis. Public decisions increased the waveform sensitive to motivational significance (the error-related negativity (ERN)) for Asians for a public decision while for European Americans it was decreased. Even more important a behavioral measure of interdependence/dependence replicated these findings. Those participants with high interdependence scores on a behavioral rating scale also showed higher ERNs for public decision making.

These findings are consistent with the previously discussed research that suggests differences between the cultures in the relation of the individual to others. Such differences appear to be present not only behaviorally but also neurally. Differences in interpretation of behaviors and attribution of intent vary between European Americans and Asian Americans – such differences likely translate into differing responses to situations and contexts that are linked to variations in neural structures. Such neural network differences will be discussed later in the neuroimaging section of this chapter.

7.2.6 Emotion and Emotion Regulation

Research in the cultural differences of emotion, emotion expression, and emotion regulation is scarce. Behavioral evidence indicates that cultures differ in terms of independence and interdependence (see above). Independent emotions have been characterized as anger, frustration, and self-esteem (referred to as socially disengaging emotions). Interdependent emotions are characterized as socially engaging emotions and include respect, guilt/shame, and friendliness (Kitayama & Park, 2010). Along with these socially engaging emotions is the need for interpersonal harmony frequently seen in the Japanese culture (Uchida & Kitayama, 2009). Some have suggested that the experience of emotion will differ based on the subjective interpretation of the feelings (Damasio, 1994). To date there are no neuroimaging studies that have evaluated whether the experience of emotion differs across countries.

What studies that have been conducted evaluate the structures involved with regulation of emotions and are mostly conducted with European American participants. These structures include the lateral and medial prefrontal regions (or dorsolateral regions) (Ochsner, Bunge, Gross, & Gabrieli, 2002) as well as the cingulate cortex and amygdala (Ochsner & Gross, 2005). It has been suggested that the dorsolateral prefrontal cortex is important for sustained control of thoughts and memories while the amygdala's role is more pronounced for short-term control of thoughts (Ames & Fiske, 2010).

The dorsolateral prefrontal cortex and the amygdala would be interesting structures to evaluate in regard to emotional regulation differences between cultures. Behavioral self-reports indicate that Asians suppress their feelings more than European Americans (Matsumoto et al., 2008). It is hypothesized that such ability to

suppress feelings may be linked to good emotional regulation in people from Asian descent (Kitayama & Park, 2010). It has also been hypothesized, from a study of Russian participants, that suppression of emotion may increase one's ability to see a problem/situation from a third person perspective (Grossmann & Kross, in press). There is emerging support from fMRI studies that European Americans show strong amygdalar activation when asked to suppress emotions (Goldin, McRae, Ramel, & Gross, 2008). Another study found that Japanese female participants could significantly decrease amygdalar activation when required which also resulted in an increase in autonomic arousal using a PET procedure measuring regional blood flow (Ohira et al., 2006). This study did not include European American subjects so it is unknown whether a similar finding would be present for that population. Further study is needed in these areas particularly in our ability to understand how emotional regulation and behavioral inhibition may differ across cultures.

7.2.7 Conclusion

The areas of language, language, interpersonal perception, emotion, emotional regulation, and arithmetic are areas that appear to be strongly influenced by culture both behaviorally and neutrally. It is important to more fully understand what differences there are in neural networks and pathways that may assist in understanding these variations among cultures. While some of this literature is discussed above, there are emerging findings from structural and functional neuroimaging that sheds light on what we know about these differences as well as the direction of future work.

7.3 Structural and Functional MRI

Neuroimaging techniques provide a way to measure the relationship between behaviors/symptoms and underlying brain morphology and brain functioning. Structural magnetic resonance imaging (MRI) techniques are used to measure the volume or area of a brain structure or region. While MRI techniques provide information about the volume of a brain structure/region, they do not imply, by themselves, information about the functioning of the structure/region or implications for behavior. There are many reasons why this is true. A surplus of cerebral white matter may indicate stronger neural connections/integrity between brain structures and regions, or may indicate a lack of synaptic pruning and a less efficient pathway such as in Autism (Courchesne et al., 2001). The same is true for gray matter; thinning of the cortical mantle may predict disease such as Alzhiemer's Disease (Kuperberg et al., 2003), whereas thickening of cortical gray matter has been observed in adolescents with Autism (Brieber et al., 2007). Thus, it is difficult to predict the functional importance of gray or white matter volume without also including behavioral measurements.

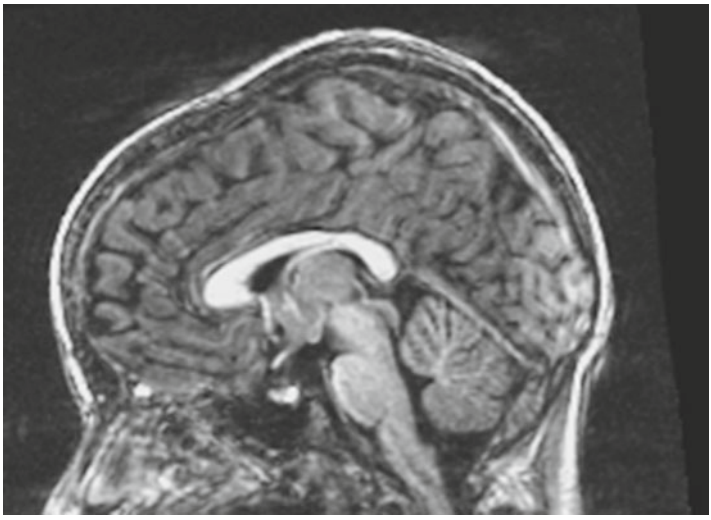

Fig. 7.1 Example of an anatomical and structural MRI of a child

Functional MRI (fMRI) allows for the measurement of regional blood flow that is thought to indicate neural activity during a behavioral task. This builds upon the limitations of MRI by allowing researchers to determine where in the brain and how much of the brain is used to process a cognitive task (e.g., retaining a set of numbers over multiple trails, sustaining attention, viewing social scenes and vignettes). fMRI techniques provide direct study of brain-behavior relationships in vivo and so are used widely in a diversity of research labs and projects around the world. Similarly Diffusion Tensor Imaging (DTI) allows for the visualizing of white matter tracts throughout the brain. While MRI and fMRI methods have been around since the late 1970s their use in social neuroscience research began only in the last decade. Figure 7.1 shows a structural MRI, Fig. 7.2 provides a fMRI example, and Fig. 7.3 shows a DTI map.

7.3.1 Structural MRI and Ethnicity

Relatively few studies have attempted to compare brain structural differences between different ethnicities. Given the genetic and environmental factors which can contribute to differences in brain structure and function, it is unfortunate so little is known. Past and current work indicated differences in overall brain volume, brain shape and size between Chinese and Caucasian populations (Chee, Zheng, Goh, & Park, 2010; Kochunov et al., 2003) as well as Japanese and European populations (Hedden et al., 2008; Zilles, Kawashima, Dabringhaus, Fakuda, & Schormann, 2001).

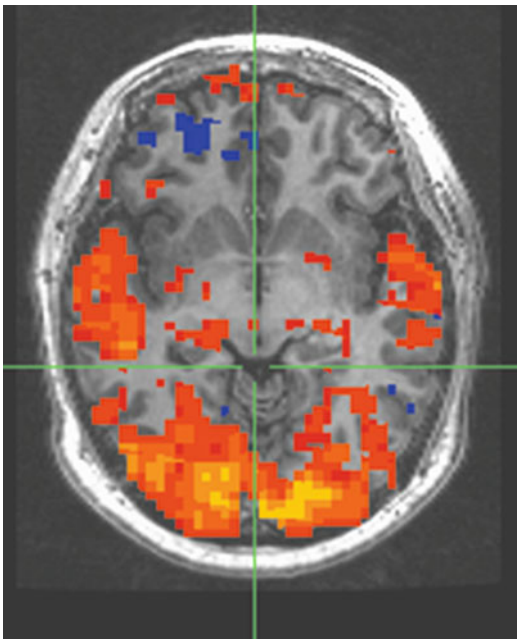

Fig. 7.2 Example of an fMRI map of a child watching a video of social interactions. *Orange* areas signify higher activation while *blue* areas show hypoactivation

Fig. 7.3 Example of DTI

Most anatomical studies utilize brain coordinate systems for comparing groups of participants based on the postmortem brain of a 60 year-old French female, making it difficult to compare brain morphology in different ethnicities (Talairach & Tournoux, 1988). In order to provide a more accurate way to account for potential cultural differences in brain morphology, Tang et al. (2010) developed the first Chinese MRI brain atlas to study brain volumetric differences between a population of Chinese and Caucasian males. Results indicated significant differences in length, width, height, and distance between the anterior commissure and the posterior commissure between Chinese and Caucasian participants. They reported greater anatomical volume (e.g., middle orbitofrontal gyrus, gyrus rectus, left superior parietal gyrus, superior temporal gyrus, inferior temporal gyrus, putamen, left cingulate gyrus, lingual gyrus, left parahippocampal gyrus) in Chinese compared to Caucasian, but reduced volume in many other regions (e.g., right superior frontal gyrus, right precentral gyrus, lateral orbital gyrus, right post central gyrus, right superior parietal gyrus, right angular gyrus, precuneus, occipital, middle insular cortex, and caudate) in Chinese compared to Caucasian participants. Lastly, hemispheric differences in language processing have been found between Eastern and Western populations, supporting previous findings (Kuo et al., 2001, 2003).

Results from these studies suggest many brain morphometric differences between Chinese and Caucasian populations and underscores the need for ethnicity-specific data analysis procedures. Failure to use population-specific brain atlases and coordinate systems may yield inaccurate morphological estimations in neuroimaging studies. Further research is needed in order to better understand phenotypic differences (e.g., age, gender, ethnicity, disease status, etc.) in brain morphology in order to increase the accuracy of volumetric analyses. The cause of the structural differences is unknown and requires further study. Continued work should attempt to understand if structural differences are related to functional differences and to what extent the environment and/or genetics influence the development of differential brain trajectories.

7.3.2 Functional MRI and Ethnicity

The majority of neuroimaging research in the new field of social neuroscience has implemented functional MRI techniques to study transcultural and ethnic differences in brain functioning. It is clear from this work that cultural background and ethnicity directly influence one's attention, language processing, emotional, and overall cognitive functioning. In addition, several studies have found cognitive perceptual differences to be moderated differently based one's ethnicity.

Studies focusing on the ventral visual cortex (VVC) hypothesized differential functional activation to individual objects (e.g., picture of an elephant), individual background scenes (e.g., picture of a landscape with no elephant), and background scenes with an individual object between an East Asian group and an American

group (Gutchess et al., 2006). As hypothesized, the American group demonstrated increased activation to individual objects in the bilateral middle temporal gyrus, left superior parietal and angular gyrus, and right superior temporal gyrus compared to the East Asian group. The authors concluded that increased activation by the American group compared to the East Asian group is in line with individualistic-collectivistic cultural theories (Miyamoto, Nisbett, & Masuda, 2006; Nisbett & Masuda, 2003). Other regions in the VVC, the fusiform face area (FFA) and the parahippocampal place are (PPA), have been found to selectively activate to the presence of faces (Mishkin, Ungerleider, & Macko, 1983) and to outdoor and indoor pictures (Epstein, Graham, & Downing, 2003). The specialization of these cortical regions has since been used to compare environmental effects on brain functioning between cultural and ethnic groups.

In a study similar to that of Gutchess et al. (2006), Goh et al. (2007) utilized a sample from Singapore and the United States and divided their samples by age (i.e., younger and older groups). They sought to determine if ethnicity and/or age moderated the neural response to background scenes and objects. No differences in PPA activation to background scenes was observed between ethnicity or age, although there was an Age X Culture interaction in that the older group from the United States tended to process objects less efficiently than the older group from Singapore. This suggests that age-related declines in object processing may be moderated by culture and environmental variables. In another study, using congruent and incongruent backgrounds and objects (e.g., a cow placed against the background of a kitchen), Jenkins, Yang, Goh, Hong, and Park (2010) found that the Chinese group showed greater adaptation (more neural activity in the lateral occipital cortex) to incongruent trials than the American group. Thus, the Chinese group showed sensitivity to the entire scene more than the American group which the authors argue is support for individualistic-collectivistic theories underlying differences between Eastern and West Culture.

There is also evidence for ethnic differences in neural networks involved in thinking about the self or others. It has been shown that the strongest emotional responses are elicited when we view them from others of the same ethnic group. For example, Chiao et al. (2008) found that native Japanese and Caucasians from the United States showed the greatest amount of amygdaloid activation during fear responses from their own ethnic group. In addition, East Asians and Westerners showed significant activation in the medial prefrontal cortex and anterior cingulate cortex when making self-evaluative judgments (Zhu et al., 2007). In another study using event-related potentials, researchers found greater negative anterior activity for British participants when viewing an image of their own face compared to another's face. Chinese participants, in contrast, demonstrated greater activation to another's face than their own face (Sui, Liu, & Hans, 2009). Lastly, Hedden et al. (2008) found that the level acculturation, rather than ethnic group, predicted neural activation patterns. Specifically, East Asians that endorsed more Western values tended to demonstrate similar neural activation patterns as Western participants. Studies such as these suggest that culture and environmental variables may predict and/or shape one's neural networks and cognitive functioning.

7.4 Conclusion

There is growing interest in cultural, ethnic, and environmental influences on brain structure and function as well as on psychological and social functioning. Research indicates that culture and ethnicity may actually moderate the neurocognitive process and influence the way we perceive ourselves and others. Many studies discussed here argue their findings are in support of individualistic-collectivistic theories that explain social and cultural differences between Western and Eastern societies. More work is needed in order for these explanations to be verified, given that greater brain activation in one region does not necessarily imply more or less importance or efficiency. Studies connecting neural response and/or structural size with behavioral data may provide more compelling evidence, such as in the methods of Hedden et al. (2008).

