2012

Development Of The Tagalog Version Of The Western Aphasia Battery-revised

Carmina Ozaeta
University of Central Florida

DEVELOPMENT OF THE TAGALOG VERSION OF THE WESTERN APHASIA BATTERY-REVISED

by

CARMINA OZAETA
B.S. University of Central Florida, 2010

A thesis submitted in partial fulfillment of the requirements
for the degree of Masters of Arts
in the Department of Communication Sciences and Disorders
in the College of Health and Public Affairs
at the University of Central Florida
Orlando, Florida

Summer Term
2012

ABSTRACT

There has been limited research done in the Philippines in the area of aphasia, a frequent concomitant symptom of strokes and presents as impairment in any area of the input and output of language. Diagnosis is generally conducted by clinicians based on sites of lesion of speakers with aphasia and clinical observations of language symptoms and unpublished translation of the WAB. The lack of relevant research and formal assessment tools in the Philippines motivated this current study. The development of this type of assessment battery for the Tagalog (pronounced /təˈgɑːlɒg/ in English) speaking population will provide a means for differential diagnosis of acquired neurogenic communication disorders.

The goal of this study is to develop a Tagalog version of the Western Aphasia Battery – Revised (WAB-R; Kertesz, 2006). The WAB-R was chosen as the basis for the development of the T-WAB-R due to the researched, validated and standardized nature of the battery for use with assessing the severity and type of aphasia through score profiles. This battery provides clinicians with a comprehensive evaluation of language skills in English and is projected to do the same in Tagalog. Given the lack of normative data on the Tagalog speaking population on this test, the current study establishes the normative data of the T-WAB-R from native speakers of Tagalog, encompassing external factors of gender (e.g. male and female) and stratified into three age groups (e.g., 20-39; 40-60; 61+ years old). A full-scale development of the battery will provide a means for differential diagnosis of acquired neurogenic communication disorders in the Tagalog-speaking population.

To my family, who has given me an unfailing and limitless amount of love, patience and support.

Especially to my Mom, who has been my role model and example of strength. I love you.

ACKNOWLEDGMENTS

This research endeavor would not have been possible without the support of many people. The author wishes to express her sincerest gratitude to her thesis chair, Asst. Prof. Dr. Anthony Kong, who was abundantly helpful and offered invaluable assistance, guidance and support. Deepest gratitude is also due to the members of the thesis committee, Prof. Dr. Jack Ryalls and Dr. Janet Whiteside, whose knowledge and assistance in this study granted perspective and insight. Without these members, this study would not have been successful.

The author would like to thank Rhea Mutuc-Cruz, M.A. CCC-SLP, for her interest, support and participation in this study. The author would also like to convey thanks to Mirasol Bagsarsa Ranoa-Javier, CSP-PASP, Chief of the Speech and Language Section of the Department of Rehabilitation Medicine Veterans Memorial Medical Center in the Philippines, for providing the means to work with aphasic clients in her area through her willingness to participate as the clinician overseas. The author wishes to sincerely convey her gratitude for both of your time, patience and resources.

Special thanks also to all of her amazing line sisters and friends, not forgetting her family and boyfriend, Alvin, who always been there.

TABLE OF CONTENTS

LIST OF TABLES

INTRODUCTION

Filipino people are a large and growing ethnic group in the United States. According to the 2000 U.S. Census Brief, the population consists of 10 million Asians in the United States. Filipino people constituted 18.3% of that population as the second largest minority (Reeves & Bennet, 2004). According to the most recent U.S. Census Bureau report, the Filipino population is at 3.2 million (American Community Survey, 2009). The U.S. Census Bureau details that the size and age structure of the Filipino population has a strong correlation to the projected levels of net international immigration. Therefore, the Filipino population as a whole is projected to increase by 79% in 2050 (U.S Census Bureau, 2000). This level of net international migration influences the median age of the Asian population which is 33 years old (Reeves & Bennet, 2004).

However, in the absence of this migration, there is a projected increase to 50.8 years old in 2050, making the Filipino people oldest group in the United States (U.S. Census Bureau, 2000). The median age for the Filipino people is 35.5; however, the age groups of 18 to 64 constituted 69.1% of the population. In general, the percentage of Filipinos that are 65 and over which is 8.7%, is lower than the percentage of the total population which is 12% (Reeves & Bennet, 2004). This data shows that due to the aging of the U.S.'s current Filipino population, the need for more evidence-based practice for this population also increases. This information aided in determining the appropriate division of the three age groups described in the methodology section.

According to Navarro (2009), stroke affects 486 out of 100,000 Filipinos residing in the Philippines. This number represents approximately half a million people in the Filipino population at the time of the study (Navarro, 2009). Currently, there is no research that reports the incidence or prevalence of aphasia in the Filipino population. Therefore, it is assumed that the prevalence of stroke in the Philippines may be applicable to Filipinos living in the United States. Additionally, given that stroke is a common cause of aphasia (Chapey, 2009), a large number of stroke survivors suffer from aphasia.

Aphasia is considered a frequent concomitant symptom of strokes and presents as an impairment in any area of the input and output of language. In order to evaluate patients with aphasia, the use of standardized tools becomes necessary because language abilities vary even in normal individuals. Variables that affect individuals can include gender, age, and educational level (Manly et al., 1999). Bromley (1991) reported that age has a significant influence on language skills in the areas of sentence complexity, vocabulary diversity and sentence length. Literacy has been reported to have an effect on cognitive abilities as well as language (Manly et al., 1999).

Currently, there are no standardized tools for aphasia that are available in Tagalog due to the limited research done in the Philippines in the area of bilingual aphasia. Diagnosis is generally conducted by clinicians based on the site of lesion of the speaker with aphasia, clinical observation of the presenting language symptoms, as well as an unpublished translation of the Western Aphasia Battery (WAB; Kertesz, 1982). The lack of relevant research and culturally-appropriate formal assessment tools in the Philippines has provided the basis for this current study. The development of this type of assessment battery for the Tagalog speaking population

will provide a means for differential diagnosis in the area of neurogenic communicative disorders.

However, there is a Tagalog version of the Bilingual Aphasia Test (BAT; Paradis, 1987) which is designed to assess the language of individuals with aphasia who are bilingual or multi-lingual in an equivalent way. Many different languages have versions of this test including Italian (Paradis, Canzanella, & Baruzzi, 1987), Dutch (Paradis & Coppens, 1987), Swedish (Paradis, Dravins & Ahlsen, 1987, Catalan (Paradis & Elias, 1987), French (Paradis & Goldblum, 1987) Japanese (Paradis & Hagirwara, 1987) and many more, with a total of 115 different language versions available. Paradis (1987) emphasizes that these versions are not simply parallel translations. Rather, there has been an adaptation with different specific criteria of equivalence for each of subtests, and different stimuli for each of the bilingual-specific versions. The Tagalog adaptation of this test was available online (www.mcgill.ca) which was translated by del Pilar (1991).

According to Paradis (1987), this test utilizes a "quadrimodal, linguistically multidimensional approach" which assess all four modalities of speech, hearing, reading and writing. It measures three areas of language performance: (a) linguistic level (e.g., phonological, morphological), linguistic task (e.g., comprehension, repetition) and linguistic unit (e.g., word, sentence, and paragraph) (Paradis, 1987). Its main objective is to measure the linguistic ability of a bilingual individual with 32 subtests designed to be assessed with minimal interference from other modalities. Its scoring system allows for comparisons using the scores obtained from the whole test, for each of the subtests or for each skill (Paradis, 1987).

The Western Aphasia Battery-Revised (WAB-R; Kertesz, 2006) is a widely used standardized tool for assessing aphasia in English-speaking countries. The newer version adds a "bedside" form (e.g., 60 items that can be given in 15-20 minutes), a revision of items (e.g., toy gun was replaced by a watch) and the scoring system used to derive an Aphasia and Cortical Quotient, now includes a Language Quotient to summarize the oral and written language scores (Kertesz, 2006). Subtests that were included in this study were the following: (a) Spontaneous Speech, (b) Auditory Verbal Comprehension (e.g., Yes/No Questions, Auditory Word Recognition, Sequential Commands, (c) Repetition, and (d) Naming and Word Finding (e.g., Object Naming, Word Fluency, Sentence Completion, Responsive Naming). These were used to derive the Aphasia Quotient (AQ). This facilitates the correlation of comparable subtests due to the consistency of the subtests between the translated WAB-R and the Tagalog BAT. The AQ score is the sum of the subtest scores (information, fluency, comprehension, repletion and naming) multiplied by 2 and gives an indication of the severity of language impairment. According to Kertesz (1979), an AQ of 93.8 is a suggested cutoff point for normal and aphasic subjects.

The WAB-R was chosen as the basis for the development of the Tagalog-WAB-R (T-WAB-R) due to the researched, validated and standardized nature of the battery for use with assessing the severity and type of aphasia through score profiles. According to Shewan & Kertesz (1980), this assessment has high internal consistency measures as well as high test-retest reliability which suggests stability; furthermore, provides a composite index. This test shows high inter- and intra-rater reliability which suggests consistent scoring between and within scorers (Shewan & Kertesz, 1980). High correlation of results between WAB and the

Neurosensory Center Comprehensive Examination of Aphasia (NCCEA; Spreen & Benton, 1969, 1977) is suggestive of adequate construct validity.

The WAB has been used as the basis for the Cantonese (Yiu, 1992), Japanese (WAB Aphasia Test Construction Committee, 1986) and Korean (Kim et al., 2004) version of the tool. The WAB-R is unique in its diagnostic capabilities, as compared to other tools such as the Boston Diagnostic Aphasia Examination–Third Edition (BDAE–3; Goodglass, Kaplan, & Barresi, 2000), because it provides the clinician with a score, in the form of the Aphasia Quotient. The BDAE-3 results in a profile for the aphasic syndrome; this lack of numeric value makes it less favorable for research. However, both tests have been used extensively in classifying and describing aphasia. Both tests share a psycholinguistic approach in the classification of aphasia. In addition, these tests have been well researched, validated and standardized as diagnostic tools designed to assess type and severity of aphasia.

However, the WAB-R demonstrates an inherent problem within its classification scheme that consists of only a predetermined set of syndromes, which leaves a probable occurrence in clinical practice of patients that do not fit in the classification system. With this knowledge, the WAB-R still serves as a means to provide a comprehensive survey of language skills in Tagalog and condense information that is both clinical and psycholinguistic into several patterns of language deficits that will allow for generalization.

The WAB-R provides clinicians with a comprehensive survey of language skills. Additionally, this battery has precedence in the Philippines, as an unpublished version of the

WAB is currently being used. Therefore, a Tagalog version of the WAB-R will be developed for this study.

Background

According to the Philippine Census, Tagalog is an Austronesian language spoken as a first language by a third of the population of the Philippines. The standardized form of the language, commonly called Filipino, is the national language and one of two official languages of the Philippines. The Filipino population is unique in comparison to other Asian groups in the U.S. Filipinos are multi-lingual which usually includes Tagalog, English and sometimes Spanish (Everatt et al., 2004). The standardized form of Tagalog phonology consists of 26 phonemes: 21 of them are consonants and 5 are vowels. Syllable structure is relatively simple with each syllable containing at least a consonant and a vowel, and beginning with at most one consonant. The pronunciation of individual consonants and vowels is similar to English.[1]

The Philippine educational system implements a bilingual education policy that requires schools to teach literacy in both Tagalog and English simultaneously as early as first grade. This is observed in the equal amounts of time that are allocated for the instruction and use of the two languages in the daily school program (Everatt et al., 2004). Due to the infusion of the English language in the school curriculum and everyday life in the Philippines, the entire population is able to understand and speak the language to a certain degree. Depending on the socio-economic status (SES), speakers who are higher on the socio-economic scale will generally have a more diverse English repertoire, compared to those on the lower socio-economic scale who use more conversational language (Gil, 1995). These differences became apparent as the participants of the study underwent the study.

