EVALUATION OF AN APHASIA COMMUNICATION SKILLS WORKSHOP FOR SIGNIFICANT OTHERS

by

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The final copy of this thesis has been examined by the signatories, and we find that both the content and the form meet acceptable presentation standards of scholarly work in the above mentioned discipline.

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Abstract

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Communication partner training has been shown to result in greater communication success between people with aphasia (PWA) and their significant others/caregivers (SO/Cs). A single-subject design was utilized to examine the effectiveness of communication partner training workshops for four PWA and their SO/Cs. To examine the clinical significance of this intervention, results were evaluated according to three parameters: symptomatology, quality of life, and social validity. Data was collected through use of standardized surveys, non-standardized measures, and Conversation Analysis. Quantitative and qualitative analyses suggested that this intervention resulted in improved communication success between PWA and their SO/Cs. In addition, the intervention appeared to benefit dyads through reducing the symptomatology of aphasia. A proposed outline for communication partner intervention is provided, but future research is needed to develop and refine the curriculum.

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Chapter 1: Introduction

The purposes of this project include contributing to the evidence base that communication partner training improves communication success between people with aphasia and their significant others/caregivers. Moving beyond what previous communication partner training research has accomplished, one additional aim of this project included examining the clinical significance of communication partner training according to four parameters that have been identified in similar studies with patients who have dementia: symptomatology, quality of life, social validity, and social significance (Schulz et al., 2002). The final aim of this project included developing an outline for communication partner training curriculum based on previous literature and participant feedback, although future research is needed to develop and refine it.

Background Information and Significance

Stroke is the third leading cause of death in the United States, and each year, “approximately 795, 000 people suffer a stroke” (“Internet Stroke Center,” 2012). In the general population, it is assumed that there is an equal incidence of left and right hemispheric stroke (Foerch et al., 2005). Left hemisphere strokes often result in aphasia, or a language disorder that impairs expression and understanding of language, and may co-occur with speech disorders (“Internet Stroke Center,” 2012). The disorder of aphasia is complex for those experiencing it (i.e. people with aphasia, their caregivers, and others involved with them), and when these individuals do not have a strong knowledge of its implications, anxiety, stress, and fear of the unknown may have a negative impact on their quality of life (QoL) (Hinckley & Packard, 2001; Purdy & Hindenlang, 2005). The disorder of aphasia impacts people with aphasia (PWA) by reducing their participation in life activities, based on the framework of the World Health Organization (WHO) Classification of Functioning, Disability, and Health (ICF) model (Le Dorze, Croteau, Brassard, & Michallet, 1999; Purdy & Hindenlang, 2005; Üstün, Chatterji, Bickenbach, Kostanjsek, & Schneider, 2003). Furthermore, speech-language intervention is traditionally directed towards remediating the impairments of PWA and there is less attention given to significant others/caregivers (SO/Cs) of these individuals, even though it has been stated that teaching facilitative communication strategies can result in an improvement in communication and overall interaction between PWA and their SO/Cs (Purdy & Hindenlang, 2005).

In a systematic review of 31 studies conducted by Simmons-Mackie, Raymer, Armstrong, Holland, and Cherney (2010) to examine communication partner training interventions related to PWA and their communication partners, only 25 studies included SO/Cs, while the other 6 included communication partners who included "acquaintances, volunteers, students, or strangers" (p. 1817). Since the meta-analysis conducted by Simmons-Mackie et al. (2010), there have been three additional studies that have examined communication partner training interventions related PWA and their SO/Cs (Saldert, Backman, & Hartelius, 2012; Wilkinson, Bryan, Lock, & Sage, 2010; Wilkinson R., Lock S., Bryan K., & Sage, K., 2011).

Review of the Literature

Schulz et al. (2002) suggest that in order to examine clinical significance, researchers need to answer the following question: “Are the findings from the treatment program important to the individual or to society?” (p.590). As caregiver interventions are designed to address multiple problems, Schulz et al. (2002) suggest an inclusive approach to encompass the following four parameters of clinical significance in response to this question:

1) symptomatology, the extent to which individuals experience a change in symptoms that results in a return to normality (e.g. examining measures that indicate depressive disorder, or generalized anxiety, etc. for participants);
2) quality of life (QoL), the extent to which individuals experience broad improvements in their QoL (e.g. examining measures that provide broad indications of participant mood and affect, coping with burden of caregiving – a.k.a. care-related QoL, or quality of communication life for PWA, etc.);
3) social validity, the extent to which intervention goals, procedures, and outcomes are acceptable by individual participants or expert ratings on its impact on participants’ lives (e.g. examining intervention evaluation rating by SO/C participants);
4) social significance, the extent to which the intervention has important outcomes for society (e.g. examining measures that describe impact of intervention on service utilization for PWA; Schulz et al., 2002).

These authors claim that researchers should include a core set of outcomes in future studies that are representative of each of the four parameters of clinical significance, and identify specific measures that are used to assess them (Schulz et al., 2002). Once consistency is reached in terms of the measures used in communication partner training, and there is a consensus on describing clinically meaningful effect sizes for these measures, researchers will be better able to identify reliable and clinically significant outcomes in multiple domains (Schulz et al., 2002). Schulz et al. (2002) also claim that judgments of clinical significance need to be carefully evaluated in terms of statistical significance, where the indicator being examined must be relevant to context of the problem being studied. For the purposes of this study, several variables to address three of these four parameters were included as outcome measures.

Research on Partner Training for Aphasia. While Schulz et al. (2002) were examining treatment programs for people with dementia (PWD), many of the same principles may be useful when designing studies for PWA and their SO/Cs. Several authors have conducted interventions for this population with outcome measures that can be classified according to the four parameters identified by Schulz et al. (2002).

Simmons-Mackie et al. (2010) report that over half of the studies they reviewed involved training communication partners in addition to the PWA, most (n=18) studies involved group training, most (n=19) studies provided demographic information of the SO/Cs, one study included formal test scores (i.e. *Western Aphasia Battery: Aphasia Quotients;* Kertesz, 1982) for the PWA, and most studies included PWA with chronic aphasia with a duration of between six months and several years, broadly classified as mild, moderate, or severe. In terms of the intervention, Simmons-Mackie et al. (2010) explain that 6 studies were devoted to education about aphasia, 5 were devoted primarily to psychosocial and counseling approaches, and 25 involved direct training of SO/Cs to learn communication strategies through role playing with a component of feedback from the therapist.

The length of the interventions ranged from 4 to 35 hours total, presented in 1 to 2 hour sessions up to 4 times per week, with 1 intervention lasting 20 weeks (Simmons-Mackie et al., 2010). The authors of this meta-analysis suggested that there is insufficient evidence to claim that communication partner training intervention will positively improve “language impairment, psychosocial adjustment, or quality of life of people with aphasia” (Simmons-Mackie et al., 2010, p.1815). However, current evidence suggests that these interventions are effective in improving communication activities and participation of communication partners in facilitating communication with PWA, which are indicators of a reduction in the symptomatology of aphasia (Simmons-Mackie et al., 2010; Üstün et al., 2003). Simmons-Mackie et al. (2010) claim that future research should better characterize demographic variables of the SO/C and the PWA, and between the dyad. The authors claim that research involving communication partners and PWA should include the following variables: sex, age, education, employment, handedness, time post-onset, etiology, type and severity of aphasia, as well as familiarity between PWA and their SO/Cs, and the length of relationship. They also note that there is a paucity of communication partner research for SO/C of PWA in the acute phases of recovery (i.e. less than four months post-onset). Below are examples of literature designed to examine communication partner training interventions for PWA.

Draper et al. (2007) conducted a pilot study to test the effects of an intervention program involving education, social support, and skills training for caregivers of PWA. The program involved 2-hour sessions that were held weekly for four weeks, and groups consisted of 6-11 adult caregivers, a speech-language pathologist (SLP), and a social worker (Draper et al., 2007). These authors found that psychological distress for caregivers of PWA was significantly lowered from pre- to post-treatment. There were numerous outcome measures used in this randomized controlled trial that assessed various indicators of quality of life (Draper et al., 2007). See Outcome Measures used in Partner Training for discussion.

Hinckley and Packard (2001) conducted a follow-up study to examine the effects of a 2-day conference style program designed for PWA and their caregivers, called *Opening Doors*. Prior to attending the conference, participants were asked about what kinds of goals they had for participating (i.e. an indicator of social validity), and responses consistently fell into one of four categories: to increase productivity, to continue to learn about aphasia, to increase knowledge about therapy options and home practice, and to learn about coping skills and deal with psychological issues. Within-group data revealed a significant increase for caregivers and PWA in terms of knowledge ratings for aphasia in the areas of communication and vocational issues, parenting, and communication strategies, among others (Hinckley and Packard, 2001)

Purdy and Hindenlang (2005) conducted a 12-week study that adapted an adult learning model and experiential learning cycle that combined features of education, communication skills training, and counseling into a program for PWA and their SO/Cs. Their program focused on SO/Cs as learners who progressed through the following learning cycle: sharing concrete experiences (i.e. telling their stories); role play/role-reversal (i.e. acting like a PWA and communicating a message without speaking or writing); reflective observation (i.e. viewing videotapes of communicative interactions and identifying behaviors that facilitated communication); abstract conceptualization (i.e. discussing strategies they use for communication); and finally, active experimentation (i.e. re-enacting situations and practicing functional communication strategies) (Purdy & Hindenlang, 2005). In this model, SO/Cs received communication training and education in a group setting to support peer learning and peer problem solving. Specific didactic information provided to participants included explanations of stroke, neuroanatomical correlates to language function, and aphasia. Communication scenarios were used to encourage problem solving and to teach specific skills. Results suggested that there was increased success in transactional communication tasks, as well as increased use of facilitating strategies by SO/Cs (Purdy & Hindenlang, 2005). Purdy and Hindenlang (2005) provide evidence that group caregiver education and training results in benefits to communication success between PWA and their SO/Cs.

In a study conducted by Avent and colleagues (2005), SO/Cs were interviewed in focus groups to identify specific informational needs deemed to be important for SO/Cs of PWA at three time points: namely hospitalization (i.e. onset of aphasia), initial rehabilitation/treatment, and chronic phases of aphasia. Sixteen transcripts from adult

SO/Cs were qualitatively analyzed using a five-stage framework approach. Across the three time points, informational needs consistently included “specific, time-based aphasia information, information about and need for psychosocial support and counseling, and positive expectations about the future” (Avent et al., 2005, p. 367). Reported counseling needs included coping with topics such as “the overwhelming nature of aphasia and overall lack of knowledge about it, the long-term emotional impact of aphasia, the lack of hope that is conveyed to family members, and the variety of information sources about aphasia” (Avent et al., 2005, p. 368). The researchers determined that there was also specific information needed at each of the three phases (i.e. an indicator of social validity). For example, during the treatment phase, SO/Cs identified needing information about the process of aphasia treatment and strategies for maximizing communicative effectiveness. According to Avent et al. (2005), communication partner training intervention programs designed for SO/Cs are likely to be most effective when they address informational and counseling needs and provide training in communicative enhancement strategies. Interventions that target these areas can result in improved communication between PWA and their SO/C, and have positive impacts on QoL by remediating communication challenges (Avent et al., 2005; Le Dorze et al.,1999).

More recent studies that have examined communication partner training interventions related to PWA and their SO/Cs have been published since the meta-analysis conducted by Simmons-Mackie et al. (2010). Saldert, Backman, & Hartelius (2012) conduced a 6-week training program that involved discussion of communication impairments caused by aphasia. Participants also reviewed video-recordings of conversation between PWA and their communication partners in order to identify the use of successful and unsuccessful communication strategies. Results suggested that some participants perceived positive changes in their communication interactions following the intervention (Saldert, Backman, & Hartelius, 2012).

Wilkinson et al. (2010) conducted a single-subject design to provide communication partner training to an SO/C of a PWA. The researchers had specifically targeted conversation behaviors by the SO/C that were restrictive to the couple, which they determined was a concern using the Conversation Analysis Profile in Persons with Aphasia (CAPPA). Results from qualitative and quantitative analysis suggested that the SO/C used less maladaptive conversation behaviors following the intervention (Wilkinson et al., 2010)

Wilkinson et al. (2011) discuss a single case study where the aim of the intervention was to support the PWA in producing topic-initiating turns and establishing topics during interactions. The researchers focused intervention on increasing facilitative conversation behaviors between both the SO/C and the PWA. Conversation analysis results suggested that there was increased communication success for the dyad post-intervention (Wilkinson et al., 2011).

Research on Partner Training for Dementia. Compared to the 25 studies examined by Simmons-Mackie et al. (2010) that included SO/Cs of PWA, there is a larger body of literature involving SO/Cs of PWD (Schulz et al., 2002). Schulz et al.

(2002) conducted a meta-analysis on 52 studies that examined interventions for caregivers of PWD to specifically look at clinical significance of the treatment programs.

Since the meta-analysis conducted by Schulz et al. (2002), there have been various studies that have examined communication partner training interventions related to PWD and their SO/Cs based on the four parameters of clinical significance. In discussing the statistical efficacy of caregiver interventions in their meta-analysis, Pinquart & Sorensen (2006) evaluated symptomatology in terms of psychological health of caregivers, QoL in terms of caregiver burden, and social significance in terms of "prevention or delay of institutionalization" (p. 590). These authors did not evaluate social validity, claiming that "high levels of caregiver satisfaction have been found for otherwise ineffective interventions" (Pinquart & Sorensen, 2006, p. 590).

Gitlin et al. (2008) implemented a program to support individuals suffering from chronic diseases to cope with lifestyle adjustments resulting from their disorders. In evaluating the program, these authors reference the four parameters described by Schulz et al. (2002), noting that their intervention resulted in statistically significant benefits for participants across all areas. Reduced symptomatology was represented by illness declines; increased QoL was represented by improved self-efficacy and decreased health distress; social validity was represented by attendance and retention rates in the program; and social significance was represented by participant "maintenance of health utilization patterns over 4 months" (Gitlin et al., 2008, 704).

Outcome Measures used in Partner Training

Based on the above review of the literature, comprehensive assessment of communication partner intervention can include variables from all four parameters of clinical significance described by Schulz and colleagues (2002). Please see Table 1 for a summary of outcome measures used in communication partner training research, which includes the 25 studies examined by Simmons-Mackie et al. (2010), in addition to the three articles published since (Saldert, Backman, & Hartelius, 2012; Wilkinson et al., 2010; Wilkinson et al., 2011). As these articles were published after the meta-analysis conducted by Simmons-Mackie et al. (2010), detailed descriptions of the types of outcome measures used in these studies are included below.

Table 1 classifies outcome measures used in this literature according to the four parameters of clinical significance described by Schulz et al. (2002) in order to determine if any communication partner training interventions for PWA have collected data and/or achieved significant results across parameters. Based on this classification, it appears that no studies accounted for all four parameters, and no authors appeared to directly reference the Schulz et al. (2002) classifications. While most studies accounted for one to two parameters, there were two studies that accounted for three of the four parameters – namely symptomatology, QoL, and social validity (Lyon, Cariski & Keisler, 1997; Saldert, Backman, & Hartelius, 2012). No studies appeared to examine variables related to social significance. Below is a summary of the types of outcome measures used in these studies, and an explanation of the specific tools that were included in this study.