The shaping of experience through acculturation as well as experience is an interesting and fairly new area of study. It is clear that there may be differences between Western and Eastern cultures particularly in how individuals are seen as fitting into the society. Cultures that emphasize maintenance of social order have been found to shape language, emotional regulation, emotional expression and even how numbers are represented in the brain compared to those which stress the individuals. While these statements are rather broad in nature, recognizing differences in neuropsychology, psychology, and neuroimaging that may play a role in brain organization and social functioning is an important first step. These differences have been found in Chinese and Eastern countries compared to Western countries as well as in first-generation immigrants in the United States and England. It is not clear whether or when shifts in perception may change with acculturation and further study would be very instructive in this area. It is also not clear if there are commonalities with other ethnicities, other than Caucasian, in the western countries which also stress cooperation and community (i.e., Native Americans). Further study of these issues as well as inter- and intra-generational findings may shed light on how and when these perceptual differences occur and what is the ontogenesis of such differences. It would be particularly helpful to recognize some of these perceptual differences particularly as we embark on teaching the children of immigrants who are now attending our public schools.

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Chapter 8
Clinical Interviewing and Qualitative Assessment with Asian Heritage Clients

Esther Yuet Ying Lau

Abstract The clinical interview is an essential component of neuropsychological assessment and assumes even greater importance in situations where standardized tests are lacking. In such situations, qualitative assessment strategies may be necessary. This chapter will summarize some cultural and social factors that may influence client presentation and collection of collateral information, and strategies for interviewing and qualitative assessment with Asians and Asian Americans. A pan-Asian perspective is adopted heuristically to provide an introductory guide with pointers in working with Asians and Asian Americans. Clinical neuropsychologists are encouraged to consult the literature on individual Asian cultures for more in-depth information according to the specific needs of their setting.

8.1 Introduction

European-American clinical neuropsychologists face the increasing challenge of having an Asian American sitting in their office and not knowing exactly what to do with him/her. Asian Americans constitute one of the most rapidly growing minority populations in the United States (Wong & Fujii, 2004). However, clinical neuropsychologists may not all have the knowledge and skills to conduct an evaluation that is sensitive to the relevant cultural aspects of patients of Asian descent. Such cross-cultural competence is particularly crucial in the context of neuropsychological evaluations as the standardized tests, which were predominantly developed in western countries may not be applicable to Asian Americans and clinical neuropsychologists have to rely more heavily on clinical interviewing and non-standardized assessment.

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Gathering of information and data through these qualitative means demands much cultural sensitivity as well as creativity. This chapter aims at providing clinical neuropsychologists with a resource for conducting culturally sensitive clinical interviews and qualitative assessments with Asians and Asian Americans. Social and cultural factors influencing Asian-American patients' presentation in a broad sense are reviewed, and specific strategies in working with Asian-American patients and their collateral informants in a neuropsychological setting are introduced.

8.2 Socio-Cultural Factors Influencing the Presentation of Asian Americans

Asian American is undoubtedly not a homogenous group in terms of its racial features, cultural heritage, immigration history, extent of acculturation, and various other demographic characteristics. However, a detailed discussion of the many different definitions and categorizations of Asian Americans is beyond the scope of this chapter. Here, we adopted a practical approach, attempting to provide a general summary of the major cultural factors that are relevant to neuropsychological interview and qualitative assessment. As with any other racial groups, intra-group differences in Asian Americans are probably just as significant as their differences from other ethnic groups. It is exactly this acknowledgement of heterogeneity that precludes the discussion of each Asian American subgroup in this chapter, and justifies the adoption of a "pan-Asian approach", which would almost unavoidably be biased with overgeneralizations as well as oversimplifications. The overview below serves as an appetizer that prepares and entices the culturally-conscious clinical neuropsychologists to read up more on individual cultural groups, according to the specific composition of their clientele. The following descriptions should be taken as some basic and general depiction of Asian Americans, instead of definite truths about individual patients of the Asian descent.

8.2.1 Perception of Psychological Problems and Services

As assessment of emotional problems and psychopathology is an integral part of neuropsychological assessment, clinical neuropsychologists should be aware of the attitudes of Asian Americans on such problems and the usage of related services. Briefly, Asians tend to have more stigmatized views towards mental illnesses or emotional problems (refer to Chapter 5 for more detailed analyses). This may lead to underreporting of psychological problems either intentionally or unintentionally in clinical interviews. A related phenomenon is that Asians are more inclined to express mood problems as physical discomfort than emotional symptoms (Sue & Sue, 1987; Wong, 2000). They also tend to attribute mental health problems to biological factors such as "poor blood circulation" or "endocrinal imbalance". The implications, aside from underreporting of psychological problems are that they may seek help from physicians or herbalists for mood problems and refrain from seeing a psychologist as far as possible. Interestingly, but also unfortunately, it has

been suggested that Chinese tend to view dementia as mental illness (Elliot, Di Minno, Lam, & Tu, 1996). Hence, when a Chinese person is being asked various questions for determining a potential diagnosis of dementia, especially by a psychologist, the "mind doctor", it is quite likely that the patient would avoid disclosing symptoms that he/she perceives as indicators of dementia.

8.2.2 The Collectivist Orientation and Family System

In contrast to the individualistic culture in the western world, group customs and collective good are valued in Asian cultures. As the desires and well-being of individuals are placed at a lower priority than the collective interests, Asians tend to downplay personal values, feelings, and opinions. Uniqueness of individuals is minimized in favor of group cohesiveness and harmony (Suh, Kagan, & Strumpf, 2009). Family is very much regarded as the basic unit of operation in many Asian cultures. The family takes pride and shame of the achievements and failures of its members, whose primary concerns are the interests of the family as a whole. In the context of neuropsychological evaluation, the patient and the family may feel embarrassed, if not ashamed of the difficulties of the patient and may underreport symptoms as a result. This shared view of mental illness among members in an Asian-American family may undermine the validity and usefulness of collateral information to some extent. Despite the potential challenges of ingrained stigmatization of mental health/psychological problems in Asian families, the tight family system may bring opportunities for both the assessment and the rehabilitation process. Except for some rare cases, the family of an Asian-American patient would likely be relatively involved in the health care of the patient. They would accompany the patient to appointments and would feel natural to participate in long-term rehabilitation/care plan for the patient. Although the clinical neuropsychologist may be surprised by the level of involvement of family members and may have reservations about some of the handling or decisions of the family such as keeping a severely-demented patient at home without professional home nursing care, the dedication and commitment among family members to look out for each other could provide the kind of intensive support that a patient with neuropsychological deficits needs.

8.2.3 Emphasis on Modesty and Courtesy

Consistent with the collectivist culture, an individual's achievements are subsumed under the family, community, and country in Asian cultures. Mentioning or recognition of one's own merits or abilities is considered conceited. In contrast with the personal striving for excellence in western cultures, Asians value moderation. Under this context, the clinical neuropsychologist would likely get some underrated reports from Asian-American patients in their self-evaluation of previous achievements or current performance. If they ranked second in class, they may say their performance was not the best or could have been better. This harsh standard on oneself is reversed in relating to others. As conveyed in the traditional Chinese saying, "be strict with

yourself and lenient towards others", it is common for Asians to be considerate of others and to apply a different standard when evaluating others' achievements. In neuropsychological assessment, this courteous attitude is expressed in giving polite responses, not asking questions lest that inconvenience to the psychologist is created, not expressing any problems with the arrangement of the assessment even when there are difficulties, not explicitly disagreeing with the recommendations of the psychologist even when they think they are unreasonable or impractical. The effort to avoid conflicts of any extent may come in the way of information gathering and communication between the clinical neuropsychologist and the Asian-American patient. A related concept is "face"(i.e., dignity). In Asians, harmony is maintained by preserving everybody's face. Direct confrontations are discouraged because individuals' face would be threatened and harmonious relationships put at risk. European-American clinical neuropsychologists, who are used to a more straightforward communication style may need to modify their expressions so that they would not be perceived as mean and blunt.

8.2.4 Respect for Authority

Along with the collectivist culture and tight family system, many Asian cultures are characterized by some hierarchical relational systems. Filial piety, obedience to teachers, respect for the elderly, loyalty to seniors, and allegiance to authority are all representations of some deep-rooted hierarchical relational schemas. The Asian-American patient and family would likely perceive the clinical neuropsychologist as an expert of some sort and hence would present themselves as cooperative, compliant, or even submissive upon initial encounters. However, due to their stigmatization of mental health issues and suspicion of mental health professionals, they may be ambivalent toward the psychologist at the same time. An understanding of such cultural background may help the clinical neuropsychologist relate to Asian-American patients and families in ways that can facilitate genuine trust that is beyond their role-bound respect.

8.3 Strategies in Working with Asian Americans in Neuropsychological Interviews and Qualitative Assessment

8.3.1 General Objectives in Conducting a Culturally Sensitive Clinical Interview and Qualitative Assessment

An understanding of the Asian culture will give the clinical neuropsychologist some insights in interpreting the behaviors and presentations of patients and their families, establishing rapport, and formulating questions that are culturally appropriate

and sensitive, and comprehending responses of patients in the context of their own cultural norms.

In view of the compromised validity of standardized tests developed in the West when applying to Asian Americans, a multi-method approach should be emphasized (see Chapter 10 for details). Clinical interview, observations, and other qualitative assessments become even more critical than usual in neuropsychological assessment of minority groups (Fujii, Umetsu, Schwartz, & Hostetter, 2002). In the neuropsychological testing process, nonstandardized testing administrations and the "testing of limits" approach can likely provide special insights into the functioning of the Asian American patient (refer to Lezak, Howieson, Loring, Hannay, & Fischer, 2004 for details of the procedures). If adopted, such altered procedures should be taken into account in score interpretations and clearly documented in the neuropsychological reports.

In general, the objective of the clinical interview and the qualitative assessment is to collect information to characterize the Asian-American patient's functioning and if possible, to provide evidence to support or refute hypotheses regarding diagnostic formulations. To achieve this aim, without much help of formal testing scores, the clinical neuropsychologist has to be particularly astute in recognizing symptoms that are consistent or inconsistent with relevant neurobehavioral syndromes. The challenge is also doubled by the possibility that the manifestations of some neurobehavioral conditions and psychiatric conditions, as well as normal cognitive development can vary in different cultures (refer to Chapter 5, 6, and 7).

While clinical interview is an integral part and crucial component of any neuropsychological evaluation, its significance is multiplied in assessment with Asian Americans. Recognition of the importance of the clinical interview should be manifested behaviorally in practice, beyond a general aspirational intent. A meticulous plan of the specific elements of the interview that would require adjustments and deviations from the typical interviewing schedule that the clinical neuropsychologist may use routinely, research on the appropriateness of interviewing questions with the prospective patient by means such as consulting relevant texts or a colleague or friend familiar with that culture, and in-depth discussion with the interpreter, if one is recruited for the clinical interview are all necessary steps to ensure both high quantity and quality of information being collected through the clinical interview and qualitative methods.

8.3.2 Assessing the Need for a Referral and Making One When Appropriate

While it is our professional obligation to acquire cross-cultural competence as far as possible, referral to another clinical neuropsychologist is always an ethical and helpful option to be considered when one encounters a patient who speaks a foreign language as his/her primary language or comes from an unfamiliar cultural background (refer to Chapter 2 for the ethical considerations). If the neuropsychologist actually knows of an appropriate person to see the patient, the referral should be

discussed with the patient with the benefits explained and questions addressed. The clinical neuropsychologist can also try to consult professional organizations such as the International Neuropsychological Society, National Academy of Neuropsychology, and the APA committee on Ethnic Minority Affairs for listing of neuropsychologists who are culturally competent for the patient in question (Wong, Strickland, Fletcher-Janzen, Ardila, & Reynolds, 2000). When a referral is being made, the clinical neuropsychologist should ensure that the patient would not perceive the change of psychologist as a problem that he/she creates due to his/her inadequacy. It should be made clear to the patient that the referral is made to facilitate psychologist-client match. If the patient displays hesitancy or bewilderment, the clinical neuropsychologist may even consider communicating the idea that the referral is arranged because the neuropsychologist is not sufficiently equipped with the necessary skills (e.g., language) to provide an accurate assessment of his/her abilities and functioning. If at all possible, it would be desirable to have the referral need assessed in advance, before the first appointment, so that the assessment is not delayed due to cultural mismatch. The clinical neuropsychologist can speak with the referral source or the patient directly to ascertain cultural background of the patient by asking about the ethnic origin, the primary language, English proficiency, and other questions pertaining to level of acculturation.

8.3.3 Thorough Briefing of the Interpreter, if Using One Is Absolutely Necessary

Some clinical neuropsychologists with specialized knowledge on cross-cultural issues have recommended avoidance of using interpreters as far as possible (e.g., Wong et al., 2000). Controversies and considerations of using interpreters are covered in Chapter 2. For clinical interviews, unintended distortions of instructions by interpreters are less of a concern than in standardized testing. Here, a few pointers in working with interpreters are highlighted, when the clinical neuropsychologist deems that the benefits of including an interpreter in the clinical interview process truly outweigh the potential issues. First and foremost, finding the best interpreter available for the particular language would be imperative. If the interpreter's proficiency of the target language is only mediocre, the quality of information gathered in the interview is doomed to be compromised. Second, the clinical neuropsychologist should meet with the interpreter in advance to explain the objectives and requirements of the neuropsychological assessment in general and the clinical interview in particular. The gravity of the accuracy of information gathering should be emphasized. If appropriate and possible, the clinical neuropsychologist can also take advantage of the availability of the interpreter to seek advice on how best to relate to the patient and to make the patient comfortable. If a structured or semi-structured interviewing schedule is adopted, it would probably be helpful for the

clinical neuropsychologist to go through the questions with the interpreter, whom should be encouraged to raise questions and provide suggestions if there are any culturally incompatible components that need adjustments. Third, the interpreter should be asked to always check with the clinical neuropsychologist if he/she wants to make any modification of the interviewing questions during the process. Lastly, it would be ideal if the neuropsychologist can spend some time with the interpreter in going through the interview record afterwards for clarifications of understanding of the patient's responses in a culturally sensible manner.

