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Script Training: The role of Written Cues

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Script Training: The Role of Written Cues

by

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A thesis submitted in partial fulfillment
of the requirements for the degree of
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Abstract

Script training is a technique that allows persons with acquired speech and language disorders, such as nonfluent aphasia, to have islands of fluent speech during which they can speak about a topic without pausing or having word-finding errors. Scripts relevant to specific functional situations are written and practiced until memorized. Script training delivered verbally has been effective with clients with aphasia but the role of written cues in the training has not been explored. Therefore the purpose of this study was to compare the effectiveness of script training taught verbally, or verbally with a written script, in persons with aphasia.

Three adults, one with Broca’s aphasia and apraxia of speech (AOS), one with Broca’s aphasia, and one with Anomic aphasia were recruited for this study. Participants selected three topics for script training and with the clinician’s help wrote a script and a script prompt for each topic. Scripts were trained one sentence or phrase at a time until 95% repetition accuracy was achieved, then training began for the next script. The effects of two training procedures, verbal only and verbal + written script, were evaluated with a multiple baseline design across training procedures, the order of which was counterbalanced across participants. Maintenance data were collected after each script was mastered and after the study ended. Results revealed that 3 persons with aphasia (PWA) demonstrated mastery of 2-3 scripts each using V+W script training methods, but only 1 participant maintained script accuracy at 16 weeks post-study. More research is needed to explore the role of written and verbal cues on script mastery and generalization.
Literature Review

Persons with aphasia (PWA) due to a stroke often have expressive language deficits that affect the articulation, morphology and syntax, semantics, and prosody of their language output (Helm-Estabrooks & Albert, 2004). Articulation may be affected due to difficulty with motor planning, sequencing and production of phonemes in words manifested by apraxia of speech. Apraxia of Speech (AOS) is a motor-speech disorder wherein programming and sequencing the articulatory muscle movements for speech production is impaired without muscle weakness (Helm-Estabrooks & Albert, 2004). Morphosyntactic deficits affect the grammatical features of language, including morphological markers (e.g., tense and plurality), and sentence type and complexity (Helm-Estabrooks & Albert, 2004). Semantic deficits appear as word retrieval and naming difficulties (anomia) and reduced length of utterances (Helm-Estabrooks & Albert, 2004). Prosody deficits include suprasegmental features of speech such as stress, intonation, and duration of syllables and words (Helm-Estabrooks & Albert, 2004). Different patterns of impairment in these language features are characteristic of specific types of aphasia.

Broca’s aphasia is characterized by agrammatic utterances with fewer than 5 words on average (Murray & Clark, 2006). Persons with Broca’s aphasia exhibit morphologically simplified word forms and the omission of function words such as articles, prepositions, adjectives, conjunctions, and pronouns, described as telegraphic speech, or speech containing primarily nouns and verbs (Murray & Clark, 2006). Word retrieval/naming problems range from mild to severe (Helm-Estabrooks & Albert, 2004).
Treatments for expressive language problems for Broca’s aphasia have ranged from those that focus on articulation, syntax, semantics (word-finding), or suprasegmental features of speech. Articulatory–kinematic treatment approaches such as repeated practice treatments targeting sound accuracy is a phonological approach focusing on accurate phonological selection, sequencing, and production through extensive repetition (Wambaugh et al., 2012). A popular and widely researched syntactic approach, Sentence Production Program for Aphasia (SPPA), targets eight sentence types that are elicited with a picture and verbal model and then practiced using delayed repetition procedures until 15 exemplars are mastered for each sentence type (Helm-Estabrooks & Albert, 2004). Semantic feature analysis (SFA) is word retrieval treatment in which the PWA generates semantic features of a target word in order to activate the semantic network and retrieve non-targeted semantically related words (Boyle & Coelho, 1995). To address problems with prosody, Melodic Intonation Therapy (MIT) focuses on suprasegmental features of speech such as melody, rhythm and stress to increase the length of phrases and sentences. MIT aims to decrease reliance on intonation over time and yield fluent speech (Albert, Sparks & Helm, 1973). Systematic reviews of the training literature reveal positive effects of specific training approaches but limited maintenance and generalization of treatment effects (Brady, Kelly, Godwin & Enderby, 1996). For example, the Sentence Production Program for Aphasia (SPPA) focused on re-training syntax and documented positive learning of the treatment components but limited maintenance and generalization to everyday conversation was observed (Helm-Estabrooks & Albert, 2004).

A new treatment approach for expressive language disorders, script training, has shown promising results in a series of studies. Script training was developed and evaluated by Holland, Milman, Munoz & Bays (2002). It is based on Logan’s automaticity theory (1988) that
hypothesizes that in order for a skill to become automatic, it must be practiced in a context-bound, whole task. Script training is a technique that allows persons with acquired speech and language disorders, such as nonfluent aphasia, to have islands of fluent speech where they can speak about a topic without pausing or having word-finding errors. The client and clinician develop scripts relevant to specific situations or scenarios that are functional and personally relevant for the client. Clinician and client write scripts together and the client memorizes the scripts. When Holland et al. (2002) developed script training, the criteria stated scripts had to be presented in both spoken and written forms. Youmans et al. (2005) developed a cueing hierarchy that included the client immediately repeating the phrase, then reading the phrase out loud from the cue card. Next, the client repeats the phrase in unison with the clinician, with the cue card in place. The clinician gradually fades out their voice. The client then repeats the phrase with the cue card in place, approximately 10-15 times. Lastly the client repeats the phrase without the cue card 20 times. When the client can say the script 20 times without any errors, the next phrase of the script is added.

The procedures for memorizing script dialogues or monologues have used various cueing conditions and methods of delivery as script training has gained popularity. Variations in script training have included the use of a computer program with an avatar delivering/producing the script phrase (Cherney, Halper, Holland & Cole, 2008), script training over the phone (Snook, 2013), and comparing cueing conditions (Lee, Kaye, & Cherney, 2009).

Youmans et al. (2005) using a multiple baseline design, evaluated the effectiveness of script training, measured by percent script correct. Speaking rate and error production were examined in all sessions to provide the authors with insight to the script training process (Youmans et al., 2005). Two participants with chronic non-fluent aphasia secondary to stroke
were included in this study. The clients and clinician wrote three scripts consisting of 3-4 short sentences ranging from 13-32 words. The scripts were trained one phrase at a time with a cueing hierarchy that consisted of phrase repetition, choral reading of script phrases with clinician, and independent production (Youmans et al., 2005).

A written phrase was provided for the client during the phrase training. When the participants could produce the phrase being trained 20 times in a row without error, the next script phrase was added (Youmans et al., 2005). The scripts were trained for 30-40 minutes 3 times a week. Participants were given audiocassette tape recordings of their scripts to practice for 15 minutes every night at home. Criterion for script mastery included independent production of the script with 90% accuracy across two consecutive sessions with no cueing or feedback from clinician. Verbatim script production and repetition was the standard for mastery. Time for script mastery ranged from five to eleven sessions (Youmans et al., 2005).

Both participants mastered all three scripts with success rate of 97-100% accuracy in 25 and 26 sessions, respectively (Youmans et al., 2005). Once a script was mastered, generalization training was initiated. In the generalization phase of this study, the clinician purposefully varied her responses. The monologue scripts were practiced in conversational form with familiar and novel partners. All scripts were practiced with 80%-100% accuracy in the generalization phase of this study (Youmans et al., 2005).

In 2008, Cherney, Halper, Holland and Cole introduced virtual therapist software for computer-based script training called AphasiaScripts™ (© 2007, Rehabilitation Institute of Chicago). This computer program was developed as a cost-effective manner for PWAs to receive therapy past the acute phase of recovery from stroke (Cherney et al., 2008). AphasiaScripts™ allowed participants to memorize their scripts using a virtual therapist (Cherney et al., 2008).
The virtual therapist is programmed to produce natural sounding speech with correct articulatory movements (Cherney et al., 2008). Individualized, personally relevant scripts were developed with each participant and recorded onto the computer software. Because the software is fully customizable, the participants learn their scripts with any combination of cues such as written word, choral speaking and watching the oral-motor movements of the virtual therapist. Three participants with moderately severe aphasia (Broca’s, anomic, and Wernicke’s) practiced their scripts for 30 minutes a day for three weeks using AphasiaScripts™ from home on a computer. The script training process included the client listening silently to the entire script, then each sentence that is part of the client’s conversational turn was practiced repeatedly and finally the entire conversation was practiced with appropriate turn-taking with the virtual therapist (Cherney et al., 2008).

Each week the participants visited the clinic to probe for generalization (Cherney et al., 2008). The training sequence included listening to or reading the whole conversation, single sentence practice with self-monitoring, and conversational practice with the removal of cues including face, voice, and written words (Cherney et al., 2008). The software records the client’s responses so they can listen to it for feedback. Results from this study were similar to those of Youmans et al. (2005). Clients demonstrated improved speaking rate, content, and grammatical complexity. The clients had an increase in number of script-related nouns, morphemes, verbs, and modifiers related to the scripts (Cherney et al., 2008). Two out of three participants had a five-point increase on the Western Aphasia Battery (WAB; Kertesz, 1982), improving their scores from 50.4 to 57.6 and 62.8 to 71.3, respectively. However, there were insignificant changes on the Communication Activities of Daily Living, Second Edition (CADL-2; Holland,
Fratalli, & Fromm, 1999) and the Quality of Communication Life Scale (QCL; Paul, Frattali, Holland, Thompson, Caperton & Slater, 2004).

Lee, Kaye and Cherney (2009) evaluated AphasiaScripts™ with 17 participants with severe non-fluent aphasia. In this study, the amount of treatment varied from 1.9 to 16.9 hours per week (Lee, Kaye & Cherney, 2009). After three weeks of training on three scripts using written, verbal, and visual cues, the intensity of treatment and severity of aphasia was found to be significantly correlated with improvement in the script content \((r=.67, p.<.01)\) and speaking rate \((r=.53, p=.05)\) (Lee, Kaye & Cherney, 2009). When participants were split into two severity groups based on WAB-R AQ scores, the authors found that improvement in the production of script content was correlated with more severe aphasia \((r=.79, p<.05)\), and improvement in rate of speech correlated with less severe aphasia \((r=.78, p<.05)\). In PWA, greater intensity of treatment correlated to improvements in content and rate of script production (Lee, Kaye, & Cherney, 2009).