Table 1: Summary of Outcome Measures for Communication Partners (CP) and Persons With Aphasia (PWA) by Parameters of Clinical Significance (adapted from Schultz et al., 2002, using the meta-analysis conducted by Simmons-Mackie et al., 2010, p. 1829 "Table 5")

Symptomatology Measures	Group	Reference	Change After Intervention*
ASHA Functional Assessment of Communication Skill	PWA	Boles, 2000; Boles & Lewis, 2003	Yes
Boston Diagnostic Aphasia Examination	PWA	Lyon, Cariski & Keisler, 1997	No
Boston Naming Test	PWA	Lesser & Algar, 1995	No
Carer Communication Outcome After Stroke Scale	CP	Saldert, Backman, & Hartelius, 2012	Yes
Child Language Data Exchange System	CP	Boles, 1998	Yes
	PWA	Boles, 1998	Yes
Communication Outcome After Stroke Scale	PWA	Saldert, Backman, & Hartelius, 2012	Yes
Comprehensive Aphasia Test (subtests)	PWA	Wilkinson et al., 1998; Wilkinson et al., 2011	Yes
	PWA	Wilkinson, Bryan, Lock, & Sage, 2010	No
Conversation Analysis	PWA CP	Beeke et al, 2007; Boles, 1997; Boles, 2000; Boles & Lewis, 2003; Booth & Perkins, 1999; Booth & Swabey, 1999; Cunningham & Ward, 2003; Hickey et al., 2004; Hopper et al., 2002; Lesser & Algar, 1995; Simmons-Mackie & Potechin, 2005; Sorin-Peters, 2004; Turner & Whitworth, 2006; Wilkinson et al., 1998;Wilkinson et al., 2011	Yes

Table 1 (Cont'd): Summary of Outcome Measures for Communication Partners (CP) and Persons With Aphasia (PWA) by Parameters of Clinical Significance

Conversation Analysis Profile in Persons with Aphasia	CP	Beeke et al., 2007; Wilkinson et al., 2010	Yes
	PWA	Beeke et al., 2007; Booth & Perkins, 1999; Wilkinson et al., 2010	Yes
Delis-Kaplan Executive Function System	CP	Saldert, Backman, & Hartelius, 2012	N/A
Measure of Interaction in Communication	CP	Saldert, Backman, & Hartelius, 2012	Yes
Psycholinguistic Assessment of Language Processing in Aphasia	PWA	Lesser & Algar, 1995	No
Token test	PWA	Saldert, Backman, & Hartelius, 2012	N/A
	CP	Saldert, Backman, & Hartelius, 2012	N/A
Western Aphasia Battery: Aphasia Quotient (improvement)	PWA	Boles, 1997; Boles, 1998	No

Quality of Life Measures	Group	Reference	Change After Intervention*
Affect Balance Scale	PWA	Lyon, Cariski & Keisler, 1997	Yes
Behavior and Mood Disturbance Questionnaire	PWA	Draper et al., 2007	No
Community Integration Questionnaire	CP	Hinckley & Packard, 2001	Yes
	PWA	Hinckley & Packard, 2001	Yes
Depression Scale	CP	Rice, Paull, & Muller, 1987	No
Frenchay Activities Index	CP	Hinckley & Packard, 2001	Yes
	PWA	Hinckley & Packard, 2001	Yes

Table 1 (Cont'd): Summary of Outcome Measures for Communication Partners (CP) and Persons With Aphasia (PWA) by Parameters of Clinical Significance

General Health Questionnaire	CP	Draper et al., 2007	Yes
Geriatric Depression Scale	CP	Saldert, Backman, & Hartelius, 2012	
	PWA	Saldert, Backman, & Hartelius, 2012	
Goldberg General Health Questionnaire	CP	Rice, Paull, & Muller, 1987	Yes
Hospital Anxiety Depression Scale	CP	Cunningham & Ward, 2003; Pound et al., 2001	No
McMaster Family Assessment Device	CP	Hinckley & Packard, 2001	Yes
	PWA	Hinckley & Packard, 2001; Hinckley, Packard, & Bardach, 1995	Yes
Measure of Social and Recreational Activities	CP	Draper et al., 2007	No
Psychosocial Well-being Index	PWA	Boles, 1997; Lyon et al., 1997	Yes
Quality of Life Questionnaire	CP	Draper et al., 2007	No
Qualitative Analysis of themes from field notes, videotapes, interviews and focus groups	CP	Fox et al., 2004; Pound et al., 2001; Simmons-Mackie et al., 2007; Sorin-Peters, 2004	Yes
	PWA	Sorin-Peters, 2004	Yes
	PWA	Borenstein et al., 1987	Not clear
Relatives Stress Scale	CP	Draper et al., 2007	No
Social Support Questionnaire	CP	Draper et al., 2007	No
Visual Assessment of Self-Esteem	CP	Cunningham & Ward, 2003	No

Table 1 (Cont'd): Summary of Outcome Measures for Communication Partners (CP) and Persons With Aphasia (PWA) by Parameters of Clinical Significance

Social Validity Measures	Group	Reference	Change After Intervention*
Communicative Abilities of Daily Living	PWA	Boles, 1997; Boles, 1998; Hopper et al.,; Lyon, Cariski & Keisler, 1997	Yes
Communication Readiness and Use Index	PWA	Boles, 1997; Boles, 1998; Lyon, Cariski & Keisler, 1997	Yes
Communication Scale A and Communication Scale B	CP	Draper et al., 2007	No
Edinburgh Functional Communication Profile	CP	Rice, Paull, & Muller, 1987	Yes
Functional Communication Profile	CP	Rice, Paull, & Muller, 1987	Yes
Interview Ratings	CP	Legg, Young & Bryer, 2005	Yes
Measure of Skill in providing Supported Conversation	CP	Kagan, Black, Duchan, Simmons-Mackie & Square, 2001; Legg, Young & Bryer, 2005; Rayner & Marshall, 2003	Yes
Measure of Participation in Conversation	PWA	Kagan, Black, Duchan, Simmons-Mackie & Square, 2001; Rayner & Marshall, 2003	Yes
Modified Calgary Cambridge Observation Guide (evaluates medical interviews)	CP	Kagan, Black, Duchan, Simmons-Mackie & Square, 2001; Legg, Young & Bryer, 2005	Yes
Knowledge	CP	Bevington; Hinckley & Packard, 2001; Hinckley, Packard & Bardach, 1995; Rayner & Marshall, 2003	Yes
	PWA	Hinckley & Packard, 2001; Hinckley, Packard & Bardach, 1995	Yes

Table 1 (Cont'd): Summary of Outcome Measures for Communication Partners (CP) and Persons With Aphasia (PWA) by Parameters of Clinical Significance

Personal Questionnaire Rapid Scaling Technique	CP	Rice, Paull, & Muller, 1987; Nichols, Verchevker & Pring, 1996	Yes
	PWA	Nichols, Verchevker & Pring, 1996	
Profile of Partner Candidacy for Conversation Training	CP	Saldert, Backman, & Hartelius, 2012	N/A
Post-intervention Rating of Expected Outcomes	PWA	Lyon, Cariski & Keisler, 1997	Yes
Post-intervention Questionnaire (regarding benefits)	CP	Purdy & Hindenlang, 2005	Yes
	PWA	Purdy & Hindenlang, 2005	Yes
Strategic Questionnaire	CP	Rayner & Marshall, 2003	Yes

Social Significance Measures	Group	Reference	Change After Intervention*
N/A	N/A	N/A	N/A

*Yes=improvement demonstrated on at least 1 measure of outcome for the targeted domain; No=no improvement demonstrated on any measure of outcome for the targeted domain.

Symptomatology. Measures of symptomatology in communication partner training for PWA should capture changes in communication with an interlocutor. While there are several tools that are appropriate for characterizing functional disabilities related to aphasia, including the ASHA Functional Assessment of Communication Skill (ASHA FACS; Frattali, Thompson, Holland, Wohl, & Ferketic, 1995), and Communicative Abilities in Daily Living (CADL; Holland, Porter, & Howard, 1999), these tools do not examine functional disability in the context of interaction. In this thesis research project, the Communicative Effectiveness Index (CETI; Lomas et al., 1989) and Conversation Analysis (CA; Beeke, Maxim, & Wilkinson, 2007; Booth & Perkins, 1999; Hesketh, Long, Patchick, Lee, & Bowen, 2008; Wilkinson et al., 2010) were used to measure changes in symptomatology, although previous literature has included other tools.

Saldert, Backman, & Hartelius (2012) used the Communication Outcome After Stroke Scale (COAST; Long, Hesketh, Paszek, Booth, & Bowen, 2008) and the Carer Communication Outcome After Stroke Scale (Carer-COAST; Long, Hesketh, & Bowen, 2009) as outcome measures before and after intervention to capture SO/C and PWA perception of communicative effectiveness in everyday life. Participants responded to statements using a 5-point Likert scale, and results at post-intervention suggested that three of six participants rated communication higher, while the other three rated it lower. These authors also used the Delis-Kaplan Executive Function System Tower and Colour-Word Interference tests (D-KEFS; Delis, Kaplan, & Kramer, 2001) for SO/Cs, as well as Token Test (De Renzi & Vignolo, 1962) and verbal fluency tests (Tallberg, Ivachova, Jones Tinghag, & Östberg, 2008) for SO/Cs and PWA as control measures to determine whether executive function, comprehension, and word fluency were impacting interaction between participants. Saldert, Backman, & Hartelius (2012) also used the Measure of Interaction in Communication (MIC; Bergström & Johansson, 2012) to assess the SO/C's ability to both acknowledge communicative competence of the PWA and to support information exchange. Raters completed the MIC using a scale of 1-3, where the higher number indicates the presence of increased support (Saldert, Backman, & Hartelius, 2012).

In order to assess symptomatology in this thesis research project, an adapted version of the Communicative Effectiveness Index (CETI) developed by Lomas et al. (1989) was included. The CETI contains 16 items that are rated on a visual analog scale (VAS; ranging from *Not at all able* to *As able as before*), where change is considered significant if it is equal or greater than 11.4% of the VAS, as this value has been reported as a mean change score for recovering groups (Lomas et al., 1989). The purpose of the CETI is to measure "change in functional communicative ability" for PWA, and is not intended to capture level of performance in relation to other PWA (Lomas et al., 1989, p.114). Specific communication situations relevant to the lives of PWA are addressed in the CETI, where success at communication was evaluated at pre- and post-intervention time points. Participants rated post-intervention situations against their original pre-intervention marks, which allowed them to determine if there was any change at all across time points. The ability of this measure to be sensitive to capturing changes in perceptions of communicative success makes it appropriate for assessing symptomatology.

Conversation Analysis (CA) was also included as a dependent measure in this thesis research project in order to assess the parameter of symptomatology. Several authors have used the Conversation Analysis Profile for People with Aphasia (CAPPA; Withworth, Perkins, Lesser, 1997) to supplement CA (Beeke et al., 2007; Booth & Perkins, 1999; Wilkinson et al., 2010). Following their single-subject design, Wilkinson et al. (2010) discovered through CAPPA results that communication partner participants viewed PWA participants as having increased communication success in more environments and with a variety of topics.

Analyzing socially valid conversation samples is critical when using CA. It has been suggested that individual samples should be gathered in a “frequent and natural communication activity” (Hesketh et al., 2008, p. 971). Hesketh et al. (2008) examined the reliability of assessing short, semi-structured conversational samples that were socially valid for the conversational partners, and the researchers discovered that variability can be somewhat controlled when the following are controlled: “starter topic; familiarity and supportiveness of the conversational partner; (and) familiarity and expertise of rater” (p. 981). For their CA samples, Wilkinson et al. (2011) obtained video-recordings by having participants videotape themselves in natural settings for later transcription and analysis. Despite the lack of a controlled starter topic for CA purposes, the intervention targeted topic-initiating turns by the PWA, and results suggested that the PWA was demonstrating increased communicative success at the end of the study (Wilkinson et al, 2011).

When CA is applied to aphasic conversation, researchers often measure turn taking (Beeke et al., 2007; Booth & Perkins, 1999; Hesketh et al., 2008; Wilkinson et al., 2010). A turn is typically defined as an initiation of a topic or a response to a partner’s utterance, and balance in the percentage of turns between partners is generally considered an indicator of greater communication success (Booth & Perkins, 1999). Communication breakdown repair strategies have also been studied using CA (Wilkinson et al., 2010). These strategies may include correct production sentences, where the SO/C might encourage the PWA to “produce the correct version of a word when it is clear that both partners know what the target is” (Wilkinson et al., 2010, 870). Other repair strategies might include test questions, or questions asked by the SO/C in which the PWA already knows the answer (Wilkinson et al., 2010). In terms of qualitative analysis, sources of communication breakdown (e.g. lexical retrieval difficulty) and the communication enhancement strategies that SO/Cs use to repair them have also been a focus of CA in communication partner training intervention (Hesketh et al., 2008).

Quality of Life. Measures of QoL in communication partner training include any indicator of broad improvements to QoL according to Schulz et al. (2002). Bose, McHugh, Schollenberger, & Buchanan (2009) claim that “QoL focuses primarily on the experience of individuals and is assessed by asking patients to report on their satisfaction with various aspects of their lives,” and is therefore highly dependent on the individual (p.799). Based on the findings proposed by Avent and colleagues (2005), for the SO/C of the PWA, negatively impacted QoL will likely include general mood and affect, caregiver burden, and care-related QoL. For PWA, QoL is implicated by their quality of communication life (Bose et al., 2009). Intervention increasing knowledge of the disorder of aphasia and teaching communication enhancement strategies is likely to result in greater communication success, and have indirect improvements to QoL (Bose et al., 2009; Purdy & Hindenlang, 2005). In this thesis research project, the Care-Related Quality of Life Instrument (CarerQoL) and the Quality of Communication Life

Scale (QCL) were included to measure changes in QoL, but previous literature has included other tools.

Relatively few studies have been conducted that specifically examine QoL of the SO/Cs of PWA (Rombough, Howse, Bagg, & Bartfay, 2007). In a literature review of nine studies comparing the designs and instruments used to measure QoL, Rombough et al. (2007) discovered that these studies had small sample sizes (n<100), little demographic information was reported, and several QoL scales were used (n=9), although none were specifically designed to measure QoL of SO/Cs of PWA. In their literature review, Simmons-Mackie et al. (2010) discovered that ten studies included psychosocial outcome measures for SO/Cs, but only one included other broad QoL measures (Draper et al., 2007), and none "reported outcome measures for quality of life for persons with aphasia" (p.1820).

In their randomized controlled trial, Draper et al. (2007) found that psychological distress for caregivers of PWA (i.e. an indicator of QoL), as measured by the General Health Questionnaire (GHQ; Goldberg & Williams, 2000), was significantly lowered from pre- to post-treatment. SO/C's were also assessed for the following variables: care and control in an intimate relationship, using the Intimate Bonds Measure (IBM; Wilhelm & Parker, 1988), attitudes towards caregiving, using the Caring for Relatives Questionnaire (CRQ; Draper et al., 2007), caregiver life satisfaction, using the Relatives' Stress Scale (RSS; Ulstein, Bruun Wyller, & Engedal, 2007), level of dependency in personal care for activities of daily living, using the Frenchay Activities Index (FAI; Schuling, De Haan, Limburg, & Groenier, 1993), caregiver's perception of mental disturbance in the patient, using the Behavior and Mood Disturbance Questionnaire (BMDQ; Draper et al., 2007), caregiver's participation in social and recreational pursuits, using the Quality of Life Questionnaire (QLQ; Wells & Jorm, 1987), level of contact with friends, family, and community, as well as hobbies and relaxation, using the Measure of Social and Recreation Activities (MSRA; Clipp & George, 1990), and utilization of community services and support networks, using the Social Support Questionnaire (SSQ; Draper et al., 2007). With the exception of the GHQ, the researchers did not obtain significant results across these other QoL measures (Draper et al., 2007). Saldert, Backman, & Hartelius (2012) administered the Geriatric Depression Scale (GDS; Yesavage et al., 1983) for PWA and their SO/Cs before and after the intervention to determine if participants displayed characteristics of depression. Unlike in the study conducted by Draper et al. (2007), this data was obtained only as a control measure.

Brouwer, van Exel, van Gorp, and Redekop (2006) claim that a comprehensive assessment of QoL for the SO/C, which includes perspectives relevant to the individual and to society on informal care, is important to obtain, as it can be informative for health professionals and insurance policy makers. Furthermore, Rombough and colleages (2007) claim that QoL of SO/Cs should be assessed in terms of level of support from family and friends, and financial resources available to them.

The CarerQoL, which was included in this thesis research project, addresses the recommendations proposed by Rombough et al., (2007). The purpose of the CarerQoL is to "combine the density of (caregiver) burden measures with a valuation component in one practically applicable instrument" (Brouwer et al., 2006, p.1005). The CarerQoL contains seven items on a three-point scale, and one visual analogue scale (VAS), ranging from *Completely Unhappy* to *Completely Happy* (Brouwer et al., 2006).

In order to assess QoL for PWA in this thesis research project, the QCL was also included (Paul et al., 2004). The QCL contains 18 items on a five-point scale, and it was intended to capture subjective responses from PWA about the impact of their impairment on socialization and activities, confidence and self-concept, and roles and responsibilities (Paul et al., 2004). Bose et al. (2009) also observed significant results with the QCL as a result of improved interactions between PWA and their SO/Cs.