8.3.4 Investing an Effort in Getting Information and Soliciting Support from the Family in Rehabilitation Plans

In view of the strong family values in Asian Americans, information gathering on the patient through interview and qualitative assessment can be facilitated by soliciting help from the family. The family can be an enormous resource in providing collateral information in various aspects, if the clinical neuropsychologist can "win them over". If the family unit is closely knitted, family members would know about each other well and would be able to gauge if there is a change in functioning and mood, etc. Therefore, while the family may be reserved in the beginning of the encounter with the clinical neuropsychologist, it is worth the time to build up rapport with not just the patient, but with the family as well. Once trust is built, it is possible that the family may tell the clinical neuropsychologist some useful personal information of the patient that one may not get from the patient him/herself.

8.3.5 Taking the Time to Explain the Neuropsychological Evaluation

Given Asian Americans' relative lack of exposure to and potential misgivings of psychological services in general, it would be advisable for the clinical neuropsychologist to spend extra time explaining the purpose, procedures, and implications of the neuropsychological assessment in greater detail. The introduction would also be an opportunity for the clinical neuropsychologist to distinguish the neuropsychological assessment from a typical psychiatric/mental health session. The delineation may help lower Asian-American patients' anxiety of being diagnosed of mental illness, as neuropsychological problems are framed as physical rather than mental issues. The principle of confidentiality should also be covered in detail and the intricacies regarding the boundary in terms of the involvement of the family should be discussed early on.

8.3.6 Working with the Role-Bound Respect for Authority

In regards to the general respect for people of authority but reservations about psychologists, clinical neuropsychologists may relate to Asian-American patients and families in a friendly but more directive and formal manner. As the clinical neuropsychologist behaves confidently and professionally, the Asian-American patient would probably feel that they are "in good hands" and would place their trust on the expert neuropsychologist. It would also be beneficial to be well-planned and more structured in the clinical interview and overall assessment process, so that the Asian-American patient feels that the psychologist is methodical and systematic, highly valued qualities among Asians. While a relaxed or casual attitude of the psychologist may put some patients at ease in the interview and assessment process, it may be taken as sluggishness and lack of professionalism in Asian Americans. Instead of giving options, the clinical neuropsychologist could be more directive in relating to the patient by asking questions in a systematic manner, providing a more concrete structure of the assessment appointment, and giving authoritative recommendations that are backed up by clinical and research evidence. Support for this directive style was reported by Li and Kim (2004), who found that Asian-American college students rated counselors using a highly directive approach as more cross-culturally competent and empathic. Students in the directive counseling condition also perceived stronger client-counselor working alliance and greater session depth than students in the non-directive condition.

8.3.7 Creating an Open Environment for Honest Communication While Maintaining Harmony

Given the importance of interpersonal harmony as well as "face" for Asian Americans, even the most justified confrontations with patients or their families may result in poor outcomes. Acknowledging the Asian-American patient's tendency to be quiet and reserved in order to avoid embarrassing oneself or the family and bringing inconvenience to the clinical neuropsychologist, the neuropsychologist can prepare patients for the interviewing process by asking them to play an active role. Within a structured framework, Asian-American patients can be encouraged to volunteer information as they see fit and to raise any queries they may have at any time. The clinical neuropsychologist can explicitly state that such interruptions of the interview will not be taken as disruptions but opportunities for the psychologist to gather critical information. Even with such reassurance, it is unlikely that the Asian-American patient would be overly verbose or the interview be digressed by much irrelevant information. Periodic checking with the patients if arrangements of the interview and the assessment are appropriate would help elicit any unexpressed concerns. One should also note that Asian Americans may be more conservative and discreet in talking about their personal life such as their sex life or

childhood history. This is again where a more structured interview would help. When the Asian-American patient sees that you are just following an interviewing schedule and not trying to pry into their private matters, they may be more comfortable disclosing the more sensitive information. Moreover, in explaining recommendations, more detailed discussion on how the plan can be carried out would increase the chance of potential problems being raised, openly discussed, and ideally resolved. Even when a recommendation is objected in an open discussion, the clinical neuropsychologist would have a better understanding of the reasons for the non-acceptance and may be able to formulate alternatives in collaboration with the patient and the family.

8.3.8 Differentiating Aptitude, Opportunities, and Cultural Expectations in Assessing Attainment

As the clinical neuropsychologist tries to establish baseline performance by gathering background information such as educational level, school performance, and occupational achievement, there are three major considerations. First, due to their emphasis on humility, Asian Americans tend to underreport their performance or achievement lest to be perceived as arrogant. Therefore, the clinical neuropsychologist should not be satisfied with just a rough description of performance but should go further for more concrete indicators. Second, whether the reported attainment is equivalent in the patient's original and current place of residence is to be established. For example, rates and opportunities for tertiary education vary a lot in different countries, in different cities of a country, and in different generations (Table 8.1). Therefore, a bachelor's degree can imply very different level of intellectual functioning in different cultures. Also regarding education, the quality and standard of education can vary across different countries as well. For example, Japanese education system is renounced for its high quality, and it has been estimated that a Japanese high school degree was equivalent to 2 years of American college (Ellington, 2001). Non-equivalence also applies to marks and grades. As a manifestation of the valued virtues of humility as well as diligence at a society level, students in Asian countries receive relatively lower marks on average than their American counterparts. It is a common belief among Asians that students would become too proud if they receive high marks and would work harder if their marks are low. Coupled with the grade inflation phenomenon in North America since the mid-1960s (Johnson, 2003), the gap in grading scales and customs with Asian countries is widened. Without a formal adjustment method, the best bet for the clinical neuropsychologist is to collect more detailed descriptions of the Asian American's educational achievement. An effective way may be to ask the patient to rank him/herself in his/her own class. Given that some Asian cultures encourage competition among students, it would not be too surprising that the patient may know his/her exact rank in his/her class and also the approximate ranking of his/her school in the city/country. Secondly, the clinical neuropsychologist should also take into account

Table 8.1 Tertiary school enrollment ratio in the United States and selected Asian countries, provinces, and cities in 2009

Country/city	Gross enrolment ratio (%)
United States	89[e]
China	24[e]
Beijing	53 (figure for 2005)[a]
Guangdong	22 (figure for 2005)[b]
Hong Kong	57[e]
Hubei	24 (figure for 2005)[c]
Macau	64[e]
Shanghai	57(figure for 2005)[d]
India	16[e]
Indonesia	22[e]
Japan	59[e]
Korea, Republic of	100[f]
Malaysia	37 (figure for 2008)[e]
Philippines	29 (figure for 2008)[e]
Thailand	46[e]
Vietnam	20[e]

Note. Statistics adapted from the following sources:
[a]Beijing Government (2006)
[b]Guangdong Government (2006)
[c]Hubei Government (2006)
[d]Shanghai Government (2007)
[e]United Nations Educational Scientific and Cultural Organization (2011)
[f]World Bank (2011)

the different factors contributing to the attainment. While it is important to understand the factors contributing to a certain attainment (or the lack of it) for any patient, this issue is particularly relevant in estimating the baseline ability of an ethnic-minority patient. For example, girls in some Asian countries may be deprived of opportunities for higher education because they need to work to support the family's finances or ironically in some cases, their brother's education. Moreover, immigration itself can be a factor for disruption of schooling or drastic changes in career development. Therefore, the clinical neuropsychologist needs to explicitly ask about the reasons for background history such as discontinuation of education and to obtain details of occupational history both before and after immigration, in order to have the necessary information for baseline estimation (Table 8.2).

8.3.9 Asking for Clarification and Cultural Education from the Patient and the Family

When I come across certain aspects of a culture that I do not have knowledge about during an interview, I would sometimes simply say, "sorry, I'm not sure if

Table 8.2 Practical advice for the clinical interview

Procedural matters
1. Because of cultural factors, clients may be reluctant to speak up on their own behalf. Check to see if the client needs anything (e.g., a restroom break; is hungry/thirsty) and offer breaks (Nadal & Monzones, 2011; Nell, 2000) in a routine manner so that the client does not feel that he or she is delaying the assessment progress
2. Do not do an extensive interview during the first session – spread it out over several sessions if you plan to have multiple sessions (Ngo, Le, & Le, 2011)
3. Preview how long the first and other sessions will last (Nell, 2000)
4. Provide an explanation of who you are, why an interview is needed, what testing involves, and why testing is being done (Nell, 2000; Ngo et al., 2011)
5. Ask about pronunciation and meaning of the client's name (Fujii, Wu, & Ratanadilok, 2011) and how the client would like to be addressed
6. Invite family members or other trusted person to participate in the interview (Nadal & Monzones, 2011)
Interviewing
1. Ask clients about life and experiences in their country of origin (Fujii, 2011) as a means to help build rapport, but do so in a structured and purposeful manner; allow "story telling" if that seems to be the client's preferred mode of providing information
2. To help build rapport, allow the client to talk about their family more than you might otherwise (Fujii et al., 2011), and allow more time for the client to talk about their daily life (where they live, neighbors, food, weather, etc.; Tseng & Streltzer, 2008)
3. Because some clients may not think in terms of Western notions of time (calendar dates, hours, minutes, etc.), ask clients to recall historical information in relation to events, seasons, holidays, etc. (Fujii & Vang, 2011)
4. Ask the same question first to the client and then to the person (or people) accompanying the client, explaining that you want to find out how other people feel about the same thing (Nell, 2000)
5. For immigrants, ask about any political or military conflicts that occurred in their country of origin, and how they were affected (Fujii, 2011)
6. Start with easy topics (appetite, pain, etc.) before more sensitive ones (e.g., mood, sexual functioning) (Tseng & Streltzer, 2008)

I understand you", "or please pardon me for my ignorance in this", and "would you please educate me". Most likely, patients are quite (decently) surprised that we (the expert) would admit our limitations genuinely, and they would be more than willing to elaborate on a certain topic for us. This also serves as a good model for the patient that authentic and spontaneous communication is treasured in the collaborative assessment process and both parties can and should seek help from each other directly for the purpose of obtaining an accurate picture of the patient's functioning. As a minority clinical neuropsychologist, I can attest that I always appreciate others' effort in understanding my culture and that I value opportunities to explain myself in the context of my cultural background in an open manner. As Asian-American patients may feel inferior for various reasons (e.g., English competency, occupations, immigrant status, patient status), direct recognition of the lack of understanding of one's culture by the clinical neuropsychologist may be a very concrete and effective way to bring comfort to the patient that he/she is respected. Rapport can be nourished by such genuine communication as patients' defenses are reduced and their trust of the clinical neuropsychologist is enhanced.

8.3.10 Prudent Adaptation of Standardized Tests to Provide Qualitative Data

Even for clinical neuropsychologists whose predominant assessment approach is quantitative in nature, ad hoc translation and/or cultural adaptation of standardized tests should be treated as last resort, if adopted at all. If the adapted testing procedures have not been validated rigorously and if demographically-appropriate norms are not available, data gathered through non-standardized test administration should be treated qualitatively and similarly to the information acquired by the procedure of testing of limits.

A statement of caveats relating to the cross-cultural issues and the adaptations and deviations of standard protocols must be included in a prominent way in the report. When tests are administered in a non-standardized manner, psychometric properties and normative data of the tests do not apply and should not be used, lest the results be misinterpreted by users of the report, who may not have the knowledge and cross-cultural sensitivity to comprehend the qualified information. In case of the lack of culturally-appropriate norms, one should always take a conservative approach in interpreting the data collected. It would be advisable to err with the benefit of doubt to the patient in general, and the referral question and contexts would help gauge whether a bias towards false positive or false negative error will be less detrimental (Wong et al., 2000).

8.3.11 Development of a More Flexible Approach in Neuropsychological Assessment

While a discussion on the pros and cons of quantitative versus qualitative neuropsychological evaluation is beyond the scope of this chapter (or volume), we contend that the marriage of cross-cultural neuropsychological evaluation with qualitative approaches is likely to be more harmonious than that with purely quantitative approaches in general. Clinical neuropsychologists who adopt a qualitative approach as their primary paradigm of evaluation are probably more adaptive in facing ethnically/culturally dissimilar patients because of the fact that they do not rely on the normative, statistical approach based on standardized testing and scoring, as well as comparisons with norms. The hypothesis-testing approach characterizes a qualitative assessment with behavioral observations and process analyses being the foundations of formulations, which emphasize more on the nature, process, and underlying causes of difficulties, than on the level of impairment generated by the comparative stance of an individual with the normative group (Caetano, 2007). While the quantitative approach is more concerned with psychometric measurement and classification of cognitive abilities and deficits, the qualitative approach focuses on eliciting characteristic signs and symptoms of brain conditions and associating behavioral presentations with brain pathologies in referenced to established functional

neuroanatomy (Bauer, 1994). According to Luria (1980), a representative figure of qualitative neuropsychological assessment, the neuropsychologist should conduct a detailed analysis of the contributing factors to the performance and should distinguish whether the difficulties are manifestations of elementary level of dysfunction or are attributed to problems with higher level organization or integration. This emphasis on process and contributing factors is presumably conducive to identification of cultural aspects relevant to the observed functioning of an individual. Whether the clinical neuropsychologist decides to completely embrace the qualitative approach or to adopt a combination of quantitative and qualitative assessment procedures to assess an Asian-American patient, as a rule of thumb, it would be preferable to provide more qualitative descriptions of functioning as well as the presence versus absence of changes of functioning from estimated baseline in reports, instead of making biased normative comparisons in the absence of appropriate norms. On the other hand, clinical neuropsychologists using qualitative approaches should be aware that they are not immune to the challenges in assessing Asian-American patients. In fact, the reliance of qualitative approaches on observations in data collection and hypothesis testing may render the assessment susceptible to subjectivity of the clinical neuropsychologist (Lezak et al., 2004). In the context of assessment with Asian Americans, the clinical neuropsychologist solely dependent on a qualitative approach may be prone to pathologizing the patient's presentations due to overinterpretation of cultural idiosyncrasies as behavioral abnormalities indicating neurological impairments. At the other extreme, the cautious clinical neuropsychologist may be overly conservative in interpreting poor performance and awkward behaviors as neurobehavioral signs. Statistical and behavioral deviations are attributed to cultural factors for the fear of cultural bias against the minority patient. It is proposed that an integrative approach can be applied in a flexible manner, combining the usage of selected standardized tests and the astute observations and process analyses in understanding the overall pattern of performance as well as the underlying contributing factors to the observed performance on testing.