Script training cueing conditions were explored by Cherney, Kaye, and van Vuure (2014). This study compared cueing conditions using computer-based script training, AphasiaScripts™, with seven individuals with chronic non-fluent aphasia and one individual with chronic fluent aphasia. Two cueing conditions were explored: high cue and low cue. The high cue condition provided the participants with multimodality cues. First, the PWA listened to the script while a written version appeared on the screen. Next, they repeatedly practiced each turn of the conversational script in unison with the digital therapist, and finally independently (Cherney, Kaye & van Vuure, 2014). After this, the entire conversation was rehearsed while the PWA took turns with the digital therapist. When the digital therapist “speaks” oral-motor cues are provided via zooming in on the therapist’s mouth. Each word of the script was highlighted as
the digital therapist “said” it. With mastery of each portion of the script, the PWA removed each cue one-by-one so eventually the PWA was having a conversation with the digital therapist while no cues were provided. In the low cue condition, AphasiaScripts™ was modified so only written sentences were provided during sentence and conversational practice (Cherney, Kaye & van Vuure, 2014). No auditory or oral-motor cues from the digital therapist were provided. The high-cue condition is described as errorless learning, while the low-cue condition is effortful learning (Cherney, Kaye & van Vuure, 2014). A total of six scripts were trained. Each participant practiced one script under one cueing condition for three weeks, followed by a three-week break. A second script was practiced for three weeks under the other cueing condition (Cherney, Kaye & van Vuure, 2014). For each cueing condition, baseline measures were taken over three days to establish a stable baseline. Six treatment probes were administered during the training phase, one post treatment probe, and two maintenance probes 3 and 6 weeks post-treatment (Cherney, Kaye & van Vurre, 2014). Results showed no significant difference between high and low cueing conditions in this study for accuracy, \(t(7) = 1.83, p > .05\), or rate, \(t(7) = 1.03, p > .05\) (Cherney, Kaye & van Vurre, 2014). The authors concluded that the high-cue condition might be beneficial for persons with more severe aphasia based on participants’ rating of each cueing condition (Cherney, Kaye & van Vurre, 2014). Both the high and low-cue conditions were successful in acquisition and maintenance of scripts (Cherney, Kaye & van Vurre, 2014).

Youmans, Youmans, and Hancock (2011) explored script training in PWA and Apraxia of Speech (AOS) in 3 participants. The clients and clinicians developed three scripts collaboratively, with feedback from the participants to make sure the scripts were in their own words (Youmans, Youmans & Hancock, 2011). Using a multiple baseline design, the scripts were trained two to three times a week during 60-minute sessions. Each session was broken into
three 10-minute sessions of script training followed by a break that included relaxed conversation. Scripts were trained using blocked practice, one phrase at a time (Youmans, Youmans & Hancock, 2011). The cueing hierarchy included phrase repetition, reading phrases in unison with clinician, and independent production (Youmans et al., 2005). When the client independently produced the phrase 20 consecutive times, the next script phrase was added. Written phrases of the script were provided for participants to consult. All feedback and cues were delayed. Participants were allowed to struggle only for five to ten seconds before feedback was provided (Youmans, Youmans & Hancock, 2011). Once the participants were able to produce three phrases from a script with 90% accuracy without cueing, random practice was implemented with delayed feedback. Script mastery was achieved in 27-55 sessions. Six months after the participants mastered their scripts the authors probed for script accuracy; data revealed that all three participants demonstrated script retention of 70-100% accuracy (Youmans, Youmans & Hancock, 2011).

As summarized above, some studies have used purely verbal script training methods while other studies have added a visual cue to the verbal script training; however, no study has evaluated the differential effects of different cueing procedures. Therefore, the purpose of this study was to determine if verbal alone or verbal + visually supported training results in more efficient script learning as measured by number of sessions to script mastery.

The purpose of this study was to replicate the positive treatment effects that have been seen in previous script training studies, when using a verbal or a verbal + written delivery method. Specifically, the following research questions are asked:

1. What is the effect of script training therapy delivered verbally only or verbally plus a written script on the spoken production of the script (percent script correct)?
2. What is the difference in number of sessions to mastery when script training therapy is delivered verbally only or verbally plus a written script?
Method

Participants

Three participants were recruited from The University of South Florida Speech-Language-Hearing Clinic (USF-SLHC). Both clients receive individual and group aphasia therapy at USF-SLHC. In the first meeting, the possible participants were given the Montreal Cognitive Assessment (MoCA; Nasreddine, Phillips, Bédirian, et al., 2005). A cut-off score of 17 was used to determine decisional capacity. Persons scoring above 17 on the MoCA were considered to have decisional capacity to sign the consent form. Persons scoring 17 or below on the MoCA were considered to not have decisional capacity. However, they were able to participate in the study by having their family member sign a proxy consent form. The procedures for script training were reviewed, and the participants and/or their family member completed a consent form to participate in the study, in accordance with the Institutional Review Board of The University of South Florida (See Appendix A for the IRB Approval letter and Appendices B and C for the participant and proxy consent forms, respectively). Inclusion criteria for participants included: English as a first language, premorbid literacy, 6 months post-onset of stroke, and an Aphasia Quotient on the Western Aphasia Battery-Revised of 31 or higher (WAB-R; Kertesz, 2006). Exclusion criteria consisted of: any other brain injury or mental health diagnosis other than aphasia, non-English speaker, Aphasia Quotient on the Western Aphasia Battery-Revised lower than 31 and a score less than 4 on the Auditory Verbal Comprehension sub-test of the WAB-R (Kertesz, 2006). Persons scoring less than 4 on the Auditory Verbal
Comprehension sub-test of the WAB-R were excluded because they may not benefit from this treatment approach due to the severity of their auditory comprehension impairment.

As shown in Table 1, Participant 1, HB, was a 39-year-old male with anomic aphasia. HB was 1.5 years post onset of a left cerebral vascular accident (CVA), which resulted in nonfluent aphasia and no hemiparesis. The Western Aphasia Battery-Revised (WAB-R) yielded an AQ score of 88.3, auditory comprehension score of 9.58/10 and repetition score of 7.8/10, which is consistent with Anomic aphasia (Kertesz, 2006). Reading ability was assessed with the Reading Comprehension Battery for Aphasia, Second edition (RCBA-2; LaPointe & Horner, 1998); he scored 86/100. HB’s strengths included reading a single word and matching it to a picture, word comprehension, sentence comprehension, paragraph comprehension, and inference skills; he had difficulty matching a word to its synonym. Functional reading, such as reading a prescription bottle, was an area of relative weakness for the client. HB’s speech was mildly agrammatic characterized mainly by word finding errors and short utterance length. HB often said, “I forgot the name” during word-finding errors. The participant did not display any characteristics of apraxia of speech or dysarthria.

Participant 2, HW, was a 70 year-old-male with Broca’s aphasia. HW was 13 years- post onset of a left CVA, resulting in R hemiparesis. HW’s Bedside WAB-R AQ was 48.5, auditory comprehension was 8/10 and repetition was 4/10 (Kertesz, 2006). The RCBA-2 (LaPointe & Horner, 1998) was administered to HW but was discontinued due to participant anxiety, fatigue, and overt distress. His speech was characterized as halting and agrammatic, with frequent pauses and use of perseverative phrases such as “I’m sorry.”

Participant 3, AM, was a 48-year-old female with Broca’s aphasia and moderate apraxia of speech (Apraxia Battery for Adults- Second Edition, Dabul, 2000). AM was 3.5 years post-
onset of a left CVA. The CVA resulted in severe nonflu ent aphasia and hemiparesis of the right side of the body. Her WAB-R Aphasia Quotient (AQ) score of 55.2, auditory comprehension score of 9.95/10 and repetition score of 7.4/10 indicated Broca’s aphasia (Kertesz, 2006). She scored 68/100 on the Reading Comprehension Battery for Aphasia, Second edition (RCBA-2; LaPointe & Horner, 1998), revealing strengths in single word comprehension and sentence reading with controlled imageability and paragraph comprehension for factual material. Areas of weakness included functional reading, such as reading a prescription bottle, and paragraph comprehension involving inference. AM’s speech can be described as agrammatic, telegraphic, and nonfluent characterized mainly by word-finding errors, pauses, and self-corrections.

**Design**

Training was evaluated using a multiple baseline design across three scripts (McReynolds & Kearns, 1983). The Baseline phase consisted of prompting the client to answer each of the three script prompts, randomly presented until stable performance was observed in one topic with no visual upward trend upon data inspection over a minimum of 3 sessions. A prompt was established for each script and never changed throughout the training. Script accuracy was determined by counting the number of words from the script that the client produced correctly and dividing by the total number of words in the script multiplied by 100 to yield a percentage.

Training was done using two different procedures; verbally only or verbally + a written script. This study aimed to counterbalance the use of the two procedures such that the first participant was trained using the Verbal only procedures for the first script, followed by Verbal+Written script procedures for the second script. The third script was trained with the procedure that was most efficient based on the number of sessions to mastery of the first two. The order of the training procedures (Verbal only and Verbal + Written script) were
counterbalanced for the subsequent participants.

**Verbal Only.** The verbal only cueing condition consisted of the participant repeating the clinician’s verbal presentation of the script phrase. The script was presented verbally. No written version of the script was provided for the entire training procedure.

**Verbal + Written Script.** Scripts trained verbally + a written script included a 72 point font printed version of the script in addition to the participant repeating the clinician’s verbal presentation of the script phrase. Printed script phrases were laid out in front of the participant during the training phase.