Social Validity. Measures of social validity include any indicators of whether intervention goals, procedures, and outcomes are acceptable by individual participants or expert ratings on its impact on participants' lives (Schulz et al., 2002). Based on their meta-analysis, SO/Cs of people with dementia are likely to benefit from enhanced knowledge about the disorder, the caregiving role, and resources available to them.

For purposes of this thesis research project, social validity was measured through indicators of gain in knowledge of disorder, increase in use of communication enhancement strategies, and intervention evaluation ratings provided by study participants. Tools used included the Knowledge of Aphasia Exam, Communication Skills Diary, and the Intervention Evaluation Survey. Previous literature has included other tools to measure changes in social validity.

In attempts to classify whether communication partners were good candidates for communication partner training intervention, Saldert, Backman, & Hartelius (2012) assessed participants with the Profile of Partner Candidacy for Conversation Training (PPCCT) for descriptive purposes. The PPCCT is designed to examine the attitudes to verbal and non-verbal communication through interview and video-recorded conversation between the SO/C and the PWA (Saldert, Backman, & Hartelius, 2012). All three SO/Cs in this study had specific attitudes towards communication and were deemed to be good candidates for communication partner intervention; for example, they "viewed conversation as a collaborative act" and "recognized potential to change communication" (Saldert, Backman, & Hartelius, 2012, p.6).

Based on the results from Avent et al. (2005), informational needs for SO/Cs appear to be indicators of social validity. In order to assess social validity, the Knowledge of Aphasia Exam was included in this thesis research project. The Knowledge of Aphasia Exam contains six items with four multiple-choice answers which were created and adapted from information needs presented to participants in communication partner training interventions conducted by Booth and Perkins (1999), Hinckley and Packard (2001), Pulvermuller, Hauk, Zohsel, Neininger, and Mohr (2005), Purdy and Hindenlang (2005), and Ross, Winslow, and Marchant (2006).

Although they didn't obtain significant results, Draper et al. (2007) assessed the use and perceived effectiveness of functional communication strategies using created communication questionnaires. In order to further assess social validity, the Communication Skills Diary was included in this thesis research project. The Communication Skills Diary is a nine-item survey with two six-point scales for each item, and was modified from original surveys created by Van Heyst in Draper et al. (2007; i.e.

"ComA" and "ComB"). This variable was necessary to determine how SO/C participant's valued the specific communication skills they were being asked to use with their family members with aphasia. The nine items correspond to the *Communication Enhancement Strategies* described in Appendix H, and include the following: *Face to face attention*: Supplementing speech with face to face attention (e.g. orienting toward speakers in a group); *Asking closed-ended questions*: Forming questions to specify and simplify how they can be answered (e.g. providing alternative options in a question format); *Gesture and speech*: Supplementing speech with gestures to support comprehension (e.g. depicting the handling of a virtual object); *Speaking slowly, simply, and clearly*: Adjusting speech to support receptive processing and response formulation time (e.g. reflecting and summarizing); *Encouraging communication and self-corrections*: Encouraging communication in all situations using whatever means available (e.g. speech, gesture, pointing, or drawing); *Carefully filling in words*: filling in words when the PWA gives a sign that he or she wants or needs help (e.g. waiting for eye contact and a gesture from the PWA); *Using verbal cues*: Verbal expressions that elicit a correct response from the person with aphasia (e.g. phonetic cues); *Using visual cues*: Nonverbal, visual cues that elicit a correct response from the person with aphasia (e.g. textual cues); and *Using tactile cues*: Tactile or kinesthetic cues that support communication expression (e.g. placing objects in hands).

In order to further assess social validity, the Intervention Evaluation Survey, which was adapted and modified from Schulz et al. (2002), was included in this thesis research project. Post-intervention evaluation ratings provided by SO/C, based on indicators of satisfaction with the communication skills workshop was obtained purely for descriptive purposes.

Finally, social validity was evaluated using an adapted CETI to include individualized communication situation goals for improvement during the intervention, where participants were encouraged to add or choose 5 personalized goals from the original 16-item scale to be targets for workshop sessions and discussion. These goals were individualized per participant. Sherrat and colleages (2011) claim that goal-setting is an essential component of intervention, as goals can inspire people to pursue a specific behavior, and focus their attention to intervention targets. Identifying these goals will also ensure that there is a match between the goals of participants and that of the researcher (Sherrat et al., 2011). Sherrat et al. (2011) claim that if individualized goals are successfully met through an intervention, it is possible that applicable goals may be implemented beyond the use of the SO/C and extended to family and friends of the PWA. The CETI is sensitive to measuring changes for personalized goals, and for purposes of this study, it was considered to be an indicator of social significance and validity. This data was obtained purely for descriptive purposes.

Note on Social Significance. Given the nature of the single-subject design that was applied in this thesis research project, three of the four parameters of clinical significance seemed to be appropriate for evaluation. Schulz et al. (2002) claim that an intervention’s impact on the care recipient’s functional status is an indicator of social significance. Social significance was not evaluated as it was deemed to be beyond the scope of this project. This parameter would be more appropriately evaluated as part of a long-term project examining the impact of communication partner training on the level of care that the PWA receives. For example, recruiting participants receiving institutional-level care could provide a basis for examining whether or not their level of care is impacted by this treatment. Furthermore, Hinckley and Packard (2001) claim that while their seminar style format of communication partner training was an effective option for SO/Cs and PWA to receive education, resources, and social support, it required individuals to travel outside of the home, and to have the social and financial resources to attend. Therefore, participating in this type of intervention may not be an option for PWA and their SO/Cs without a certain level of support or ability, and telepractice could provide a cost-effective solution (Hinckley and Packard, 2001). Should communication partner training be implemented through telepractice, outcomes related to social significance may be implicated and appropriate to evaluate.

Purpose and Research Question

The purposes of this project include contributing to the evidence base of communication partner training, examining its' clinical significance, and developing a curriculum outline based on previous literature and participant feedback. Based on quantitative and qualitative analyses from various outcome measures related to symptomatology, quality of life, and social validity, this project was intended to answer the following research question: What are the effects of communication-partner training in terms of clinical significance?

Chapter 2: Research Design and Methodology

Participants

Four participant 'Dyads' consisting of people with aphasia (PWA) and their significant others/caregivers (SO/Cs) were drawn from a convenience sample.

Three PWA had aphasia secondary to a single, unilateral, left hemisphere stroke, and PWA3 had aphasia secondary to a single, unilateral, right hemisphere stroke. Similar to the study conducted by Hinckley and Packard (2001), recruitment did not discriminate between type of aphasia. Inclusion criteria required that PWA did not have other medical or cognitive impairments that may interfere with communication, such as progressive neurological conditions (e.g. dementia). PWA were also native English speakers, with hearing and vision (aided if atypical) adequate for listening and seeing in a one-on-one interaction. Finally, study inclusion required confirmation of the diagnosis of aphasia with an *Aphasia Diagnostic Profiles* (ADP; Helm-Estabrooks, 1992) score between the 10th and 90th percentile.

All SO/Cs either lived with the PWA and/or provided an average of at least four hours of daily care for them. In order to be included in the study, SO/Cs also needed to be native English speakers, with hearing and vision (aided if atypical) adequate for listening and seeing in a group interaction

Outcome Measures

The following outcome measures are described with reference to the parameters described by Schulz et al. (2002):

Outcome Parameter I: Symptomatology. Communicative Effectiveness Index (CETI; see Appendix A: *CETI*) and Conversation Analysis (CA).

Outcome Parameter II: Quality of Life. Care-Related Quality of Life Instrument (CarerQoL*;* see Appendix B: *CarerQoL*) and Quality of Communication Life Scale (QCL*;* see Appendix C: *Quality of Communication Life Scale*).

Outcome Parameter III: Social Validity. Knowledge of Aphasia Exam (see Appendix D: *Knowledge of Aphasia Exam*), Communication Skills Diary (see Appendix E: *Communication Skills Diary*), and Intervention Evaluation Survey (see Appendix F: *Intervention Evaluation Survey*).

Methods and Procedures

Recruitment resources included multiple stroke support groups in the Denver-Boulder metropolitan area. The researcher obtained permission from support group directors to give an informative presentation on the research project. This brief presentation served as a basis for recruiting potential participants into the study, and any interested PWA and their SO/Cs were invited to join the primary study and participate in the intervention. Three participants (SO/C1, SO/C4, and PWA3) initiated participation in this way. One participant (SO/C2) directly contacted the Speech, Language & Hearing Center at the University of Colorado at Boulder after seeing a flier at a support group he attended. The researcher made individual appointments with these four Dyads to complete the consent and enrollment process.

PWA were assessed with the *Aphasia Diagnostic Profiles* (ADP) to describe characteristics of their communication impairment (Helm-Estabrooks, 1992). To be enrolled, potential participants needed to score above the 10th percentile but below the 90th percentile on the ADP. The researcher used the criteria of participants being below the 90th percentile in order to enroll participants who were deemed communicatively impaired enough to benefit from the study. The additional criterion of participants needing to be above the 10th percentile was used to enroll participants who did not have severe communication impairments that would prevent them from benefitting from the study. Targeting PWA between the 10th and 90th percentile also allowed the researcher to implement a curriculum that could be more realistically generalized across SO/Cs. Please see Table 2 for a summary of demographic characteristics for Dyads.

Table 2: Demographic Characteristics of Four Participant Dyads, n=8

Variable	PWA1	PWA2	PWA3	PWA4
Sex	M	F	F	M
Age	59	50	71	81
Employment	Formerly Computer Security Consultant	Presently IT Manager	Formerly Executive, Trainer, and CEO	Formerly Air Force Pilot and Stock Broker
Education	20 years	16 years	24 years	16 years
Handedness	Right	Right	Left	Right
ADP % (percentile)	16th percentile	87th percentile	89th percentile	53rd percentile
Etiology	Hemorrhagic Stroke	Unreported	Unreported	Blockage in left carotid artery
Site of Lesion	Left Hemisphere Frontal, Parietal, Temporal	Left Hemisphere	Right Hemisphere	Left Hemisphere
Time Post-Onset (years;months)	0;8	0;3	6;10	5;5

Table 2 (Cont'd): Demographic Characteristics of Four Participant Dyads

Aphasia Type	Global	Borderline Fluent w/ Good Repetition & Auditory Comprehension	Anomic	Borderline Fluent w/ Poor Repetition & Auditory Comprehension
Other speech-language disorder	N/A	N/A	N/A	Apraxia of Speech

Variable	SO/C1	SO/C2	SO/C3	SO/C4
Sex	F	M	F	F
Age	52	54	47	81
Employment	Formerly in sales, advertising, volunteer leadership, marketing, and grant writing; Presently self-employed	Formerly in restaurant management, sales, instructor, and delivery driver; Presently receiving manager	Presently in program design and development for professional coaching methodology	Formerly in education and sales; Presently retired
Education	16 years	14 years	16 years	16 years
Relationship to PWA	Spouse	Spouse	Daughter	Spouse
Years Known	30	7	47	59
Other family members with communication impairments	N/A	N/A	N/A	N/A
Has raised children	No	No	Yes	Yes

Four participant Dyads (n=8) were enrolled, and all completed the study. As compensation, SO/C participants were each paid a total of $100 for their participation in all four session in this study ($25 per session attended). A description of pre- and post-treatment assessment and treatment procedures follow.

Pre-Treatment Assessment. Both PWA and their SO/Cs were videotaped on three separate occasions for CA purposes, one session per week, for three weeks. CA was based on both *interactional* and *transactional* contexts of discourse in conversations between Dyads, where conversation samples lasting a maximum of 10-minutes were obtained pre- and post-intervention (i.e. 5-minute *interactional* and 5-minute *transactional*). To obtain *interactional* samples, Dyads were prompted to engage in conversation using the same prompt (i.e. "Please start by talking about your plans for the day and your conversation can go from there"), and were left alone by the researcher during a 5-minute interaction. To obtain *transactional* samples, PWA were prompted to tell a story to the researcher (i.e. "Please tell me a story about how you met each other" or "Please tell me a story about a vacation you took together") during a 5-minute interaction, where the SO/C was prompted to support the PWA in telling the story. Transcription stopped after 5-minutes for each context, even if Dyads continued. In these situations, the researcher would thank the Dyads for their cooperation and move on to the next procedure.

In both CA contexts, SO/Cs were encouraged to support the PWA in any way they normally would. Since the workshop curriculum included discussions on visual cues, pencils and blank paper were provided during these interactions, but Dyads were not specifically encouraged to use this resource in order to elicit naturalistic discourse. For each Dyad, three samples of each CA context were collected pre- and post-treatment, with *interactional* being collected first and *transactional* second. These three samples were collected one week apart from each other, and always at the end of a baseline session (i.e. following other procedures).

Quantitative analysis of CA included the percentage of the major turns involved in a sample, as well as the percentage of turns involved in successful and unsuccessful communication breakdown repair according to which strategies were used. In both *interactional* and *transactional* samples, major turns were coded as an initiation of a topic or a response to a partner's utterance. Repair attempts were coded as either being "Successful" or "Unsuccessful." Successful repair attempts were those that resulted in a clarification of a communication breakdown. Unsuccessful repair attempts were those that resulted in further repair attempts by either the SO/C or the PWA. Successful repair turns were divided into two categories: 1) Enhancement Strategies, which included any instance where SO/Cs used one of the nine communication enhancement strategies delineated in Appendix H: *Communication Enhancement Strategies Handouts*; and 2) Other Strategies, which included any instance where SO/Cs used strategies such as asking for repetition, correct production sentences, test questions, and any other communication breakdown repair strategy not delineated in the nine communication enhancement strategies (Wilkinson et al., 2010). Effect sizes were calculated for pre-post treatment analysis of the various CA methods, where *Cohen's d* was interpreted using the following scale: an effect size of 0.2 – 0.49 was considered small, 0.5 – 0.79 was considered medium, and 0.8 or greater was considered large (Cohen, 1988). Qualitative analysis included sources of communication breakdowns (e.g. lexical retrieval difficulty) and identifying the use of specific communication enhancement strategies that SO/Cs. In order to obtain reliable samples, the starter topic was always the same for each conversation. Each sample was transcribed and coded by the researcher, ensuring that "familiarity and expertise of the rater" were controlled (Hesketh et al., 2008, p.981).

Furthermore, SO/Cs completed an adapted version of the CETI to gather more information about communication success with the PWA in situations that SO/Cs deem important. At pre- and post-intervention, participant Dyads were asked to identify (i.e. add or select existing) 5 personalized "goals" from the 16-item scale that were the most important for them to observe improvement in. The researcher repeated this selection process at pre- and post-intervention in order to observe whether the needs of the Dyads had changed over the course of intervention. The CETI was only completed once at this pre-treatment phase. Similarly, SO/Cs also completed the Knowledge of Aphasia Exam and the CarerQoL one time each, while PWA completed the QCL once.

Treatment Procedures. SO/C participants attended group sessions for at least 1-hour of 1-day per week, over a span of 4-weeks. To ensure the highest levels of workshop attendance participation from all SO/Cs, the investigator scheduled weekly workshops during mutually agreed upon times from all participants. Workshops were held in a private meeting room at the Speech, Language & Hearing Center (SLHC) at University of Colorado Boulder.

Workshop curriculum was composed of two categories of information (*Knowledge of Aphasia* and *Communication Enhancement Strategies*) and was primarily based on previous literature involving SO/Cs and PWA, with additional content added to address specific interests of enrolled participants (see Appendix G: *Proposed Workshop Outline*). Individualized content desires were collected by two primary means: 1) Following each session, participants were asked if they had specific questions to address in the following session; 2) Participants included *Comments* in the appropriate section of the Communication Skills Diary form, at the end of each session.

Based on the literature, *Knowledge of Aphasia* included ten topics (see Appendix G: *Proposed Workshop Outline: Sessions 1-2*), which were selected from information needs presented in previous communication partner research (Avent et al., 2005; Draper et al., 2007; Hinckley & Packard, 2001; Le Dorze et al., 1999; Purdy & Hindenlang, 2005; Simmons-Mackie et al., 2010). *Communication Enhancement Strategies* included four topics (see Appendix G: *Proposed Workshop Outline: Sessions 3-4*), which were selected from specific curriculum and resources addressing communication enhancement strategies for SO/Cs of PWA (Draper et al., 2007; "Internet Stroke Center," 2012). Implementation involved the researcher delivering the content of the workshop through generating discussions related to *Knowledge of Aphasia* and *Communication Enhancement Strategies*, and providing examples of how the nine communication strategies can be used in various situations. Each session, an overview of each topic would be introduced to the participants, and the researcher would probe for discussion from each participant. If participants posed questions, the researcher would answer them in the moment, and provide further information in follow-up sessions if possible.