Overall, this type of educational environment in the Philippines reflects a construct of language competence that Cummins (1979) articulated as two distinguished areas, academic language proficiency and basic conversational communication skills. Cummins (1979) detailed these areas as the constructs of Cognitive Academic Language Proficiency (CALP) and Basic Interpersonal Communication Skills (BICS), which would be later, referred to as academic versus conversational language proficiency (Cummins, 2000). Furthering this distinction, only participants who have had at least three to five years of education in the Philippines were included.

AIMS OF STUDY

The overall goal of this study is to develop a Tagalog version of the Western Aphasia Battery – Revised (WAB-R; Kertesz, 2006). This battery, when fully validated, will provide clinicians with a comprehensive tool to evaluate aphasic language impairment in Tagalog and is projected to fulfill a similar role as the English version.

The first aim was to establish a norm of the Tagalog-WAB-R or T-WAB-R (hereinafter T-WAB-R). This information is needed to facilitate the development of a standardized aphasia assessment. Moreover, in order to allow clinicians to differentiate and classify between Tagalog speakers with and without aphasia. The second aim of this study was establish concurrent validity with the Bilingual Aphasia Test (BAT; Paradis, 1987) through positively statistically significant correlations between comparable subtest areas. Lastly, the third aim of this study was to obtain aphasic data from four participants with aphasia. This will determine how well the T-WAB-R can characterize their language deficits.

METHODOLOGY

There are three major phases of the study: (1) pilot study, (2) collection of normative data, and (3) collection of aphasic data.

Pilot Study

After the completion of the translation of the WAB-R into the T-WAB-R, described below in the assessment translation section, the pilot study was conducted to determine if further modification of the test items is necessary. The pilot study included one right-handed normal speaker of Tagalog. The participant in the pilot study met the same criteria as those in the main study.

The translation of the WAB-R was completed by the investigator, in conjunction with one speech-language pathologist (SLP), RMC, who is a native speaker of Tagalog who resides in central Florida and works primarily in a skilled nursing facility. Please see Appendix A for translation. This enabled a forward-backward translation of the assessment and maintained consistency within the test items (Brislin, 1970). The investigator translated the WAB-R from the English language into the Tagalog language and RMC translated from the Tagalog into the English language. Any disagreements between the two raters, about 3% (e.g., two out of all translated items), were then resolved to maintain the consistency within test items as well as accuracy and integrity of the translation. Test items that included the word “niyebe” for “snow” were changed to “yélo,” a more common way to convey snow. Repetition test item 15 was revised to maintain a more frequently used sentence structure in conversational Tagalog.

Due to Tagalog syntactic rules that differ from English, many of the items were translated in compliance to those rules. In the case of pronouns there is an absence of a female (her) and

male (him) in the Tagalog language. In addition, the word order differs in the basic verb-initial order with the direct noun triggering the verb appearing last. For example, in the sentence, "The child sang," the Tagalog translation would be as follows "Kumantá ang batà." The sentence would be translated literally as "sang the child." In contrast to English, Tagalog has a relatively shallow orthography with a highly consistent relationship between sounds and symbols.

Assessment Item Modification. The basic structure and test item quantity was adapted from the original Western Aphasia Battery-Revised (WAB-R; Kertesz, 2006). As proposed by Flaherty (1988), it is important to maintain the "conceptual equivalence" to assure that the test will measure the same theoretical construct. T-WAB-R will consist of subtests that evaluate the four oral language areas: spontaneous speech, auditory comprehension, repetition and naming. Due to the time restrictions, only the subtests of aphasia quotient (AQ) were administered. The scoring system for the T-WAB-R remained the same as for the WAB-R (Kertesz, 2006).

Additionally, test items were analyzed after the administration of the T-WAB-R in the pilot study (Kim & Na, 2004). Due to inherent Spanish vocabulary within the basic conversational language of Tagalog (Everatt et al., 2004), items were modified in order to give credit to responses given in Spanish. The following items were modified:

(a) Modification of scoring for Repetition subtest from 100 to 102 due to the excess number of syllables in the Tagalog translation.

(b) Item 18 in the Yes/No Questions subtest: **Is there snow in July?/ Mayroon bang niyebe sa Hulyo?** The first translation was modified from "**niyebe**," the more formal word for "snow," and replaced by "**yélo**" which means ice. Because snow

is a rare occurrence in most areas of the Philippines, using the term "ice" was more easily recognized and understood by speakers of Tagalog. It was further modified into: **Mayroon bang yélo sa labas pag Hulyo?/Is there ice outside during July?**

(c) Modification of all items containing "screwdriver" due to the lack of frequency of the Tagalog translation, "birador," in daily conversation. Since the English term is used more frequently and is more familiar to the speakers of Tagalog, it was made to be an acceptable response.

(d) Item 13 (e.g., paper clip) and 18 (e.g., Tape) in the Object Naming subtest were modified to allow the English word due to its higher frequency in daily conversation.

(e) Item 4 in the Sentence Completion subtest: **They fight like cats and dogs./ Sila ay nag-aaway ng parang aso't pusa.** The Tagalog dialect flips the term cats and dogs.

(f) Item 5 in the Responsive Speech subtest: **What color is snow?/Anong kulay ang yélo o niyebe?** This item was also modified from "**niyebe**" to "**yélo**." This item was further modified into: **Anong kulay ang yélo sa labas?/What color is the ice that is outside?**

Collection of Normative Data

Subjects and Data Collection. A total of 36 normal participants were recruited by means of word of mouth facilitated by the Filipino community of Orange and Polk County in Florida. These participants were comprised of 36 right-handed normal adult bilingual speakers of

Tagalog and English. A consent form, see Appendix B, as well as a description of the study was created and distributed to the Filipino communities, which was signed by all of the participants in the study. The participants were recruited at a 1:1 ratio between male and female and were stratified into three different age groups: (a) 20 to 39, (b) 40 to 60, and (c) 61 or above. Education levels were divided into two categories with 18 participants in each group: (a) 12 to 14 years of education and (b) 16 years of education or above. All normal participants were noted to have adequate hearing and vision, which was obtained through the most recent medical records that were conducted by their physician, prior to participation.

In order to determine the presence of bilingualism among the participants, they were asked to give a history of their education, as referenced above; Cummins (1979) theory of language proficiency was used to estimate the level of bilingualism. Participants were included only if they had at least three to five years of education in the Philippines.

A modified short version of the Bilingual Aphasia Test (BAT, Paradis, 1987) was created in both languages. All participants were administered the modified short version of the BAT. An established screening for the BAT is detailed with specific test items as follows:

(a) spontaneous speech (514-539),

(b) pointing (23-32),

(c) simple and semi-complex commands (33-42),

(d) verbal auditory discrimination (48-65),

(e) syntactic comprehension (66-70; 81-96; 121-124; 129-132; 137-144 only),

(f) synonyms (158-162),

(g) antonyms (163-167),

(h) word repetition (odd numbers only: 193-251; 566-573),

(i) sentence repetition (253-259; 574-622),

(j) series (260-262),

(k) naming (269-288),

(l) sentence construction (289-313),

(m) semantic opposites (314-323),

(n) listening comprehension (362-366)

(o) reading of words (367-376; 623-628)

(p) reading of sentences (377-396; 629-708)

(q) reading of paragraph (387-392)

(r) copying (393-397; 709-743)

(s) dictation of words (398-402; 744-783)

(t) dictation of sentences (403-407; 784-812)

(u) reading comprehension for words (408-417)

(v) reading comprehension for sentences (418-427).

The pertinent information in Part A and Part B of the BAT was given in its entirety in order to examine the participant's history of bilingualism and Tagalog backgrounds. If the participant was not able to complete this section independently due to difficulties secondary to symptoms of aphasia, it may be completed by a spouse/family member and given to the examiner at a later time.

In addition to Part A of the modified short version of the BAT, a modified Asian-American Multidimensional Acculturation Scale (hereafter modified AAMAS; Chung, Kim & Abreu, 2004), given in English only, was used to determine a participant's level of acculturation. As a variable that is investigated in topics within multicultural research, it is important to implement a method of quantifying it within participants. This scale has been found to be valid and reliable through research, with three factors that create a unique dynamic: (a) "orthogonality of cultural dimensions" (i.e., independent variables do not affect a particular dependent variable if they are uncorrelated), (b) "inclusion of pan-ethnic dimension" and (c) "applicability across multiple ethnicities (Chung, Kim & Abreu, 2004)." Each Scale consisted of 15 items: 6 items measure cultural identity, 4 items measure cultural language, 3 items measure cultural knowledge and 2 items measure food consumption. Due to the nature of the education in the Philippines, in which they teach and speak in English within the classrooms, as described in the Tagalog and English section, only an English version of this scale was administered.

The instrument utilizes a 6-point Likert type scale ranging from *not very much* to *very much* to represent the degree of acculturation. Scores were based on the average rating for each scale across the 15 items. The items were totaled using the sum of the Likert scores; the number of items answered was noted. The acculturation score was the total score of all the factors and each factors' means were compared; resulting in the level of acculturation characterized as *low, medium,* or *high.* The complete list of questions in the modified AAMAS is given in Appendix C. Participants who did not receive a satisfactory score on the short version of the BAT and a *medium* to *high* level of acculturation score were excluded from the study. All of the participants were retained for the study after all of these factors were taken into account.

After the assessments were administered and scored, all participants were retained and were characterized as proficient bilingual speakers in Tagalog and English. These participants were an appropriate representative of the bilingual speakers in this population.

Validity Measure of T-WAB-R. The scores of the subtests in the T-WAB-R and the Tagalog BAT were compared and measured to find a positive correlation between comparable subtests in order to determine evidence of concurrent validity (Kim & Na, 2004) which are shown in Table 2. The subtests of the T-WAB-R include: (a) spontaneous speech, (b) auditory comprehension, (c) repetition, (d) naming. The comparable subtests of the Tagalog BAT are as follows: (a) verbal and auditory comprehension, (b) repetition of words and nonsense words and lexical decision, (c) verbal fluency, (d) listening comprehension, (e) naming.

Collection of Aphasic Data

Participants with Aphasia. A total of four aphasic participants were recruited from the Veterans Memorial Medical Center in Quezon City, Metro Manila, Philippines, with the collaboration of the resident SLP at the facility, MBRJ. The AAMAS and the short version of the BAT were administered to the participants in conjunction with the T-WAB-R. The data that resulted from the subtests of the T-WAB-R and the BAT were correlated and addressed for statistical significance. MBRJ conducted the testing in the Philippines and videotaped all testing except for the administration of the AAMAS. This investigator served as the inter-rater for these participants.