8.4 Conclusions

This chapter aims to provide a friendly guide to clinical neuropsychologists who aspire to provide quality assessment services to Asians and Asian Americans through cross-culturally appropriate clinical interview and qualitative assessment. As the Asian-American population continues to grow at a fast pace in North America, it becomes increasingly important for clinical neuropsychologists to strive beyond a vague sense of cultural awareness and achieve cross-cultural competence in terms of knowledge and skills. This task is not restricted to European-American clinical neuropsychologists, but is to be taken up by every neuropsychologist who is honest in admitting that our discipline and profession is culture-laden and that we all have our own cultural biases and limitations. I hope that this chapter and the volume would foster an open, humble, and active attitude among clinical

neuropsychologists of all ethnicities and cultures, and that our profession can be advanced by our joint effort in promoting culturally valid neuropsychological assessment.

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Chapter 9
Neuropsychological Test Selection with Clients Who Are Asian

Cynthia A. Riccio, Hyunhee Yoon, and Anita Sohn McCormick

Abstract This chapter discusses the various issues that need to be considered when selecting measures to be used in the neuropsychological assessment of Asian Americans. The standards in the field as related to cultural considerations and testing are highlighted. The major issue in considering test selection for this group, is the heterogeneity of what constitutes 'Asian American' and the differing languages and cultures of the Asian population as a whole. The second major issue in test selection is that the normative samples for tests, in Asian languages or in English, are not specific to Asian Americans. As a result of these concerns, issues of language, culture, and acculturation are then highlighted. Some examples of measures that can be used to assess language proficiency are provided. In some cases, where English is not proficient, it may be appropriate to use nonverbal measures or interpreters. The potential constraints and concerns with these options are discussed. Some measures that can be used, depending on the first language of the client, that may be part of a neuropsychological battery, are also identified. The need for careful consideration of language proficiency and level of acculturation, regardless of whether the norms reflect English speakers or Asian-language speakers, is highlighted.

9.1 Test Selection Issues for Neuropsychological Assessment

The underlying rationale behind neuropsychological assessment is the need to evaluate various behavioral domains in order to make inferences about the overall integrity of the corresponding functional systems of the brain (Luria, 1980). The domains

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Table 9.1 Specific standards[a] in relation to testing of individuals of diverse linguistic backgrounds

Standard	Practical application
Standard 9.1	Test selection for use with Asian Americans should take into consider potential threats to reliability and validity based on best available information; test selection should be designed to reduce these threats
Standard 9.2	When research indicates that scores are not equivalent across groups, there is a need to provide evidence of validity for each linguistic subgroup to provide
Standard 9.3	For the Asian American who is proficient in two or more languages, it is imperative that the relative language proficiency be established; test selection should then be in accordance with the individual's most proficient language
Standard 9.4	An linguistic modifications, as well as the rational for the modifications should be identified
Standard 9.5	If there is no credible evidence of score comparability across regular and modified administrations, the scores obtained should be flagged
Standard 9.6	When test developers recommend that a test be used with linguistically diverse clients, information should be made available for appropriate use and interpretation of that test
Standard 9.7	For translated versions of a test, methods used for establishing the adequacy of the translation should be provided; empirical evidence should be provided for score reliability and validity to support the inferences for which the test was selected
Standard 9.8	For employment and credential tests, the proficiency level of the test should not exceed the language proficiency needed in the relevant occupation or profession
Standard 9.9	Test developers should provide evidence or comparability when there are multiple language versions of a tests
Standard 9.10	Inferences about language proficiency should be based on tests that measure a range of language abilities, not a single skill (e.g., naming)
Standard 9.11	An interpreter should be fluent in both the language of the test and client's native language, should have expertise in interpretation, and should be cognizant of the assessment process

[a]Adapted from AERA et al. (1999)

considered include cognition, achievement, and behavior/personality, as well as language, perceptual, sensory, attention, executive, learning/memory, and motor skills (Riccio, 2008, Riccio & Reynolds, 1998, 2013). The task facing the practitioner is then to select and combine various measures to ensure coverage of these domains such that the results reflect the functioning of all four brain quadrants – anterior, posterior, left and right hemispheres.

In recent years, there has been increased emphasis on the use of measures that are more actuarial in nature and rely on standardized procedures (Lezak, Howieson, & Loring, 2004). The reason behind this shift is to maximize the use of objective methods with accepted levels of psychometrics. Thus, the practitioner must ensure not only that the measures selected provide for comprehensive assessment of brain integrity, but also that the measures meet current standards for testing (American Educational Research Association [AERA], American Psychological Association [APA], & National Council on Measurement in Education [NCME], 1999). These standards are intended to ensure that there is appropriateness and fairness in testing and should be considered in the selection of tests used in any assessment; the relevant standards are summarized in Table 9.1. Consideration of 'fairness' is not a

simple task. It requires attention to the goals for the assessment and associated potential impacts on opportunity in society, the technical properties of the measures being used, the interpretation and reporting of the results, as well as a range of factors that may (or may not) affect test performance (AERA et al., 1999).

With Asian Americans comprising up to 5 % of the United States population (U.S. Census Bureau, 2000), the ability to identify and address the needs of this growing population is critical. At the same time, it is important to keep in mind that Asian Americans represent at least 24 different ethnic groups (U.S. Census, 2000) with Chinese, Filipino, Asian Indians, Vietnamese, and Korean, the five largest groups. Although there are stereotypes associated with the term "Asian American", these stereotypes (i.e., as a model minority, high socioeconomic status) do not hold true for all the ethnic groups subsumed in this more global category (Fujii, 2011a). Important considerations in test selection include consideration of cultural and language factors, while at the same time maintaining and attending to measurement standards (i.e., fairness), as well as the desire to be sure that all functional systems and four quadrants of the brain are assessed.

Particularly in regard to cultural and linguistic differences, there has been increased attention to bias associated with test content and the response process (AERA et al., 1999; Carey, Mannell, & Dunn, 2011; Reynolds, 2000; Reynolds & Ramsay, 2003). The level of content bias and response bias are established by systematically examining the extent of differential performance by distinct groups on the same items or differential item functioning (DIF). Content bias is usually specific to those items that include content that specific groups may not have been exposed to and is related to level of acculturation. Response process bias is more evident in the output required for completing the task, and in the case of individuals with English as a second language, requirements for more elaborative verbal responses may represent a process bias due to limited English proficiency or not being comfortable expressing themselves in English. In cases of content or process bias, the test results may not accurately reflect the constructs or functional system intended when the test was selected (AERA et al., 1999). Notably, while most of the research on test bias focuses on DIF, Carey et al.'s study suggests that it is not just the items, but that examiner familiarity with the pronunciation and language use can affect ratings, particularly in relation to language. This possibility has not been explored in conjunction with responses to most standardized measures used in neuropsychology, but may be worth consideration.

With increasing concern for cross-cultural considerations in neuropsychology, it has been proposed that specific marker or core tests be used in conjunction with whatever additional tests or measures are implemented (Nell, 2000). For adults, the recommended core includes six of the seven tests from the World Health Organization Neurobehavioral Core Test Battery (WHO-NTB; Maj et al., 1994), as well as the Wechsler scales including the memory scales. The six tasks of the WHO-NTB cover simple reaction time, targeting, attention/memory (as measured by Digit Span and Digit Symbol/Coding), and visual retention. Of note, studies conducted in Korea and China that have included one or more of these tasks consistently indicate that on simple reaction time tasks, Asian samples are about one standard deviation lower than the European samples (Nell). Similarly, on the manual dexterity task, the Asian

groups were about one standard deviation lower than the Europeans. In contrast, on the aiming task (a typical dotting or targeting test), the Asian mean is consistently higher than the European mean. No differences emerged for Digit Span or Digit Symbol/Coding. These findings indicate that the 'recommended' core may not be appropriate for Asian groups; depending on other factors, it may not be appropriate for Asian Americans either.

In his discussion of neuropsychological assessment of Asian Americans, Fujii (2011a) suggested that an assessment that relies on norm-referenced testing may not be appropriate for Asian Americans. He indicated that norm-referenced testing be used only if the client obtained a college education with courses taught predominantly in English, has lived in the country for a long time, is proficient in English, or has performed in the average or above range on some nationally standardized test (in English). When these conditions are not met, Fujii suggested a hypothesis testing approach or the use of the WHO-NTB due to the lack of validation to demonstrate equivalence for most standardized measures for Asian American groups. As noted above, the WHO-NTB is limited in scope; however, it seems to have inherent biases specific to Asians, and is insufficient even for a hypothesis testing approach. Thus, selection of tests for inclusion in a neuropsychological assessment, and following a hypothesis testing approach, needs to be given careful consideration. Two major issues that need to be addressed and considered in the selection process include language proficiency and acculturation.

9.2 Language

A starting point in the selection of appropriate tests is the determination of the most appropriate language for testing and interactions. For Asian Americans, the level of English language proficiency and comfort in use of English is seen as a key component of acculturation status. The individual may be monolingual English or bilingual, but their level of comfort with English may vary depending on other circumstances such as exposure to English, social value placed on fluency in English and familial/social pressures. In a study of Cambodian American children, for example, results indicated that Cambodian was spoken in over 90 % of the homes (Reeves & Bennett, 2004). Similarly, English as the only language of the home occurs in only about 4.4 % of Hmong households (Reeves & Bennett), with 41 % of Hmong families described as linguistically isolated (Yang, 2004). In contrast, among Asian groups, Filipinos generally have good command of the English language (Nadal & Monzones, 2011). These findings suggest that although Asian Americans are exposed to English at least in schools, their proficiency and level of comfort varies significantly and should be considered carefully when selecting instruments and measures.

9.2.1 Language Proficiency

Establishing English language proficiency is the first step in an assessment of any bilingual or English Language learner. English language proficiency among Asian Americans groups varies significantly. One factor that may affect the English language proficiency is related to whether the country of origin has English as it official language (e.g., South Asia and Philippines). It is likely then that even recent immigrants from these countries will show greater English proficiency and will demonstrate faster acculturation. Similarly, members of countries with an early history of immigration into the US, such as Chinese and Japanese, are likely to show less limited English proficiency, than recent immigrants from countries such as Vietnam and Korea who are likely to have the lowest proficiency (Gee & Ponce, 2010).

To determine proficiency it is critical to evaluate both English and native language proficiency. The Bilingual Verbal Ability Test (BVAT; Munoz-Sandoval, Cummins, Alvarado, & Ruef, 1998) is an example of an instrument that measures not only English proficiency, but native verbal proficiency as well. This test assesses an individual's English fluency compared to his/her native language fluency and takes approximately 30 min to administer. It can be used for individuals from age 5 years to adulthood. It is unique because it is based on the concept that bilingual individuals complement their knowledge by using both languages. Thus, the instrument is used to obtain first proficiency in the native language and then the incremental proficiency added by their knowledge of English, thus offering an overall language proficiency score as well (Munoz-Sandoval et al., 1998). Although it can be administered by one examiner if they are fluent in both languages, it has been standardized to be administered using an interpreter as well. The BVAT has been standardized to be used with five Asian languages in addition to English: Chinese (traditional and simplified), Korean, Japanese, Vietnamese, and Hindi. One significant drawback of the BVAT is its age and outdated norms, which have to be interpreted with caution. Even when used informally, this measure can provide an estimate of a person's proficiency. It can provide information on individuals who have been exposed to formal English education and aid in the determination of English as a second Language (ESL) status. In addition, when exploring the English language proficiency of Asian Americans and their achievement in schools, it is important to explore whether their performance in math and science is remarkably better than in language arts or English (Fujii, Yee, Eap, Kuoch, & Scully, 2011).

9.2.2 Language Minimized/Nonverbal Tests

Background information about the clients' education and school based training in English, as well as the length of time exposed to formal English, may be critical in determining the appropriateness of using Western based, language-loaded, normative data for more fluent and seemingly more acculturated Asian American clients. This is true even for those Asian Americans who seem to have conversational

English. Conversational fluency does not always translate into higher-level verbal skills as tested by traditional cognitive scales.