After topics were covered, discussions and activities would take place, which varied across sessions. These discussions and activities were developed with the intention of increasing participation from SO/Cs and giving them more 'hands on' experience with the material. Prior to Session 1, participants were emailed an article to prime them for a discussion on the topic, "*What does it mean to live well with aphasia?*" (Holland, 2006). Prior to Session 2, participants were emailed a video of a communication interaction with a person who presents with expressive aphasia. This video was the basis for a group activity on identifying communication strategies used in the interaction. Prior to Session 3, participants were asked to brainstorm ideas for Verbal, Visual, and Tactile Cues that they could use with their family members who have aphasia. In a group activity, participants were asked to share their ideas with other participants. Prior to Session 4, participants were asked to bring in examples of Verbal, Visual, and Tactile Cues they tried in the previous week. Similarly to Session 3, participants were asked to share their ideas with each other. Following discussions and activities, the researcher would provide an overview of the "*Communication Enhancement Strategies*" that were new to that session. At the end of each session, each participant would complete the Communication Skills Diary form and rate their use and perceived effectiveness of the strategies introduced up to that point (e.g. at Session 2, SO/Cs completed a version of the Communication Skills Diary form that only included the first six strategies). Previous strategies were included on surveys as they were introduced in the Treatment Phase.

While the general plan for each session was prepared ahead of time, there were times when group discussions would last longer than anticipated, which resulted in less time spent on curriculum topics and activities. Group discussion was more structured towards the session outline during the first two sessions compared to the third and fourth session. In later sessions, SO/Cs appeared to be more comfortable with participating in discussions with each other in the absence of specific direction from the researcher. It appeared as though three of the participants were particularly comfortable with independent discussion, while one appeared to be more reserved. In attempts to include this participant in group discussions, the researcher would direct questions or comments towards this person in hopes to increase their participation. This strategy appeared to be successful for increasing brief group exchanges with all members, but in general, this person participated relatively less during discussions. Furthermore, in attempts to ensure that each portion of the planned curriculum was addressed in the session, the researcher would redirect discussions towards a specific topic when possible. Redirection attempts were more successful when the specific topic was related to the discussion that was taking place prior. When individual sessions were coming to an end, if there was a specific topic that was not adequately addressed, the researcher would encourage the participants to think about the topic over the course of the following week, and return to the following session with any questions they might have about the topic. In general, if participants had remaining questions about a topic, they wrote a question or comment under *Comments* using the Communication Skills Diary, and the researcher would respond to these questions in the following session.

A *Workshop Outline* for curriculum content is provided in Appendix G, which reflects the goals and feedback of the participants in this study. Please also see Appendix H: *Communication Enhancement Strategies Handouts* for the individual handouts that were given to participants.

Post-Treatment Assessment. Measures were repeated from the Pre-Treatment Assessment phase, with the addition of asking SO/Cs to complete the Intervention Evaluation Survey once, and the Communication Skills Diary three times. The Communication Skills Diary was completed following each of the three CA samples. Please see Table 3 for a summary of the study outline, which includes when outcomes were targeted and assessed throughout the intervention.

Table 3: Study Outline
(T is an abbreviation for when outcomes were targeted in the intervention; A is an abbreviation for when outcomes were assessed)

Outcome Measures	Phases of Intervention		
	Baseline (Pre-Treatment)	Treatment	Baseline (Post-Treatment)
Symptomology			
Communicative Effectiveness Index	A (x1)	T	A (x1)
Conversation Analysis	A (x3)	T	A (x3)
Quality of Life			
Care-Related Quality of Life	A (x1)	N/A	A (x1)
Quality of Communication Life Scale	A (x1)	N/A	A (x1)
Social Validity			
Knowledge of Aphasia Exam	A (x1)	T	A (x1)
Communication Skills Diary	N/A	T, A	A (x3)
Intervention Evaluation Survey	N/A	A	A (x1)

Chapter 3: Results

Quantitative Analysis

An effect size of 0.2 – 0.49 was considered small, 0.5 – 0.79 was considered medium, and 0.8 or greater was considered large (Cohen, 1988). Below is a summary of the quantitative results obtained from Conversation Analysis (CA), Communicative Effectiveness Index (CETI), Care-Related Quality of Life Instrument (CarerQoL), Quality of Communication Life Scale (QCL), Knowledge of Aphasia Exam, and the Communication Skills Diary.

Conversation Analysis. For quantitative analysis results for Dyad 1, please see Table 4. PWA1 and SO/C1 had more equal percentages of turns at post-intervention in both *interactional* (d = 1.25; large) and *transactional* (d = 1.36; large) contexts, (i.e. meaning that on average for all three samples obtained for *interactional* and *transactional* contexts, PWA1 and SO/C1 took more equal turns at post-intervention). SO/C1 used more Enhancement Strategies at post intervention for both contexts (d = 1.01; large) but there was not change in the use of Other Strategies (d= 0.08). SO/C1 demonstrated significantly fewer Unsuccessful repair turns at post intervention for *interactional* samples (d = 0.90; large), and slightly fewer Unsuccessful repair turns for *transactional* samples (d = 0.43; small).

Table 4: Dyad 1 - Conversation Analysis Results Summary

Analyses – SO/C1	% of Turns	SD	d	size
Interactional Total Turns				
Pre	59	8		
Post	53	1	-1.25	large

Table 4 (Cont'd): Dyad 1 - Conversation Analysis Results Summary

Interactional Communication Breakdown Repair Turns - Successful				
Enhancement Strategies - Pre	8	4		
Enhancement Strategies - Post	15	2	+1.01	large
Other Strategies - Pre	4	7		
Other Strategies - Post	4	3	-0.08	none
Interactional Communication Breakdown Repair Turns – Unsuccessful				
Pre	18	17		
Post	8	7	-0.90	large
Transactional Total Turns				
Pre	39	5		
Post	49	10	+1.36	large
Transactional Communication Breakdown Repair Turns - Successful				
Enhancement Strategies - Pre	3	6		
Enhancement Strategies - Post	20	27	+1.01	large
Other Strategies - Pre	8	14		
Other Strategies - Post	9	8	+0.02	none
Transactional Communication Breakdown Repair Turns - Unsuccessful				
Pre	32	35		
Post	20	18	-0.43	small
Analyses – PWA1	% of Turns	SD	d	size
Interactional Total Turns				
Pre	41	8		
Post	47	1	+1.25	large
Transactional Total Turns				
Pre	61	5		
Post	51	10	-1.36	large

For quantitative analysis results for Dyad 2, please see Table 5. PWA2 and SO/C2 had slightly fewer percentages of equal turns at post-intervention in *interactional* samples (d = 0.50; medium), and significantly fewer equal turns in *transactional* samples (d = 2.49; large), where PWA2 took more turns in both samples. SO/C2 used significantly more Enhancement Strategies at post intervention for *interactional* samples (d = 2.20; large), but there was no change for *transactional* samples (d = 0.05). SO/C2 demonstrated significantly fewer Other Strategies for both *interactional* (d = 2.30; large) and *transactional* (d = 0.66; medium) samples. SO/C2 demonstrated significantly fewer Unsuccessful repair turns at post intervention for *interactional* samples (d = 4.12; large), but there was no change in *transactional* samples (d = 0.12). However, it should be noted that for post-intervention, the 2nd baseline video was unable to be analyzed due to technical difficulties, and so only two CA samples were included in the analysis.

Table 5: Dyad 2 - Conversation Analysis Results Summary

Analyses – SO/C2	% of Turns	SD	d	size
Interactional Total Turns				
Pre	48	2		
Post	47	2	-0.50	medium
Interactional Communication Breakdown Repair Turns - Successful				
Enhancement Strategies - Pre	2	3		
Enhancement Strategies - Post	7	1	+2.20	large
Other Strategies - Pre	4	3		
Other Strategies - Post	0	N/A	-2.30	large
Interactional Communication Breakdown Repair Turns - Unsuccessful				
Pre	14	7		
Post	0	N/A	-4.12	large
Transactional Total Turns				
Pre	46	>0.1		
Post	45	>0.1	-2.49	large
Transactional Communication Breakdown Repair Turns - Successful				
Enhancement Strategies - Pre	9	8		
Enhancement Strategies - Post	9	2	+0.05	none
Other Strategies - Pre	10	9		
Other Strategies - Post	5	7	-0.66	medium

Table 5 (Cont'd): Dyad 2 - Conversation Analysis Results Summary

Transactional Communication Breakdown Repair Turns - Unsuccessful				
Pre	16	2		
Post	15	21	-0.12	none

Analyses – PWA2	% of Turns	SD	d	size
Interactional Total Turns				
Pre	52	2		
Post	53	2	+0.50	medium
Transactional Total Turns				
Pre	54	>0.1		
Post	55	>0.1	+2.49	large

For quantitative analysis results for Dyad 3, please see Table 6. PWA3 and SO/C3 maintained equal percentages of turns at post-intervention in *interactional* samples (d = 0.07), but had significantly less equal turns at *transactional* samples, where PWA3 took more turns in *transactional* samples (d = 1.15; large). SO/C3 used significantly more Enhancement Strategies at post intervention for both *interactional* (d = 0.98; large) and *transactional* (d = 1.21; large) samples. SO/C3 demonstrated significantly more Other Strategies for *interactional* (d = 1.15; large) samples, and slightly fewer Other Strategies for *transactional* (d = 0.35; small) samples SO/C3 demonstrated significantly less Unsuccessful repair turns at post intervention for *interactional* samples (d = 0.85; large), but no significant change was observed in Unsuccessful repair turns for *transactional* samples (d = 0.17).

Table 6: Dyad 3 - Conversation Analysis Results Summary

Analyses – SO/C3	% of Turns	SD	d	size
Interactional Total Turns				
Pre	50	>0.1		
Post	50	>0.1	-0.07	none

Table 6 (Cont'd): Dyad 3 - Conversation Analysis Results Summary

Interactional Communication Breakdown Repair Turns - Successful				
Enhancement Strategies - Pre	3	3		
Enhancement Strategies - Post	6	3	+0.98	large
Other Strategies - Pre	0	N/A		
Other Strategies - Post	1	2	+1.15	large
Interactional Communication Breakdown Repair Turns - Unsuccessful				
Pre	3	3		
Post	1	2	-0.85	large
Transactional Total Turns				
Pre	47	>0.1		
Post	42	5	-1.15	large
Transactional Communication Breakdown Repair Turns - Successful				
Enhancement Strategies - Pre	6	10		
Enhancement Strategies - Post	19	13	+1.21	large
Other Strategies - Pre	8	14		
Other Strategies - Post	7	7	-0.35	small
Transactional Communication Breakdown Repair Turns - Unsuccessful				
Pre	6	5		
Post	5	8	-0.17	none

Analyses – PWA3	% of Turns	SD	d	size
Interactional Total Turns				
Pre	50	>0.1		
Post	50	4	+0.07	none
Transactional Total Turns				
Pre	53	>0.1		
Post	58	5	+1.15	large

For quantitative analysis results for Dyad 4, please see Table 7. PWA4 and SO/C4 had less equal percentages of turns at post-intervention in both *interactional* (d = 1.74; large) and *transactional* (d = 2.00; large) samples, where PWA4 took significantly more turns in both samples. SO/C4 used significantly more Enhancement Strategies at post intervention for both *interactional* (d = 1.10; large) and *transactional* (d = 2.94;

large) samples. SO/C4 used significantly fewer Other Strategies in *interactional* samples (d = 1.56; large), but no change was observed for *transactional* samples (d = 0.02). SO/C4 demonstrated moderately fewer Unsuccessful repair turns at post intervention for *interactional* samples (d = 0.60; medium), and significantly less Unsuccessful repair turns for *transactional* samples (d = 2.40; large).

Table 7: Dyad 4 - Conversation Analysis Results Summary

Analyses – SO/C4	% of Turns	SD	d	size
Interactional Total Turns				
Pre	52	2		
Post	56	3	+1.74	large
Interactional Communication Breakdown Repair Turns - Successful				
Enhancement Strategies - Pre	2	3		
Enhancement Strategies - Post	10	13	+1.10	large
Other Strategies - Pre	7	3		
Other Strategies - Post	2	3	-1.56	large
Interactional Communication Breakdown Repair Turns - Unsuccessful				
Pre	11	10		
Post	6	6	-0.60	medium
Transactional Total Turns				
Pre	53	4		
Post	60	3	+2.00	large
Transactional Communication Breakdown Repair Turns - Successful				
Enhancement Strategies - Pre	8	7		
Enhancement Strategies - Post	30	8	+2.94	large
Other Strategies - Pre	11	11		
Other Strategies - Post	0	N/A	+0.02	none
Transactional Communication Breakdown Repair Turns - Unsuccessful				
Pre	32	20		
Post	3	4	-2.40	large

Table 7 (Cont'd): Dyad 4 - Conversation Analysis Results Summary

Analyses – PWA4	% of Turns	SD	d	size
Interactional Total Turns				
Pre	48	2		
Post	44	3	-1.74	large
Transactional Total Turns				
Pre	47	4		
Post	40	3	-2.00	large

Communicative Effectiveness Index. In general, SO/C participants noted an increase in ratings in PWA communication success across most situations. For a list of situations rated by the CETI by number, see Appendix A: *Communicative Effectiveness Index.* A change was considered significant if it was equal or greater than an 11.4% increase of the VAS.

For a summary of results for Dyad 1, please see Figure 1. Pre-intervention, SO/C1 identified CETI situations 3, 8, 13, and 14, and added a 17th personalized goal, "indicating basic needs – bathroom, hunger, etc." as being the most important for her to observe change in. At post-intervention, SO/C1 identified 3, 5, and 6 as being the most important. SO/C1's ratings indicate that PWA1 is more successful in all situations rated by the CETI, with significant improvements being in situations 3 and 5.

For a summary of results for Dyad 2, please see Figure 2. Pre-intervention, SO/C2 identified CETI situations 4, 7, 9, 10, 14, and 15 as being the most important for him to observe change in. At post-intervention, SO/C2 identified 4 and 9 as being the most important, commenting that "communication ability has improved, but it can be difficult to determine exactly her feeling or pain area." At pre-intervention, SO/C2 indicated that PWA2 is completely successful at CETI situations 1, 5, 8, 11, and 13, which remained the same at post-intervention. SO/C2's ratings indicate that PWA2 is