The participants with aphasia were divided equally with a 1:1 ratio between fluent and nonfluent aphasic participants. Patients with nonfluent aphasia, as defined by Chapey (2009),

reported to demonstrate reduced speech rate and express less communicative content per unit of time in comparison to normal speakers. Patients with fluent aphasia are generally able to speak in spontaneous conversation without pauses or inappropriate prosody; however, speech is typically filled with neologistic jargon or long periods of silence (Chapey, 2009).Participants presented with a single left hemispheric stroke; both acute (with a post onset time of no more than six months) and chronic (with a post onset time of at least six months) cases were included. All aphasic participants were noted to have adequate or corrected hearing and vision, which was evaluated through the most recent physical conducted by their physician, prior to participation. Table 1 depicts the demographic information of the participants with aphasia.

Table 1. Demographic information of participants with aphasia

Initials (Gender)[a]	T-WAB-R Diagnosis	Original Diagnosis unpublished WAB	Age (years)	Educa-tion (years)	Onset date	Original WAB Testing Date (+ time post-onset)	T-WAB-R Testing Date (+ time post-onset)	Case Type	Clinical Impressions
BCV (F)	Broca's	Broca's	70	12	Feb. 4, 2011	Jan. 25, 2012 (11 months, 21 days	June 3, 2012 (1 year, 3 months, 30 days)	Chronic	Inconsistently answers yes/no questions; attempts to verbalize; however, lacks communicative efficiency; slurred speech
BL (M)	Broca's	Broca's	70	16	May 1, 2009	April 2012 (2 years, 11 months)	June 8, 2012 (3 years, 1 month, 7 days)	Chronic	Inconsistently answers yes/no questions; gestures needs and wants with some vocalizations; right hemiparesis
DR (F)	Conductio n	Broca's	55	16	April 12, 2012	May 7, 2012 (25 days)	June 6, 2012 (1 month, 25 days)	Acute	Functional auditory comprehension; single word productions; Dysarthria
EG (M)	Global	Global	51	16	Jan. 27, 2012	March 2012 (1 month, 21 days)	May 31, 2012 (4 months, 4 days)	Acute	Functional auditory comprehension; gestures needs and wants with some vocalizations secondary to apraxia

Note. [a] Gender denotes male and female.

Reliability of T-WAB-R. Inter-rater reliability is limited due to the limited number of Tagalog speaking clinicians available in the Central Florida area. There were four participants that were randomly selected from the normal group, one from each age group, and all of the participants with aphasia were scored simultaneously by two clinicians, including this investigator, who are familiar with the test. In order to achieve inter-rater reliability, the four participants from the normal group and all of the participants with aphasia were videotaped during the administration of the T-WAB-R and the examiner then rescored the test on a separate occasion (Yiu, 1992). Intra-rater reliability was achieved by random selection of four participants, one from each age group, which had a review of their videotaped test administration. Then, the same rater, this investigator, rescored the tests for a second time (Yiu, 1992).Due to the smaller sample size of 4 participants for both inter-rater and intra-rater reliability, the Spearman's correlation coefficient was used to determine statistical significance.

Statistical Analysis of Normative Data

Similar to the Kim and Na (2004) report on the development of the Korean WAB, an ANCOVA was used to describe the influence of gender, age and education on the existing T-WAB-R performance of the normal participants. The participants were stratified into two age groups to investigate significance of education level: (a) 12 to 16 years and (b) 16 years of education or above. Table 1 displays the mean and standard deviations on the T-WAB-R subtests of the normal control group. Due to the diverse age groups of the normal control, a Tukey post-hoc analysis was used to investigate its statistical significance.

RESULTS

Statistical Analysis of Normative Data

The Tukey post-hoc analysis was conducted to examine the influence of the factors of gender, age, and education. Gender was not found to be statistical significant using the Tukey post-hoc analysis. However, the analysis revealed that performance of the three different age groups of the normal control was statistically different using AQ as the dependent variable. The participants in the age group of 61 years old or above were revealed to have the highest scores which was an unexpected result. This correlation may demonstrate the relationship of age and the performance on the AQ. However, this may be due to the level of language proficiency in the older generation. As referenced above, Cummins (1979) theory of language proficiency may have influenced the higher scores. The participants in the oldest age group left the Philippines at a later age than those in the younger age group. This could cause a higher rate of retention for the language of Tagalog.

In addition, it revealed that the education level was not significant. This may be due to the lack of educational diversity among the participants of the normal control. However, the lowest AQ was attained by those 64 years and older with the lower education level and the highest AQ was achieved by those between 40 to 64 years old with the lower education level. This type of distribution demonstrates that education levels warrant further exploration with a larger and more diverse sample size. Table 2 displays the performance of each control group on the subtests:

Table 2. Mean and SDs of Normal Control Groups on the T-WAB-R subtests

WAB Subtests		Spontaneous speech (20)[a]		Auditory comprehension (200)[a]		Repetition (102)[a]		Naming (100)[a]	
Education Level (years)		Edu: <16	Edu: 16+	Edu: <16	Edu: 16+	Edu: <16	Edu: 16+	Edu: <16	Edu: 16+
Age groups (years old)	20-39	20.00(0.00), 20-20[b,c]	20.00(0.00), 20-20[d]	9.74(0.46), 182-200[d]	9.94(0.29), 194-200[d]	9.05(1.04), 80-102[d]	9.40(0.63), 80-102[d]	8.23(1.61), 59-94[c]	8.47(0.59), 77-89[d]
	40-60	20.00(0.00), 20-20[e]	20.00(0.00), 20-20[f]	9.84(0.22), 198-200[e]	9.83(0.26), 180-200[f]	9.52(0.69), 90-102[e]	9.85(0.49), 90-102[f]	9.04(0.27), 89-94[e]	8.70(0.87), 73-98[f]
	61+	20.00(0.00), 20-20[d]	20.00(0.00) 20-20[g]	9.76(0.18), 190-200[d]	9.98(.035) 200-200[g]	9.09(0.69), 80-102[d]	10.40(0.28) 100-102[g]	7.67(0.72), 60-87[d]	9.65(0.21), 95-98[g]

Note. [a]: scores in parentheses represent the maximum, [b]: the values are listed in the order "mean,(standard deviation),range", [c]: sample size=4, [d]: sample size=10, [e]: sample size=5, [f]: sample size=8, [g]:sample size=2

Validity Measure. Table 3 displays the comparable areas of the T-WAB-R and the T-BAT and reveals that the corresponding subtests are positively correlated. This establishes adequate concurrent validity of the T-WAB-R.

Table 3. Comparable Areas of the T-WAB-R and T-BAT

	Tagalog WAB Subtests	Spontaneous speech (20)[a]	Auditory comprehension (200) [a]	Repetition (102) [a]	Naming (100) [a]
Tagalog-BAT subtests	Spontaneous Speech (25)[a]	§	§	§	§
	Verbal and auditory comprehension (70) [a]	§	0.61***	0.23	0.48**
	Repetition and lexical decision (37) [a]	§	§	§	§
	Naming (78) [a]	§	0.39*	0.35*	0.53**

Note. [a]: scores in parentheses represent the maximum; §denotes maximum achieved; *:p≤0.05, **:p≤0.01, ***:p≤0.001

In order to establish a correlation of subtests in the T-WAB-R, a Pearson-product moment coefficient was computed for each aphasia quotient (AQ) score. The resulting correlations between individual subtests of the T-WAB-R and AQ subscores with aphasia severity (total AQ) are presented in Table 4. However, the subtests are the Spontaneous Speech and Repetition sections are not included because all of the participants achieved the maximum and the variables remained constant due to the nature of the normal participant sample. Therefore, no statistic was able to be produced. Moreover, Table 5 presents the correlation indices among each subtest and AQ in order to investigate construct validity.

Table 4. Correlation between subtest scores of the T-WAB-R and T-BAT with normal participants

WAB / BAT	AQ – AUD[4]	AUD – Y/N[5]	AUD – W[6]	AUD – C[7]	AQ – REP[8]	REP[9]	AQ – NAM[10]	NAM – O[11]	NAM – WF[12]	NAM – SC[13]	NAM – RN[14]	AQ[15]
AC Score[20]	.197	.191	.559**	.111	.225	.225	.481**	.421*	.374*	-.043	.386*	.432**
C[22]	.497**	.217	.416*	.462**	0.07	0.07	.295	.248	.283	-.122	.471**	.305
V/AD[23]	.284	.372*	.617**	0.097	.303	.303	.554**	.542**	.412*	.045	.567**	.529**
S[24]	.103	.015	.352*	0.114	.063	.063	0.246	.184	.18	-.034	0.179	.197
LC[25]	-0.19	-.09	.052	-.168	.129	.129	.152	.098	.167	-.15	-.167	.116
NAM Score[28]	.387*	.251	.574**	.236	.352*	.352*	.530**	.509**	.368*	-.019	.626**	.557**
N[29]	.400*	.312	.420*	.211	.358*	.358*	.382*	.401*	.226	-0.07	.677**	.473**
S[30]	.402*	.302	.458**	.287	.136	.136	.357*	.358*	.224	-0.13	.617**	.354*
SYN[31]	.224	.103	.374*	.131	.222	.222	.227	.168	.279	-.115	.278	.283
ANT[32]	.014	-.076	.163	-0.016	.147	.147	.015	-.052	.174	-.085	-.041	0.08
SO[33]	.272	.195	.484**	.197	.239	.239	.626**	.634**	.308	.177	.505**	.540**

Note. *p ≤ .05, two-tailed. **≤01 level, two-tailed.

4. AQ – Auditory Verbal Comprehension Score (AUD); 5. AUD – Yes/No Questions; 6. AUD – Auditory Word Recognition; 7. AUD – Sequential Commands; 8. AQ – Repetition Score; 9. Repetition; 10. AQ – Naming and Word Finding Score; 11. Object Naming; 12. Word Fluency; 13. Sentence Completion; 14. Responsive Naming; 15. Aphasia Quotient, 20. Auditory Comprehension Score; 22. Commands; 23. Verbal/Auditory Discrimination; 24. Syntax; Listening Comprehension; 28. Naming Score; 29. Naming; 30. Series; 31. Synonyms; 32. Antonyms; 33. Semantic Opposites

Table 5. Correlation for subtest scores and AQ of Normal Controls

Subtests	AC	R	N	AQ
SS	§	§	§	§
AC	1.000**	-.033	.562**	.512*
R	-.033	1.000**	.465**	.741**
N	.512**	.465**	1.000**	.925**

Note. *p ≤ .05, two-tailed. **≤01 level, two-tailed. §denotes maximum score achieved Each abbreviation denotes the following: SS=Spontaneous Speech, AC=Auditory Comprehension, R=Repetition, N=Naming, AQ=Aphasia Quotient.

Table 4 demonstrates that the related subtests of the T-WAB-R correlate to the related subtests of the T-BAT. The following subtests of the T-BAT assess auditory comprehension: (a) Commands, (b) Verbal/Auditory Discrimination, (c) Syntax, (d) Listening Comprehension and (e) Auditory Comprehension Score. The following subtests of the T-BAT show a significant positive correlation with the T-WAB-R subtest AQ – Auditory Verbal Comprehension Score: (a) Commands, (b) Naming Score, and (c) Naming. The Verbal/Auditory Discrimination subtest of the T-BAT shows a positive significant correlation with the Yes/No Questions T-WAB-R subtest. The following subtests of the T-BAT shows a significant positive correlation with the Auditory Word Recognition subtest of the T-WAB-R: (a) Auditory Comprehension Score, (b) Naming, (c) Naming Score, (d) Syntax, (e) Series and (f) Semantic Opposites. The Commands subtest of the T-BAT shows a positive significant correlation with the Sequential Commands subtest of the T-WAB-R.