Although there are a number of instruments that measure cognitive abilities utilizing non-verbal methods there is very little research that has explored their use with Asian or Asian American populations with limited English proficiency. These instruments vary in their oral language demands and also in the breath of cognitive areas measured. Some, like the Universal Nonverbal Intelligence Test (UNIT) have no oral communication demands for both examiner and examinee, and measure several areas of cognitive functioning such as memory and problem solving. Others, such as the Wechsler Nonverbal Scale (WNV), can be administered totally nonverbally using pictures and demonstration items, or can administered utilizing the standardized instructions provided in several languages such as Korean and Chinese. Finally, some measures such as the Test of Nonverbal Intelligence-4 (TONI-4) focus on nonverbal reasoning and require no oral language communication from the examinee and only minimum receptive language. Even though these nonverbal cognitive measures would be ideally suited to be used with Asian and Asian American populations who have limited English proficiency, little research has been conducted exploring their validity with this population. On the Universal Nonverbal Intelligence Test (UNIT) it was found that Asians obtained a mean of 112.69 (SD = 11.81) as compared to the White sample who obtained a mean of 103.29 (SD = 14.31) (UNIT; Bracken & McCallum, 1998). Although this difference exceeds standard error, it is not significant.

Many tests that are used as part neuropsychological assessment have minimal English language demands and are described as relying on nonverbal abilities or using only internal language. These would include measures of executive function (e.g., Tower or Stockings of Cambridge tasks, Rey Complex Figure Drawing Test, WCST), sensory function (e.g., Tactual Performance Test, Tactile Form Recognition Test, visual form discrimination tasks), attention/concentration (e.g., cancellation tasks, trail making tests, continuous performance tests, and Rapid Visual Information Processing), Memory (e.g., Spatial Span/Corsi Blocks, Rey Recall & Recognition) and Motor skills (e.g., finger tapping, grooved pegboard). The extent to which Asians or Asian Americans perform similarly to those in the normative samples for these measures is unknown. Although the use of 'nonverbal' measures may reflect both anterior and posterior functioning, there is the obvious omission of the language dominant hemisphere. Further, in terms of functional impairment in school or the work place, language may be a more critical consideration.

9.2.3 Adaptation of Existing Tests with Language Loading

Given the concerns that language proficiency, or even the individual's comfort level in using a second language, can affect the validity and reliability of the results obtained, language modification (i.e., translation) may be a consideration. Unfortunately, it is not necessarily the case that a translation will produce a measure

that is equivalent in terms of constructs being measured, difficulty level, reliability, or validity of the original test/task (AERA et al., 1999; see Table 9.1). For example, the frequency rates for words at various age levels of difficulty may differ by language; the nature of the content translated may not be relevant, and meaning can easily vary across translations. If translation is used, it is important to note that the most frequently used approached (back translation) is generally not recommended particularly for cognitive instruments due to the changes in meaning and item difficulty; rather, an iterative process similar to that used in initial test development and validation is recommended (AERA et al.). Finally, when considering a translation, three essential issues should be taken into account: (a) the translation should be completed by native speakers, (b) the native language speakers should understand the construct being measured, and (c) translators should have an understanding of test development.

Other adaptations that might be made include modification of the test administration procedure by altering the presentation format, the response format, time allotments, and restriction of tasks to those appropriate for the language proficiency levels of the individual being tested. If modifications are made in administration (i.e., time, presentation, format), AERA et al. (1999) suggestion is that the modified format be 'field tested with an adequate population sample prior to use with its intended population' (p. 92). Regardless of the modification or adaptation, it is important to consider the level to which the modified/translated/adapted measure is equivalent in terms of the extent to which comparable inferences regarding brain integrity can be made.

9.2.4 Use of Interpreters as a Modification

An alternative to translation, adaptation of existing measures, or limiting the assessment to nonverbal measures, is to complete the assessment in the examinee's primary language using standardized measures. Based on professional directories, however, there are few neuropsychologists who report proficiency in Asian languages or who can provide services to this population (Fujii, 2011a). As such, the only means of administering even some parts of the assessment in the primary language of the examinee may be through the use of interpreters. Frequently, interpreters are recruited for convenience and it is important that the interpreter not have any other relationship with the client (Wong, 2011).

When engaging bona fide interpreters, there continues to be certain concerns about their use in assessment procedures. One such problem is the frequent lack of training in standardized testing. The level of expertise of interpreters can lead to errors in translation, substitutions of content, and undesired help to the examinee (Li, Walton, & Vázquez-Nuttal, 1999). Currently, there are no accepted standards for the appropriate use of interpreters for assessment purposes; therefore, there can be a significant variation in the assessment procedures. As a result, the validity of the results is threatened (Lopez, 2002). Also, there are large variations in the way that languages

are spoken, which can limit the communication even among groups that ostensibly use the same language. This is particularly important in languages that have many dialectical differences, such as Chinese. An additional difficulty associated with the use of interpreters is the lack of training that examiners receive on the advantages and disadvantages of using interpreters, and the appropriate ways of collaborating with and training them. In sum, although the use of interpreters is sometimes the only viable way of administering standardized measures in the individual's primary language, this practice is a deviation of the standardization of most instruments and potentially will call into question the validity of the results obtained. In order to address this concern, when using interpreters, examiners have to make every effort to ensure that the interpreters are trained in standard assessment procedures. Examiners also need to be aware of the implications this process has on the validity of the results.

9.3 Acculturation

Although, studies indicate high correlations between English fluency and acculturation level (Wong, Strickland, Fletcher-Janzen, Ardila, & Reynolds, 2000), it is also important to consider the level of acculturation of the examinee. Approximately 69 % of Asian Americans are born outside the United States; oftentimes, even while living in the United States, they choose to reside in communities that are somewhat insular and homogeneous, slowing down their acculturation process. Acculturation level, as with English proficiency, potentially contributes to identified deficits based on assessment, and limitations of the validity of results obtained from testing (Fujii et al., 2011).

Given the implications of one's acculturation level in selecting applicable tests, the clinical use of acculturation scales may help the data collecting process in assessment. Acculturation measures developed in the early 1970s and 1980s were aligned with the unidirectional model that described acculturation as an irreversible process that involved renouncing the culture of origin and adapting to the dominant culture as exposure to it increased (Szapocznik, Scopetta, Kurtines, & Aranalde, 1978). Recent studies, however, indicate the multidimensional/bidirectional model proposed by Berry and other scholars (Berry & Kim, 1998; Berry, Kim, Minde, & Mok, 1987; Lee, Sobal, & Frongillo, 2000) is a more valid model to explain the psychological acculturation phenomenon at the individual level.

A measure developed by Cortes, Rogler, and Malgady (1994) is aligned with Berry's bidirectional acculturation model. This Bicultural Scale assesses the degree of identification with both the original and the host culture in a parallel manner (Cortes, Rogler, and Malgady Bicultural Scale [CRM-BS]; Cortes et al., 1994). The CRM-BS is a short and easy self-report form, which Mezzich and colleagues validated in three languages recently (Chinese, Korean, and Spanish) with evidence of adequate validity and reliability (Mezzich, Ruiperez, Yoon, Liu, & Zapata-Vega, 2009). Additionally, there are acculturation measures for other Asian groups such as the Acculturation Scale for Vietnamese Adolescents (Nguyen, Messé, & Stollak, 1999;

Table 9.2 Measures of acculturation level for Asian Americans

Measure	Group(s)
Khmer Acculturation Scale [KAS] (Lim, Heiby, Brislin, & Griffin, 2002)	Cambodian
Acculturation Scale for Vietnamese Adolescents [ASVA] (Nguyen, Messé, & Stollak, 1999; Nguyen & von Eye, 2002)	Vietnamese
The Suinn-Lew Asian Self-Identity Acculturation Scale [SL-ASIA] (Suinn, Rickard-Figueroa, Lew, & Vigil, 1987)	Asian Americans
Taiwan Aboriginal Acculturation Scale [TAAS] (Cheng & Hsu, 1995)	Taiwanese Aborigines
Asian Value Scale [AVS] (Kim, Atkinson, & Yang, 1999)	Asian Americans
A Short Acculturation Scale for Filipino Americans [ASASFA] (De la Cruz, Padilla, & Agustin, 2000)	Filipino Americans
Brief Acculturation Scale (Meredith, Wenger, Lie, Harada, & Kahn, 2000)	Japanese Americans
Asian American Acculturation Inventory (Flannery, Reise, & Yu, 2001)	Asian Americans
European American Value Scale for Asian Americans [EAVS-AA] (Wolfe, Yang, Wong, & Atkinson, 2001)	Asian American
Asian American Multidimensional Acculturation Scale [AAMAS] (Chung, Kim, & Abreu, 2004)	Asian American
Acculturation Scales for Southeast Asians (Anderson et al., 1993)	Cambodian, Laotian, and Vietnamese

Nguyen & von Eye, 2002), the Khmer acculturation scale (Lim, Heiby, Brislin, & Griffin, 2002), and the Asian Value Scale (Kim, Atkinson, & Yang, 1999). More acculturation scales developed for Asian Americans are presented in Table 9.2.

Bidimensional scales embrace both overt and covert psychological domains, thus are more informative when evaluating a client's general psychological acculturation status (Matsudaira, 2006). The validity of these acculturation scales should be studied through both, actual exposure to and involvement in each culture (Matsudaira). In assessing one's acculturation level, the role of sociocultural context in the pattern of acculturation should be accounted for – one may be an immigrant, refugee, guest worker, or international student. The sociocultural contextual factors are likely to yield a wide variety of individual acculturation trajectories. Scales that are brief, non-threatening, and independent of interviewer's subjectivity are useful in test data interpretation and provision of test feedback to clients (Roysircar-Sodowsky & Maestas, 2002). Roysircar-Sodowsky and Maestas reported that, in 98 % of instrument-development studies, language use or language preference explained the largest amount of variance with the mean contribution of 48.7 %.

9.3.1 Culture Specific Issues

Neuropsychological testing aims at gathering information about a client's brain functioning not only through the pattern of one's cognitive, emotional, and behavioral domains, but also one's worldview, interpersonal perception and orientation, and

social cognition. In other words, the whole person approach is more desirable. Given that, it is critical to understand the differentiating cultural factors that may influence a client's behavioral and interpersonal domain (Zane & Yeh, 2002). These same cultural characteristics also may have an impact on the clients' perception of physiological/psychological disorders, etiology, and their approach to treatment methodology. The Cultural Systems Approach (Fabrega, 1987; Kagawa-Singer, & Chung, 2002; Kirmayer, 1989; Kleinman, 1980) emphasizes that variables assessed in isolation and out of cultural context are prone to lose their salience, integrity, and uniqueness in their cultural configuration. From this perspective, the expression of symptoms of a neuorpsychological disorder among Asian Americans can be interpreted as influenced by the complex cultural interactions of numerous nested variables. In fact, people are socialized to channel basic emotions in culturally prescribed ways in terms of social norms. The expressive patterns of emotional distress, psychological problems, and pattern of help-seeking behavior are culturally related constructs, which are used within a social context to control one's thought and behaviors.

9.3.1.1 Interpersonal Attitude and Orientation; "Loss of Face" or "Face Saving"

The conceptual schemata, including an individual's worldviews, interpersonal dynamics, coping style, and problem solving strategies, are the essential components in capturing a client's experiences and responses to his/her cultural environments (Zane & Yeh, 2002). When considering a client's experience within his/her cultural context, a clinician can bring up an adequate case conceptualization that can enhances the formulation of appropriate treatment strategies and goals (Zane & Yeh). Assessing the client's interpersonal attitude and cultural orientation is important because not only is it associated with psychological problems that the client presents, but it also plays a critical role in helping the client manage and cope with interpersonal problems (Horowitz, 1979; Zane & Yeh, 2002). Moreover, examining certain interpersonal constructs that may be culturally salient is indispensable in the formulation of culturally sensitive case conceptualizations and developing appropriate intervention plans (Zane & Yeh).

Given this premise, a predominant Asian cultural phenomenon that is called "loss of face" provides a conceptual frame to understand Asian Americans' behavioral and interpersonal orientation (Zane & Yeh, 2002). The notion of "face" in social relations is salient in East Asian cultural contexts while it has less social significance in individualistic societies, such as the U.S. Ho (1991) defined this same cultural phenomenon using the reversed term, "face saving." The shame oriented emotionality and "loss of face/face saving" in Asian Americans may encourage a greater vigilance to situational appropriateness during a clinical interview, reluctance to seek help from outside sources, a reticence to reporting one's psychological symptoms, and limited or little openness towards the clinician. Sue and Morishima (1982) identified the notion of face in Eastern Asian culture as a key and often dominant interpersonal dynamic. Thus, use of "loss of face" as a conceptual

tool can help the neuropsychological assessment process by reconstructing the life circumstances and worldviews of the Asian American clients (Zane & Yeh, 2002).

The fear of "loss of face" is rooted in Asian American's underutilization of mental health services, pattern of family access to information, and the caretaking role of the family. Asian American's reticence in seeking psychological or neuropsychological services results in an increased possibility of social stigmatization, which is one of the biggest obstacles for clinicians in dealing with Asian American populations (Sue, Zane, & Yang, 1994; Zane & Yeh, 2002). In the Asian cultures, it is often considered that revealing emotional or psychological problems, or dealing with problems by seeking professional help are signs of personal immaturity, weakness, and a lack of self-discipline (Ho, 1991). People who adhere to the traditional East or South Asian culture tend to deny the existence of their mental health problems. According to the Eastern Asian philosophy, an individual is viewed as a microcosm of the universe and the unimpeded flow of one's mind and spirit ensures well-being. The western duality of mind and body does not prevail in the Asian views on health problems or overall functioning. One reason for the underutilization of psychological assistance comes from the belief that an individual's mental health problems reflect hereditary flaws that are embarrassing to the family. Thus, individuals feel guilty when a family member has mental or psychological problems (Kagawa-Singer & Chung, 2002).