Figure 1: SO/C1 - Communicative Effectiveness Index Results Summary

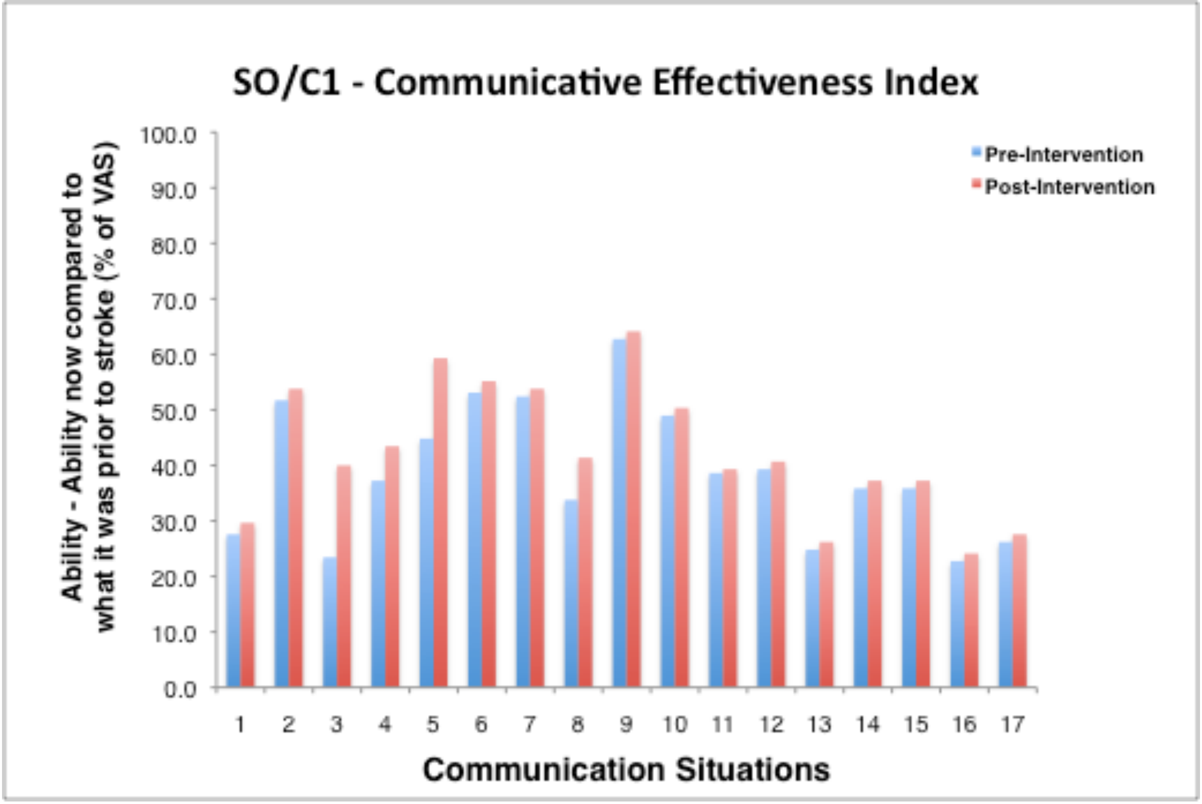
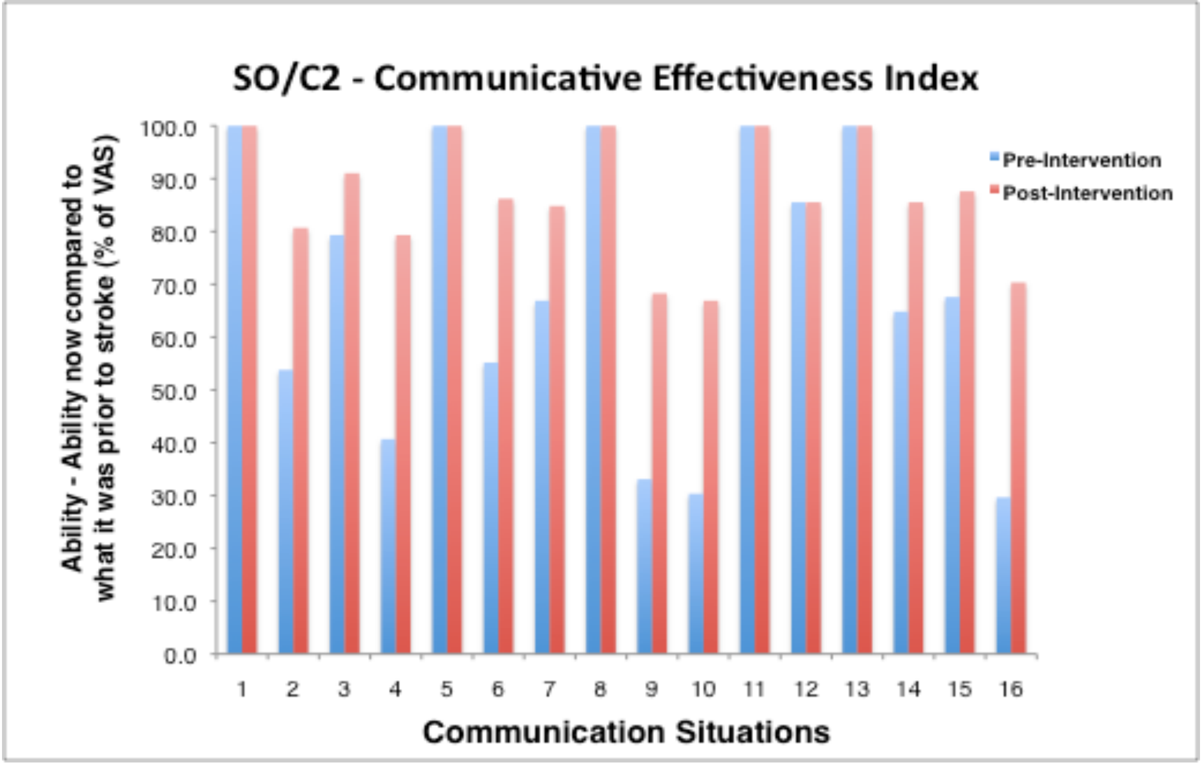


Figure 2: SO/C2 - Communicative Effectiveness Index Results Summary



more successful in all situations rated by the CETI except for 12, with significant improvements being in situations 2, 3, 4, 6, 7, 9, 10, 14, 15 and 16.

For a summary of results for Dyad 3, please see Figure 3. Pre-intervention, SO/C3 identified CETI situations 4, 9, 13, 14, and 16 as being the most important for her to observe change in. At post-intervention, SO/C3 identified 13, 14, and 16 as being the most important. SO/C3's ratings indicate that PWA3 is slightly more successful in most situations rated by the CETI, including 1, 2, 3, 4, 5, 9, 10, 11, 12, and 15, with no significant improvements in any area.

For a summary of results for Dyad 4, please see Figure 4. Pre-intervention, SO/C4 identified CETI situations 3, 5, 8, 14, and 16 as being the most important for her to observe change in. She also added a 17th personalized goal, "Understanding what is said on TV." At post-intervention, SO/C4 did not identify different goals as being the most important. SO/C4's ratings indicate that PWA4 is more successful in most situations rated by the CETI, including 1, 3, 4, 5, 6, 7, 9, 10, 11, and 14, with no significant improvements in any area.

Care-Related Quality of Life Instrument. In general, there were slight differences reported in quality of life at pre- and post-intervention according to responses on the CarerQoL. Item 1 was the only item that did not change for any SO/Cs across the intervention.

Please see Table 8 for a summary of results.

Figure 3: SO/C3 - Communicative Effectiveness Index Results Summary

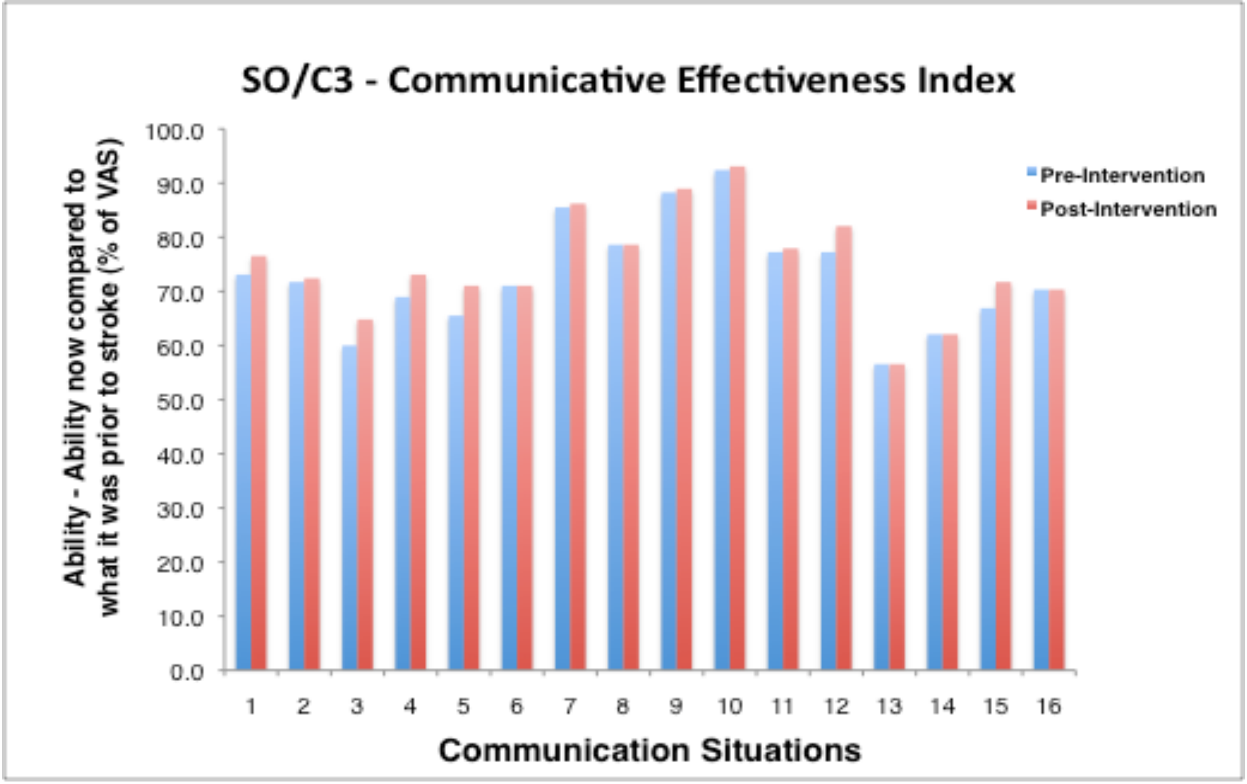


Figure 4: SO/C4 - Communicative Effectiveness Index Results Summary

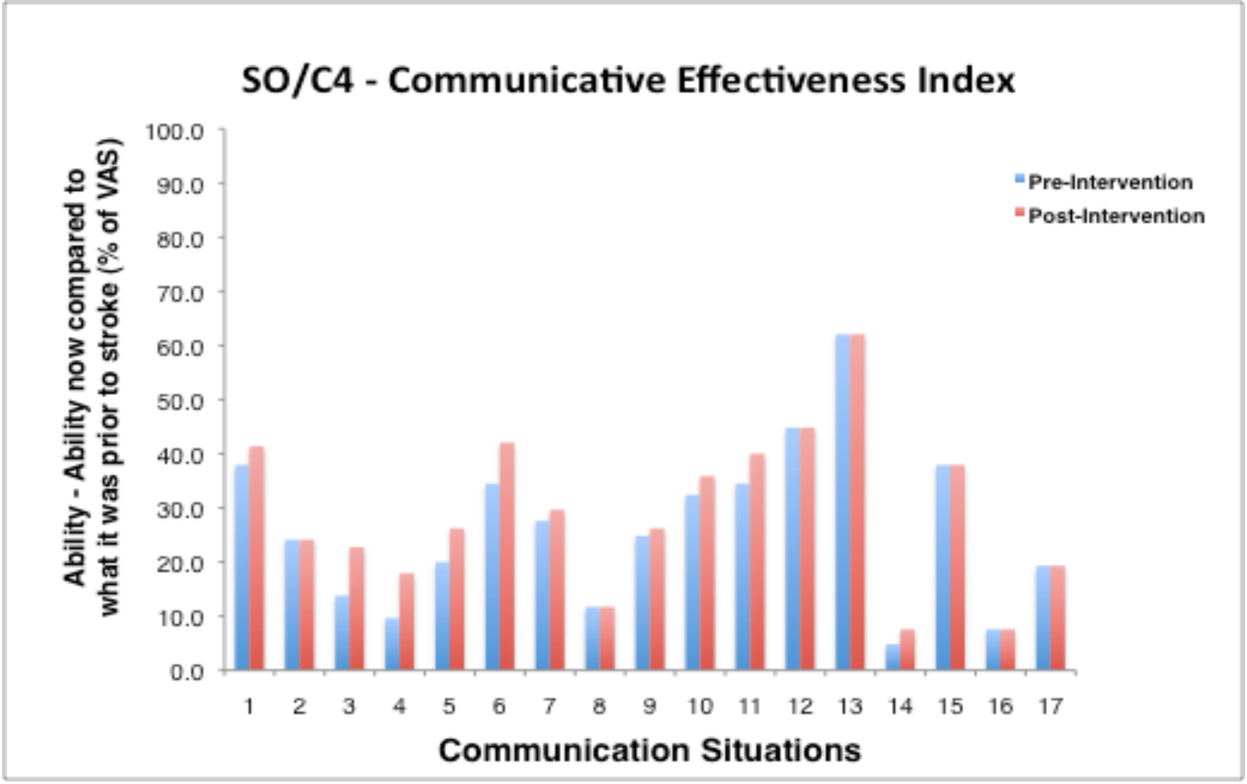


Table 8: Care-Related Quality of Life Instrument Results Summary (Key: a lot of=2, some=1, none=0)

Item	Time	SO/C1	SO/C2	SO/C3	SO/C4
a. I have _____ fulfillment with carrying out my care tasks.	Pre	2	2	1	1
	Post	2	2	1	1
b. I have _____ relational problems with the care receiver.	Pre	1	1	0	2
	Post	0	1	0	1
c. I have _____ problems with my own mental health.	Pre	0	1	0	2
	Post	1	1	0	2
d. I have _____ problems combining my care tasks with my daily activities	Pre	2	1	2	2
	Post	1	1	2	2
e. I have _____ financial problems because of my care tasks.	Pre	1	1	0	0
	Post	1	0	1	0
f. I have _____ support with carrying out my care tasks.	Pre	2	1	2	1
	Post	1	1	2	1
g. I have _____ problems with my own physical health.	Pre	1	1	0	1
	Post	0	1	0	1
CarerQoL-VAS: Visual Analog Scale (0 = Completely unhappy; 10 = Completely happy)	Pre	6	5	7	7
	Post	6.5	8	7	6

At post intervention, SO/C1 indicated that she had reduced relational problems with PWA1 (pre = 1; post = 0), less problems combining her care tasks with her daily activities (pre = 2; post = 1), and reduced problems with her physical health (pre = 1; post = 0), but that she had increased mental health problems at post-intervention (pre = 0; post = 1), and less support with carrying out her care tasks (pre = 2; post = 1). She also noted slightly increased "happiness" on the CarerQoL-VAS (pre = 6; post = 6.5) SO/C2 indicated that he had reduced financial problems at post-intervention (pre = 1; post = 0), but didn't otherwise indicate any other change on this instrument apart from increased *happiness* on the CarerQoL-VAS (pre = 5; post = 8). Conversely, SO/C3 indicated increased financial problems at post-intervention (pre = 1; post = 2), but no change in items or the CarerQoL-VAS. SO/C4 indicated reduced relational problems with PWA4 (pre = 2; post = 1), but no change on other items apart from noting slightly decreased *happiness* on the CarerQoL-VAS (pre = 7; post = 6).

Quality of Communication Life Scale. In general, there was an increase in average ratings on QCL items for PWA1 (pre = 4.69; post = 4.82), PWA2 (pre = 3.75; post = 4.65), and PWA4 (pre = 2.44; post = 2.56), while PWA3 indicated a decrease in average ratings (pre = 4.25; post = 4.13). For a list of items rated by the QCL, see Appendix C: *Quality of Communication Life Scale.*

Please see Figure 5 for a summary of results for PWA1. PWA1's ratings indicated increased agreement on QCL items 1, 3, and 5, and a decrease in item 12. At pre-intervention, PWA1 rated item 5 as N/A, and then rated it as 5 at post-intervention. However, because item 5 states "*I meet the communication needs of my job or school*," and PWA1 didn't work at either time of administration, his change in response could have been due to the fact that he didn't understand the item.

Please see Figure 6 for a summary of results for PWA2. PWA2's ratings indicated increased agreement on QCL items 1, 2, 3, 5, 7, 9, 11, 12, 14, 15, 16, 17, with the relatively largest improvements being in items 5, 7, 9, and 16. At pre-intervention, PWA2 also rated item 5 as N/A, and then rated as 4 at post-intervention. Because PWA2 had resumed employment at this time, her response likely reflects this.