Once training began for the first script, baseline measures were taken every session for the remaining untrained scripts. When mastery of the first script occurred (criterion = 90% word repetition accuracy in two consecutive sessions), training ended for that script and began for the second topic with low and stable performance. Training continued for the 2\textsuperscript{nd} script until mastery criterion was attained; then training was initiated for the 3\textsuperscript{rd} script. Maintenance data were collected for every session after each script was mastered. During the maintenance phase participants were instructed to continue practicing their scripts at home.

**Dependent Variables**

The dependent variables for this study included percent script correct (PSC) and number of sessions required for mastery of the script. PSC was gathered from the participants and documented during baseline, treatment and maintenance of the study. Number of sessions required to master script was obtained during each session and totaled once mastery was reached.

**Percent Script Correct (PSC).** PSC was calculated by dividing the total number of words from the script that the client produced by the total number of words in the target script,
per script, per session probe. Paraphasias, substitutions, and repetitions were not counted as correct.

**Number of Sessions.** Number of sessions was calculated by totaling the number of training sessions required until mastery was reached.

**Procedures**

**Pre-treatment.** Participants were instructed to select three topics for script training and the client and clinician wrote three scripts together on each topic. The clinician explained the purpose of script training and examples of situations where a script would be appropriate or helpful, such as greeting someone, telling your stroke story, or specific social interaction about certain topics (i.e. job interviews). Scripts from previous studies were shown to the participants as examples to give them ideas for their own scripts. Participants were encouraged to pick their script topics and try to write the scripts themselves. The participants in this study were unable to write their scripts independently. The clinician and participants co-wrote each script. The three scripts for each participant can be found in Appendix D. As shown in Table 2, each script averaged 28 words in total for HB (range = 27 – 30 words), 18 words in total for HW (range= 17-20 words) and 16 words in total for AM (range= 15-17 words) and was divided into short sentences or phrases for learning (AM: 3-4 phrases) (HB: 3-5 phrases) (HW: 4-5 phrases). Once a script was written, the clinician and participant developed a prompt for each script, noted in Table 3. Once a prompt was created for a script, it never changed. During all sessions, the clinician stated the prompt and wrote down what the participant said. No cues were provided during the baseline phase. PSC was calculated for each script and graphed.

**Baseline.** The baseline phase consisted of the clinician stating the prompt for each of the three scripts (i.e., “911 what’s your emergency?”), in a counterbalanced order, and providing a
two-minute time limit as measured by a stopwatch. The participants produced whatever they could pertaining to the script. Participants’ productions were recorded and PSC was calculated. Baseline continued until a low and stable performance was seen on the graph. On subsequent sessions the clinician counterbalanced the prompts so the participants could not predict the order the prompts were delivered.

**Treatment.** Training sessions were held two times a week for 20-25 minutes and clients were required to practice their script(s) at home for 10-15 minutes each day. The participants were given a homework log and encouraged to document their practice. Three scripts were trained, each learned in succession following mastery. Scripts were practiced in full up to the current phrase(s) being trained. Scripts were considered mastered when the client independently produced the entire script, verbatim, with 90% PSC across two consecutive sessions without cueing or feedback. The scripts were trained one sentence or phrase at a time; the clinician modeled the sentence and the client repeated the sentence until they reached 95% accuracy in the following session with no cues. The cueing hierarchy (Youmans et al., 2005) for scripts trained via the verbal+written cueing condition consisted of the client immediately repeating the phrase, followed by the client reading the phrase out loud from the cue card, and then the client repeating the phrase in unison with the clinician, with the cue card in place. The clinician gradually faded out her voice word-by-word until the client was independently producing the phrase. The client then repeated the phrase with the cue card in place, approximately 10-15 times. Lastly the client repeated the phrase without the cue card approximately 20 times. All errors were corrected immediately. If an error occurred, the clinician offered the appropriate word, which was repeated by the participant. The client was never allowed to struggle for more than two seconds. With any significant signs of struggle, the cueing hierarchy was implemented at the level of support.
needed for success.

The cueing hierarchy for training the scripts verbally followed the same procedure but excluded the written cue cards. The clinician stated the phrase and the client repeated it. The client and clinician said the phrase in unison. The clinician gradually faded out her voice one word at a time until the client was saying the phrase independently. The client then repeated the phrase 20 times in a row. All errors were corrected immediately and with any significant signs of struggle, the cueing hierarchy was implemented at level of support needed for success. The client was never allowed to see a written version of the script that was trained verbally.

**Home Practice.** All participants were instructed to practice all mastered scripts at home, documented by a home-practice log shown in Appendix E. However, AM was the only participant who returned her home-practice log weekly. HW and HB reported practicing their mastered scripts at home. Participants’ mastered scripts were recorded on their personal cellphones. All participants were given written copies of scripts that were trained with the verbal+written cueing condition.

**Maintenance.** After a script was mastered, maintenance data were collected each session to measure script retention. Scripts were not practiced in the training session after they were considered mastered. A long-term maintenance probe (done 6-16 weeks after study completion) was completed over the phone for all three participants to probe for PSC. Clients and family members were asked to report script use in everyday life.

**Reliability**

A total of 20% of the sessions (12 out of 60 total) collected via DVD recordings were transcribed and double-checked for accuracy of PSC. A graduate student clinician in the University of South Florida Speech-Language Pathology master’s program was trained to
calculate PSC. Overall agreement reliability is: 99.36%, s.d. = 2.2, and range is 91.7-100%.
Results

Script-training Measures

Figures 1, 2, and 3 display the baseline, training, maintenance, and follow-up data for HB, HW, and AM, respectively. Percent script correct of the three scripts for each participant remained relatively low and stable during the baseline phase of the study for all participants. PSC markedly increased from baseline to treatment upon visual inspection of the graphs (Figures 1, 2, 3). Maintenance varied for each client.

Percent Script Correct. Figure 1 depicts HB’s stable and low baseline performance for two out of three scripts. HB had approximately a 50% PSC baseline for Script 3; however, it was very stable. Training on Script 1 began at session 3 using verbal only procedures. For script 1, HB provided 7-11% PSC in baseline and improved to 33-100% in treatment, and then maintained this performance at 59% accuracy at follow-up (long-term maintenance probe). HB mastered Script 1 in 7 sessions at which point training on Script 2 using verbal + written procedures began. For script 2, HB provided 7-19% PSC in baseline and improved to 33-100% in treatment, and then maintained this performance at 37% accuracy at follow-up (long-term maintenance probe). HB required 6 sessions to master Script 2 at which point training on Script 3 began using verbal + written procedures. The cueing condition for Script 3 was determined based on least number of sessions until mastery for Script 1 and Script 2. For script 3, HB provided 40-56% PSC in baseline and improved to 47-100% in treatment, and then maintained this performance at 81% accuracy at follow-up (long-term maintenance probe). HB mastered script 3 in 6 sessions. HB anecdotally reported practicing his scripts after mastery, however, he failed to...
bring in his home-practice log. During probe measures over the phone, HB reported never using his scripts. HB’s scripts were specifically designed for a job interview at Publix Supermarket. HB fell ill and was hospitalized immediately after mastering all three scripts. He reported that he has not yet scheduled an interview with Publix.

As shown in Figure 2, HW demonstrated low and stable baseline performance for all three scripts. Script 1 was trained verbally only. HW provided 26% PSC in baseline and improved to 44-100% in treatment, and then maintained this performance at 72% accuracy at follow-up (long-term maintenance probe). Throughout the script training process, HW started substituting the phrase “what is your name” for “where are you from” in Script 1: Introducing yourself. In treatment session 4, the clinicians updated the script with the phrase the client was using spontaneously. Although this phrase was untrained, the clinicians felt it was important to update the script with this personally relevant phrase as it made sense in the flow of dialogue conversation. HW mastered Script 1 in 9 sessions, at which point training on Script 2 using verbal + written procedures began. For script 2, HW provided 0-12% PSC in baseline and improved to 18-100% PSC in treatment. He failed to retain his trained script, demonstrating 0% PSC at follow-up (long-term maintenance probe). HW required 14 sessions to master Script 2 at which point training on Script 3 began using verbal procedures. Script 3 was trained verbally only. The cueing condition for Script 3 was determined based on least number of sessions until mastery for Script 1 and Script 2. For script 3, HW provided 5-10% PSC in baseline and improved to 25% PSC in treatment. HW did not master Script 3 due to withdrawal from the study after four training sessions of Script 3 due to health complications requiring medical treatment. However, he agreed to collection of script data over the phone for the final probes. HW recalled 72% PSC for Script 1, 0% PSC for Script 2, and 0% for Script 3 at follow-up (long-
term maintenance probe). HW practiced scripts at home for 15 minutes every other day, analogously reported by his wife. Scripts trained Verbally only were recorded on his cellphone. Scripts trained Verbal + Written were printed out and given to him. During long-term maintenance probes over the phone, HW reported using script 1 when introducing himself to new people. He and his wife reported no functional use of Scripts 2 and 3, despite multiple opportunities.