The following subtests of the T-BAT assess naming and word finding skills: (a) Naming Score, (b) Naming, (c) Series, (d) Synonyms, (e) Antonyms, and (f) Semantic Opposites. The following subtests of the T-BAT demonstrated a significant positive correlation with the AQ – Naming Score of the T-WAB-R: (a) Auditory Comprehension Score, (b) Verbal/Auditory Discrimination, (c) Naming, (d) Naming Score and (e) Series. The following subtests of the T-BAT demonstrated a positive correlation with the Object Naming subtest of the T-WAB-R: (a) : (a) Auditory Comprehension Score, (b) Naming, (c) Naming Score, (d) Series, and (e) Semantic Opposites. The following subtests of the T-BAT correspond to the Word Fluency subtest of the T-WAB-R: (a) Auditory Comprehension Score, (b) Verbal/Auditory Discrimination and (c) Semantic Opposites. There were no subtests in the T-BAT that demonstrated a significant positive correlation with the Sentence Completion of the T-WAB-R. The following subtests of the T-BAT demonstrated a significant positive correlation with the Responsive Naming subtest of the T-WAB-R: (a) Auditory Comprehension Score, (b) Verbal/Auditory Discrimination, (c) Commands, (d) Naming, (e) Naming Score, (f) Series, and (g) Semantic Opposites.

The following subtests of the T-BAT demonstrated a significant positive correlation with the AQ of the T-WAB-R: (a) Auditory Comprehension Score, (b) Verbal/Auditory Discrimination, (c) Naming, (d) Naming Score, (e) Series, and (f) Semantic Opposites.

Reliability Measure. Table 6 illustrates that all the subtests, related to inter-rater reliability were statistically significant except for Yes/No Questions. This may be due to a misinterpretation of one of the questions (i.e., item 20, “Do you cut grass with an ax?”) by which some participants had requested clarification on. However, all of the subtests have a high

statistical significance, in regard to intra-rater reliability. These results suggest moderate consistency between inter-rater reliability and high consistency within intra-rater reliability.

Table 6. Spearman's coefficient inter-and intra-rater reliability

Subtests	Inter-Rater	Intra-Rater
AQ – SS[1]	1.00[§]	1.00[§]
SS – I[2]	1.00[§]	1.00[§]
SS – F[3]	1.00[§]	1.00[§]
AQ – AUD[4]	.632*	1.000**
AUD – Y/N[5]	.333	1.000**
AUD – W[6]	.816*	1.000**
AUD – C[7]	.816*	1.000**
AQ – REP[8]	1.000**	1.000**
REP[9]	1.000**	1.000**
AQ – NAM[10]	1.000**	1.000**
NAM – O[11]	1.000**	1.000**
NAM – WF[12]	1.000**	1.000**
NAM – SC[13]	1.00[§]	1.00[§]
NAM – RN[14]	1.00[§]	1.00[§]
AQ[15]	1.000**	1.000**

Note. *p ≤ .05, two-tailed. **≤01 level, two-tailed.
1. AQ (Aphasia Quotient) – Spontaneous Speech (SS); 2. SS – Information Content; 3. SS – Fluency, Grammatical Competence, and Paraphasias; 4. AQ – Auditory Verbal Comprehension Score (AUD); 5. AUD – Yes/No Questions; 6. AUD – Auditory Word Recognition; 7. AUD – Sequential Commands; 8. AQ – Repetition Score; 9. Repetition; 10. AQ – Naming and Word Finding Score; 11. Object Naming; 12. Word Fluency; 13. Sentence Completion; 14. Responsive Speech; 15. Aphasia Quotient

Qualitative Analysis of Aphasic Participants

Due to the small sample size of the aphasic participants, it was not possible to generate a viable statistical analysis of their testing data. However, a qualitative analysis was possible in comparing the performance of the participants. Table 7 presents negative z-scores of each aphasic participant when derived from the mean and standard deviation of the same subtests in the normal population (i.e., furthered divided into age groups). The results of the testing revealed a dramatic difference in scores between normal and aphasic participants. The scores of the normal participants are near-perfect suggesting that high specificity within the test. The negative z-scores indicate that the testing performance of the aphasic participants was inferior to that of the normal participants. Although, it is not possible to fully analyze the sensitivity of the T-WAB-R, the performance of the aphasic participants is reflected in the scores. Table 8 presents the T-WAB-R and BAT scores of the aphasic participants. This table further emphasizes the lower scores of the aphasic participants, as compared to the higher scores of the normal participants. These findings suggest that the T-WAB-R is able to differentiate between normal and aphasic speakers.

Table 7. Z-scores among participants with aphasia

WAB Subtests		Auditory comprehension (10)[a]	Repetition (10.2)[a]	Naming (10)[a]	AQ (100)[a]
Aphasic Participant	BCV / Broca's / Female / 70 years old/ 12 years of edu	-9.78	-11.43	-3.99	-15.52
	BL / Broca's / Male / 70 years old / 16 years of edu	-192.29	-28.57	-6.35	-21.01
	DR / Conduction / Female / 55 years old/ 16 years of edu	-10.88	-16.84	-8.16	-19.65
	EG / Global / Female / 51 years old / 16 years of edu	-29.73	-20.10	-10.00	-34.23

Note. [a]: scores in parentheses represent the maximum, [b]: the values are listed in the order "mean,(standard deviation), z-score" [c] participant initials

Table 8. T-WAB-R and BAT scores of participants with aphasia

T-WAB-R				BAT			
Subtests	Maximum	Mean scores of subjects with Non-Fluent aphasia [a]	Mean scores subjects with Fluent	Subtests	Maximum	Mean scores of subjects with Non-Fluent	Mean scores subjects with Fluent
AQ – SS[1]	20	5.00 (2.828)	6.50 (7.778)	SS Score[16]	20	4.50 (2.121)	8.50 (4.950)
SS – I[2]	10	3.5 (2.121)	2.50 (3.536)				
SS – F[3]	10	1.50 (.707)	4.00 (4.243)				
AQ – AUD[4]	10	5.63 (3.359)	4.55 (3.465)	AC Score[17]	70	41.00 (7.071)	30.00 (21.213)
AUD – Y/N[5]	60	47.00 (9.899)	43.50 (19.092)	C[18]	10	10.00 (.000)	6.00 (2.828)
AUD – W[6]	60	37.50 (26.163)	27.00 (26.870)	V/AD[19]	18	9.50 (2.121)	9.00 (5.657)
AUD – C[7]	80	28.00 (31.113)	20.50 (23.335)	S[20]	37	21.00 (4.243)	13.50 (10.607)
AQ – REP[8]	10	1.800 (.8485)	.800 (1.1314)	LC[21]	5	.50 (.707)	1.50 (2.121)
REP[9]	100	18.000 (8.485)	8.00 (11.314)	REP Score[22]	37	16.00 (5.657)	5.50 (2.121)
AQ – NAM[10]	10	3.950 (1.2021)	.800 (1.1314)	NAM Score[23]	78	28.50 (23.335)	24.50 (27.577)
NAM – O[11]	60	34.50 (6.364)	7.00 (9.899)	N[24]	14	4.00 (5.657)	3.50 (4.950)
NAM – WF[12]	20	2.00 (2.828)	.50 (.707)	S[25]	3	.00 (.000)	.00 (.000)
NAM – SC[13]	10	1.50 (.707)	.50 (.707)	SYN[26]	5	1.50 (.707)	1.50 (2.121)

T-WAB-R				BAT			
Subtests	Maximum	Mean scores of subjects with Non-Fluent aphasia [a]	Mean scores subjects with Fluent	Subtests	Maximum	Mean scores of subjects with Non-Fluent	Mean scores subjects with Fluent
NAM – RN[14]	10	1.50 (2.121)	.00 (.000)	ANT[27]	5	2.50 (2.121)	1.50 (2.121)
T-WAB-R				BAT			
Subtests	Maximum	Mean scores of Non-Fluent[a]	Mean scores of Fluent	Subtests	Maximum	Mean scores of Non-Fluent	Mean scores of Fluent
AQ[15]	100	32.75 (13.081)	25.30 (27.011)	SO[28]	10	1.50 (2.121)	1.50 (2.121)

Note. [a]: the values are listed in the order "mean,(standard deviation) 1. AQ (Aphasia Quotient) – Spontaneous Speech (SS); 2. SS – Information Content; 3. SS – Fluency, Grammatical Competence, and Paraphasias; 4. AQ – Auditory Verbal Comprehension Score (AUD); 5. AUD – Yes/No Question
s; 6. AUD – Auditory Word Recognition; 7. AUD – Sequential Commands; 8. AQ – Repetition Score; 9. Repetition; 10. AQ – Naming and Word Finding Score; 11. Object Naming; 12. Word Fluency; 13. Sentence Completion; 14. Responsive Speech; 15. Aphasia Quotient; 16. Spontaneous Speech Score; 17. Auditory Comprehension Score; 18. Commands; 19. Verbal/Auditory Discrimination; 20. Syntax; 21. Listening Comprehension; 22. Repetition Score; 23. Naming Score; 24. Naming; 25. Series; 26. Synonyms; 27. Antonyms; 28. Semantic Opposites

The non-fluent aphasic participants, both Broca's aphasia and chronic cases, presented with slow, halting speech characterized by restricted vocabulary and grammar. Both of these participants had relatively intact auditory comprehension as well as an awareness of their deficits. These traits are classic symptoms of Broca's aphasia referenced in recent literature (Chapey, 2009). These findings were revealed in their performance on both the BAT and the T-WAB-R in comparison to the performance of the normal participants.

The fluent aphasics presented with different characteristics as one was diagnosed with Global's aphasia and the other, Conduction aphasia; although both are acute cases. The participant with Global's aphasia presented with a severe impairment in all aspects of language that were tested. This participant did not seem to be highly aware of his deficits and displayed relatively intact prosody during the testing sessions. The participant with Conduction aphasia presented with severely impaired repetition; however, maintained a higher level of fluency in spontaneous speech as well as functional auditory comprehension. The symptoms that were presented by each participant are noted to characterize their specific type of aphasia in recent literature (Chapey, 2009). It is also noted that the participant with Conduction aphasia, was first diagnosed with Broca's aphasia. However, this change is due to the nature of spontaneous recovery that is typically seen in acute cases. The performance on the BAT was reflective of their performance on the T-WAB-R in the comparable subtests.

When comparing the scores of the non-fluent and the fluent aphasic participants, trademark traits of both types of aphasia become apparent. Higher auditory comprehension, naming and overall AQ are achieved by the non-fluent aphasics; whereas, the fluent aphasics achieved slightly higher Spontaneous Speech scores. It is noted that the participant with Global aphasia was classified as having fluent aphasia. This may have depressed the means of the fluent aphasics. However, the T-WAB-R seems to highlight the differences between the two types of aphasia and demonstrates adequate sensitivity to the deficits characterized by the aphasic participants.

Statistical Analysis of Aphasic Data

Unpublished WAB vs. T-WAB-R. Table 9 demonstrates positive statistically significant correlations between the subtests of the unpublished WAB and the T-WAB-R. Although there are differences within the test items, the translation of the unpublished WAB is relatively parallel to the original English WAB (Kertesz, 1982). Word choices varied among the unpublished WAB and the T-WAB-R, in relation to the dialect or type of Tagalog that was chosen. The Spanish influences of the Tagalog language have become interchangeable within daily conversation in the Philippines. This may account for the positive correlation between the two versions of the test.