Please see Figure 7 for a summary of results for PWA3. PWA3's ratings indicated increased agreement on QCL items 2, 6, 7, 15, and 17, with no relatively large improvements in items. She also indicated a decreased agreement in QCL items 4,

Figure 5: PWA1 – Quality of Communication Life Scale Results Summary

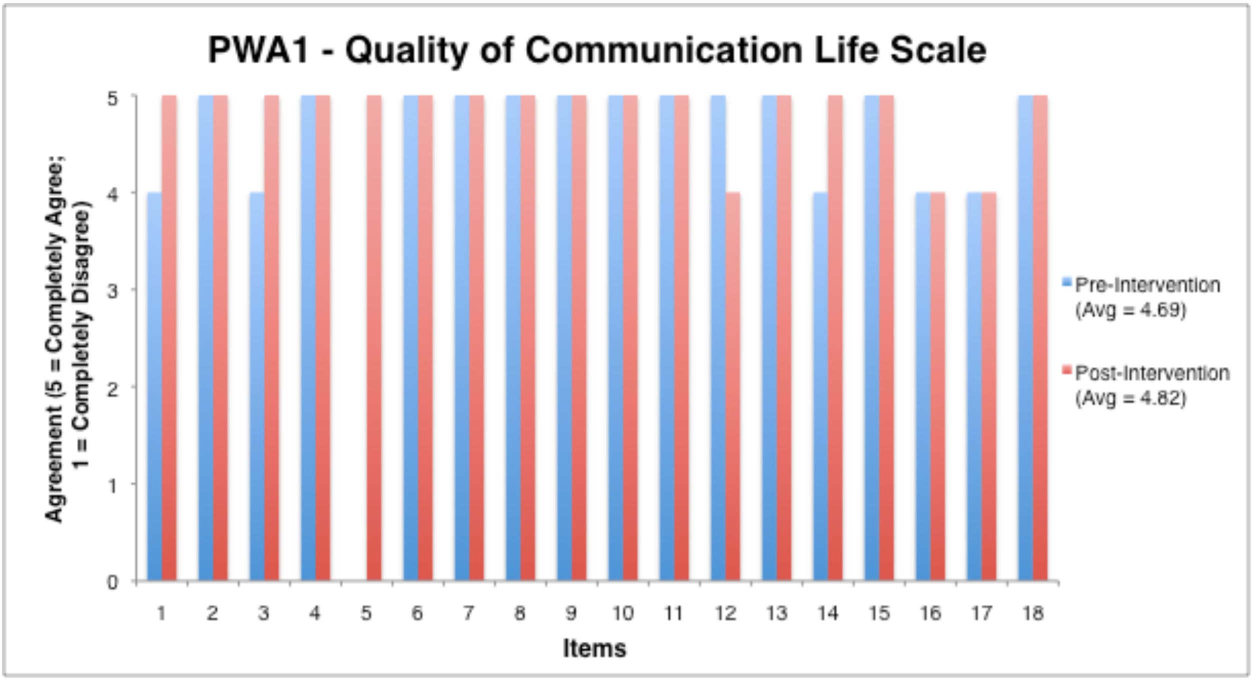
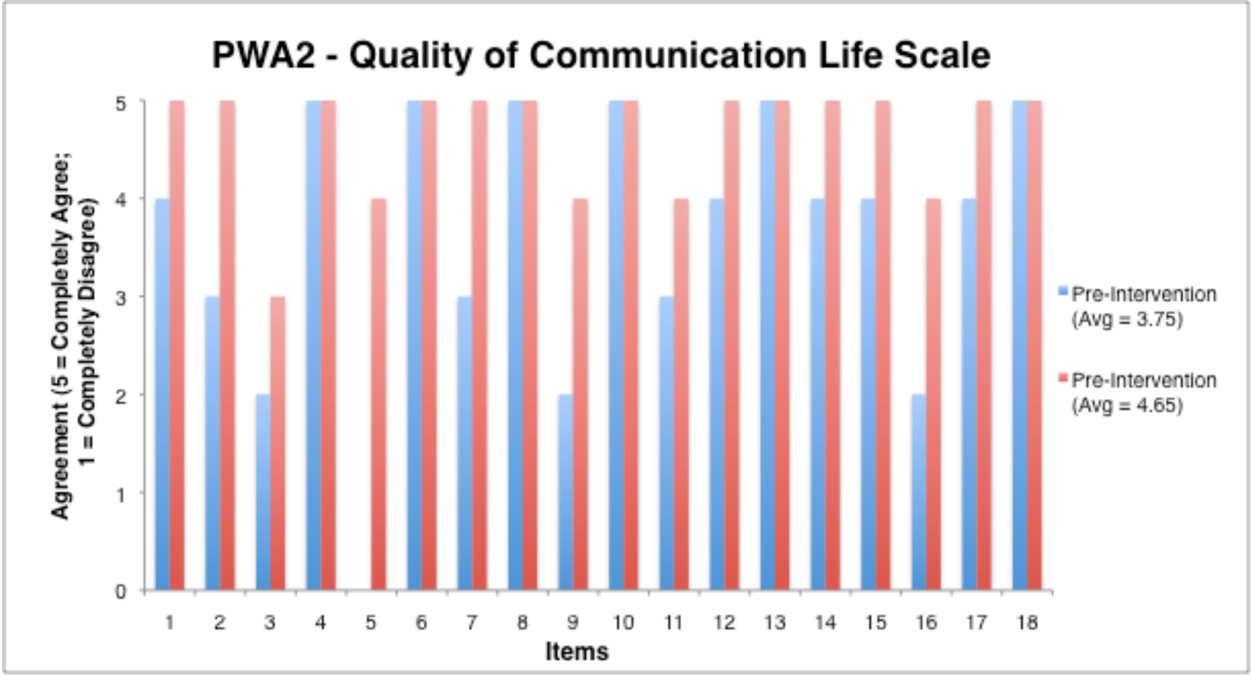
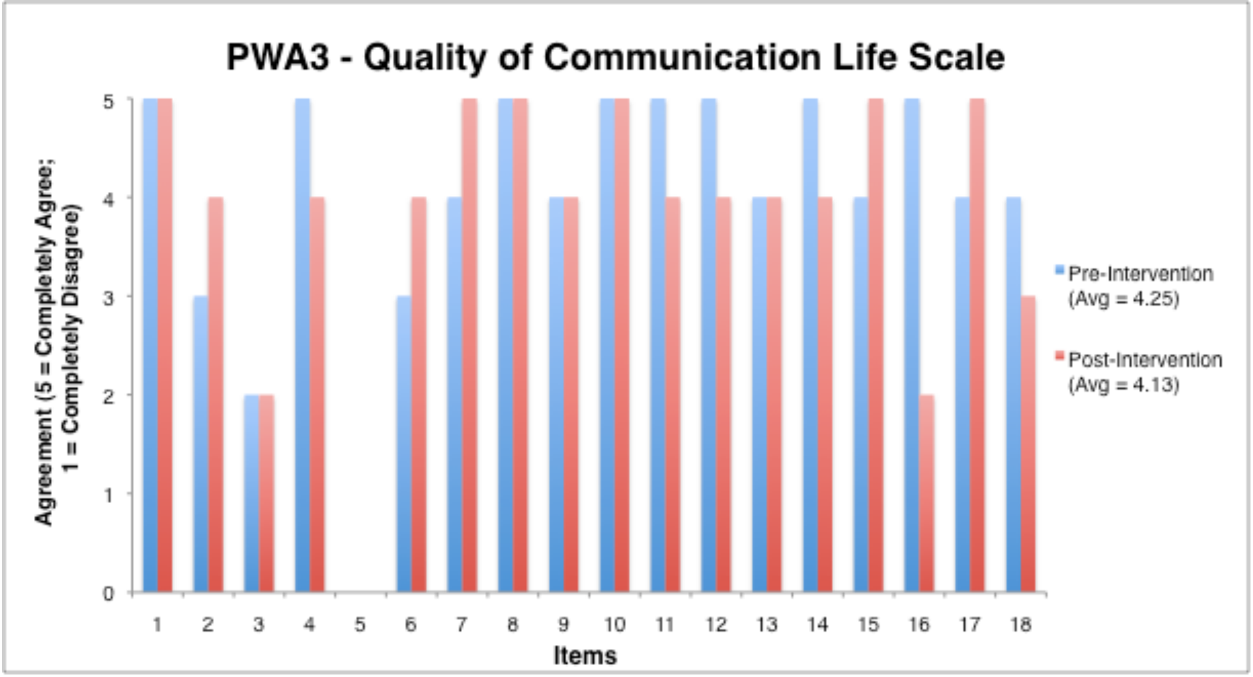


Figure 6: PWA2 – Quality of Communication Life Scale Results Summary



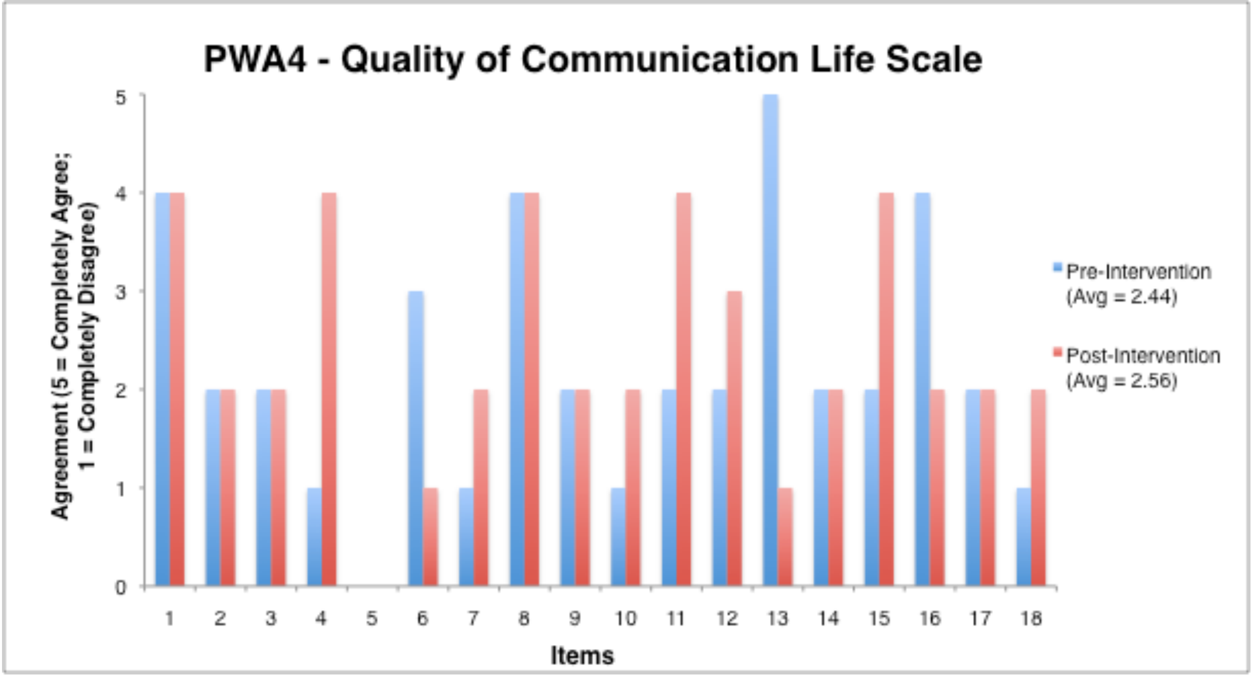
11, 12, 14, 16, and 18, with the largest relative decrease in item 16. Despite reporting during post-intervention that the regarded the day as “average,” she demonstrated reduced affect during the administration procedures, which could have contributed to lower responses on items.

Figure 7: PWA3 – Quality of Communication Life Scale Results Summary



Please see Figure 8 for a summary of results for PWA4. PWA2’s ratings indicated increased agreement on QCL items 4, 7, 10, 11, 12, 15, and 18, with the relatively largest improvements being in items 4, 11, and 15. She also indicated a decreased agreement in QCL items 6, 13, and 16, with relatively large deceases in all items.

Figure 8: PWA4 – Quality of Communication Life Scale Results Summary



Knowledge of Aphasia Exam. In general, there was not a significant change in knowledge of aphasia according to responses on the Knowledge of Aphasia Exam, with the exception of responses on 3 items, which are described below. Each of the items addressed on this measure were discussed at the beginning of the workshop curriculum, and the post-intervention exam was administered roughly 1-month after this point. Please see Table 9 for a summary of results.

Table 9: Knowledge of Aphasia Exam Results Summary
(Key: correct=1, incorrect=0)

Item	Time	SO/C1	SO/C2	SO/C3	SO/C4
1. Why does a stroke sometimes result in aphasia?	Pre	1	1	0	1
	Post	1	1	0	1
2. How is communication impacted for people with aphasia?	Pre	1	1	1	1
	Post	1	1	1	1
3. In general, what is known about how people with aphasia perceive their own communication?	Pre	0	1	1	0
	Post	0	1	1	1

Table 9 (Cont'd): Knowledge of Aphasia Exam Results Summary

4. What are some good ways to communicate with people with aphasia?	Pre	1	1	1	1
	Post	1	1	1	1
5. How can speech therapy help people with aphasia?	Pre	1	1	1	0
	Post	0	1	1	0
6. What are some brain recovery patterns that can have a positive impact on aphasia?	Pre	1	1	1	0
	Post	1	1	1	0
Total Score (6 possible)	Pre	5	6	5	3
	Post	4	6	5	4

For items 1, 2, and 3, responses did not change from pre- to post-intervention for any of the SO/C participants. For item 3, SO/C4's response changed from an incorrect response to the correct response. For item 5, SO/C1's response changed from a correct response to an incorrect one. For item 6, SO/C4's response changed from an incorrect choice to another incorrect choice.

Communication Skills Diary. Results for each communication strategy is reported by it's associated name on Appendix E: *Communication Skills Diary* (e.g. *Face to face attention, Asking closed-ended questions*, etc.). Based on results of the Communication Skills Diary, it appears that all SO/C responses varied in terms of how much they used the nine communication strategies described in the workshop, and how effective they found each skill to be. In general, SO/C responses indicated that the more helpful they found the communication strategies to be, the more often they used them in conversations with their family members with aphasia. There were some exceptions to this pattern, indicating that frequency of use was not always correlated with perceptions of helpfulness. These exceptions are described below. Furthermore, the significant changes from the treatment phase to the post-treatment phase in terms of frequency of use and perceived effectiveness are highlighted. Please see Table 10 for a summary of results.

Table 10: Communication Skills Diary Results Summary
(Key: Always=6, Often=5, Sometimes=4, Rarely=3, Uncertain=1, Not at all=0, N/A=0; n refers to how many responses were obtained during the treatment phase)

Item	SO/C1	SO/C2	SO/C3	SO/C4
1. Face to face attention – Treatment (n=4 responses)				
How often?	5.8	5.0	5.5	5.0
SD	0.5	0	0.6	0
Was it helpful?	5.0	5.3	6.0	4.0
SD	0	0.6	0	0
1. Face to face attention – Post (n=3 responses)				
How often?	5.3	5.7	4.0	5.0
SD	0.6	0.6	1.0	0
d	-0.8	+2.3	-1.9	0
size	large	large	large	none
Was it helpful?	4.7	5.3	4.0	4.7
SD	0.6	0.6	3.5	0.6
d	-1.2	+0.2	-1.2	+2.3
size	large	small	large	large
2. Asking closed-ended questions – Treatment (n=4 responses)				
How often?	4.5	4.5	4.0	4.8
SD	0.6	0.6	0	1.0
Was it helpful?	4.3	4.8	4.0	4.0
SD	0.5	0.5	0	0.8
2. Asking closed-ended questions – Post (n=3 responses)				
How often?	4.7	4.7	4.0	4.3
SD	0.6	0.6	0	0.6
d	+0.3	+0.3	0	-0.5
size	small	small	none	medium
Was it helpful?	4.3	5.0	4.3	4.0
SD	0.6	0	0.6	0
d	+0.2	+1.0	+1.2	0
size	small	large	large	none

Table 10 (Cont'd): Communication Skills Diary Results Summary

3. Gesture and speech – Treatment (n = 4 responses)				
How often?	4.3	4.3	5.3	3.8
SD	0.5	0.5	0.5	0.5
Was it helpful?	4.0	4.3	5.3	4.0
SD	0	0.5	0.5	0
3. Gesture and speech – Post (n=3 responses)				
How often?	4.0	4.7	3.7	4.0
SD	0	0.6	0.6	0
d	-1.0	+0.8	-2.9	+1.0
size	large	large	large	large
Was it helpful?	3.7	4.0	4.0	4.0
SD	0.6	0	0	0
d	-1.2	-1.0	-5.0	0
size	large	large	medium	none
4. Speaking slowly, simply, and clearly – Treatment (n=3 responses)				
How often?	5.3	5.3	3.7	5.0
SD	0.6	0.6	0.6	0
Was it helpful?	5.0	5.3	4.7	4.0
SD	0	0.6	0.6	0
4. Speaking slowly, simply, and clearly – Post (n=3 responses)				
How often?	6.0	5.0	3.3	4.7
SD	0	0	0.6	0.6
d	+2.3	-1.2	-0.6	-1.2
size	large	large	medium	large
Was it helpful?	4.7	5.0	4.0	4.0
SD	0.6	0	0	1.0
d	-1.2	-1.2	-2.3	0
size	large	large	large	none
5. Encouraging communication and self-corrections – Treatment (n=3 responses)				
How often?	4.3	5.3	5.0	3.7
SD	0.6	0.6	1.7	0.6
Was it helpful?	4.0	3.7	5.3	3.0
SD	1.0	3.2	0.6	0