9.3.1.2 Asian's Perception of Health and Illness

Within the current Western medical perspective, illness and disorders are perceived to have identifiable causes, such as alterations in neurotransmitter functions or dysfunction of neural circuits. The identified disorders are perceived as separate from the self and amenable to specific biomedical interventions, consistent with the duality mentioned earlier. Western biomedicine does not account for spiritual or metaphysical causes for diseases. This omission negates the significant cultural constructs of distress, and may threaten the credibility of the neuropsychologist or health provider (Kagawa-Singer & Chung, 2002). Asians' views on the etiology of disease/disorder tends to be more physical, metaphysical or supernatural (Eisenberg et al., 1993), with intervention approaches dependent on the etiologic factor. Both health and illness are considered as a part of human life, and perfect health may not be attainable (Ohnuki-Tierney, 1984). From the traditional Asian perspective, illness is perceived as a unique and changing constellation of imbalances in life forces. Thus, medical interventions tend to be directed towards pragmatic symptom relief, but not a cure (Kagawa-Singer & Chung, 2002). Asian belief systems deem that health and psychological well-being can be obtained through perseverance and endurance of the person's will in conjunction with the facilitation and support of medical intervention (Kagawa-Singer & Chung). These beliefs need to be considered in neuropsychological assessment and, particularly, in the use of unstructured, open-ended versus more structured clinical interviews; open-ended questions on functioning or concerns may be less helpful than directed questions about specific behaviors.

9.3.1.3 Behavioral Characteristics During Clinical Interview

Yeh and Yeh (2002) indicated that the clinical presentation of Asian American clients, especially among youth, may require consideration of their cultural context. Behavioral standards in social relationships that encourage social desirability may influence the clients' appearance and behavior during a clinical interview. Culturally congruent deferential behavior may include limited eye contact with the clinician, a restraint of emotions, and limited initiation of interaction (Yeh & Yeh). Another consideration is that Asian American youth are prone to respond in a polite and compliant way with authority figures, not often volunteering information. Based on this orientation, Asian clients may be perceived as nonverbal, nonresponsive, or unexpressive. Overall, Asian American clients' presentation of themselves during the clinical interview may reflect social desirability and a lack of willingness to inform the clinician about their psychological problems and symptoms (Yeh & Yeh). Asian parenting style prefers indirect, nonverbal, and subtle communication styles, in order to preserve interpersonal harmony (Chan, 1998; Sue, 1990). In addition, when a clinician examines the cognitive functioning of Asian American clients, they may show modesty in answering questions and tend to avoid answering in a way that may be perceived as self-displaying or flaunting such as telling elaborate stories or giving multiple responses for definitions (Yeh & Yeh, 2002). This appearance and behavior may mislead the clinicians in their diagnostic impression, if clinicians fail to consider the cultural characteristics that may be in play. Observation of the clients' appearance and behavior in multiple settings, with input from others who know the client, is encouraged to obtain additional information.

9.3.1.4 Emotional Functioning

Within the Asian culture, there is sensitivity to the feeling of shame than is apparent in Western culture (Cheung, 1986; Ha, 1995; Okano, 1994). Even in parenting, "shame" often is used as a negative consequence, and affective manipulation that may be used as a primary socialization tool (Lumsden & Wilson, 1981). A clear understanding of Asian's view of "shame" is important in the assessment of Asian American clients. Cultural factors may underlie an apparent incongruity between affect and verbalization. For example, a teen-age girl may smile or laugh when talking about painful experiences because the girl she feels she is burdening the interviewer and feels apologetic for doing so. This ostensible inappropriate affect needs to be noticed and interpreted in a cultural context. Additionally, the traditional Asian cultural values encourage the restraint of emotional expressions in public; for Asians, restraint is regarded as a sign of maturity. When Asian Americans present, in a clinical context, as having flat affect, this aspect of their culture needs to at least be considered. Cross-cultural studies indicate systematic group differences between Asian and non-Asian's cognitive, emotional, and behavioral profiles. For example, a comparison across Asian cultures/languages on the Achenbach System of Empirically Based Assessment (ASEBA), scores revealed gender differences in

some cultures, effect of SES primarily in the Chinese sample, and differences in developmental trajectory across cultures (Achenbach & Rescorla, 2007). The extent to which the individual has acculturated will affect the need to consider these concerns in the inferential and interpretation process.

9.4 Tests Standardized with or Developed for Asian Populations

Precise understanding of a client's acculturation level is the prerequisite in determining the appropriateness of applying any normative data set, whether it is the original version or Asian translation (Fujii, 2011b). Depending on the client's acculturation levels and language proficiency as determined in the initial interviews, the Asian versions of standardized tests can be selected and used in neuropsychological assessments. There are no neuropsychological or psychological tests specifically developed for Asian Americans in the U.S.; however, some of the major neuropsychological and psychological tests developed in the U.S. have been translated into various Asian languages and normed in Asian countries (e.g., Chinese, India, Japanese, Korean, Thai, Vietnamese). The most widely translated and Asian-normed tests are in the following areas: (1) global intelligence/cognition, (2) overall mental functioning and status, (3) language proficiency/functioning, 4) the fixed batteries for neuropsychological assessments, (5) executive functioning, (6) visual-perceptual/visual-spatial, (7) attention and concentration, and (8) memory and working memory. Examples of these measures and the available languages are presented in Table 9.3.

Often an initial screener in neuropsychological assessment, with regard to measures of overall mental functioning and mental status, China, Japan, Korean, and India use the translated Mini-Mental Status Examination; the Montreal Cognitive Assessment is also commonly used in these Asian countries. For cognitive testing, the Wechsler Adult Intelligence Scale (WAIS, any version) and the Wechsler Intelligence Scale for Children (WISC) have been most widely translated in Asian countries and are available in Chinese, Japanese, Korean, and Thai versions. Empirical studies found similar factorial structures and mean raw scores between the standardized sample of the original Wechsler Intelligence Scale for Children-III (Wechsler, 1991) and the Asian translated versions (Chen, Chen, & Zhu, 2003; Kwak, 2003; Ueno & Nakatani, 2003). Further, several studies indicate equivalent levels of performance on the general intelligence and visual-spatial tasks among many East Asian groups (Kwak, 2003; Lynn & Song, 1994). Other cognitive tests, such as the Kaufman-Assessment Battery for Children (K-ABC), Stanford-Binet, and Cognitive Assessment System are also available in Asian languages with Asian normative data. At the same time, cognitive profiles on the intelligence test of Asian children and adolescents showed higher quantitative and visual-spatial abilities in comparison to verbal abilities (Jensen & Inouye, 1980; Suzuki & Gutkin, 1993). Specific to neuropsychological measures, of the fixed batteries, the

Table 9.3 Examples of measures normed and available in Asian languages

Test/Battery	Availability				
	Chinese	Japanese	Korean	Indian	Others
Overall functioning/Mental status					
Consortium to Establish a Registry for Alzheimer's Disease (CERAD; Lee et al., 2005; Ganguli et al., 1996; McCurry et al., 2001)			♦	♦	
Informant Questionnaire on Cognitive Decline in the Elderly (IQCODE; Jorm, 2004; Lee et al., 2005; Siri, Okanurak, Chansirikanjana, Kitayaporn, & Jorm, 2006; Williams, 1991)			♦		♦ Thai
Mini Mental Status Examination (MMSE; Folstein, Folstein, & McHugh, 1975; Ganguli et al., 1995; Ideno, Takayama, Hayashi, Takagi, & Sugai, 2012; Katzman et al., 1998; Kwon & Park, 1998)	♦	♦	♦	♦	
Montreal Cognitive Assessment (MoCA; Fujiwara et al., 2010; Lee, Lee, & Cho, 2008; Nasreddine et al., 2005; Wen et al., 2008; Wong et al., 2009)	♦	♦	♦		♦ Hong Kong
Neurobehavioral Cognitive Status Examination (Cognistat; Kiernan, Mueller, Langston, & Van Dyke, 2010)	♦	♦			
Global ability/Cognition/Developmental status					
Bayley Scale for Infant Development –II (Bayley, 1993; BSID-II in Chinese and Korean; Huang, Chuang, Jong, Yu, & Shieh, 2000; Park, Cho, & Choi, 2003)	♦		♦		
Cognitive Abilities Screening Instrument (CASI; Teng et al., 1994)		♦			♦ Vietnamese
Kaufman Assessment Battery for Children (KABC; Kaufman & Kaufman, 1983; Moon & Byun, 1997)			♦		♦ Laotian
Stanford Binet (Jeon, 1970; Roid, 2003; Terman & Merrill, 1960)		♦			♦ Thai
Wechsler Adult Intelligence Scales (Chen & Chen, 2002; Izawa, Urakami, Kojima, & Ohama, 2009; Yum, Park, Oh, Kim, & Lee, 1992)	♦	♦	♦		♦ Thai
Wechsler Intelligence Scales for Children-IV (K-WISC-IV; Kwak, Park, & Kim, 2011)			♦		
Wechsler Preschool and Primary Scale of Intelligence (Chen & Chen, 2000; Park, Kwak, & Park, 1996)	♦		♦		

(continued)

Table 9.3 (continued)

Test/Battery	Availability				
	Chinese	Japanese	Korean	Indian	Others
Language proficiency/Functioning					
Bilingual Verbal Abilities Test (BVAT; Munoz-Sandoval et al., 1998)	♦	♦	♦	♦	♦ Vietnamese Hmong
Boston Naming Test (BNT; Kaplan, Goodglass, & Weintraub, 1983; Kim & Na, 1999)			♦		
Mantis Dementia Rating Scale (DRS; Chan, Choi, Chiu, & Lam, 2003; Chey, 1988; Mattis, 1976, 1988)	♦		♦		
Western Aphasia Battery (WAB, C-WAB, Paradise K-WAB; Kertesz, 1982; Yiu, 1992; Kim & Na, 2004)	♦		♦		
Reitan-Indiana Aphasia Screening Test – Thai version (RIAST; Tantilipikon, 2003)					♦ Thai
Fixed batteries for neuropsychological assessment					
Halstead-Reitan Neuropsychological Test Battery (Gong, 1986; Reitan & Wolfson, 1985; 1993)	♦	♦			♦ Laotian
Luria-Nebraska Neuropsychological Battery (Goldren, Hammeke, & Purisch, 1980; Kang, 1992; Yun, Xian, & Mathews, 1987)	♦		♦		
Neuropsychiatric Inventory (NPI; Cummings, 1997; Wang et al., 2012)	♦				
World Health Organization Neurobehavioral Core Test Battery (WHO-NTB; Kang, 2000; Zhou, Liang, & Christiani, 2002)	♦		♦		
Visual perceptual/Visual spatial					
Bender Gestalt (Bender, 1946; Brannigan & Decker, 2003)	♦	♦	♦		
Executive Function					
Children's Color Trails Test [CCTT] (Koo & Shin, 2008)	♦		♦		
Stroop Test (Kim et al., 2004; Lee & Chan, 2000)	♦		♦		
Trail Making Test (Lu & Bigler, 2000; Seo et al., 2006)	♦		♦		♦ Vietnamese
Wisconsin Card Sorting Test (Heaton, 1981; Ryeowon, Kang, Lee, Oh, & Shin, 1999; Tsuchiya, Oki, Yahara, & Fujieda, 2005)		♦	♦		
Attention/Concentration					
CogState Battery (Mollica, Maruff, Collie, & Vance, 2005)		♦			

(continued)

Table 9.3 (continued)

Test/Battery	Availability				
	Chinese	Japanese	Korean	Indian	Others
Random Chinese Word Cancellation Test (Chen Sea, Cermack, & Henderson, 1993)	♦				
Memory/Working memory					
California Verbal Learning Test (CVLT; (Delis, Kramer, Kaplan, & Ober, 1987; Kim & Kang, 1999)			♦		
Clinical Memory Test (Xu & Wu, 1986)	♦				
Memory Assessment Scale (K-MAS; Lee, & Jung, 1999; Williams, 1991)			♦		
Rey-Kim Memory Test – Adult (Kim, 1999)			♦		
Rey-Kim Memory Test – Children (Kim, 2006)			♦		
Academic/Learning disability					
Learning Disability Evaluation Scale (LDS; McCarney, 1996; Shin, Hong, Kim, & Cho, 1998)			♦		
Personality/Behavior					
Achenbach System of Empirically Based Assessment (ASEBA;Achenbach, 2009)	♦	♦	♦		
Minnesota Multiphasic Personality Assessment, second edition (MMPI-2; Tsushima & Tsushima, 2002; Ideno et al., 2012)	♦	♦	♦		

Note: Citations provided are not necessarily for the English versions, but for the translated or adapted versions where appropriate

Halstead-Reitan Neuropsychological Test Battery and the Luria Nebraska Neuropsychological Battery have translated versions used in China, Korea, and Laos. Additionally, the Stroop test, Trail Making test, and Wisconsin Card Sorting test are the most commonly used executive functioning tests have been used with Asians (Jo & Dawson, 2011).

Although many of these tests specifically normed for the use in Asian countries can be utilized with Asian American populations, primarily among recent immigrants, it should be noted that there are slight modifications to these translated tests and their test directions. Thus, the clinicians should be aware that the translated Asian versions of these tests are not always directly equivalent forms to the original English version (Kim & Na, 1999). The conundrum is that there is little research on the equivalence of either the standardized (English) measures for Asian Americans or the measures in another language specifically for Asian Americans of that language group.