As shown in Figure 3, AM demonstrated low and stable baseline performance for all three scripts. All scripts were practiced using only the verbal plus written script procedures due to the severity of her aphasia along with the concomitant apraxia of speech; Youmans, Youmans, and Hancock (2011) found using both verbal+written in persons with AOS facilitate script acquisition. Training on Script 1 began at session 3; AM provided 6-11% PSC in baseline and improved to 6-100% PSC in treatment, and then maintained this performance at 82% PSC at follow-up (long-term maintenance probe). She often had trouble recalling the appropriate articles and adverbs in her scripts. She consistently substituted “have” for “need” in Script 1 (calling 911). This substitution, although natural, was not added to the script because it did not make sense. Tactile cues were implemented in order to facilitate script acquisition, such as pointing to her knee to facilitate the word “need.” However, AM often failed to self-cue during treatment data probes. AM required 12 sessions to master Script 1 at which point training on Script 2a using verbal + written procedures began. For Script 2a AM provided 6-18% PSC in baseline and improved to 12-44% in treatment. After the seventh treatment session for Script 2a (and the 25th Baseline session for Script 3a), AM requested to change her second and third scripts because she decided that her original scripts, telling her children to do their chores and homework, were not needed because she had other functional ways to communicate with her children (e.g., pointing
and using single words). Instead, she wanted to be able to say the Lord’s Prayer fluently with her children at bedtime. Therefore, Scripts 2a and 3a were changed from a dialogue conversation to a monologue prayer (the Our Father prayer) (see Table 3). For script 2b, AM provided 0% PSC in baseline across three sessions and improved to 6-77% in treatment, and then maintained this performance at 59% accuracy at follow-up (long-term maintenance probe). AM did not reach script mastery criteria for Script 2b because she requested to move on to Script 3b due to the length and intensity of script training. For script 3b, AM provided 0-13% PSC in baseline and improved to 21-46% in treatment, and then maintained this performance at 13% accuracy at follow-up (long-term maintenance probe). AM withdrew from the study after 7 treatment sessions for Script 3b. AM practiced scripts at home for 15 minutes every day, as measured by a time log provided in Appendix D. During the long-term maintenance probe phone call, AM and her husband reported using Scripts 2b and 3b (Our Father Prayer) every evening with their children. AM has never used Script 1 (calling 911).

**Script Mastery.** To answer the research question about which cueing condition facilitated learning, script mastery was examined. One participant (HB) reached 90% PSC for two consecutive sessions for all trained scripts, one participant (HW) reached 90% PSC for two consecutive sessions for two out of three scripts, and one participant (AM) reached 90% PSC for two consecutive sessions for one out of three scripts. The number of sessions to mastery for each cueing condition and participant are shown in Table 4. HB mastered all three scripts in 19 sessions. Script 1 required 7 sessions over 3.5 weeks; Script 2, 6 sessions over three weeks; and Script 3, 6 sessions over three weeks. HW required 23 sessions to master two scripts. Script 1 required 9 sessions over 4.5 weeks; Script 2 required 14 sessions over 7 weeks; and Script 3, was not mastered after 3 sessions at 25% PSC over 1.5 weeks. AM required 12 sessions over six
weeks to master Script 1; 14 sessions over 17 weeks to reach 76.5% PSC for Script 2b; and seven sessions to reach 21% PSC for Script 3b over 3.5 weeks. Script 2b training was terminated due to participant’s request to begin training Script 3b.
Discussion

This study replicated previous studies in that 3 PWA demonstrated mastery of 2-3 scripts using V+W script training methods similar to Youmans et al. (2005). The time for script mastery varied from 6-14 sessions, and was comparable to Youmans et al. (2005), and Youmans, Youmans and Hancock (2011). However, no previous study has explored using purely verbal script training methods.

This study was unable to determine the effect of script training therapy delivered verbally only or verbally plus a written script on percent script correct due to unplanned changes in the protocol. HB mastered all three scripts, demonstrating a one-session difference in number of sessions to mastery when trained with the Verbal + Written cueing condition in comparison to the verbal only condition. However, HW showed a five session difference between Verbal and Verbal + Written cueing conditions. It is hypothesized that the written cue distracted HW because he had very limited preserved reading ability. HW had the potential to address the first question of this study, but he withdrew from the study before sufficient data were collected to answer the question. It is predicted that HW would have performed similarly to the first script using only verbal cues.

AM demonstrated a script mastery trajectory consistent with Youmans, Youmans and Hancock (2011). AM’s concomitant apraxia of speech appeared to negatively impact her script acquisition rate. Due to AM’s AOS, difficulty with repetition, and relatively preserved reading ability the clinicians decided to train all three scripts using the Verbal + Written cueing condition.
There are several potential issues that could have impacted how the participants in this study performed including: differences in aphasia type, reading ability, auditory comprehension and repetition; differences in script topic and type; and differences in amount of home practice for each participant.

The participant with Anomic Aphasia, HB, mastered all three scripts in the least amount of time. The two remaining participants, AM and HW both had moderate-severe Broca’s aphasia and concomitant Apraxia of Speech resulting in increased number of sessions to reach script mastery. This finding is consistent with Lee, Kaye, and Cherney (2009) who found a relationship between aphasia severity and time to script mastery. Because HB had longer and more grammatical utterances prior to the study, it is possible that the script training procedures were easier for him and he was able to learn the scripts faster than the other two participants whose aphasia was more severe. Further research is needed with more participants of differing aphasia severity to explore the relationship between aphasia severity type and script mastery.

Preserved reading ability may influence the optimal cueing condition for each participant. HB scored the highest on the RCBA-2 (86/100) (LaPointe & Horner, 1998). He mastered scripts trained with the Verbal+Written cueing condition in 1 less session than verbal only, which is not a large enough difference to be meaningful. AM scored a 68/100 on the RCBA-2, however, only the Verbal+Written cueing condition was used to train all three scripts. HW was unable to complete the RCBA-2 due to frustration (LaPointe & Horner, 1998). He reported to the clinician that he “could not read anymore.” In relation to cueing conditions and PSC, HW mastered scripts trained verbally only in 4 fewer sessions than scripts trained with the Verbal+Written cueing condition. HW did not benefit from written cues, which was confirmed by his poor preserved reading ability. It is hypothesized that preserved reading ability plays a large role in the
efficiency of cueing conditions in script acquisition and maintenance. However, further research is needed in this area.

Auditory comprehension and repetition play a large role in script training. One needs good auditory comprehension for the Verbal cueing condition because no written cue is provided. The participant needs good auditory comprehension in order to understand the directions regarding the cueing condition and cueing hierarchy. With poor auditory comprehension, the participant may not make the connection that each script has a specific prompt. Each individual prompt lets the participant know what script to produce. Repetition also plays into acquisition of scripts. The participant must simply listen to the clinician and repeat what they hear. However, if they repeat the wrong words, they could inadvertently learn the wrong wording for their scripts, which negatively impacts PSC. HB had the highest auditory comprehension and repetition scores on the WAB-R, 7.8/10 and 9.85/10, respectively. The combination of good functional reading, comprehension and repetition aided HB in quick acquisition of all three scripts (6-7 sessions individually). HW and AM had lower auditory comprehension and repetition scores on the WAB-R and lower preserved reading function. They subsequently required more sessions to reach script mastery (9-14 sessions).

Differences in the type of script (dialogue vs. monologue) and factors related to the potential use of the script in everyday life could also account for the outcomes of this study. Script type (dialogue vs. monologue scripts) varied by participant. Initially, all three participants developed dialogue conversational scripts. For example HB’s scripts were written for a job interview at Publix Supermarket, HW’s scripts targeted personal introductions, ordering at a restaurant, and conversing on a cruise ship. AM’s originally wrote scripts for calling 911 and telling her children to complete their chores and homework. AM elected to change Script 2A and
Script 3A seven sessions into training Script 2. She changed her scripts from a dialogue conversation (telling her children to do their homework and chores) to a monologue script of the Our Father prayer. AM expressed that she wanted to say the prayer competently with her children each night, making it a functionally relevant script. Participants with dialogue scripts (HB and HW) achieved script mastery faster than participants with monologue scripts (AM). This finding differs from Youmans et al. (2005) whose participants’ mastered scripts trained in monologue form at the same rate as their dialogue scripts.

The authors hypothesize that script automatization combined with generalization practice facilitated participants’ ability to use scripts flexibly in functional conversation (Youmans et al., 2005). The current study did not include specific generalization practice during the training phases of the study. Generalization data were collected only over the phone by providing the script prompts and calculating PSC, and also via anecdotal report of participants’ script use. Other studies measured generalization via specific generalization practice such as specific practice in conversation (Youmans et al., 2005) and random practice in conversation with immediate feedback with unfamiliar clinicians and avatars (Youmans, Youmans & Hancock, 2011; Cherney, Kaye & van Vuure, 2014). Studies exploring script generalization did not gather anecdotal reports of script use from participants, they only measured script generalization in the clinical setting with unfamiliar persons or an avatar (Cherney et al., 2008; Cherney, Kaye & van Vuure, 2014; Lee, Kay & Cherney, 2009; Youmans et al., 2005; and Youmans, Youmans & Hancock, 2011).

Finally, the amount of home practice that participants engaged in might be related to the outcomes of this study. During script maintenance, participants were instructed to practice mastered scripts at home. Implementing home-practice during the training phase, during script
acquisition, might help participants’ learn their scripts faster. All participants were given a time log to document script practice, however AM was the only participant to return this log. HW and HB anaecdotally reported practicing mastered scripts at home. Percent Script Correct (PSC) stabilized for AM in the maintenance phase of script training. PSC became variable during the maintenance phase for HW and HB likely due to lack of home practice. It is not clear whether home-practice aided maintenance of the mastered scripts due to variability in home practice between participants. Snook (2013), Youmans et al. (2005), and Youmans, Youmans and Hancock (2011) required their participants to practice scripts at home for 15 minutes one to two times a day during the treatment phase. Participants anaecdotally reported home practice and home practice logs were collected. Youmans et al. (2005) was the only study to collect home practice logs. Scripts that were trained on the computer via an avatar were all practiced at home for 30-90 minutes daily, documented by a computer (Cherney et al., 2008; Cherney, Kaye & van Vuure, 2014; and Lee, Kay & Cherney, 2009). No additional home practice was required outside of treatment times. In this study, home practice was requested after script mastery and not during the acquisition/training phase. Future research is needed to explore the role home-practice plays in script acquisition rates and maintenance of mastered scripts, as measured by PSC. Home practice tracked by a computer program is an ideal way to document home practice, as computer programs can track login times and keystrokes.

**Limitations**

The limitations of this study included the small sample size (n=3), participant motivation, choice and type of scripts, and limited generalization.

**Sample Size.** This study included three participants with varying types of aphasia severity, one with anomic aphasia and two with Broca’s aphasia. Differences in their script
learning performance might have been due to the differences in specific language features (i.e., repetition, auditory comprehension, utterance length, etc.). However, with limited data from these participants, it was not possible to draw any conclusions. More participants of each aphasia type are needed in order to acquire sufficient data, and therefore, sufficient power to answer the research questions.