Table 9. Correlation between unpublished WAB and T-WAB-R

Subtests	Mean score in unpublished WAB[a]	Mean score in T-WAB-R[a]	Spearman's Correlation Coefficient
AQ – SS[1]	4.00 (1.826)	5.75 (4.856)	1.000**
SS – I[2]	2.25 (1.258)	3.00 (2.449)	0.833*
SS – F[3]	1.75 (1.500)	2.75 (2.872)	0.816*
AQ – AUD[4]	4.1625 (2.4236)	5.09 (2.854)	1.000**
AUD – Y/N[5]	36.75 (19.190)	45.25 (12.580)	0.8*
AUD – W[6]	31.00 (22.420)	32.25 (22.485)	1.000**
AUD – C[7]	15.50 (12.042)	24.25 (22.867)	0.6*
AQ – REP[8]	1.100 (1.2702)	1.300 (1.0000)	1.000**
REP[9]	11.00 (12.702)	13.00 (10.000)	1.000**
AQ – NAM[10]	1.050 (1.9053)	2.375 (2.0532)	0.632*
NAM – O[11]	8.75 (15.564)	20.75 (17.270)	0.632*
NAM – WF[12]	.00 (.000)	1.25 (1.893)	1.000§
NAM – SC[13]	.75 (1.500)	1.00 (.816)	0.816*
NAM – RN[14]	1.00 (2.000)	.75 (1.500)	1.000**
AQ[15]	20.625 (11.9056)	29.03 (17.854)	0.8*

Note. *p ≤ .05, two-tailed. **≤01 level, two-tailed. § Denotes maximum achieved. [a]: the values are listed in the order "mean,(standard deviation)

1. AQ (Aphasia Quotient) – Spontaneous Speech (SS); 2. SS – Information Content; 3. SS – Fluency, Grammatical Competence, and Paraphasias; 4. AQ – Auditory Verbal Comprehension Score (AUD); 5. AUD – Yes/No Question s; 6. AUD – Auditory Word Recognition; 7. AUD – Sequential Commands; 8. AQ – Repetition Score; 9. Repetition; 10. AQ – Naming and Word Finding Score; 11. Object Naming; 12. Word Fluency; 13. Sentence Completion; 14. Responsive Speech; 15. Aphasia Quotient

Reliability Measure. The following table illustrates that all the subtests, related to inter-rater reliability were positively statistically significant. All of the subtests have a high statistical significance, in regards to intra-rater reliability. Prior to test administration, methodology and procedures were discussed to ensure the accuracy of the execution of the test items. Any disagreement between both raters, which was approximately 3% of the test items, were discussed and resulted in modifications of the test items as referenced in a previous section (i.e., assessment item modification). The results in Table 10 suggest high consistency between both inter-rater and intra-rater reliability.

Table 10. Spearman's coefficient inter- and intra-rater reliability

Subtests	Inter-Rater	Intra-Rater
AQ – SS[1]	1.000**	1.00[§]
SS – I[2]	1.000**	1.00[§]
SS – F[3]	1.000**	1.00[§]
AQ – AUD[4]	0.8*	1.000**
AUD – Y/N[5]	1.000**	1.000**
AUD – W[6]	1.000**	1.000**
AUD – C[7]	1.000**	1.000**
AQ – REP[8]	1.000**	1.000**
REP[9]	1.000**	1.000**
AQ – NAM[10]	1.000**	1.000**
NAM – O[11]	1.000**	1.000**
NAM – WF[12]	0.816*	1.000**
NAM – SC[13]	1.000**	1.00[§]
NAM – RN[14]	1.000**	1.00[§]
AQ[15]	1.000**	1.000**

Note. *p ≤ .05, two-tailed. **≤01 level, two-tailed. [§] Denotes maximum scores achieved.
1. AQ (Aphasia Quotient) – Spontaneous Speech (SS); 2. SS – Information Content; 3. SS – Fluency, Grammatical Competence, and Paraphasias; 4. AQ – Auditory Verbal Comprehension Score (AUD); 5. AUD – Yes/No Question s; 6. AUD – Auditory Word Recognition; 7. AUD – Sequential Commands; 8. AQ – Repetition Score; 9. Repetition; 10. AQ – Naming and Word Finding Score; 11. Object Naming; 12. Word Fluency; 13. Sentence Completion; 14. Responsive Speech; 15. Aphasia Quotient

DISCUSSION

This study has established that the Tagalog version of the WAB-R has great potential as a tool to survey language skills and provides a means for differential diagnosis for neurogenic communicative disorders. The collection of normative data, with 36 participants, created a means for ensuring a valid and reliable T-WAB-R protocol for use with aphasic participants. The normative data revealed that the T-WAB-R, as a diagnostic tool, reflects that age level significantly influence language performance. These findings are consistent with the study completed on the Korean Western Aphasia Battery (Kim & Na, 2004). As the basis for concurrent validity, the T-BAT showed strong positive correlations among its comparable subtests areas with the T-WAB-R. These correlations extended further and showed strong positive correlations to the AQ.

The unpublished Tagalog WAB is translated from the first version of the WAB (Kertesz, 1982). Although it is being used as part of the diagnostic process in the Philippines, it does not have scientific data on its validity or reliability. In comparison to the protocol in this study, the T-WAB-R, the unpublished version utilized more America influenced words such as “tsokolate,” meaning chocolate, for the color brown in the Auditory Word Recognition subtest. It also changed many of the test items in the Repetition subtest to accommodate the culture such as “Hukbong Sandatahan ng Pilipinas” meaning Armed Forces of the Philippines.

Although the T-WAB-R contains the same contents and structure as found in the original WAB-R (Kertesz, 2006) as well as the same test administration, there were minor changes to the protocol that had to be applied to accommodate the Tagalog language. The formal word for “snow” was completely unfamiliar to most of the normal participants. Due to the carry-over of

the American culture, most of the common phrases such as “They fight like cats and dogs” and “Roses are red, violets are blue,” were recognized by the participants. Without this cultural carryover, it might have been necessary to change these test items; however, they were deemed culturally appropriate for the participants.

The resulting testing performance of the normal and aphasic participants on the T-WAB-R was dramatically different. The normal participants achieved higher scores, which is typical in this condition, demonstrating specificity of the testing protocol. Additionally, the aphasic participants, not only achieved lower scores on subtests, but also, achieved scores that are typical of their diagnosis. This performance indicated a basis for the sensitivity of the T-WAB-R.

Therefore, the first of aim of this study has been accomplished; the establishment of normative of the T-WAB-R. The second aim of this study was addressed and findings concluded adequate concurrent validity using the BAT (Paradis, 1987). Lastly, the third aim was obtained through the testing of aphasic participants. The data suggests that the T-WAB-R was able to characterize the language deficits of the aphasic participants. These findings fortified the conclusion that this protocol allows clinicians to differentiate and classify between Tagalog speakers with and without aphasia.

The final protocol is a reflection of the modern Tagalog that is currently being used; which takes into account the Spanish and American influences. The various dialects of the Philippines were also taken into account when giving appropriate alternatives for stimuli responses. For example, the word “book” may be translated into “libro,” borrowed from Spanish

or “aklat,” more rooted in Tagalog. In this way, the speaker was not penalized for code-switching between the major dialects of the Philippines.

The finalized protocol enabled the clinician to obtain the baseline language skills for the participants with aphasia. The aphasic performance on the T-WAB-R was able to adequately present a survey of the language deficits within each of the participants.

Limitations and Future Research

Despite the potential of the newly developed T-WAB-R, the test may have a lower degree of sensitivity and specificity due to the smaller sample size of both normal and aphasic participants. Additionally, the sample size limited the investigation of areas such as the influence of education levels. It was also found that age was a significant influencing factor and more research should be done in order to investigate. Due to time restrictions with participants, it was only possible to translate and administer part one of the WAB-R (Kertesz, 2006). Future research on this protocol should include a full translation of the WAB-R (Kertesz, 2006) as well as a larger sample size to further fortify the validity and reliability of this language test.

FOOTNOTES

[1] The differences between the Tagalog and English languages are listed in the following section. These differences, including syntax and the general organization of the subject and verb, differ greatly in both languages. This may lead to errors that reflect the Tagalog organization in the English portion of the assessment in the participants with aphasia. This borrowing of syntactic organization can also be observed in the normal Filipino population due to their use Tagalog/English code switching known as "Taglish (Bautista, 2004)."

This form of code switching is unlike other forms found in Asia such as the Colloqial Singapore English or Singlish, which uses English structure heavily modified by the country's indigenous language influences from Malay or Hokkien. In contrast, Taglish goes beyond borrowing ready-made phrases or words, it is the use of Standard English and placed side by side with standard Tagalog. Taglish is used in informal discourse and is usually seen in the middle and upper-class Filipinos. Therefore, the manifestation of aphasia in this population greatly depends on the individual history of bilingualism, frequency of use, general background information on SES and code switching behaviors. Code switching between English and Tagalog is prevalent throughout the Philippines and in several of the languages of the Philippines other than Tagalog due to the integration of the English language in the school system. The amount of code switching varies from the occasional use of English loan words to outright code-switching where the language changes in mid-sentence.

The standardized form of Tagalog phonology consists of 26 phonemes: 21 of them are consonants and 5 are vowels. Syllable structure is relatively simple with each syllable containing at least a consonant and a vowel, and beginning with at most one consonant.

The pronunciation of individual consonants and vowels is similar to English. The Tagalog language has only one open syntactic category and one additional closed syntactic category (Gil, 1995). Therefore, virtually all the words and word strings of the language presents a similar syntactic behavior. This characteristic leads to morphological and semantic consequences. Syntactic categories are a set of words and word strings that share syntactic properties. Those characterized as open syntactic categories are based on content words and are able to contain an infinite set of words. In contrast, closed syntactic categories are usually based on function words and contain a small number of members (Gil, 1995). Please see Appendix A, taken from an article by Gil (1995), for examples that illustrate the most basic construction types of the language.

Due to the lack of distinct syntactic categories, morphological word classes are partly arbitrary and dependent on semantic factors. The basic language structure usually contains a verb followed by a string of nominals, which is a part of speech that shares features with nouns and adjectives. The term nominal is used because the language does not categorically differentiate nouns from adjectives.

For example, please see the following Tagalog sentences:

a. Nag-ingay ang aso

To make noise (verb) dog (nominal)

"The dog made noise."

b. Aso ang nag-ingay.

Dog (nominal) To make noise (verb)

“The one that made noise was a dog.”

These examples use the same words in different word orders, making it apparent that Tagalog does not distinguish between lexical categories as observed in the English language. Tagalog uses functional structure to rule how a phrase is spoken. It is also noted there is no distinction between nouns and verbs, as seen in the above example, word orders are interchangeable (Richards, 2009).

Intonation is phonemic in Tagalog and the accent primarily occurs on either the last or the penult syllable of a word. For example, words that denote quick or sudden action usually have accents placed on the ultima, the last syllable in a word, versus the slow deliberate action on the penult, the second-to-last syllable in a word (Blake, 1925). As seen in the words, ta**yô** (to stand) and **ta**yo (us; we), the bolded letters signify the stress.