9.5 Discussion and Conclusion

The various professional organizations have established standards for tests in order to maximize fairness (AERA et al., 1999), and these standards should be considered in the selection of tests for neuropsychological assessment of Asian Americans. Notably, there is no normative sample for measures originating in Western cultures for individuals who are Asian American, and that considers language proficiency and level of acculturation. Of particular concern is the emphasis that may be placed on speeded or timed tasks, as well as the likelihood that Asian Americans will be less likely to provide verbal elaboration, regardless of the language of administration. So few tests that have available psychometric evidence for this population, some additional caveats have been discussed (i.e., use of nonverbal measures, adaptation of measures, use of interpreters). Understanding these limitations, and supplementing a standard neuropsychological battery with measures of language proficiency (regardless of perceived conversational fluency), as well as an appropriate measure of level of acculturation, is essential in the test selection process. When all is said and done, as with any neuropsychological assessment, the test selection is only the first step. Starting with the clinical interview to guide the test selection process, the neuropsychological evaluation needs to be hypothesis driven (Riccio & Reynolds, 2013). With Asian Americans, the interpretation and inferential aspects need to be informed not only by the information obtained on brain function through traditional formats, but also by what is known about the individual's level of acculturation, their willingness to respond honestly and openly to questions about difficulties they are encountering, and the increased potential to respond as they think is appropriate in order to save face. Obtaining additional information from sources other than family members may help to put the results in perspective.

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Chapter 10
What Do We Need to Know Before Serving Asian and Asian American Clients?

Rik Carl D'Amato, Yuan Yuan Wang, and J. Mark Davis

Abstract As a rapidly growing ethnic and cultural group in the USA (United States of America), and as the most populous group in the world, the Asian population is unique and thus requires clinical neuropsychological services which are tailed to meet the distinctive needs of this population. Clinical neuropsychologists should incorporate and integrate knowledge from cross cultural psychology. This chapter summarizes and highlighted varies points from the previous chapters, including how to serve unique Asian populations ethically, how to understand language related issues, acculturation variables, and the importance of understanding Eastern and Western cultural differences. This chapter also summarizes variables important to clinical interviewing, as well as test selection for Asian populations. The overall goal of this book is to help clinical neuropsychologist provide services to individuals of Asian heritages.

Clinical neuropsychology is built on the assumption that we evaluate individuals so they may receive distinctive treatment based on their unique needs. Thus, we should always be seeking to understand how people are diverse and how these *differences*

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should lead to the provision of services based the unique needs of clients. The purpose of this chapter is to review what the previous chapters in this volume have offered and to integrate this information into a unified mission for those who serve Asian and Asian American clients. We need to learn as much as we can about this dramatically growing group. However, in this introduction we do not seek to replace our book chapters – our goal is to synthesize main points they cover; the reader must still examine them closely to profit from the full spectrum of insights and recommendations they have offered.

10.1 "Take Home" Points

Chapter 1 of this text, authored by Davis and entitled ***Overview of Issues Related to Serving Asian and Asian American Clients***, sets the stage for the volume and provides an introduction to social, ethical, and cultural factors that are important for understanding the client's perspective and presentation. With nearly 15 million people in the United States of America (USA) identifying themselves as *Asian*, the Asian population in the USA grew faster than any other racial group, and it is expected to continue to significantly increase in the future. This will lead to an astonishing impact on the basic demographics of both the USA and the world. However, it is problematic that clinical neuropsychologists in the USA are predominantly white and English speaking. This highlights the discrepancy between the number of potential Asian American clients and the number of Asian American clinical neuropsychologists. Due to the lack of knowledge of cultural variables and appropriate procedures and norms specific to Asian Americans, it is possible that clinical neuropsychologists may fail to appropriately serve these clients.

Chapter 1 provided an overview of demographic characteristics of major Asian groups. It is important to note that the chapter highlights group characteristics but there is much variability within groups. For example, migration patterns differ across groups. In general, large numbers of some groups migrated because of political turmoil and war (e.g., Hmong and Laotians) while others (e.g., Koreans) migrated primarily for educational and professional opportunities. Knowing these patterns is important to understanding cultural context but does not mean that a particular Hmong, Laotian, or Korean migrated because of the aforementioned reasons. As another example, Japanese groups are typically older than other Asian American groups as well as the population in general, and Hmong, Cambodians, and Laotians are the youngest age groups. Chinese, Filipino, Korean, and Japanese Americans tend to be more highly educated than Laotian, Hmong, and Cambodian Americans. Such patterns have implications for the type of Asian American client that neuropsychologists are most likely to see for services.

To be ethically responsible and culturally competent, clinical neuropsychologists should become familiar with two main categories of influences of cultural variables that impact neuropsychological services: those related to characteristics of the Asian American client (e.g., pre/post-migration experiences, literacy, education, acculturation, worldview, etc.) and those related to the properties of tests/test

batteries (e.g., indigenous vs. adapted, appropriate normative sample, sufficient reliability and validity, etc.). It is important to keep in mind that "implicit cultural rules" (Ardila, 2005, p. 193) influence the relationship between the neuropsychologist and client, which in turn impacts the reliability and validity of neuropsychological assessment and efficacy of treatment. In order to reduce the mismatch between service providers and clients or to respond to the clinical needs of clients who are an ethnic minority, the author emphasized that it is imperative for clinical neuropsychologists to learn about the culture, society, and, perhaps most importantly, the perspectives of the clients themselves.

Dugbartey provides us with ***Ethical Considerations in Neuropsychological Assessment of Asian Heritage Clients*** in Chapter 2. He discussed the main ethical aspects needed when working with clients who are culturally distinct. This includes the relationship between values and ethics, the imperfect correlation between ethics and actual behavior, and moral principles which constitute the basis of ethical standards for most health professions. Dugbartey presented a guide for ethical decision making that was authored by Gauthier, Pettifor, and Ferrero (2010). Although intended for developing ethical codes, the guide provides a useful heuristic for the clinical neuropsychologist to evaluate his/her role, and to plan his/her assessment or intervention, when working with an Asian American client. The steps have been reworded slightly to be more specific to clinical neuropsychology: (1) *Identify the individuals and groups potentially affected by the assessment or treatment*; (2) *Identify the ethically relevant issues and practices*, *and the nature of the dilemma*, *including whether there is conflict between principles*, *values*, *or the interests of those involved in the case*; (3) *Analyze how your personal biases*, *stresses*, *self-interests might influence your assessment or treatment*; (4) *Develop alternative courses of action if necessary* (e.g., *referral*) *and analyze the potential benefits or harm associated with the assessment or treatment taking into account threats to reliability and validity of the assessment or treatment*; (5) *Choose a course of action*, *act*, *evaluate the results*, *and if necessary*, *re-engage in further assessment or treatment*; *and* (6) *Consider if any actions on your part might help or hinder the client*, *or be misleading in any way*. The authors also discuss the use of interpreters in assessments. When considering the use of an interpreter, the most ethically defensible course of action is to use a professional interpreter instead of the client's family member. If one is not available, the clinician could consider videoconferencing, teleconferencing, and/or other technological assistance. If, as a last resort, a family member must be used, the clinician should consider the potential costs and benefits and choose the family member likely to provide the most objective service. If a professional interpreter is used, the clinical neuropsychologist should try to choose one who has approved credentials, such as those certified by the International Medical Interpreters Association (IMIA). Dugbartey has recommended that the clinician clarifies the necessity of maintaining confidentiality with the interpreter, including having the interpreter sign a written agreement to maintain the confidentiality of assessment materials. Furthermore, Dugbartey recommended that the clinician document the identity of the interpreter and his/her qualifications in the clinical records (most likely in the report). Finally, the clinician should ensure that the interpreter's role is restricted to only those activities they are qualified to perform (i.e., not having them interpret data).

There are many challenges in providing competent neuropsychological services to clients who are culturally different, such as issues related to language and/or cultural values. Despite these different values, the author also mentioned that for all cultures, some ethical and moral principles are similar, and he offered six moral principles that constitute the basis of ethical standards for most health professions. All psychological services around the world should include the moral principles of: (1) autonomy, (2) non-maleficence, (3) beneficence, (4) social justice, (5) dignity, and (6) truthfulness. This chapter makes clear that clinical psychological services must be built on a firm ethical foundation, and a significant part of the ethical foundation should include understanding the unique perspective of the client.

Chapter 3, authored by Moody, is entitled ***Linguistic Factors and Language Assessment of Asians*** and covered the critical area of language acquisition and assessment. Clinical neuropsychological assessment of clients who are Asian American can be impacted by the unique linguistic characteristics of Asian languages. Accordingly, the unique communication patterns of bilingual clients should be considered due to their different levels of proficiency in English. Information in this chapter will probably best help clinicians put the speech patterns of non-native English speakers into context, help them to understand their accented English, and make decisions about the need for interpreter services. It is probably more helpful within the context of understanding first generation immigrant clients or those from ethnic enclaves. Characteristics of Asian native languages as well as characteristics of the English language will lead to expressive language errors (in English) that could resemble symptoms of language disorders. For example, speakers of languages such as Chinese that do not use articles and prepositions begin to sound *telegraphic* when such words are used when speaking English. Prosody in English is affected when the individual's first language or L1 language is not stress-timed. If function words are used, they are given the same stress as words that should receive primary stress. As Moody describes, this results in a *machine gun* style of speaking. Furthermore, a lack of gender pronouns in some languages such as Chinese result in inconsistent use of them when the native speaker uses English. This could be interpreted as word finding problems without knowledge about the absence of pronouns in first language speakers. Likewise, Chinese lacks past tense so these speakers of Chinese often make verb tense errors. Some Asian languages simply do not have all of the English sounds, so errors in pronouncing consonants and consonant clusters such as *L*, *V*, and *Th* could be interpreted as dysarthria. Moody provides a description of the Flesch Reading Ease Score and notes that it, along with the Flesch-Kincaid Grade Level, is easy to compute from most software programs. Clinicians could use such scores to augment standardized (norm-based) assessment of language proficiency. Moody also reminds us that language proficiency is not the same as language competency, and that language competency is not measurable.

This chapter introduced the main theoretical foundations in linguistic science including *phonetics* and *phonology*, and other related concepts which must be appreciated if one is to understand clients from different cultures (Chomsky, 2000; Kachru, Kachru, & Nelson, 2006). For example, features including sounds (i.e., phonetic features), words (i.e., lexical features), or grammar (i.e., morpho-syntactic

features) can influence the learning of language as well as the clinical diagnosis (Kachru & Nelson, 2006). Other influential theories such as the critical period hypothesis, and interlanguage and fossilization are detailed in light of language acquisition with clients. Moody examined the unique features of English and two Asian languages – Chinese and Japanese – in terms of phonetics, phonology, and other language terms which have important neuropsychological client considerations. Some Asian countries (e.g., Singapore, Philippines, Malaysia) have derived indigenous variants of English that are different from American English, British English, or Australian English. Speakers of these Asian variants are fluent in English but may be difficult for the American English or British English speaking clinician to fully understand. Without an *ear* for the variant of English, and the dialect of that variant, it is often difficult to understand what fellow English speakers are saying, and the difficulty has little or nothing to do with language impairment.

Guo and Uhm provided Chapter 4 entitled ***Society and Acculturation in Asian American Communities***. This chapter introduced several major religions and philosophies in the Far East and Southeast Asia, such as Confucianism, Taoism, and Buddhism, because clinical neuropsychologists need to understand Asian religions and philosophies if they are to accurately understand Asian clients. The authors detailed how the influences of culture on Asian thinking, feeling, and communicating affects client's worldviews, values, and emotions, as well as interpersonal behaviors. Guo and Uhm mentioned the impact of Asian cultural legacies on Asian American people in terms of the emotional experiences, expression, motivation and their roles in life. It is critical to understand those distinctive differences in culture from those in the West, to assist in interviewing, testing, and interpreting information accurately in clinical settings. People from societies with strong Confucian underpinnings tend to have high power distance among individuals; they feel and accept the large distance between themselves and a person of high status. Thus, Asian clients may interact with the neuropsychologist in a highly deferential manner. Guo and Uhm discussed acculturation and the way acculturation impacts clinical neuropsychological assessment, including the critical concept of saving face. The authors noted that filial piety is a prerequisite for a person to be moral and to fulfill social responsibilities. Adult children of elderly clients may be extremely resistant to recommendations that their parent, even if suffering from severe dementia, be placed in a nursing facility. Such a placement would also threaten the family's public image. Given the Asian culture, home care should always be considered. The importance of the measurement of levels of acculturation was seen as critical if successful psychological services are to be provided.

People from Confucian-influenced societies place high value and invest a lot of time in working toward academic achievement. This has several implications for the clinical neuropsychologist. The family might be resistant to explanations of poor academic performance by a child as being due to factors such as a learning disability rather than an indication that the child is not trying hard enough. Also, Asian clients might be quite nervous about taking "tests" for which they have not extensively prepared. It may be especially important to include family members in the initial stages of an assessment or therapy to establish enough trust to proceed to the

atypical one-to-one setting that characterizes much of clinical neuropsychological practice. Asian clients may present with relatively flat affect because of the importance of suppressing extreme emotions from an Asian cultural perspective.

Asians tend to score higher, when compared to Western norms, on paper-and-pencil measures of psychopathology such as the *Minnesota Multiphasic Personality Inventory* (MMPI; Cheung, Jianxin, & Weizhan, 2003). At this point, it is unclear if this pattern is due to response biases or other factors. It is recommended that clinicians score such measures two ways: using standard scoring programs/norms and using available Asian norms. For example, the Chinese University Press at the Chinese University of Hong Kong has an MMPI scoring program for Chinese people from the China Mainland and Hong Kong. People who are Asian also tend to report more symptoms on paper-and-pencil measures than in oral interviews. Thus, a multi-modal assessment of symptoms is vital.

Evaluating the degree of acculturation is also an essential variable to assess. Moreover, current research favors bi-polar or orthogonal assessment measures in order to better account for the complexities and multidimensionality of second culture acquisition over uni-polar measures. The clinical interview should cover experiences prior to immigration (including economic and social standings in their community relative to others in their country of origin), immigration, and (re)settlement. Even with second- or subsequent-generation immigrants, it is important to understand the context of the family's relocation. The degree and sources of current acculturative stress, including intergenerational stress within the family, are important to ascertain. There is much individual variation in acculturation, and some clients might not see themselves as Asian or Asian American but rather as American.