**Participant Motivation.** Participant motivation plays a large role in script training. Script training is an intensive treatment method that requires participant buy-in. If a participant does not see the point in practicing grammatically correct scripts to talk about a topic, or feels that they are able to communicate effectively about a topic, they will not be motivated to learn grammatically correct scripts. HB was very eager to go back to work so he was highly motivated to develop scripts for a job interview. Although he commented that script training was difficult, his high motivation kept him focused and dedicated. On the other hand, AM began to lose motivation during script training. AM expressed that she no longer wanted to practice two scripts she had selected due to the intensity of script training and time to reach script mastery. In order to prevent dropout, the scripts were changed to a new topic of her choice (Our Father prayer). AM’s concomitant AOS negative influenced her rate of script acquisition. AM began to lose motivation again after the scripts were changed and she ultimately dropped out of the study. Motivation can give a person the drive and ambition to finish an intensive task such as script training.

**Type of Scripts.** The type of script (monologue vs. dialogue script) may be related to script acquisition and generalization. HW and HB’s dialogue scripts were learned quickly but had limited generalization for several reasons including focus of the study and lack of generalization opportunities. The focus of this study was on the effects of Verbal and Verbal +
Written cueing conditions on PSC and number of sessions to reach script mastery. A specific generalization procedure was not included in this study. Also, the study participants did not have naturalistic opportunities to demonstrate generalization (i.e., HB fell ill shortly after script mastery and never went on a job interview). Ideally, participants would practice mastered scripts with various persons/clinicians in a variety of different settings. Participant AM originally chose dialogue scripts but halfway through training Script 2A decided to change her scripts from a dialogue conversation with her children to a monologue prayer. AM reported saying the Our Father prayer (Script 2B and 3B) every night with her children, so this might have helped her learn them faster. Even though AM appeared to understand the types of scripts that could be useful to her in everyday life and she worked diligently with the clinician to select personally relevant, meaningful scripts, AM and her husband expressed dislike for the intensity of the training procedures and decided that she was able to communicate with her children without the use of scripts. It was decided to change her scripts to keep her motivated to participate in the study and to prevent dropout. Nevertheless, she chose to withdraw from the study prior to achieving mastery of the revised scripts. Future research should explore procedures for choosing script topics with participants and interview caregivers/family members or friends to ensure scripts are functionally relevant for that person. To date there has been limited attention focused on the types of scripts that could be used in script training. Cherney, Kaye and van Vuure (2014) created simple script templates for persons with more severe aphasia and more complex templates for participants with less severe aphasia. All scripts were personalized with personally relevant items such as restaurant names and favored food items (Cherney, Kaye & van Vuure, 2014). Cherney, Kaye and van Vuure (2014) did not state why they decided to provide participants with script templates vs. allowing participants to select their own script topics and
write their own scripts. Youmans, Youmans and Hancock (2011) simply instructed participants to develop topics for functional scripts. Holland, Halper and Cherney (2010) analyzed 100 scripts (28 monologue and 72 dialogue) in 33 PWA. Participants were instructed to come up with one monologue and two dialogue scripts. Thirty topics were identified and categorized into themes. For script monologues, the largest category was personal stories about their stroke and aphasia (Holland, Halper & Cherney, 2010). For dialogues, conversations with family members was the most common type of script followed by providing/seeking information (Holland, Halper & Cherney, 2010). There is a need to further explore procedures for choosing script topics with participants to make sure all scripts are functionally relevant to promote greatest generalization. Holland, Halper and Cherney (2010) first explained what scripts could accomplish (i.e. fluent islands of speech in a conversation or monologue). They then showed a variety of script examples and encouraged the PWA to come up with script topics. After explaining the intensity of script training, the clinicians stressed the importance of picking a topic of real interest to increase the likelihood of practice (Holland, Halper & Cherney, 2010). Clinicians paid careful attention to word choices that mirrored the participants’ prestroke speaking style. The authors did not comment whether selection of a dialogue or monologue script affected rate of script acquisition or script accuracy measured by percent script correct. More research is needed to better understand which types of scripts will be the most functional for PWA of varying severities.

**Limited Generalization.** Another factor that may have influenced the outcome of this study was the fact that there were limited opportunities to measure generalization of the mastered scripts. In other studies, generalization of training conducted in the clinic, over the phone, or with an avatar was measured by Percent Script Correct. Because this study was conducted at the
University of South Florida’s Speech-Language and Hearing Clinic during the regular treatment sessions attended by participants, there were limited opportunities to gather script generalization data in the community. Ideally, the clinician would have liked to observe each participant using his or her scripts in the intended setting (i.e. introducing yourself to strangers or ordering at a restaurant). Other studies promoted script generalization by engaging the participant in a structured conversation in which the client was expected to randomly produce the phrases of the script to meet changing conversational demands; conversations were recorded and feedback was given to each participant (Youmans, Youmans, and Hancock, 2011). Once participants mastered the scripts, Youmans, Youmans, and Hancock (2011) found that random practice aided in the retention and generalization of the scripts. It is necessary to ensure that mastered scripts are utilized in functional situations to preserve the positive effects of script training.

**Future Research**

Future research should continue exploring the role that written and verbal cues play in script acquisition, maintenance, and generalization. Aphasia severity and sample size should be taken into consideration. More research is needed on type of aphasia (fluent vs. nonfluent) and its affect on script acquisition measured in PSC. A larger number of participants with varying aphasia types and severities should be recruited so researchers can investigate the relationships between performance and characteristics such as aphasia type and severity, WAB-R scores, and reading ability. When exploring the verbal cueing condition, the researcher must take into account preserved auditory comprehension and repetition in the PWA.

Future studies should use only dialogue or monologue scripts or compare the effectiveness of script acquisition measured by PSC for dialogue vs. monologue scripts. The clinician must emphasize the importance of script topic to the participant. Personally relevant,
functional script topics should be selected to increase participant motivation and buy-in.

Participants who are highly motivated are more likely to follow through with home-practice.

Generalization practice and feedback conditions to obtain maximal retention and generalization of scripts across contexts should be explored.
Table 1. Participant Information.

<table>
<thead>
<tr>
<th>Participant</th>
<th>Sex</th>
<th>Age</th>
<th>Lesion</th>
<th>Years post-stroke</th>
<th>WAB-R</th>
<th>Aphasia Type</th>
<th>RCBA-2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>AQ</td>
<td>AC</td>
<td>Rep.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>AC</td>
<td>Rep.</td>
<td></td>
</tr>
<tr>
<td>HB</td>
<td>M</td>
<td>39</td>
<td>L CVA</td>
<td>1.5</td>
<td>88.3</td>
<td>9.85/10</td>
<td>7.8/10</td>
</tr>
<tr>
<td>HW</td>
<td>M</td>
<td>70</td>
<td>L CVA</td>
<td>13</td>
<td>48.5</td>
<td>4/10</td>
<td>7/10</td>
</tr>
<tr>
<td>AM</td>
<td>F</td>
<td>48</td>
<td>L CVA</td>
<td>3.5</td>
<td>AQ</td>
<td>8.75/10</td>
<td>6.2/10</td>
</tr>
</tbody>
</table>

Note. WAB-R= Western Aphasia Battery, Revised. AQ= Aphasia Quotient. AC- Auditory comprehension. Rep.= Repetition
Table 2. Script Length

<table>
<thead>
<tr>
<th>Script length</th>
<th>HB</th>
<th>HW</th>
<th>AM</th>
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</thead>
<tbody>
<tr>
<td>Script 1</td>
<td>27</td>
<td>18</td>
<td>17</td>
</tr>
<tr>
<td>Script 2</td>
<td>27</td>
<td>17</td>
<td>a. 16</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>b. 17</td>
</tr>
<tr>
<td>Script 3</td>
<td>30</td>
<td>20</td>
<td>a. 15</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>b. 14</td>
</tr>
</tbody>
</table>
Table 3. Script Topics and Prompts.

<table>
<thead>
<tr>
<th>Participant</th>
<th>Script 1</th>
<th>Script 2</th>
<th>Script 3</th>
</tr>
</thead>
</table>
| HB          | Topic: Job interview  
Prompt: Why do you want to work at Publix? | Topic: Job interview  
Prompt: Tell me about your work experience. | Topic: Job interview  
Prompt: Tell me about yourself. |
| HW          | Topic: Introductions;  
Prompt: What is the script that you will use when you introduce yourself to others? | Topic: Ordering at a restaurant;  
Prompt: The script you will use when ordering food at a restaurant? | Topic: Traveling;  
Prompt: What is the script you’ll use to talk about travel with others? |
| AM          | Topic: Calling 911  
Prompt: 911 what’s your emergency? | a. Topic: Getting kids to do chores;  
Prompt: What would you say to your kids to get them to do their chores?  
b. New Topic: The Lord’s prayer (Part I)  
Prompt: Say the Lord’s prayer | a. Topic: Getting kids to do homework;  
Prompt: How do you tell your kids to do their homework?  
b. New Topic: The Lord’s prayer (Part 2)  
Prompt: Script 2 serves as a prompt for Script 3 |
**Table 4.** Number of Sessions to Mastery.

<table>
<thead>
<tr>
<th>Participant</th>
<th>Script</th>
<th>Verbal or Verbal+Written</th>
<th>Number of Sessions until Mastery</th>
</tr>
</thead>
<tbody>
<tr>
<td>HB</td>
<td>1</td>
<td>V</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>V+W</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>V+W</td>
<td>6</td>
</tr>
<tr>
<td>HW</td>
<td>1</td>
<td>V</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>V+W</td>
<td>14</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>V</td>
<td>-</td>
</tr>
<tr>
<td>AM</td>
<td>1</td>
<td>V+W</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>2b</td>
<td>V+W</td>
<td>14*</td>
</tr>
<tr>
<td></td>
<td>3b</td>
<td>V+W</td>
<td>-</td>
</tr>
</tbody>
</table>

*Note.* *Script 2b was discontinued before mastery criteria was met.*
Figure 1. Percent of script words correctly produced across sessions by HB on each topic. An X indicates probe for script accuracy over the phone.
Figure 2. Percent of script words correctly produced across sessions by HW on each topic. Yellow marks indicate change in script. An X indicates probe for script accuracy over the phone.
Figure 3. Percent of script words correctly produced across sessions by AM on each topic. Yellow marks indicate change in script. An X indicates probe for script accuracy over the phone.