Vowel lengthening occurs with primary or secondary stress with the exception of stress at the end of a word. Syllable stress placement on words is highly important because it differentiates words with the same spellings, but with different meanings, e.g. tayô (to stand) and tayo (us; we). Another function of intonation in Tagalog is to code definiteness, analogous to the difference between "a" and "the" in English. When the direct object is marked with the direct case particle, used in the argument of an intransitive clause for either agent or patient, it is generally definite as in “the”, whereas when it is marked with the indirect case it is generally indefinite as in “a” (Blake, 2001).

Tagalog nouns are not inflected; however, they are usually preceded by case-marking particles or function words that determine the declension or inflection. The three basic cases

include: direct (or absolutive), indirect (which may function as an ergative, accusative, or genitive), and oblique (Blake, 1925). The direct marks the direct object and the indirect marks the subject. However, in the more marked voice the reverse occurs, with the direct marking the direct object and the indirect marking the agent. For example,

a. “Dumatíng ang lalaki”

   (has) arrived the man

   “The man has arrived.”

Similar to prepositions in the English language, the oblique particle, and the locative derived from it, mark concepts such as location and direction. The case particles fall into either the proper or common word classes. “Ng,”which is pronounced [naŋ] is the common ergative marker and “Mgá,” pronounced [maˈŋa], marks the common plural.

APPENDIX A:
TAGALOG WAB PROTOCOL

Kusang Salitâ (Spontaneous Speech)

A. Mag karaniwang usapang tanong (Conversational Questions)

Bagay	Sagôt	Tama	Hindi Tama
1. Kumusta ka ngayon?			
2. Nakapunta ka na ba dito dati?			
3. Ano ang iyong unang pangalan at apelyido? (Para sa mga hindi kumpletong sagôt , tiyakin ang unang pangalan o apelydio)	Pangalan Apelyido		
4. Saan kayo nakatira? (Para sa mga hindi kumpletong sagôt , tiyakin ang kalye, lungsod o estado. Hindi kailangan ang ZIP code)	Bilang & Street Lungsod Estado (Bansa)		
5. Ano ang iyong (dati) trabaho?			
6. Bakit ka nandito (sa ospital)? O ano ang iyong karamdaman?			

2. Paglalarawan (Picture Description)

a. **Direksyon:** "**Sabihin mo sa akin kung ano ang nangyayari sa larawan na ito."** Kapag isang ng sagôt na sabihin ng pasyente, sabihin mo, **"Subukang makipag-usap ng mas kumpletong sagôt ."**

Pandinig pandiwang-unawa (Auditory Verbal Comprehension)

A. Oo / Hindi mga Tanong (Yes/No Questions)

a. Direksyon: Sabihin mo, **"Tatánungin kitá ng iláng tanóng. Ang sagôt ay oo o hindi."**

Bagay	Tama Sagôt	Uri ng Sagôt				Puntos	
		Verbal	Gestural	Eye Blink	NR	Tama	Hindi tama
1. Ang iyong pangalan ba ay Smith?	Hindi					3	0
2. Ang iyong pangalan ba ay Brown?	Hindi					3	0
3. Ang iyong pangalan _____? (Apelyido ng pasyente)	Oo					3	0
4. Kayo ba ay nakatira sa _____? (Kalapit na lungsod / bayan kung saan ang pasyente ay hindi nakatira)	Hindi					3	0
5. Kayo ba ay nakatira sa _____? (Ang lungsod Pasyente / bayan ng paninirahan)	Oo					3	0
6. Kayo ba ay nakatira sa _____? (Isa pang kalapit na lungsod / bayan kung saan ang pasyente ay hindi nakatira)	Hindi					3	0
7. Kayo ba ay lalaki o babae?	Oo					3	0
8. Kayo ba ay doktor?	Hindi					3	0
9. Ako ba ay lalaki o babae?	Oo					3	0
10. Bukas ba ang ilaw sa kuwartong ito?	Oo					3	0
11. Sarado ba ang pinto?	Oo					3	0
12. Ito ba ay otel/bahay-tuluyan?	Hindi					3	0
13. Ito ba ay _____? (Tunay lokasyon)	Oo					3	0
14. Ikaw ba ang suot ng pulang pantulog?	Hindi					3	0
15. Masusunog ba ang	Oo					3	0

papel?							
16. Mauuna ba ang Marso bago Hunyo?	Oo					3	0
17. Kakainin mo ba ang saging bago mo balatan?	Hindi					3	0
18. Mayroon bang yélo sa labas pag Hulyo?	Hindi					3	0
19. Mas malaki ba ang kabayo kaysa sa aso?	Oo					3	0
20. Ginagamit ba ang palakol sa pagputol ng damo?	Hindi					3	0

C. Pagkilala sa mga Salitâ (Auditory word recognition)

"Ituro ang_____. Ipakita sa akin ang _____."

Tunang bagay	Puntos
1. Tasa	
2. Posporo	
3. Lapis	
4. Bulaklak	
5. Suklay	
6. Birador/Screwdriver	

Para sa numbering 7-36, magsimula sa pahina 2 sa libro ng estimulo. Sabihin mo, **Pakituro sa _____, o Ipakita sa akin _____.**

Nakalarawan bagay	Puntos
7. Posporo	
8. Tasa	
9. Suklay	
10. Birador/Screwdriver	
11. Lapis	
12. Bulaklak	
Forma	**Puntos**
13. Parisukat	
14. Tatsulok	
15. Bilog	
16. Palaso	
17. Krus	
18. Silindro	
Letra	**Puntos**
19. J	
20. F	
21. B	
22. K	
23. M	
24. D	
Bilang	**Puntos**
25. 5 (lima)	
26. 61 (animnapu't isa)	
27. 500 (limang daan)	
28. 1867 (labing walo animnapu't pito)	
29. 32 (tatlongpu't dawala)	
30. 5000 (limang libo)	
Kulay	**Puntos**
31. Asul	
32. Kayumanggi	
33. Pula	
34. Berde	
35. Dilaw	
36. Itim	
37.	
Kasangkapan	**Puntos**
37. Bintana	
38. Upuan	
39. Mesa / kama	
40. Liwanag	
41. Pintô	
42. Kisame	
Katawan Bahagi	**Puntos**
43. Ténga	
44. Ilong	
45. Mata	
46. Dibdib	
47. Leég	
48. Baba	
Daliri	**Puntos**
49. Hinlalaki	
50. Palasingsingan	
51. Hintuturo	
52. Kalingkingan	
53. Hinlalato	

Kanan-Kaliwa sa katawan	Puntos
54. Kanan ténga	
55. Kanan balikat	
56. Kaliwa ng tuhod	
57. Kaliwa bukung-bukong	
58. Kanan galanggalangan	
59. Kaliwa siko	
60. Kanan pisngi	

C. Pagkakasunud-sunod utos

a. Direksyon: Sabihin mo, **“Mayroón akóng mga ipagáwâ sa iyó. Hânda ka na ba, pô?”**

Bagay	Puntos
1. Itaás mo ang iyong kamáy.	(2)
2. Pakisará mo iyóng mga matá.	(2)
3. Ituro ang silya.	(2)
4. Ituro ang bintana, at pagkatapos ay ang pinto.	(4)
5. Ituro ang panulat at ang libro.	(4)
6. Ituro ang panulat sa libro.	(8)
7. Ituro pô ang libro sa panulat	(8)
8. Ituro ang suklay sa panulat.	(8)
9. Ituro ang libro sa suklay.	(8)
10. Ilagay ang panulat sa ibabaw ng libro, pagkatapos ay ibigay ito sa akin.	(14)
11. Ilagay ang suklay sa kabila ng panulat at baligtarín ang libro.	(20)

Pag-uulit

Bagay	Puntos
1. Káma	(2)
2. Ilóng	(2)
3. Tubo	(2)
4. Bintana	(2)
5. Saging	(2)
6. Niyebeng binilo	(4)
7. Apatnapu't-lima	(4)
8. Siyamnapu’t-limang porsyento	(6)
9. Animnapu’t-dalawa at kalahati	(8)
10. Ang tagapagluto ng matamis ay nasiyahan.	(12)
11. Ang telepono ay tugtog.	(8)
12. Hindi siya babalik.	(6)
13. Masarap ang tinapay pag bagong luto.	(12)
14. Walang pagdududhi.	(4)
15. Impâké mo ang aking kahon ng limang dosé ng boté ng likidong sabon panglaba.	(28)

Paghahanap sa pagpapangalan at Salitâ (Naming and Word Finding)

A. **Bagay pagpapangalan (Object Naming)**

Bagay	Iba pang Sagôt	Tako			Puntos
		Tactile (3)	Phonemic (2)	Semantic (1)	
1. Libro/Aklat					
2. Bola					
3. Kutsilyo					
4. Tasa					

5. Pardiblé			
6. Martilyo			
7. Sipilyo			
8. Pambura			
9. Kandado			
10. Lapis			
11. Birador/Screwdriver			
12. Susi			
13. Ipit (sa papel)/klip			
14. Rélo			
15. Suklay			
16. Goma/Lastico			
17. Kutsara			
18. Teyp/Pandikit			
19. Tinidor			
20. Posporo			

B. Katatasan sa Salitâ (Word Fluency)

a. Direksyon: Sabihin mo, **"Magbigkás ng pangalan ng hayop sa isang minuto."** "**Isipin mo ang domestic hayop tulad ng kabayo o ligaw na hayop tulad ng tigre."**

C. Kumpletong ang pangungusap (Sentence Completion)

a. "Kumpletuhin ang mga pangungusap na sasabihin ko. Halimbawa, ang yélo ay ... (malamig)."

Bagay	Tama Sagôt	Iba pang mga Sagôt	Puntos
1. Ang damo ay	berde		
2. Ang asukol ay	Matamis / puti		
3. Rosas ay pula, violets ay	Asul		
4. Sila ay nag-aaváy ng parang aso't	pusá		
5. Ang pasko ay tuwing buwan ng	Disyembre		

D. Nakikiramay pag sa salitâ (Responsive Speech) "Sagutin ang mga sumusunod na mga katánungin"

Bagay	Tama Sagôt	Iba pang Sagôt	Puntos
1. Ano ang ginagamit sa pagsusulat?	Panulat / lapís		
2. Ano ang kulay ang yélo sa labas?	Putí		
3. Ilang araw meron ang isang linggo?	Pitô		
4. Saán nagtatrabaho ang nars?	Ospital		
5. Saán nakukuha ang selyo?	Tanggapan ng koreo / post-opis		

APPENDIX B:
CONSENT FORM

Development of the Tagalog Version of the Western Aphasia Battery-Revised

Informed Consent Form for an Adult in an Exempt Non-medical Research Study

Principal Investigator(s) : Anthony Pak Hin Kong, PhD

Sub-Investigator(s) : Carmina Ozaeta, B.S.

Sponsor : N/A

Investigational Site(s) : Department of Communication Sciences and Disorders, University of Central Florida, Orlando, FL, USA

Introduction: Researchers at the University of Central Florida (UCF) study many topics. To do this we need the help of people who agree to take part in a research study. You are being invited to take part in a research study which will include about 20 people living in the United States. You are being asked to participate in this project because you are (i) a person with a language impairment as a result of a stroke, brain injury, or degenerative disease OR (ii) a person without language impairment and matched in age and gender with the participants in (i). You must be older than 21. You may read this form and agree to the project now, or take the form home with you to study before you decide.