Table 10 (Cont'd): Communication Skills Diary Results Summary

5. Encouraging communication and self-corrections – Post (n=3 responses)				
How often?	4.3	5.7	5.3	3.3
SD	0.6	0.6	0.6	0.6
d	0	+0.6	+0.3	-0.6
size	none	medium	small	medium
Was it helpful?	4.0	4.7	5.7	3.3
SD	0	0.6	0.6	0.6
d	0	+0.5	+0.6	+1.2
size	none	medium	medium	large
6. Carefully filling in words – Treatment (n=3 responses)				
How often?	4.0	4.0	4.0	4.7
SD	0	0	0	0.6
Was it helpful?	3.7	4.0	4.7	4.7
SD	0.6	0	0.6	0.6
6. Carefully filling in words – Post (n=3 responses)				
How often?	4.0	4.0	4.7	5.0
SD	0	0	0.6	0
d	0	0	+2.3	+1.2
size	none	none	large	large
Was it helpful?	3.7	4.0	4.7	4.7
SD	0.6	0	0.6	0.6
d	0	0	0	0
size	none	none	none	none
7. Using verbal cues – Treatment (n=2 responses)				
How often?	3.5	4.0	4.0	4.5
SD	0.7	0	0	0.7
Was it helpful?	4.0	4.5	4.5	4.5
SD	0	0.7	0.7	0.7
7. Using verbal cues – Post (n=3 responses)				
How often?	4.0	4.3	3.7	4.7
SD	0	0.6	1.2	0.6
d	+1.4	+1.2	-0.6	+0.3
size	large	large	medium	small
Was it helpful?	3.7	4.3	4.0	4.3
SD	0.6	0.6	1.0	0.6
d	-1.2	-0.3	-0.6	-0.3
size	large	small	medium	small

Table 10 (Cont'd): Communication Skills Diary Results Summary

8. Using visual cues – Treatment (n=2 responses)				
How often?	4.0	4.0	3.5	4.5
SD	0	0	0.7	0.7
Was it helpful?	4.0	4.5	4.0	4.5
SD	0	0.7	0	0.7
8. Using visual cues – Post (n=3 responses)				
How often?	3.3	4.0	1.0	4.7
SD	0.6	0	1.7	0.6
d	-2.3	0	-2.0	+0.3
size	large	none	large	small
Was it helpful?	3.0	4.0	2.3	4.7
SD	0	0	2.1	0.6
d	0	-1.4	-1.6	+0.3
size	none	large	large	small
9. Using tactile cues – Treatment (n=2 responses)				
How often?	4.0	4.5	0.5	3.0
SD	0.6	0.7	0.7	0
Was it helpful?	3.5	5.0	0	3.5
SD	0.7	0	N/A	0.7
9. Using tactile cues – Post (n=3 responses)				
How often?	4.7	4.7	0	3.3
SD	0.6	0.6	N/A	0.6
d	+2.3	+0.3	0	+1.2
size	large	small	none	large
Was it helpful?	4.0	4.0	0	3.3
SD	0	0	N/A	0.6
d	+1.4	0	-1.4	-0.3
size	large	none	large	small

At post-intervention, SO/C1 noted a significant increase in her use of *Speaking slowly, simply, and clearly* (d = 2.3; large), *Using verbal cues* (d = 1.4; large), and *Using tactile cues* (d = 2.3; large), but she only noted a significant increase in perceived effectiveness for *Using tactile cues* (d = 1.4; large). SO/C1 also noted a slight increase for *Asking closed-ended questions* in terms of use (d = 0.3; small) and perceived effectiveness (d = 0.2; small). For all remaining communication strategies, SO/C1 noted either a decrease in use and perceived effectiveness, or no change.

At post-intervention, SO/C2 noted a significant increase in his use of *Face to face attention* (d = 2.3; large), *Gesture and speech* (d = 0.8; large), and *Using verbal cues* (d = 2.3; large), but he only noted a slight increase in perceived effectiveness for *Face to face attention* (d = 0.2; small). SO/C2 also noted a moderate increase for *Encouraging communication and self-corrections* in terms of use (d = 0.6; medium) and perceived effectiveness (d = 0.5; medium). SO/C2 also noted a slight increase in his use of *Asking closed-ended questions* (d = 0.3 small) and *Using tactile cues* (d = 0.3; small), but he only noted a significant increase in perceived effectiveness for *Asking closed-ended questions* (d = 1.0; large). For all remaining communication strategies, SO/2 noted either a decrease in use and perceived effectiveness, or no change.

At post-intervention, SO/C3 noted a significant increase in her use of *Carefully filling in words* (d = 2.3; large), but didn't note any change in perceived effectiveness (d = 0). SO/C3 also noted a slight increase in her use of *Encouraging communication and self-corrections* (d = 0.3 small) and a moderate increase in its' perceived effectiveness (d = 0.6; medium). SO/C3 also noted a significant increase in perceived effectiveness for *Asking closed-ended questions* (d = 1.2; large) but no change in her use of this strategy (d = 0). For all remaining communication strategies, SO/3 noted either a decrease in use and perceived effectiveness, or no change.

At post-intervention, SO/C4 noted a significant increase in her use of *Gesture and speech* (d = 1.0; large), *Carefully filling in words* (d = 1.2; large), and *Using tactile* *cues* (d = 1.2; large) but she but didn't note any increases in perceived effectiveness. SO/C4 also noted a slight increase in her use of *Using verbal cues* (d = 0.3; small) and *Using visual cues* (d = 0.3; small), but only a slight increase in perceived effectiveness for *Using visual cues* (d = 0.3; small). SO/C3 also noted a significant increase in perceived effectiveness for *Face to face attention* (d = 2.3; large) and *Encouraging communication and self-corrections* (d = 1.2; large) but no increases in her use of them. For all remaining communication strategies, SO/4 noted either a decrease in use and perceived effectiveness, or no change.

In general, *Face to face attention* and *Speaking slowly, simply, and clearly* were used the most frequently across participants, while the remaining seven skills were varied in their usage. Similarly, perceived helpfulness of all nine communication skills varied across participants, with the greatest variability seen for *Using verbal cues*, *Using visual cues*, and *Using tactile cues*. With the exception of SO/C3's ratings in response to *Using visual cues* and *Using tactile cues*, all SO/Cs rated using all nine communication strategies at least *"Rarely"* and found them to be at least *"Rarely"* helpful. However, it should be noted that these three specific communication skills were introduced in the 3rd workshop session, and therefore were assessed at fewer pre-intervention baseline time points compared to the other communication skills. This could have impacted the accuracy of the baseline data.

Qualitative Analysis

Below is a summary of the qualitative results obtained from Conversation Analysis and the Intervention Evaluation Survey.

Conversation Analysis. In terms of qualitative analysis, sources of communication breakdowns (e.g. lexical retrieval difficulty) and the communication enhancement strategies that SO/Cs used to repair them were identified (Hesketh et al., 2008). Qualitative data was obtained purely for descriptive purposes.

Pre-intervention, SO/C1 demonstrated use of *Face to face attention*, *Asking closed-ended questions*, *Gesture and speech*, and *Encouraging communication and self-corrections*. Post-intervention, SO/C1 used all of these in addition to *Speaking slowly, simply, and clearly*, and *Using tactile cues*. Sources of communication breakdown included PWA1 having semantic paraphasias, lexically empty turns, and agrammatic output. In CA samples at post-intervention, SO/C1 used a noticeably slower rate of speech, and more consistent use of closed-ended questions and encouraging communication. For example, following one communication breakdown in post-intervention samples, SO/C encouraged PWA1 by saying, "*The words are getting better. I'm understanding you and you're understanding me.*" SO/C1 also used a tactile cue on one occasion when talking about an event that happened to PWA1, saying "*you got sparkles all over your shirt*," and touching PWA1's chest.

Pre-intervention, SO/C2 demonstrated use of *Asking closed-ended questions*, *Carefully filling in words*, and *Using verbal cues*. Post-intervention, SO/C2 used all of these in addition to *Using visual cues*. Sources of communication breakdown included PWA2 having lexical retrieval difficulties and phonemic paraphasias. SO/C2 used phonemic cuing at pre-intervention, such as providing the first phoneme to PWA2 when she was having word finding challenges. In CA samples at post-intervention, SO/C2 used a variety of verbal cuing strategies, including providing semantic and topical cues, and pairing these with visual cues, such as pointing to a wooden table and saying “Woody’s.” SO/C2 also appeared to use more wait time in filling in words for PWA2, and waited for her to make eye contact before he attempted to fill in a word.

Pre-intervention, SO/C3 demonstrated use of *Asking closed-ended questions*, *Carefully filling in words*, and *Using verbal cues*. Post-intervention, SO/C3 used *Face to face attention*, *Asking closed-ended questions*, *Gesture and speech*, *Speaking slowly, simply, and clearly*, and *Carefully filling in words*. Sources of communication breakdown included PWA3 having lexical retrieval difficulties, phonemic paraphasias, and agrammatic output. In CA samples at post-intervention, SO/C3 oriented herself to be face to face with PWA3, sitting directly across from her. SO/C3 was also more consistent in adopting a slower rate and encouraging speech, especially when PWA3 was showing signs of reduced affect. During the Transactional samples, SO/C3 would also provide topical cues to the researcher when PWA was demonstrating agrammatical output

Pre-intervention, SO/C4 demonstrated use of *Face to face attention*, *Asking closed-ended questions*, *Speaking slowly, simply, and clearly*, and *Using verbal cues*. Post-intervention, SO/C4 used all of these in addition to *Gesture and speech*, *Carefully filling in words*, and *Using visual cues*. Sources of communication breakdown included PWA4 having agrammatic output, phonemic paraphasias, and apraxic speech errors. In CA samples at post-intervention, SO/C4 attempted multiple cuing strategies, such as providing PWA4 with visual cues in the form of writing down the name of a restaurant they were going to visit later that evening. During one Transactional sample at post-intervention, SO/C4 brought a model airplane to the table for PWA4 to be able to talk about it, and used a closed-ended multiple choice question, "*Is it an F or a P something?*" to support him in speaking the correct model number.

Intervention Evaluation Survey. In general, SO/C responses on the Intervention Evaluation Survey indicated agreement on all statements, with the exception of SO/C1's response on item 6, indicating that she *neither agreed nor disagreed* with the statement. Comments provided by SO/C1, SO/C3, and SO/C4 suggested that they had a positive experience from the intervention, and the suggestions provided by SO/C3 and SO/C4 below item 9 are given particular attention in the Summary and Future Directions. Specific themes taken from participant comments suggest that SO/Cs found that the information they received to be helpful, that relating to other caregivers was valuable on many levels, and that their awareness of their own communication patterns increased.

Please see Table 11 for a summary of results.

Table 11: Intervention Evaluation Survey Results Summary

Item	SO/C1	SO/C2	SO/C3	SO/C4
1. As a whole, I found the Workshops helpful.	Agree	Agree	Agree	Strongly Agree
Comments: ➢ SO/C1: "Meeting the other folks and sharing stories was really helpful" ➢ SO/C3: "A lot of things have changed relative to tools and information regarding aphasia – so learned a lot" ➢ SO/C4: "I particularly found it helpful since there are no caregiver support groups available in my area"				

Table 11 (Cont'd): Intervention Evaluation Survey Results Summary

2. I would recommend these Workshops to someone else.	Agree	Agree	Agree	Agree
Comments: ➢ SO/C1: "The data shared was just as important as the networking with the other participants" ➢ SO/C3: "Talking w/ other caregivers in regards to strategies and experiments was very helpful and re-invigorating"				
3. These Workshops increased my communication success with my family member who has aphasia. In other words, specific communication situations involving this family member and me are more successful as a result of the Workshops.	Agree	Agree	Agree	Strongly Agree
Comments: ➢ SO/C1: "I became more aware of better ways to communicate, although using these strategies wasn't always top of mind. Good stuff though." ➢ SO/C3: "You get into a pattern – so it was good to learn alternative strategies that were then good to come back to or new tools to improve overall." ➢ SO/C4: "The workshop made me more aware of my own communication techniques and how to improve them."				
4. These Workshops increased my knowledge of the disorder aphasia.	Strongly Agree	Strongly Agree	Agree	Agree
Comments: ➢ SO/C1: "I had some knowledge from earlier reading but the info provided and resources did help to advance my knowledge." ➢ SO/C3: "It was interesting to learn how it varies person to person – the uniqueness – and how it impacts so much the same."				
5. These Workshops had a positive impact on how I feel about my role in life as a communication partner of a family member with aphasia. In other words, the experience of attending these Workshops improved my quality of life in areas related to my role as a communication partner.	Strongly Agree	Agree	Agree	Strongly Agree

Table 11 (Cont'd): Intervention Evaluation Survey Results Summary

Comments: ➢ SO/C1: "As much for me as my husband, the need for accurate and meaningful communication is essential to our quality of life!" ➢ SO/C3: "The quality of communication is directly proportionate to the quality of the relationship." ➢ SO/C4: "It was helpful to relate to others in the workshop and compare our problems and/or successes"				
6. These Workshops had an indirect benefit to my family member who has aphasia. In other words, I have observed an improvement to my family member's life as a result of my attending the Workshops and applying the knowledge and skills I've learned.	Neither Agree nor Disagree	Agree	Agree	Agree
Comments: ➢ SO/C1: "I think the interaction was interesting and the meetings were a change of pace, but it's hard to know what the benefit outcomes are." ➢ SO/C3: "Re-focusing on this aspect was good in that we'd become very status quo in how we cope. We re-unified some efforts." ➢ SO/C4: "I have noticed improvement at times, especially if I remember to talk slowly."				
7. The overall content and structure of the Workshops was meaningful, accessible, and suited my learning style as a participant.	Strongly Agree	Agree	Agree	Agree
Comments: ➢ SO/C1: "Flexible time and structured sessions" ➢ SO/C3: "We had a highly engaged group – could have easily overpowered the learning – so over time not sure how dynamic would change – hard to get it all in a short time frame."				
8. I have suggestions for how to improve the Workshops	No	No	Yes	Yes
Comments: ➢ SO/C3: "More directed/guided application of techniques/materials to get more direct feedback – target the focus against specific communication actions." ➢ SO/C4: "Time limit for discussion."				

Chapter 4: Discussion

A summary of results is provided with reference to the four parameters of clinical significance described by Schulz et al. (2002).

Outcome Measures

Outcome Parameter I: Symptomatology. The combination of quantitative and qualitative results indicates that this intervention resulted in several direct benefits to participants, and could have several important implications. The most significant findings are highlighted below.

According to CA results, there were variable findings across the four Dyads. The percentage of turns produced by PWA1, PWA2, and PWA3 increased at post-intervention for *interactional* and *transactional* samples, but decreased for PWA4. This resulted in more equal participation in conversations for Dyad 1, and significantly less equal participation for Dyad 2 in *transactional* samples, and for Dyads 3 and 4 in both samples. It is possible that SO/C2 and SO/C3 were more concerned their communication partner with aphasia taking more turns than with having equal participation.

An increased variety of communication enhancement strategies on the part of SO/Cs was also observed from CA. SO/C1, SO/C3, and SO/C4 displayed significantly increased use of in Enhancement Strategies in both samples, where SO/C2 displayed this in *interactional* samples. Based on qualitative analysis, SO/C1 also demonstrated use of *Speaking slowly, simply, and clearly*, *Asking closed-ended questions*, and

Encouraging communication and self-corrections. It should be noted for Dyad 2 that the missing data from the lack of a third post-intervention baseline video limits the conclusions that can be derived from CA. However, from the two samples that remained, SO/C2 demonstrated the strategies of *Using verbal cues* and *Using visual cues*, in addition to increased wait time, which supported his ability to use *Carefully filling in words* when PWA2 was demonstrating word-finding challenges. SO/C3 demonstrated increased use of *Face to face attention*, *Speaking slowly, simply, and clearly*, and *Encouraging communication and self-corrections*, especially when PWA3 was having challenges. SO/C4 demonstrated use of *Asking closed-ended questions, Using verbal cues, and Using visual cues*.

Dyads 1, 2, and 3 demonstrated significantly fewer Unsuccessful repair turns on the part of the SO/C in *interactional* samples, where SO/C1 and SO/C2 demonstrated slightly fewer Unsuccessful repair turns in *transactional* samples. SO/C4 demonstrated significantly fewer Unsuccessful repair turns in *transactional* samples compared to *interactional* samples, which suggests that SO/C4 was stronger at facilitating story retelling through the communication breakdown repair strategies that she was using.