Uhm provided Chapter 5 ***Mental Illness from an Asian American Perspective***. In order to achieve an accurate assessment, she advocated that it is important to evaluate the client's overall mental health and functioning using a cultural lens with which the client views the world and well being. The influence of Buddhist and Taoist philosophies on Asian client's worldviews may make therapies that incorporate acceptance of adversity (including injury and illness) more palatable and relevant than approaches that aim to conquer the adversity, a common underlying attitude in Western psychotherapy and rehabilitation. Understanding mental illness from an Asian perspective should impact diagnosis, as well as assist in the treatment process, such as forging working alliances, agreeing on treatment goals, and managing mental health care. Indeed, Asian Americans tend to underutilize mental health care services. It is not fully known to what degree this trend is influenced by attitudes toward mental illness, differences in expression of symptoms (differential "idioms of distress," inadequacy of Western diagnostic systems with regard to capturing syndromes more typical of Asian cultures, protective features of Asian societies such as more family support, or greater overall resilience of Asians). Expression of distress via relatively more somatic idioms should not be automatically taken as pathological somatization of symptoms. Reasons for a relatively more "somatic" presentation of distress are complex and may involve cultural views of mind-body interdependence as well as culturally accepted ways of accessing help. Also, due to linguistic factors, the Asian client may simply not have the words available to

describe subtle variations in mood. This characteristic is evident even in our work training native Chinese speaking psychologists in an English language graduate program – working with students who have been studying both English and psychology for many years.

Uhm discussed the different view of mental health, beliefs, and symptomology held by many people of Asian descent. For example, Asians tend to wait longer before seeking treatment and accordingly their symptoms often get worse. In fact, having a psychological diagnosis may be seen as bringing shame to the family, influencing the family's standing in the community, which can have tangible economic (e.g., loss of business) or social (e.g., relatives are not suitable marriage partners) problems. Diagnosis may have to be couched in more culturally sensitive terms. Uhm points out that people from more traditional Asian cultures tend to be defined by their relationship with others and socialized to place the collective good over their individual desires. Anxiety may take the form of fear of offending others, losing face, and/or disrupting social harmony. Participation in the process of assessment or therapy might be undermined. This chapter discussed problems using the Western classification system with Asian people, how this influences their cultural worldview, and may artificially lower prevalence rates of mental illness for this group.

Western models of mental health care (including neuropsychological assessment and rehabilitation) are simply not as well known in most Asian countries as they are in North America. The clinician may need to spend extra time educating the client and, equally as important, their family, about the process and purpose of either assessment or therapy. The client may need extra time to solicit input about whether-or-not to participate in this endeavor. Finally, Uhm reminds us not to over generalize group characteristics to individual clients. It is important that the clinician ascertain the attitudes, beliefs, family obligations, situational constraints, etc. of each client.

In order to help us comprehend ***Understanding Differences in Cognition Across the Lifespan: Comparing Eastern and Western Cultures***, Zaroff, D'Amato and Bender in Chapter 6, summarize cross-cultural cognitive assessment, comparing different age groups including children, adults and the elderly. In the area of academic achievement, the author's highlighted that Asian children show better mathematical proficiency and explained the potential reasons from a variety of perspectives. As often noted, people from Asian backgrounds tend to perform better on arithmetic tasks. Standardized scores based on predominantly Western-based norms may not be an accurate reflection of capabilities compared to the person's cultural peer group but do provide information about how the Asian person compares to Western peers. A sociocultural perspective can influence encoding and storage of episodic memories. For example, it has been shown that Asians tend to recall fewer personal details in their autobiographical recall, which could have implications for assessing degree of retrograde memory loss. Clients who are Chinese perform better on auditory digit span tasks (using Chinese words for numbers) but this advantage is less apparent in older adults. Clients who are Japanese perform better on visual recall tasks with less age-related decline. In regard to attention, Asians focus less on foreground details and are more attuned to background and relationships between objects. This may impact tasks such as the "Cookie Theft" on the *Boston Diagnostic Aphasia*

Examination. Measures of executive functioning may be influenced by language history as executive control develops earlier in bilingual children and is more efficient in bilingual young adults. Moreover, differences in how people from Asia and the West tend to categorize objects may influence reasoning tasks such as the *Wisconsin Card Sorting Test*. Some clinical neuropsychologists have clients orally describe their approach to or reasoning on tasks as part of their process analysis. Such a strategy may put clients who are Asian at a disadvantage because it interferes with reasoning. Clients from East Asian show greater awareness of indirect social cues. This suggests that even subtle impairment of these skills could have significant functional impact on social and family relationships. Normative studies suggest few cross-cultural differences in simple processing speed, and age-related declines in category fluency, overall language ability, and mental status. Interestingly, rates of Alzheimer's type dementia are lower in China and Japan (even in elderly with lower educational levels) but rates of vascular type dementia are greater. Rates of Alzheimer's type dementia increase post-immigration. This has implications for the type of elderly client that is most likely to present for assessment and therapy. Also, elderly clients with dementia who are Asian are more likely to manifest severe symptoms by the time they present for neuropsychological services. Zaroff, D'Amato and Bender offer a number of findings from cross-cultural neuropsychological research that are important to keep in mind when choosing an assessment battery and interpreting results.

Semrud-Clikeman and Bledsoe provided Chapter 7, which focused on ***Understanding the Neuroscience of Clients with Asian Heritage*** in order to examine the research in cultural neuroscience, including how culture and the development of neural networks can impact one another. Semrud-Clikeman and Bledsoe divided this chapter into three sections: (1) a review of culture and the influence culture has on brain development in people of Asian heritage, showing how this is relevant to clinical neuropsychology; (2) a review of the plasticity of the brain (indicating culture changes brain processing in varies cognitive areas); and (3) a discussion of the neuroimaging research relating to differences in brain activation helping understand problem-solving in people with an Asian background. They review several findings that have implications for the effects of location of brain injury on functioning:

- Americans show more activation than clients who are Chinese in areas important for word retrieval (middle temporal gyrus), spatial processing (temporal/supramarginal gyrus), and object locations (superior temporal lobe) and more years of exposure to culture are associated with greater differences.
- Clients from the West have greater activation in the left perisylvian cortex with performing mental calculations involving Arabic numbers whereas clients who are Chinese have activation in the premotor association area of the frontal lobe.
- With regard to language processing, activation in the inferior frontal gyrus and left superior/posterior temporal gyrus are similar across cultures but clients who are Chinese, who read Chinese characters, show activation in the inferior parietal region while English speakers reading English words, show activation in the superior temporal gyrus.

Semrud-Clikeman and Bledsoe showed that culture affects the development of neural networks and that greater adoption of Western values is associated with neural activation patterns that are relatively more characteristic of Westerners. There are structural differences between clients who are Chinese and those who are Caucasian indicating a need for separate imaging analysis procedures for these populations.

Lau offered Chapter 8 ***Clinical Interviewing and Qualitative Assessment with Asian Heritage Clients***, which advocated that it is essential for clinical neuropsychologists to have the knowledge and skills to conduct an evaluation that is sensitive to the relevant cultural aspects of patients of Asian descent. Clients who are Asian seem to have a preference for biological explanations of problems because they fit well with the relatively more "medical" approach of clinical neuropsychology. Couching symptoms as physically based, or an interaction between physical and psychological will likely be more palatable to these family and clients. Likewise, couching symptoms in the terms of "stress" in response to physical problems may be more accepted than attributing symptoms to "mental" factors. A more structured and directive approach with Asian American clients will likely work better than a more relaxed or casual approach. This includes providing concrete information about the structure of assessment appointments. Because clients who are Asian may be reticent to identify problematic requests, the clinician should periodically ask if the arrangements for the assessment appointments are appropriate. It is important to take the time to get information and solicit support from the family before developing a rehabilitation plan. The clinician should not be surprised if the family is highly involved in the health care of the client. Gaining the trust of the family deserves extra time and attention, and can lead to important information that may not be offered by the client alone, and the family should be an important ally for therapeutic services. Of course, getting written consent to communicate with family members is essential.

It is critical to have in-depth discussions with interpreters when they are used. Collaboration with an interpreter can involve soliciting advice on how to best relate to the client, reviewing interview questions and test procedures/instructions prior to assessment, and consulting after the interview to better understand the client's (or families') responses will be needed. Taking the time to explain the neuropsychological evaluation to clients who are Asian is important since they mostly likely will not ask questions because of their role-bound respect for authority. Clients who are Asian tend to downplay their achievements. It is necessary to ask about concrete markers of academic success such as class rank (and rank of the client's school in the city, region, or country to gauge the quality of education). Grade point averages of people from Asian countries are likely to be lower than their American counterparts.

Testing the limits, qualitative descriptions of functioning in terms of changes from baseline functioning, and a process approach take on more importance the farther the client deviates from normative databases. Deviations from standardization, including testing the limits, should be well-documented in the report if used. Also, ad hoc modifications of standardized procedures should be well-documented. Lau offers other practical advice for conducting assessments with clients from Asian backgrounds.

In Chapter 9, the critical area of ***Neuropsychological Test Selection with Clients Who Are Asian*** was offered by Riccio, Yoon, and McCormick. With the Asian American population growing rapidly, clinicians and researchers must pay increasing attention to identifying and addressing the cross-cultural considerations when selecting appropriate clinical neuropsychological instruments for this group. This chapter emphasized the importance of considering linguistic differences and acculturation levels when selecting neuropsychological tests, and notes that linguistic differences often interact with acculturation levels. Assessment of language proficiency and acculturation should be initial parts of any clinical neuropsychological assessment with clients who are Asian. For language proficiency, Riccio, Yoon, and McCormick recommend the *Bilingual Verbal Ability Test* (BVAT; Munoz-Sandoval, Cummins, Alvarado, & Ruef, 1998) which has been standardized for use in a number of languages including Chinese (traditional and simplified), Korean, Japanese, Vietnamese, and Hindi, and as clinician-administered or using an interpreter. They note, however, that the test is rather old and has outdated norms. For acculturation assessment, *the Bicultural Scale* (CRM-BS; Cortes, Rogler, & Malgady, 1994) is validated in Chinese, Korean, and Spanish. Acculturation measures for other groups of Asians are provided in the table at the end of the chapter. Riccio, Yoon, and McCormick note that Asian-normed tests are available in the domains of global intellectual functioning, mental status, language proficiency, executive functioning, visual-perceptual/visual-spatial functioning, attention and concentration, memory, and working memory, and for fixed batteries (e.g., *Halstead-Reitan Neuropsychological Test Battery* and the *Luria Nebraska Neuropsychological Battery*). They provide a table summarizing tests that have Asian normative data available, organized by Asian language groups. However, they note that no normative samples exist for clients who are Asian that take into account language proficiency and level of acculturation.

Riccio, Yoon, and McCormick warn that translated versions of tests are not always equivalent to the original English versions; often equivalence has not been determined for constructs being measured, including problems with difficulty level, reliability, and validity. Modified/adapted instruments need to be adequately field tested, which is rarely done. The World Health Organization *Neurobehavioral Core Test Battery* (WHO-NTB) has been previously recommended for use in cross-cultural neuropsychological assessment. However, Riccio, Yoon, and McCormick note that the WHO-NTB seems to have biases specific to clients who are Asian. They suggest choosing tests using a hypothesis testing approach.

10.2 Importance of a Multimethod Approach

Fujii and Wong (2005) provide guidelines for approaching neuropsychological assessments in forensic settings where the *Daubert* standards for admissibility of scientific evidence in legal proceedings are a factor. They recommend that

immigrant clients who are Asian first be conceptualized as falling into one of two groups. The first group comprises well educated and assimilated clients with good English proficiency. More specifically, they have received a college-level education via an English-instruction program, lived in the USA a very long time (since childhood), English is the primary language in the home, and they are average or higher on nationally standardized tests such as the *Standford Acheivement Test* or *Graduate Record Examination*. The second group comprises clients who are poorly educated and acculturated, who have problems communicating in English, and for whom American-developed and normed tests would not be valid. The first group can be assessed using empirically validated norm-based testing while the second group should be assessed using a hypothesis-testing method. A "multimethod approach that integrates data from different sources including behavioral observations, history, medical reports, and collateral reports" (Fujii & Wong, p. 14) is essential to assessment, and "the clinician may need to rely more heavily on consistency of overall presentation to neurobehavioral syndromes" (p. 14) when working with the second group. Fujii and Wong note that three out of the four *Daubert* criteria for scientific evidence can be met using a hypothesis-testing approach but it is difficult to satisfy the criterion to determine the error rate of the approach. Fujii and Wong's recommendations are appropriate for all neuropsychological assessments with immigrants from Asian, not just those conducted within forensic contexts.

10.3 Conclusions

With the world changing more and more each day, we believe that practitioners must strengthen their cross-cultural knowledge if they are to be marketable in our dynamic civilization. Thus, we have offered a text that covers the provision of clinical neuropsychology services with Asian people covering a range of topics. This book covered essential areas of clinical neuropsychology with Asian American people, such as linguistic factors and language assessment, society and acculturation, and mental illness from an Eastern perspective. It also focused on the cognitive developmental of individuals from the East, and considered cognitive and social development and related research, clinical interviewing, and methods of selecting appropriate evaluation tools. This book is critical given the fundamental growth of the Asian population in America and in the world. More Asians will locate to the USA in the future and those in Asia will continue their hunger for clinical neuropsychological knowledge as psychology continues to grow as a discipline. This book offered a unique perspective in psychology, by melding cross-cultural psychology with the daily practice of clinical neuropsychology. The book is an important resource for practitioners, students in training, and university faculty who seek to broaden their practice and understand the neuropsychology of people from an Asian heritage.

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