What you should know about a research study:

- Someone will explain this research study to you.
- A research study is something you volunteer for.
- Whether or not you take part is up to you.
- You should take part in this study only because you want to.
- You can choose not to take part in the research study.
- You can agree to take part now and later change your mind.
- Whatever you decide it will not be held against you.
- Feel free to ask all the questions you want before you decide.

Purpose of the research study: The purpose of this study is to develop a Tagalog version of the Western Aphasia Battery – Revised (WAB-R; Kertesz, 2006) by establishing normative data for the bilingual Tagalog and English speakers. This is needed to facilitate the development of a standardized aphasia assessment for use with individuals with aphasia (a language disorder as a result of a stroke, brain injury, or degenerative disease) in this population.

What you will be asked to do in the study: If you agree to be in this study, the following will happen:

a. Answer questions that are related to your history of bilingualism
b. Respond to questions and/or test items that are presented through the Tagalog/English Bilingual Aphasia Test and the Tagalog version of the WAB-R.

Location: The research will take place in the UCF's Communication Disorders Clinic, Research Pavilion
(12424 Research Parkway, Orlando, FL 32826

Time required: We expect that the testing will last for about 120 minutes.

Audio or video taping: There will be audio and/or video recording when collecting test data. This is necessary for subsequent coding of the use of gestures by individual participants in the period of data analysis. The investigators will ensure all persons assisting with the research (e.g., research assistants) are adequately informed about the protocol by providing relevant training

Funding for this study: N/A.

Risks: There are no known risks associated with this study. However, if you should become fatigued during any part of the testing or during a session, you may ask to take a break, to leave, or to arrange an alternative day of testing.

Benefits: You will receive the results from the testing. If you have a language impairment, these results may help you better understand your language impairment. We cannot guarantee you any benefits from participating in this study. However, the results we receive from this study may help future patients with language impairment. This is not a treatment study.

Compensation or payment: There is no fee for your participation in this study and there is no compensation for your time in this study.

Confidentiality: Your consent form will be kept in a locked cabinet for a minimum of six years at UCF. All personal data will be coded by a number and kept separate in a locked cabinet for a minimum of six years at the UCF Communication Disorders Clinic. After the minimum 6 years, it will be erased or destroyed. Your name will not be associated with this project.

Study contact for questions about the study or to report a problem: If you have questions, concerns, or complaints, or think the research has hurt you, talk to Carmina Ozaeta (863) 258-5089 or Dr. Anthony Kong (407) 823-4791 at the UCF Department of Communication Sciences and Disorders.

IRB contact about your rights in the study or to report a complaint: Research at the University of Central Florida involving human participants is carried out under the oversight of the Institutional Review Board (UCF IRB). This research has been reviewed and approved by the

IRB. For information about the rights of people who take part in research, please contact: Institutional Review Board, University of Central Florida, Office of Research & Commercialization, 12201 Research Parkway, Suite 501, Orlando, FL 32826-3246 or by telephone at (407) 823-2901. You may also talk to them for any of the following:

- Your questions, concerns, or complaints are not being answered by the research team.
- You cannot reach the research team.
- You want to talk to someone besides the research team.
- You want to get information or provide input about this research.

Withdrawing from the study: Your participation in this study is voluntary. You may refuse to take part in or stop taking part in this study at any time. You should call the investigators in charge of this study if you decide to do this. Your decision not to take part in the study will not affect your current or future medical care or any benefits to which you are entitled. Inclusion in this study will not exclude you in any way from receiving aphasia treatment at the University of Central Florida's Communication Disorders Clinic. The investigator may stop your participation in this study at any time if she decides it is in your best interest. She may also do this if you do not follow the investigator's instruction.

HIPAA Authorization Form
University of Central Florida

Project Title: Development of the Tagalog Version of the Western Aphasia Battery-Revised
Principal Investigator: Dr. Anthony Pak Hin Kong
Co-Investigator: Carmina Ozaeta, B.S.

Name of Research Subject/Participant:
Date of Birth:
Street Address:
City, State & Zip Code:

Authorization to Use and Disclose Protected Health Information

Under federal law, people who conduct research studies under certain circumstances, using information about the health of their research participants are required, except in specific circumstances, to get written permission to use their participants' health information for the research study. Because you have agreed to participate in a research study, your written permission is needed to use your health information. This Authorization asks your permission to allow certain people and/or groups to use and/or disclose your health information for the research study in which you have agreed to participate. In order to take part in the research study, you must sign this Authorization.

A. What is the Purpose of this Authorization?

The purpose of this Authorization is to allow the people and/or groups listed below to use and/or disclose certain information about your health for the research study titled: **Development of the Tagalog Version of the Western Aphasia Battery-Revised**

B. What Information Will Be Used and/or Disclosed For the Research Studv?

The following information about your health ("Protected Health Information") will be used and/or disclosed for
the Research Study:

- *Name*
- *City / Place of residence*
- *If applicable, date directly related to an individual, including birth date, admission date, discharge date,*
- *date of death: and all ages over 89*
- *If applicable, medical records*
- *If applicable, neurological lesion data*

C. Who Will Use and/or Disclose My Protected Health Information?

1. **Custodians.** The following people and/or groups who hold your medical records ("Custodians") are permitted to disclose your Protected Health Information for the Research Study to the Designated Users listed in Section C.2:

- Florida Doctors and Nurses Association of Central Florida (FDNACF)
- Carmina Ozaeta, B.S.

2. **Designated Users.** The following people and/or groups are permitted to use your Protected Health Information for the Research Study ("Designated Users"):

- Dr. Anthony Pak Hin Kong
- Carmina Ozaeta, B.S.

3. **Designated Recipients.** The Designated Users are permitted to disclose your Protected Health Information to the following people and/or groups who are involved in or connected to the Research Study ("Designated Recipients"):

- *The University of Central Florida Institutional Review Board (UCF IRB) and The Office of Human Research Protections in the U. S. Department of Health and Human Services*

D. <u>Authorization Expiration Date/Event</u>?
End of research study.

<u>How Long Will My Permission Last?</u> This Authorization does not have an automatic end date, unless such date is indicated above. Usually, the authorization expiration date will be the end of the research study. However, you have the right to end this Authorization by withdrawing it, in writing, at any time. Please note that your written withdrawal will not be effective to the extent that the Custodians or Designated Users have already acted in reliance on this Authorization. This means that, in certain circumstances, a researcher may be allowed to continue using your Protected Health Information for research that is already in progress even after you have withdrawn your Authorization. If you withdraw this Authorization, you can no longer actively participate in the Research Study. Your withdrawal must be made in writing and addressed to:

Dr. Anthony Pak Hin Kong
Department of Communication Sciences & Disorders
University of Central Florida
P.O. Box 162215
Orlando, FL 32816-2215

E. <u>Is My Permission Voluntary?</u>
You are not required to sign this form, and you may refuse to do so. The health care providers listed herein (or other health care providers) may not refuse to provide you treatment or other health care services if you refuse to sign this form. However, if you refuse to sign this form, you cannot participate in the Research Study, because the researchers will not be able to access and utilize the information they need to conduct their research.

F. <u>Could My Protected Health Information Be Disclosed Outside the Research Study?</u>
There are no recipients of your Protected Health Information for this study.

G. <u>Will I Be Allowed to See My Research Records?</u>

During the course of the Research Study, you will have the right to inspect or copy your Protected Health
Information obtained or created by the Designated Users for use in the Research Study.

H. <u>Certification and Signatures</u>
You should take as much time as you need to decide whether you wish to permit the use and disclosure of your Protected Health Information for the Research Study. Please feel free to ask questions about any aspects of this Authorization that are unclear to you.

Subject Certification: I have read this Authorization, which describes how my Protected Health
Information will be used and/or disclosed for the Research Study. I have had the opportunity to ask, and I have received answers to, any questions I had regarding the use and disclosure of my Protected Health Information for the Research Study. I agree to the use and/or disclosure of my Protected Health Information, as described above, for the Research Study.

Your signature below indicates your permission for the participant named below to take part in this research and to the use and disclosure of this person's protected health information:

DO NOT SIGN THIS FORM AFTER THE IRB EXPIRATION DATE BELOW

_____
Name of participant

_____ _____
Signature of participant Date

_____ _____
Signature of person obtaining consent Date

_____
Printed name of person obtaining consent

APPENDIX C:
AAMAS

AAMAS – Culture of Origin

Factor 1: Cultural Identity

1. How much do you feel you have in common with Filipino people?

1	2	3	4	5	6
Not very much		Moderately			Very Much

2. How much do you identify with the Filipino culture?

1	2	3	4	5	6
Not very much		Moderately			Very Much

3. How much do you interact and associate with people from the Philippines?

1	2	3	4	5	6
Not very much		Moderately			Very Much

4. How much would you like to interact and associate with people from the Philippines?

1	2	3	4	5	6
Not very much		Moderately			Very Much

5. How proud are you to be a part of the Filipino culture?

1	2	3	4	5	6
Not very much		Moderately			Very Much

6. How negative do you feel about people from the Philippines?

1	2	3	4	5	6
Not very much		Moderately			Very Much

Factor 2: Language

7. How well do you speak the language of Tagalog?

1	2	3	4	5	6
Not very much		Moderately			Very Much

8. How well do you understand the language of Tagalog?

1	2	3	4	5	6
Not very much		Moderately			Very Much

9. How well do you read and write in the language of Tagalog?

1	2	3	4	5	6
Not very much		Moderately			Very Much

10. How often do you listen to music or look at movies and magazines from the Philippines?

1	2	3	4	5	6
Not very much		Moderately			Very Much

Factor 3: Cultural Knowledge

11. How knowledgeable are you about the culture and traditions of the Philippines?

1	2	3	4	5	6
Not very much		Moderately			Very Much

12. How knowledgeable are you about the history of the Philippines?

1	2	3	4	5	6
Not very much		Moderately			Very Much

13. How much do you actually practice the traditions and keep the holidays of the Philippines?

1	2	3	4	5	6
Not very much		Moderately			Very Much

Factor 4: Food Consumption

14. How often do you actually eat the food of the Philippines?

1	2	3	4	5	6
Not very much		Moderately			Very Much

15. How much do you like the food of the Philippines?

1	2	3	4	5	6
Not very much		Moderately			Very Much

AAMAS – Asian American

Factor 1: Cultural Origin

1. How much do you feel you have in common with people in the United States?

1	2	3	4	5	6
Not very much		Moderately			Very Much

2. How much do you identify with Americans?

1	2	3	4	5	6
Not very much		Moderately			Very Much

3. How much do you interact and associate with people from the United States?

1	2	3	4	5	6
Not very much		Moderately			Very Much

4. How much would you like to interact and associate with people from the United States?

1	2	3	4	5	6
Not very much		Moderately			Very Much

5. How proud are you to be a part of the American culture?

1	2	3	4	5	6
Not very much		Moderately			Very Much

6. How negative do you feel about people from the United States?

1	2	3	4	5	6
Not very much		Moderately			Very Much

Factor 2: Language

7. How well do you speak the language of English?

1	2	3	4	5	6
Not very much		Moderately			Very Much

8. How well do you understand the language of English?

1	2	3	4	5	6
Not very much		Moderately			Very Much

9. How well do you read and write in the language of English?

1	2	3	4	5	6
Not very much		Moderately			Very Much

10. How often do you listen to music or look at movies and magazines from the United States?

1	2	3	4	5	6
Not very much		Moderately			Very Much

11. How knowledgeable are you about the culture and traditions of the Philippines?

1	2	3	4	5	6
Not very much		Moderately			Very

12. How knowledgeable are you about the history of the Philippines?

1	2	3	4	5	6
Not very much		Moderately			Very Much

13. How much do you actually practice the traditions and keep the holidays of the Philippines?

1	2	3	4	5	6
Not very much		Moderately			Very Much

<u>Factor 4: Food Consumption</u>

14. How often do you actually eat the food of the Philippines?

1	2	3	4	5	6
Not very much		Moderately			Very

15. How much do you like the food of the Philippines?

1	2	3	4	5	6
Not very much		Moderately			Very

APPENDIX D:
IRB APPROVAL LETTER

University of Central Florida Institutional Review Board
Office of Research & Commercialization
12201 Research Parkway, Suite 501
Orlando, Florida 32826-3246
Telephone: 407-823-2901 or 407-882-2276
www.research.ucf.edu/compliance/irb.html