Dabul, B. (2000). *Apraxia Battery for Adults* (2nd ed.). Austin, Tex.: Pro-Ed.


Appendices
Appendix A: IRB Approval Letter

January 12, 2015

Hallie Cohen
Communication Sciences and Disorders
Tampa, FL 33617

RE: Expedited Approval for Initial Review
IRB#: Pro00019623
Title: Script training: The role of written cues

Study Approval Period: 1/12/2015 to 1/12/2016

Dear Ms. Cohen:

On 1/12/2015, the Institutional Review Board (IRB) reviewed and APPROVED the above application and all documents outlined below.

Approved Item(s):
Protocol Document(s):
USF IRB Protocol

Consent/Assent Document(s)*:
IRB_consent_form.pdf
LAR/Proxy Consent Form.pdf

*Please use only the official IRB stamped informed consent/assent document(s) found under the "Attachments” tab. Please note, these consent/assent document(s) are only valid during the approval period indicated at the top of the form(s).

It was the determination of the IRB that your study qualified for expedited review which includes activities that (1) present no more than minimal risk to human subjects, and (2) involve only procedures listed in one or more of the categories outlined below. The IRB may review research through the expedited review procedure authorized by 45CFR46.110 and 21 CFR 56.110. The research proposed in this study is categorized under the following expedited review category:
(6) Collection of data from voice, video, digital, or image recordings made for research purposes.

(7) Research on individual or group characteristics or behavior (including, but not limited to, research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices, and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies.

As the principal investigator of this study, it is your responsibility to conduct this study in accordance with IRB policies and procedures and as approved by the IRB. Any changes to the approved research must be submitted to the IRB for review and approval by an amendment.

We appreciate your dedication to the ethical conduct of human subject research at the University of South Florida and your continued commitment to human research protections. If you have any questions regarding this matter, please call 813-974-5638.

Sincerely,

John Schinka, Ph.D., Chairperson
USF Institutional Review Board
Appendix B: IRB Consent Form

Study ID: Pro00019623 Date Approved: 1/12/2015 Expiration Date: 1/12/2016

Informed Consent to Participate in Research
Information to Consider Before Taking Part in this Research Study

IRB Study #19623

You are being asked to take part in a research study. Research studies include only people who choose to take part. This document is called an informed consent form. Please read this information carefully and take your time making your decision. Ask the researcher or study staff to discuss this consent form with you, please ask him/her to explain any words or information you do not clearly understand. We encourage you to talk with your family and friends before you decide to take part in this research study. The nature of the study, risks, inconveniences, discomforts, and other important information about the study are listed below.

Script Training: the role of written cues

The person who is in charge of this research study is Hallie Cohen, B.S., University of South Florida. This person is called the Principal Investigator. Hallie Cohen is conducting this study for a thesis. She is being guided in this research by her advisor, Michelle S. Bourgeois, Ph.D., CCC-SLP. Other research staff may be involved and can act on behalf of the person in charge.

The research will be conducted at The University of South Florida Speech Language and Hearing Center (USF-SLHC; 4202 E. Fowler Avenue, PCD 1017, Tampa, FL 33620, USA) in Tampa, Florida.
Purpose of the study
You are being asked to participate in a research study because you are a client at The University of South Florida Speech Language and Hearing Center and have aphasia. Script training is a technique that allows persons with acquired speech and language disorders, such as aphasia, to have islands of fluent speech where they can speak about a topic without pausing or having word-finding errors. The client and clinician develop scripts relevant to specific situations or scenarios that are functional for the client. Clinician and client write scripts together and the client memorizes the scripts. Script training delivered verbally has been effective with clients with aphasia but the role of written cues in the training has not been explored in much detail. Therefore, the purpose of this study is to compare the effectiveness of script training taught verbally or verbally with a written script, in persons with aphasia.

Study Procedures
The participants will select three topics for script training. The participants and the PI will write 3-4 sentence scripts for each topic. For each topic, a prompt question will be determined. The 3 prompt questions will be asked at the beginning of each therapy session to determine how much of the script the participant has learned. During the training, one script at a time will be taught by having participants repeat out loud each sentence until they remember it. Some participants will be given a written copy of their script to help them learn it. Once participants have learned all 3 scripts the training will end and they will be asked to return one month later to determine how much they remember once training has concluded.

The study will be completed when all 3 scripts have been learned (approximately one semester of 18-20, 60 minute sessions) short breaks will be given as needed. The study will be conducted at the USF-Speech Language and Hearing Center.

A minimum of eight sessions will be video-recorded for analysis. A client code will be assigned to the file. All data collected during the session will be referred to this client code. The DVDs will be stored in a locked room, without direct identifiers. All data will be destroyed within 6 months after the study results have been compiled and submitted for publication.
Total Number of Participants
A maximum of 6 individuals will take part in this study at USF.

Alternatives
You do not have to participate in this research study.
There are a variety of alternative resources and services at The University of South Florida Speech Language and Hearing Center available to participants with aphasia and language impairments.

Benefits
The potential benefits of participating in this research study include islands of fluent speech where the participant can speak about a topic without pausing or having word-finding errors.

Risks or Discomfort
This research is considered to be minimal risk. That means that the risks associated with this study are the same as what you face every day. There are no known additional risks to those who take part in this study.

Compensation
You will receive no payment or other compensation for taking part in this study.

Cost
There will be no additional costs to you as a result of being in this study.

Authorization to Use and Disclose Protected Health Information
Who will see your health information?
In this research study, we use and share your health information to the extent authorized (permitted) by you. We know that this information is private. The federal privacy regulations of the Health Insurance Portability & Accountability Act (HIPAA) protect your identifiable health information. If you authorize us to use your information we will protect it as required by the law.
This research is conducted at the University of South Florida (USF). By signing this form, you are permitting USF to use personal health information collected about you for research purposes within the USF health care system. You are also allowing USF to share your personal health information with individuals or organizations other than USF who are also involved in the research and listed below.

**Who will disclose (share), receive, and/or use your information?**

To conduct this research, USF and the people and organizations may use or share your information. They may only use and share your information:

- With the people and organizations on this list;
- With you or your personal representative; and
- As allowed by law.

In addition to the people and organizations listed below in the Privacy and Confidentiality section of this document, the following groups of people may also be able to see information about you and may use the information to conduct the research:

- The medical staff that takes care of you and those who are part of this research study;
- Data Safety Monitoring Boards or others who monitor the data and safety of the study.

**Who else can use and share this information?**

Anyone listed above may use consultants in this research and for the purpose of this study, may share your information with them. If you have questions about who they are, you should ask the study team. Individuals who receive your health information for this research study may not be required by the HIPAA Privacy Rule to protect it and may share your information with others without your permission. They can only do so if permitted by the laws governing them. For example, the study sponsor may share your information with others. If the sponsor or others share your information, your information may no longer be protected under the HIPAA Privacy Rule.
How will my information be used?
By signing this form, you are giving your permission to use and/or share your health information as described in this document for any and all study/research related purposes. Your authorization to use your health information will not expire unless you revoke it in writing.

As part of this research, USF may collect, use, and share the following information:

- Your health information gathered for this research, including diagnosis, Western Aphasia Battery- Revised score, past and current medications.

You can list any particular information that you do not want us to use or share in the space below. If you list nothing here, we can use and share all of the information listed above for this research but for nothing else.

For the Research Participant (you) to complete:
☐ I am asking USF and the researchers not to include, use, or share the following health information in this research (if blank, then no information will be excluded):

Your Rights:
You can refuse to sign this form. If you do not sign this form you will not be able to take part in this research study and therefore not be able to receive the research related interventions. However, your health care outside of this study and benefits will not change.

How Do I Withdraw Permission to Use My Information?
You can revoke this form at any time by sending a letter clearly stating that you wish to withdraw your authorization to use of your health information in the research. If you revoke your permission:

- You will no longer be a participant in this research study;
- We will stop collecting new information about you;
- We will use the information collected prior to the revocation of your authorization. This information may already have been used or shared with other, or we may need it to complete and protect the validity of the research; and
- Staff may need to follow-up with you if there is a medical reason to do so.

To revoke this form, please write to:

Principal Investigator: Hallie Cohen
For IRB Study # 19623
Email: halliec@mail.usf.edu

While we are conducting the research study, we cannot let you see or copy the research information we have about you. After the research is completed, you have a right to see the information about you, as allowed by USF policies.

Privacy and Confidentiality
We will keep your study records private and confidential. Certain people may need to see your study records. By law, anyone who looks at your records must keep them completely confidential. The only people who will be allowed to see these records are:

- The research team, including the Principal Investigator, study coordinator, and all other research staff.
- Certain government and university people who need to know more about the study. For example, individuals who provide oversight on this study may need to look at your records. This is done to make sure that we are doing the study in the right way. They also need to make sure that we are protecting your rights and your safety.
- Any agency of the federal, state, or local government that regulates this research. This includes the Department of Health and Human Services (DHHS) and the Office for Human Research Protection (OHRP).
• The USF Institutional Review Board (IRB) and its related staff who have oversight responsibilities for this study, staff in the USF Office of Research and Innovation, USF Division of Research Integrity and Compliance, and other USF offices who oversee this research.

We may publish what we learn from this study. If we do, we will not include your name. We will not publish anything that would let people know who you are.

Voluntary Participation / Withdrawal
You should only take part in this study if you want to volunteer. You should not feel that there is any pressure to take part in the study. You are free to participate in this research or withdraw at any time. There will be no penalty or loss of benefits you are entitled to receive if you stop taking part in this study.