Approval of Human Research

From: **UCF Institutional Review Board #1**
FWA00000351, IRB00001138

To: **Pak Hin Kong and Carmina Ozaeta**

Date: **September 27, 2011**

Dear Researcher:

On September 27, 2011, the IRB approved the following human participant research until 9/26/2012 inclusive:

Type of Review:	Submission Response for UCF Initial Review Submission Form Expedited Review Category #7
Project Title:	Development of the Tagalog Version of the Western Aphasia Battery
Investigator:	Pak Hin Kong
IRB Number:	SBE-11-07831
Funding Agency:	None

The Continuing Review Application must be submitted 30days prior to the expiration date for studies that were previously expedited, and 60 days prior to the expiration date for research that was previously reviewed at a convened meeting. Do not make changes to the study (i.e., protocol, methodology, consent form, personnel, site, etc.) before obtaining IRB approval. A Modification Form **cannot** be used to extend the approval period of a study. All forms may be completed and submitted online at https://iris.research.ucf.edu .

If continuing review approval is not granted before the expiration date of 9/26/2012, approval of this research expires on that date. When you have completed your research, please submit a Study Closure request in iRIS so that IRB records will be accurate.

Use of the approved, stamped consent document(s) is required. The new form supersedes all previous versions, which are now invalid for further use. Only approved investigators (or other approved key study personnel) may solicit consent for research participation. Participants or their representatives must receive a signed and dated copy of the consent form(s).

In the conduct of this research, you are responsible to follow the requirements of the Investigator Manual.

On behalf of Sophia Dziegielewski, Ph.D., L.C.S.W., CF IRB Chair, this letter is signed by:

Signature applied by Janice Turchin on 09/27/2011 01:55:11 PM EDT

IRB Coordinator

REFERENCES

Anastasi, A. (1976). *Psychological Testing,* New York Macmillan.

Bautista, M. L. S. (1980). Department of Linguistics, Research School of Pacific Studies, Australian National University.

Bautista, M. L. S. (1980). *The Filipino bilingual's competence: A model based on an analysis of tagalog-english code switching* Dept. of Linguistics, Research School of Pacific Studies, Australian National University.

Blake, Barry J. (2001). Case (Second ed.). Cambridge: Cambridge University Press. p. 199.

Blake, F. R. (1925). *A Grammar of the Tagalog language: The chief native idiom of the Philippine islands* American Oriental Society.

Blake, F. R. (1967). *A Grammar of the Tagalog Language.* American Oriental Society.

Brislin, R. W. (1970). Back-translation for cross cultural research. *Journal of Cross-Cultural Psychology,1,* 185–216

Bromley, D. B. (1991). Aspects of written language production over adult life. *Psychology & Aging, 6* (2), 296-308.

Chapey, R. (2009). *Language intervention strategies in aphasia and related neurogenic communication disorders*. (5 ed.). Lippincott Williams & Wilkins.

Cummins, J. (1979). Cognitive/academic language proficiency, linguistic interdependence, the optimal age question and some other matters. *Working Papers on Bilingualism, 19,* 197–205.

Cummins, J. (1999). *BICS and CALP: Clarifying the distinction*. Alberta, Canada. (ERIC Document Reproduction Service No. ED438551).

Cummins, J. (2000). Putting language proficiency in its place: Responding to critiques of the conversational/academic language distinction. In J. Cenoz & U. Jessner (Eds.), *English in Europe: The acquisition of a third language* (pp.54–83). Clevedon, UK: Multilingual Matters.

Dulay, H., & Burt, M. (1979). Research priorities in bilingual education. *Educational Evaluation and Policy Analysis*, *1*(3), 39-53.

Everatt, J., Smythe, I., Ocampo, D., & Gyarmathy, E. (2004). Issues in the assessment of literacy-related difficulties across language backgrounds: A cross-linguistic comparison. *Journal of Research in Reading, 27*(2), 141-151.

Fawcett, T. (2006). An introduction to ROC analysis. *Pattern Recognition Letters, 27* (2006) 861–874.

Flaherty, J. A., Gaviria, F. M., Pathak, D., Mitchell, T., Wintrob, R., Richman, J. A., & Birz, S. (1988). Developing instruments for cross-cultural psychiatric research. *The Journal of Nervous and Mental Disease, 176*(5), 260.

Fujii, D. E., & Wong, T. M. (2005). Neuropsychological assessment with Asian-American immigrants. *Journal of Forensic Neuropsychology, 4*(4), 3-31.

Gonzalez, A. (1990). Evaluating bilingual education in the Philippines: Towards a multidimensional model of evaluation in language planning. Paper presented at the *Learning, Keeping, and using Language: Selected Papers from the 8th World Congress of Applied Linguistics, Sydney, 16-21 August 1987*, 153.

Goodglass, H., Kaplan, E. & Barresi, E. (2000). *Boston Diagnostic Aphasia Examination–Third Edition* (BDAE–3). Pro-ed. Austin, TX.

Halsband, U. (2006). Bilingual and multilingual language processing. *Journal of Physiology-Paris, 99*(4-6), 355-369.

Herbert, C. H. (1980). Basic inventory of natural language. *San Bernardino, CA. United States,*

Kim, H., & Na, D. (2004). Normative data on the Korean version of the Western Aphasia Battery. *Journal of Clinical and Experimental Neuropsychology (Neuropsychology, Developm, 26*(8), 1011-1020.

Kertesz, A. (1982). *The Western Aphasia Battery*. New York: Grune & Stratton, Inc.

Kertesz A. (2006) *Western Aphasia Battery-Revised*. San Antonio, Tex: Harcourt

Assessment, Inc.

Kroeger, P. (1993). *Phrase structure and grammatical relations in Tagalog* Center for the Study of Language and Inf.

Llamzon, T. A. (1966). Tagalog phonology. *Anthropological Linguistics, 8*(1), 30-39.

Llamzon, T. A. (1976). *Modern Tagalog: A functional-structural description* Mouton.

Locks, N. A. (1978). Language assessment instruments for limited-English-speaking students: A needs analysis.

Manly, J. J., Jacobs, D. M., Sano, M., Bell, K., Merchant, C.A., Small, S. A., et al. (1999). Effect of literacy on neuropsychological test performance in nondemented, education-matched elders. *Journal of the International Neuropsychological Society, 5,* (3) 191-202.

Matluck, J. H., & Mace-Matluck, B. (1976). The MAT-SEA-CAL instruments for assessing language proficiency.

Paradis, M. (1987). *The Assessment of Bilingual Aphasia.* Hillsdale, NJ.: Lawrence Erlbaum.

Paradis, M., Canzanella, M. A. & Baruzzi, A. (1987) *Esame dell'afasia di una persona bilingue*. (Italian version) Hillsdale, NJ.: Lawrence Erlbaum.

Paradis, M. & Coppens, P. (1987) *Tweetalig Afasie Test*, (Dutch version) Hillsdale, NJ.: Lawrence Erlbaum.

Paradis, M., Dravins C. & Ahlsén (1987) *Afasitest för tvåspråkiga,* (Swedish version) Hillsdale, NJ.

Paradis, M. & Elias, J. (1987) *Test d'afàsia en els bilingües,* (Catalan version) Hillsdale, NJ.: Lawrence Erlbaum. 32 + 127pp. Paradis, M. & Goldblum, M-C. (1987). *Test de l'aphasie chez les bilingues*. (French version) Hillsdale, NJ.: Lawrence Erlbaum.

Paradis, M. & Hagiwara, H. (1987) *Ni gengo heiyosha ni okeru shitsugosho kensa* (Japanese version) Hillsdale, NJ.: Lawrence Erlbaum.

Paradis, M. & Del Pilar, N. (1991) *Pagsusuri ng bilinggwál na aphasia*. (Tagalog version) Hillsdale, NJ: Lawrence Erlbaum.

Ramos, T. V. (1974). *The case system of tagalog verbs* Dept. of Linguistics, Research School of Pacific Studies, Australian National University.

Reeves, T., Bennett, C. E., & US Census Bureau. (2004). *We the people: Asians in the united states* US Dept. of Commerce, Economic and Statistics Administration, US Census Bureau.

Richards, N. (2009). Nouns, verbs, and hidden structure in Tagalog. *Theoretical Linguistics, 35*(1), 139-152.

Roger, P., & Code, C. (2011). Lost in translation? issues of content validity in interpreter-mediated aphasia assessments. *International Journal of Speech-Language Pathology, 13*(1), 61-73.

Rubino, C. R. G., & Llenado, M. G. T. (2002). *Tagalog-English, English-Tagalog dictionary* Hippocrene Books.

Sebastian, R., Laird, A., & Kiran, S.Meta-analysis of the neural representation of first language and second language.

Segalowitz, N. S., & Galang, R. G. (1978). Agent–patient word-order preference in the acquisition of Tagalog. *Journal of Child Language, 5*(01), 47-64.

Shewan, C. M., & Kertesz, A. (1980). Reliability and validity characteristics of the Western Aphasia Battery (WAB). *Journal of Speech and Hearing Disorders, 45*(3), 308.

Spreen, O. & Benton, A. (1969). *Neurosensory Center Comprehensive Examination for Aphasia.* Victoria, British Columbia: University of Victoria.

Spreen, O. & Benton, A. (1977) (Second ed.) *Neurosensory Center Comprehensive Examination for Aphasia.* Victoria, British Columbia: University of Victoria.

Spreen, O. & Risser, A. (1981). Assessment in Aphasia. *Acquired Aphasia,* M.T. Sarno (ed.) New York, NY: Academic Press.

WAB Aphasia Test Construction Committee (1986). *The Japanese version of the Western Aphasia Battery*.Tokyo:Igaku-Shoin Ltd.

Wong, T. M., & Fujii, D. E. (2004). Neuropsychological assessment of asian americans: Demographic factors, cultural diversity, and practical guidelines. *Applied Neuropsychology, 11*(1), 23-36.

Yiu, E. M. L. (1992). Linguistic assessment of chinese-speaking aphasics: Development of a cantonese aphasia battery. *Journal of Neurolinguistics, 7*(4), 379-424.

Zou, K.H., 2002. *Receiver operating characteristic (ROC) literature research*. On-line bibliography available from: <http://splweb.bwh.harvard.edu:8000/pages/ppl/zou/roc.html>.