You can get the answers to your questions, concerns, or complaints
If you have any questions, concerns or complaints about this study, or experience an adverse event or unanticipated problem, call Hallie Cohen at (954) 629-3409

If you have questions about your rights as a participant in this study, general questions, or have complaints, concerns or issues you want to discuss with someone outside the research, call the USF IRB at (813) 974-5638.

Consent to Take Part in this Research Study
It is up to you to decide whether you want to take part in this study. If you want to take part, please sign the form, if the following statements are true.

I freely give my consent to take part in this study I understand that by signing this form I am agreeing to take part in research. I have received a copy of this form to take with me.

______________________________  __________________________
Signature of Person Taking Part in Study                  Date

______________________________
Printed Name of Person Taking Part in Study
Statement of Person Obtaining Informed Consent

I have carefully explained to the person taking part in the study what he or she can expect from their participation. I hereby certify that when this person signs this form, to the best of my knowledge, he/she understands:

- What the study is about;
- What procedures/interventions will be used;
- What the potential benefits might be; and
- What the known risks might be.

I can confirm that this research subject speaks the language that was used to explain this research and is receiving an informed consent form in the appropriate language. Additionally, this subject reads well enough to understand this document or, if not, this person is able to hear and understand when the form is read to him or her. This subject does not have a medical/psychological problem that would compromise comprehension and therefore makes it hard to understand what is being explained and can, therefore, give legally effective informed consent. This subject is not under any type of anesthesia or analgesic that may cloud their judgment or make it hard to understand what is being explained and, therefore, can be considered competent to give informed consent.

Signature of Person Obtaining Informed Consent / Date

Printed Name of Person Obtaining Informed Consent / Date
Appendix C: IRB Proxy Consent Form

Clinical Study of Legally Authorized Representative
(Proxy/Healthcare Surrogate) for Participation in Research and
Authorization to Collect, Use and Share Your Health Information

Information to Consider Before You Consent An Individual To This Research Study

IRB Study # 00019623

Researchers at University of South Florida (USF) study diseases and other health problems people may have. Our goal is to try to find better ways to help treat these health problems. To do this, we need the help of people who are willing to take part in a research study.

You are being asked to enroll an individual in a research study. Research studies include only people who choose to take part. This document is called an informed consent form. Please read this information carefully and take your time making your decision. Ask the researcher or study staff to discuss this consent form with you. Please ask him/her to explain any words or information you do not clearly understand. We encourage you to talk with your family and friends before you decide to enroll your loved one in this research study. The nature of the study, risks, inconveniences, discomforts, and other important information about the study are listed below.

We are asking you to take part in a research study called:

**Script Training: the role of written cues**

The person who is in charge of this research study is Hallie Cohen. This person is called the Principal Investigator. However, other research staff may be involved and can act on behalf of the person in charge. She is being guided in this research by Michelle S. Bourgeois.

The research will be conducted at the University of South Florida Speech Language and Hearing Center.

**Finding the best person to give legally authorized consent:**

Under certain circumstances, someone can give consent for another person to take part in research. This person is the Legally Authorized Representative (LAR) or “participant by proxy.” The LAR can make choices for the participant, if the participant is not able to make choices for him or herself. A LAR can be any of the people listed below.

A. In the list below, research staff should write “LAR” in the space next to the description of the person who will provide consent and research authorization for the person participating in this research. If there is a person with a higher authority, write in the space why that person is not available or able to act as proxy. This following is an example:

<table>
<thead>
<tr>
<th>Health Care Surrogate</th>
<th>Spouse</th>
<th>Adult Child</th>
</tr>
</thead>
<tbody>
<tr>
<td>No one was named</td>
<td>Spouse has died</td>
<td>Unable to reach by phone after several tries</td>
</tr>
</tbody>
</table>
Parent: LAR

(1) **Health Care Surrogate** named by the research subject: ____________________________
(2) A **guardian** of the subject, appointed by the court. He/she must be authorized to give consent to research: ____________________________
(3) The subject's **spouse**: ____________________________
(4) An **adult child** of the subject. If the subject has more than one adult child, a majority of the adult children who live near enough to be asked: ____________________________
(5) A **parent** of the subject: ____________________________
(6) The **adult sibling** of the subject: If the subject has more than one sibling, a majority of the adult siblings who are reasonably available to be asked: ____________________________
(7) An **adult relative of the subject who has shown special care and concern**. This adult relative has kept in regular contact and knows how the subject feels about things such as research, what the person likes to do, what the person’s health is like, what the person believes and thanks is right: ____________________________
(8) A **close friend** of the subject: ____________________________

**Purpose of the Study**

Your family member is being asked to participate in a research study because he/she is a client at The University of South Florida Speech Language and Hearing Center and has aphasia. Script training is a technique that allows persons with acquired speech and language disorders, such as aphasia, to have islands of fluent speech where they can speak about a topic without pausing or having word-finding errors. The client and clinician develop scripts relevant to specific situations or scenarios that are functional for the client. Clinician and client write scripts together and the client memorizes the scripts. Script training delivered verbally has been effective with clients with aphasia but the role of written cues in the training has not been explored in much Therefore the purpose of this study is to compare the effectiveness of script training taught verbally or verbally with a written script, in persons with aphasia.

**Should the person for whom you are signing consent take part in this study?**

This form tells you about this research study. After reading this form and having someone explain the research to you, you can decide if you think the person for whom you are signing consent [and research authorization] would want to take part in the study.

This form is written as if you, the LAR, were taking part in the research. This helps you think in terms of what the person for whom you are signing consent would do or what is best for him/her. After reading this form, you can choose if you want your loved one to take part.

You may have questions this form does not answer. If you do have questions, ask the study doctor or the person explaining the study as you go along. Take your time to think about the information that has been given to you.
This form explains:
- Why this study is being done.
- What will happen during this study and what you will need to do.
- Whether there is any chance of benefits from being in this study.
- The risks involved in this study.
- How the information collected about you during this study will be used and with whom it may be shared.

Taking part in this research study is up to you. If you choose to be in the study, then you should sign this informed consent form. If you do not want to take part in this study, you should not sign this form.

Why are you being asked to take part?
We are asking you to take part in this research study because you are a client at The University of South Florida Speech Language and Hearing Center and have aphasia.

Study Procedures: What will happen during this study?
The participants will select three topics for script training. The participants and the PI will write 3-4 sentence scripts for each topic. For each topic, a prompt question will be determined. The 3 prompt questions will be asked at the beginning of each therapy session to determine how much of the script the participant has learned. During the training, one script at a time will be taught by having participants repeat out loud each sentence until they remember it. Some participants will be given a written copy of their script to help them learn it. Once participants have learned all 3 scripts the training will end and they will be asked to return one month later to determine how much they remember once training has concluded.

If you take part in this study, you will be asked to:
Participants will be instructed to select three topics for script training and the client and clinician will write three scripts together on each topic. The clinician will explain to the participants the purpose of script training and provide examples of situations where a script would be appropriate or helpful, such as, greeting someone, telling your stroke story, or specific social interaction about certain topics (i.e. job interviews). Scripts from previous studies will be shown to the participants as examples to give them ideas for their own scripts. All participants are encouraged to pick their script topics and try to write the scripts themselves.

A prompt will be established for each script and never changed throughout the training. Once training begins for the first script, baseline measures will be taken every session for the remaining untrained scripts. When mastery of the first script occurs (criterion — 90% word repetition accuracy in two consecutive sessions), training will end for that script and begin for the second topic with stable performance. Training continues for the 2nd script until mastery criterion is attained. Then training will be Initiated for the 3rd script. Maintenance data will be collected for every session after each script is mastered. A cueing hierarchy adapted from Youmans et al., 2005 will be applied to the study. For training the scripts visually, first the client immediately repeats the phrase, then the client reads the phrase out loud from the cue card, next the client repeats the phrase in harmony with the clinician, with the cue card in place. The clinician gradually fades out her voice. The client then repeats the phrase with the cue card in place, approximately 10-15 times. Lastly the client repeats the phrase without the cue
card approximately 20 times. All errors are corrected immediately. The client is never allowed to struggle for more than two seconds. The cueing hierarchy for training includes cue cards. The client will never be allowed to see a written version of the script that is trained only verbally. Once participants have learned all 3 scripts the training will end and they will be asked to return one month later to determine how much they remember once training has concluded.

The study will be completed when all 3 scripts have been learned (approximately one semester of 18-20, 60 minute sessions) short breaks will be given as needed. The study will be conducted at the USF-Speech Language and Hearing Center.

A minimum of eight sessions will be video-recorded for analysis. A client code will be assigned to the file. All data collected during the session will be referred to this client code. The DVDs will be stored in a locked room, without direct identifiers. All data will be destroyed within 6 months after the study results have been compiled and submitted for publication.

Total Number of Participants
About 6 individuals will take part in this study at USF.

Alternatives/Voluntary Participation / Withdrawal
You do not have to take part in this research.

There are a variety of alternative resources and services at The University of South Florida Speech Language and Hearing Center available to participants with aphasia and language impairments.

You should only take part in this study if you want to volunteer. You should not feel that there is any pressure to take part in the study. You are free to participate in this research or withdraw at any time. There will be no penalty or loss of benefits you are entitled to receive if you stop taking part in this study.

You can decide after signing this informed consent document that you no longer want to take part in this study for any reason at any time. If you decide you want to stop taking part in the study, tell the study staff as soon as you can.

- We will tell you how to stop safely. We will tell you if there are any dangers if you stop suddenly. There are no consequences to stop participating in this study.
- If you decide to stop, you can continue getting care from your regular clinician.
- If you wish to terminate the study please call Hallie Cohen at (954) 629-3409. You must also state in writing that you no longer want to participate in this study.

Even if you want you to stay in the study, there may be reasons we will need to withdraw you from the study. You may be taken out of this study if we find out it is not safe for you to stay in the study or if you are not coping for the study visits when scheduled. We will let you know the reason for withdrawing you from this study.

Benefits
The potential benefits of participating in this research study include islands of fluent speech where the participant can speak about a topic without pausing or having word-finding errors.
Risks or Discomfort
This research is considered to be minimal risk. That means that the risks associated with this study are
the same as what you face every day. There are no known additional risks to those who take part in this
study.

Compensation
You will receive no payment or other compensation for taking part in this study.

Cost
It will not cost you anything to take part in the study.

What treatment costs will be paid if you are injured in this study?
The University of South Florida does not have programs to pay you if you are hurt or have other bad
results from being in the study. However, medical care the University of South Florida is open as it is to
all sick or injured children.

If you believe you have been injured as a direct result of your participation in a study, it is important that
you promptly notify the researchers involved in the study:

- **If you have health insurance**: The costs for any treatment or hospital care you receive as a direct
  result of a study-related injury will be billed to your health insurer. You will be responsible for
  any deductible, co-insurance, or co-payments. Some insurance companies may not cover costs
  associated with research studies. Any costs that are not paid for by your health insurer will be
  billed to you.

- **If you do not have health insurance**: You will be billed for the costs of any treatment or hospital
  care you receive as the result of a study-related injury.

The University of South Florida is not providing any other form of compensation (such as lost wages or
payment for pain and suffering).

By signing this form you will not give up any legal rights you have to seek compensation for injury.

You can also call the USF Self Insurance Programs (SIP) at 1-813-974-8008

Privacy and Confidentiality
We will keep your study records private and confidential. Certain people may need to see your study
records. By law, anyone who looks at your records must keep them completely confidential. The only
people who will be allowed to see these records are:

- The research team, including the Principal Investigator, study coordinator, and all other
  research staff.
• Certain government and university people who need to know more about the study. For example, individuals who provide oversight on this study may need to look at your records. This is done to make sure that we are doing the study in the right way. They also need to make sure that we are protecting your rights and your safety.

• Any agency of the federal, state, or local government that regulates this research. This includes the Department of Health and Human Services (DHHS) and the Office for Human Research Protection (OHRP).

• The USF Institutional Review Board (IRB) and its related staff, who have oversight responsibilities for this study, staff in the USF Office of Research and Innovation, USF Division of Research Integrity and Compliance, and other USF offices who oversee this research.

We may publish what we learn from this study. If we do, we will not include your name. We will not publish anything that would let people know who you are.

You can get the answers to your questions, concerns, or complaints

If you have any questions, concerns or complaints about this study, or experience an adverse event or unanticipated problem, call Hallie Cohen at (954) 629-3409.

If you have questions about your rights as a participant in this study, general questions, or have complaints, concerns or issues you want to discuss with someone outside the research, call the USF IRB at (813) 974-5638.

HIPAA: Authorization to Use and Disclose Protected Health Information

Who will see your health information?

In this research study, we use and share your health information to the extent authorized (permitted) by you. We know that this information is private. The federal privacy regulations of the Health Insurance Portability & Accountability Act (HIPAA) protect your identifiable health information. If you authorize us to use your information we will protect it as required by the law.

This research is conducted at the University of South Florida (USF). By signing this form, you are permitting USF to use personal health information collected about you for research purposes within the USF health care system. You are also allowing USF to share your personal health information with individuals or organizations other than USF who are also involved in the research and listed below.

Who will disclose (share), receive, and/or use your information?

To conduct this research, USF and the people and organizations may use or share your information. They may only use and share your information:
• With the people and organizations on this list;
• With you or your personal representative; and
• As allowed by law.

In addition to the people and organizations listed below in the Privacy and Confidentiality section of this document, the following groups of people may also be able to see information about you and may use the information to conduct the research:

• The staff that takes care of you and those who are part of this research study;
• Each research site for this study. This includes the research staff at USF;

**Who else can use and share this information?**

Anyone listed above may use consultants in this research and for the purpose of this study, may share your information with them. If you have questions about who they are, you should ask the study team. Individuals who receive your health information for this research study may not be required by the HIPAA Privacy Rule to protect it and may share your information with others without your permission. They can only do so if permitted by the laws governing them. For example, the study sponsor may share your information with others. If the sponsor or others share your information, your information may no longer be protected under the HIPAA Privacy Rule.

**How will my information be used?**

By signing this form, you are giving your permission to use and/or share your health information as described in this document for any and all study/research related purposes. Your authorization to use your health information will not expire unless you revoke it in writing.

As part of this research, USF may collect, use, and share the following information:

• Your whole research record
• Your health information gathered for this research, including diagnosis, Western Aphasia Battery- Revised score, Montreal Cognitive Assessment score, past and current medications.

You can list any particular information that you do not want us to use or share in the space below. If you list nothing here, we can use and share all of the information listed above for this research but for nothing else.

**For the Research Participant (you) to complete:**

☐ I am asking USF and the researchers not to include, use, or share the following health information in this research (if blank, then no information will be excluded):

---

**Your Rights:**

You can refuse to sign this form. If you do not sign this form you will not be able to take part in this research study and therefore not be able to receive the research related interventions. However, your health care outside of this study and benefits will not change.
How Do I Withdraw Permission to Use My Information?
You can revoke this form at any time by sending a letter clearly stating that you wish to withdraw your authorization to use of your health information in the research. If you revoke your permission:

- You will no longer be a participant in this research study;
- We will stop collecting new information about you;
- We will use the information collected prior to the revocation of your authorization. This information may already have been used or shared with other, or we may need it to complete and protect the validity of the research; and
- Staff may need to follow-up with you if there is a medical reason to do so.

To revoke this form, please write to:
Principal Investigator
For IRB Study # 00019623
University of South Florida
Department of Communication Sciences and Disorders
4202 E. Fowler Ave., PCD 1017
Tampa, Florida 33620

While we are conducting the research study, we cannot let you see or copy the research information we have about you. After the research is completed, you have a right to see the information about you, as allowed by USF policies.

Consent of Legally Authorized Representative (LAR)

And Authorization for the Collection, Use and Disclosure of Health Information

It is up to you to decide whether you want the individual to take part in this study. If you want this person to take part, please read the statements below and sign the form if the statements are true.

I give consent to have [insert name of participant] take part in this study and authorize that his/her health information be disclosed/collected as outlined above. I have received a copy of this form to take with me.

I understand that I am being asked to serve as the LAR and give permission for the individual outlined above to participate in this research study. My signature on this form also gives authorization for the collection, use and sharing of private health information. My decision is based on what I believe this individual would choose for him/herself and what I believe is now best for him/her, based on the information I have been provided.

______________________________
Signature of Legally Authorized Representative

______________________________
Date

______________________________
Printed Name Legally Authorized Representative

Determination of the Person’s Ability to Give Consent

A. I am the study participant’s ______________________ clinician. I have examined this
individual by the Montreal Cognitive Assessment and have found that he/she has limited/diminished capacity and therefore is unable to give informed consent to take part in the research study and the legally authorized representative signing above is an appropriate LAR.

Signature of Person Attesting to Limited/Diminished Autonomy of Participant Date

Printed Name of Person Attesting to Limited/Diminished Autonomy of Participant

-OR-

B. I am a physician licensed in the State of Florida. I agree that this person has limited/diminished capacity and therefore is unable to give consent.

Signature of Physician Date

Printed Name of Physician

Statement of Person Obtaining Informed Consent / Research Authorization

I have carefully explained to the LAR of the person taking part in the study what he or she can expect from participation. I hereby certify that when this person signs this form, to the best of my knowledge, he/ she understands:

- What the study is about,
- What procedures will be used,
- What interventions will be used
- What the potential benefits might be; and
- What the known risks might be.

I can confirm that the LAR speaks the language that was used to explain this research and is receiving an informed consent form in the appropriate language. Additionally, this LAR reads well enough to understand this document or, if not, this person is able to hear and understand when the form is read to him or her. This LAR is not under any type of anesthesia or analgesic that may cloud their judgment or make it hard to understand what is being explained and, therefore, can be considered competent to give informed consent.

Signature of Person Obtaining Informed Consent Date

[If applicable] / Research Authorization

Printed Name of Person Obtaining Informed Consent
Appendix D: Scripts

HB:
Script 1
Prompt: Why do you want to work at Publix?

I heard Publix is a great place to work. They have great benefits and flexible hours. I feel like I would be an asset to your store.

Script 2
Prompt: Tell me about your work experience.

I have nine years of experience in restaurant management. I have strong organizational, management and leadership skills. I have experience counting registers, depositing money and doing inventory.

Script 3
Prompt: Tell me about yourself.

I worked from nineteen until I had a stroke October 2012. I’m recovering now. I go to speech therapy twice a week. I’m ready to work again.

HW:
Script 1a
Prompt: What is the script that you will use when you introduce yourself to others?

My name is HW. I had a stroke. I understand you, please speak slowly. Where are you from?

Script 1b
Prompt: What is the script that you will use when you introduce yourself to others?

My name is HW. I had a stroke. I understand you, please speak slowly. What is your name?

Script 2
Prompt: The script you will use when ordering food at a restaurant?

May I get some water? Your menu is nice. I don’t read. Would you help me?

Script 3
Prompt: What is the script you’ll use to talk about travel with others?

I go on cruises often. Two or three times a year. Alaska was my favorite. Do you like to travel?
AM:
Script 1:
Prompt: 911 What’s your emergency?
I need help. XXXXX Sea XXXXXX Pass Wesley Chapel. Yes/no questions only.

Script 2a:
Prompt: What would you say to your kids to get them to do their chores?

Please clean your room. Pick up your things from the floor. Make your bed. Thank you.

Script 2b:
Prompt: Say the Lord’s Prayer

Our Father, which art in heaven, hallowed be thy name. Thy Kingdom come. Thy will be done.

Script 3a:
Prompt: How do you tell your kids to do their homework?

It’s homework time. Pay attention and focus. When you’re done you can have a snack.

Script 3b:
Prompt: Script 2b serves as a prompt for script 3b.

In earth, as it is in Heaven. Give us this day our daily bread.
Appendix E: Homework Log.

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