Based on results of the CETI, SO/C participants indicated an increase in communication success for PWA across most situations. Individual variability was observed in the goals that SO/Cs deem as “most important” pre- and post-intervention, however, improvement in terms of increased communication success was observed for many of these goals and other situations rated on the CETI. Post-intervention ratings suggest significant improvement in personalized goals according to the CETI for PWA1 (situation 3) and PWA2 (situations 4 and 10), and slight (i.e. non significant) improvement for PWA3 (situations 13 and 14) and PWA4 (situation 3 and 5). As noted Chapter 2, increased communication success for these personalized goals are strong indicators of social significance and validity (Sherrat et al., 2011). Furthermore, CETI results suggest significant improvements for PWA1 in situation 5, and for PWA2 in situation 2, 4, 6, 7, 9, 14, 15 and 16. Slight improvements were noted in other situations for all four dyads, however the results are not significant.

Outcome Parameter II: Quality of Life. As these results are descriptive, it is impossible to state whether the intervention resulted in any direct benefits noted on the CarerQoL or QCL. Possible impacts on quality of life are discussed below.

According to the CarerQoL, quality of life was increased for SO/C1 and SO/C4, who indicated reduced relational problems with their care receivers. SO/C1 also indicated decreased symptomatology as a result of reduced problems with her physical health, but increased symptomatology in the area of mental health problems. It is possible that reduced relational problems are related to an increase in communication success. As SO/C3 stated in her comment under item 5 of the Intervention Evaluation Survey, *"The quality of communication is directly proportionate to the quality of the relationship."*

According to the QCL, quality of communication life on average was increased for PWA1, PWA2, and PWA4, and decreased for PWA3, but there were interesting trends in post-intervention agreement with specific statements that could be indicators of increased communication success. For example, PWA1 and PWA2 reported increased agreement with the phrase *I like to talk with people,* while PWA2 and PWA3 reported increased agreement with the phrases *It's easy for me to communicate* and *I keep trying when people don't understand me*. PWA2, PWA3, and PWA4 increased their agreement with the phrase *People include me in conversations*, while PWA2 and PWA4 responded with increased agreement for the phrase *People understand me when I talk*. PWA3 increased agreement with the phrase *I speak for myself* and PWA4 reported increased agreement with the phrases *I like myself*, *I see the funny things in life*, and *In general, my quality of life is good*. PWA1 reported positive agreement with nearly all statements on the QCL on pre- and post-intervention time points, but noted specific increased agreement with the phrase *My role in the family is the same*.

Outcome Parameter III: Social Validity. As these results are also descriptive, it is impossible to state whether the intervention resulted in any direct benefits noted on the Knowledge Aphasia Exam, the Communication Skills Diary, and the Intervention Evaluation Survey. Possible impacts on social validity are discussed below.

Based on the results of the Knowledge of Aphasia Exam, there was not an increase in SO/C knowledge of aphasia. However, according to the Intervention Evaluation Survey, all participants agreed with the statement: *These Workshops increased my knowledge of the disorder aphasia*. It is possible that since the topics assessed on this measure were introduced early in the intervention, participants may have forgotten the information when they were assessed at post-intervention.

Furthermore, items on the Knowledge of Aphasia Exam may need to be revised to provide a more challenging experience for examinees. This could also increase the validity of the tool to make it more accurate measure of social validity.

According to the Communication Skills Diary results, communication skills were in general more frequently used the more they were perceived to be helpful. One possible exception to this rule could be that there are times when perceived effectiveness may be highest at lower frequencies of use, and SO/Cs could find that using certain communication skills sparingly result in marked increases in communication success. Also, there was high variability present across which of the nine strategies each SO/C used and found effective when communicating with their family members with aphasia. This indicates that success with specific communication breakdown repair strategies might be highly dependent on the individual Dyad, and that only certain strategies might be effective for particular PWA. However, given the variable presentations of aphasia, it may be beneficial for SO/Cs to learn as many strategies as they can in hopes that they will eventually apply the ones that result in the most success with their family members with aphasia.

Based on Intervention Evaluation Survey results, agreement on most statements by all SO/Cs, and comments provided by SO/C1, SO/C3, and SO/C4 suggest that participants had a positive experience from the intervention (i.e. SO/C2 did not provide any comments). SO/Cs seemed to value the experiences of attending workshop sessions and participating in discussions, reading material and watching videos independently between workshop sessions, and thinking about and applying the communication skills at home with their family members who have aphasia. Themes taken from participant comments suggested that the intervention increased SO/C awareness of their own communication patterns, but that increased application of the communication strategies in the workshop sessions might have been more facilitative of the learning process.

Summary and Future Directions

Quantitative and qualitative analyses for the parameter of symptomatology suggest that this intervention resulted in increased communication success between dyads by reducing the symptomatology of aphasia for participants. Furthermore, while primarily descriptive in nature, the quality of life and social validity findings also indicate benefits to these parameters as a result of this intervention. However, future research will need to include quantitative and qualitative analyses to assess outcomes pertaining to quality of life and social validity. Finally, it remains unknown whether social significance is impacted by communication partner training, but future studies can assess this parameter by examining the long-term effects of this intervention on the level of care that people with aphasia require.

Future research is needed to refine and improve the structure, content, and curriculum of the communication skills workshop used in this thesis research project. Based on participant comments from the Intervention Evaluation Survey, the workshop curriculum should be delivered in a way that supplements communication skills instruction with coached application of strategies and materials in role-play situations.

Unless people with aphasia participated in the groups, this would require additional resources in the way of facilitators, such as having “actors” to pretend to be persons with aphasia. In large group settings, communication skill “coaches” would also be necessary to provide 1-on-1 support to communication partners while they completed the role-play. Furthermore, while open discussion should continue to be encouraged, sessions should adhere to a timed format to ensure a more structured approach to conducting workshops.

The results of this study contribute to the evidence base that communication partner training is an effective means of facilitating communicative success between people with aphasia and their communication partners. Evaluating the clinical significance of this intervention suggested that there were clinically significant improvements to the lives of all participants. Increasing communication success reduces the symptomatology that people with aphasia experience, and supports their participation in conversational exchanges with significant others and caregivers. Continued collaboration among researchers, clinicians, and those affected by aphasia will be essential in developing and refining the content and structure of these interventions. In order to further establish communication partner training as a clinically significant intervention, it will also be necessary to aim for achieving outcomes that are important to the individual and to society.

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Appendices

Appendix A: *Communicative Effectiveness Index*

Situations rated by the Communicative Effectiveness Index (CETI)

Communication Situation (Standard)

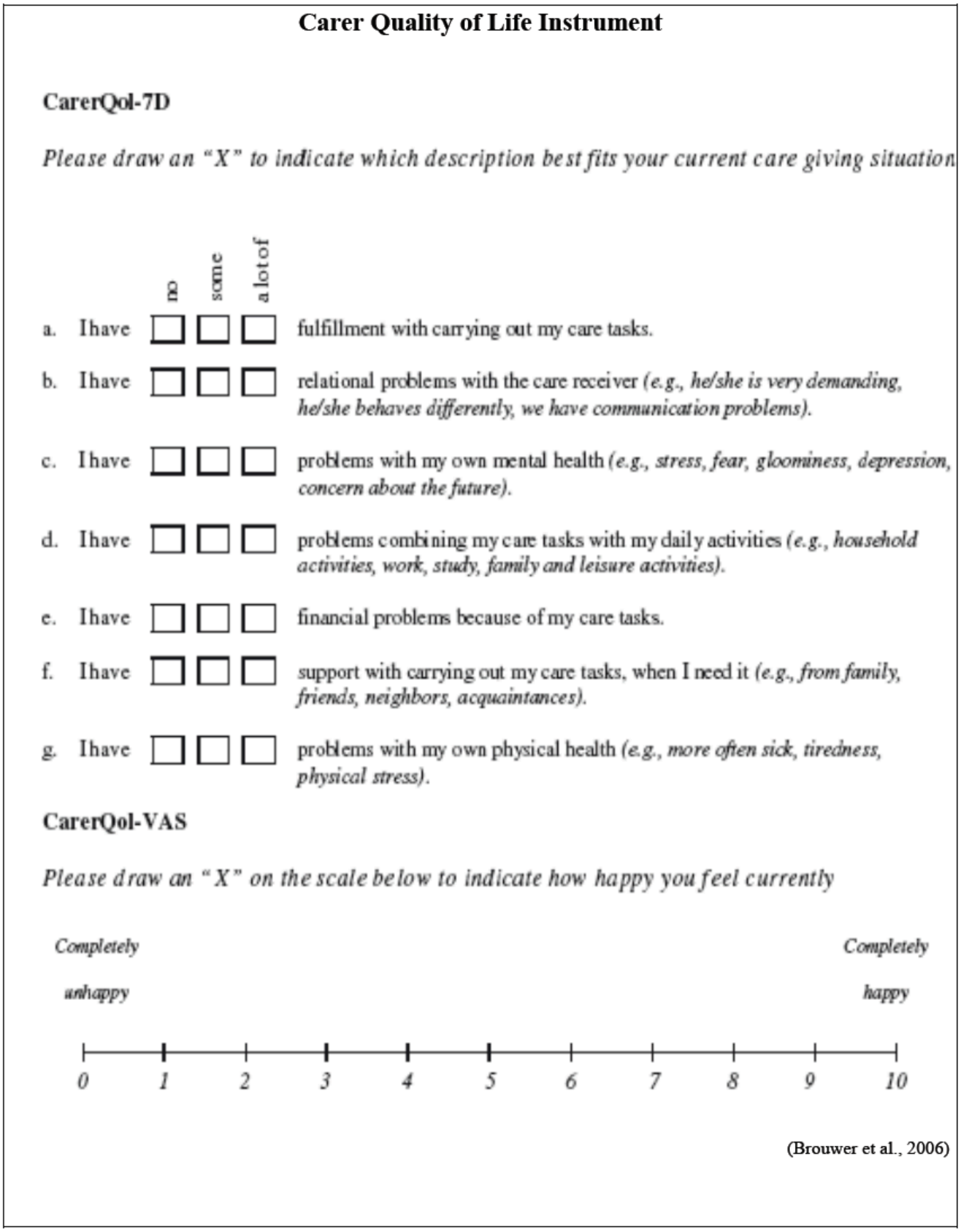
1. Getting someone's attention
2. Getting involved in group conversations about him/her
3. Giving "yes" and " no" answers appropriately
4. Communicating his/her emotions
5. Indicating he/she understands what is being said to him/her
6. Having coffee, time visits and conversations with friends and neighbors
7. Having a one-to-one conversation
8. Saying the name of someone whose face is in front of him/her
9. Communicating physical needs such as aches and pains
10. Having a spontaneous conversation
11. Responding to or communicating anything (including "yes" or "no") without words
12. Starting a conversation with people who are not close family
13. Understanding writing
14. Being a part of a conversation when it is fast and there are a number of people involved
15. Participating in a conversation with strangers
16. Describing or discussing something at length

Communication Situation (Personalized)

17. ______________________________
18. ______________________________
19. ______________________________
20. ______________________________
21. ______________________________

(Lomas et al., 1989)

Appendix B: *Care-Related Quality of Life Instrument*



Carer Quality of Life Instrument

CarerQol-7D

Please draw an "X" to indicate which description best fits your current care giving situation

		no	some	a lot of	
a.	I have	☐	☐	☐	fulfillment with carrying out my care tasks.
b.	I have	☐	☐	☐	relational problems with the care receiver *(e.g., he/she is very demanding, he/she behaves differently, we have communication problems).*
c.	I have	☐	☐	☐	problems with my own mental health *(e.g., stress, fear, gloominess, depression, concern about the future).*
d.	I have	☐	☐	☐	problems combining my care tasks with my daily activities *(e.g., household activities, work, study, family and leisure activities).*
e.	I have	☐	☐	☐	financial problems because of my care tasks.
f.	I have	☐	☐	☐	support with carrying out my care tasks, when I need it *(e.g., from family, friends, neighbors, acquaintances).*
g.	I have	☐	☐	☐	problems with my own physical health *(e.g., more often sick, tiredness, physical stress).*

CarerQol-VAS

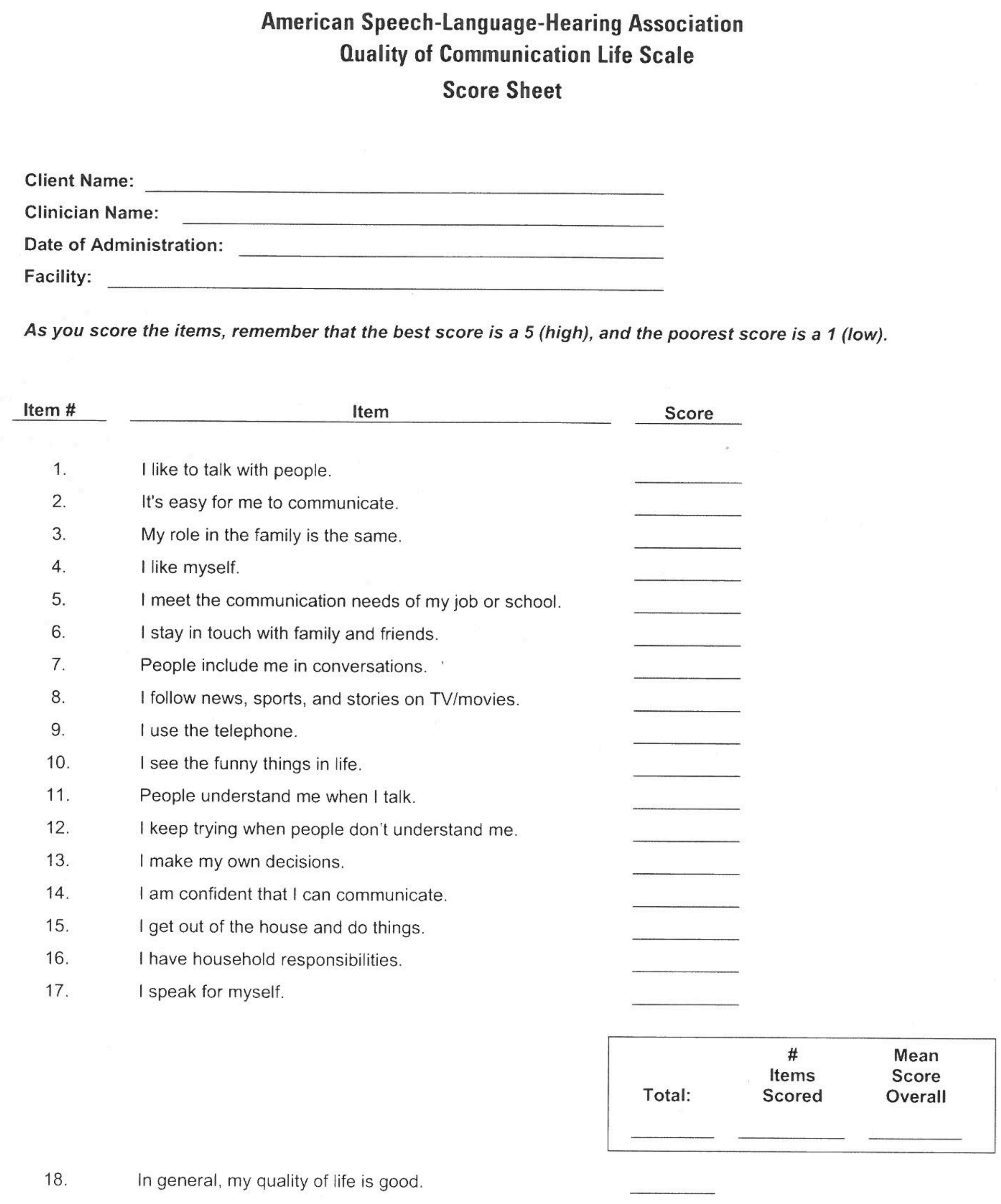
Please draw an "X" on the scale below to indicate how happy you feel currently

Completely unhappy — *Completely happy*

0 1 2 3 4 5 6 7 8 9 10

(Brouwer et al., 2006)

Appendix C: *Quality of Communication Life Scale*



American Speech-Language-Hearing Association
Quality of Communication Life Scale
Score Sheet

Client Name: ____________________

Clinician Name: ____________________

Date of Administration: ____________________

Facility: ____________________

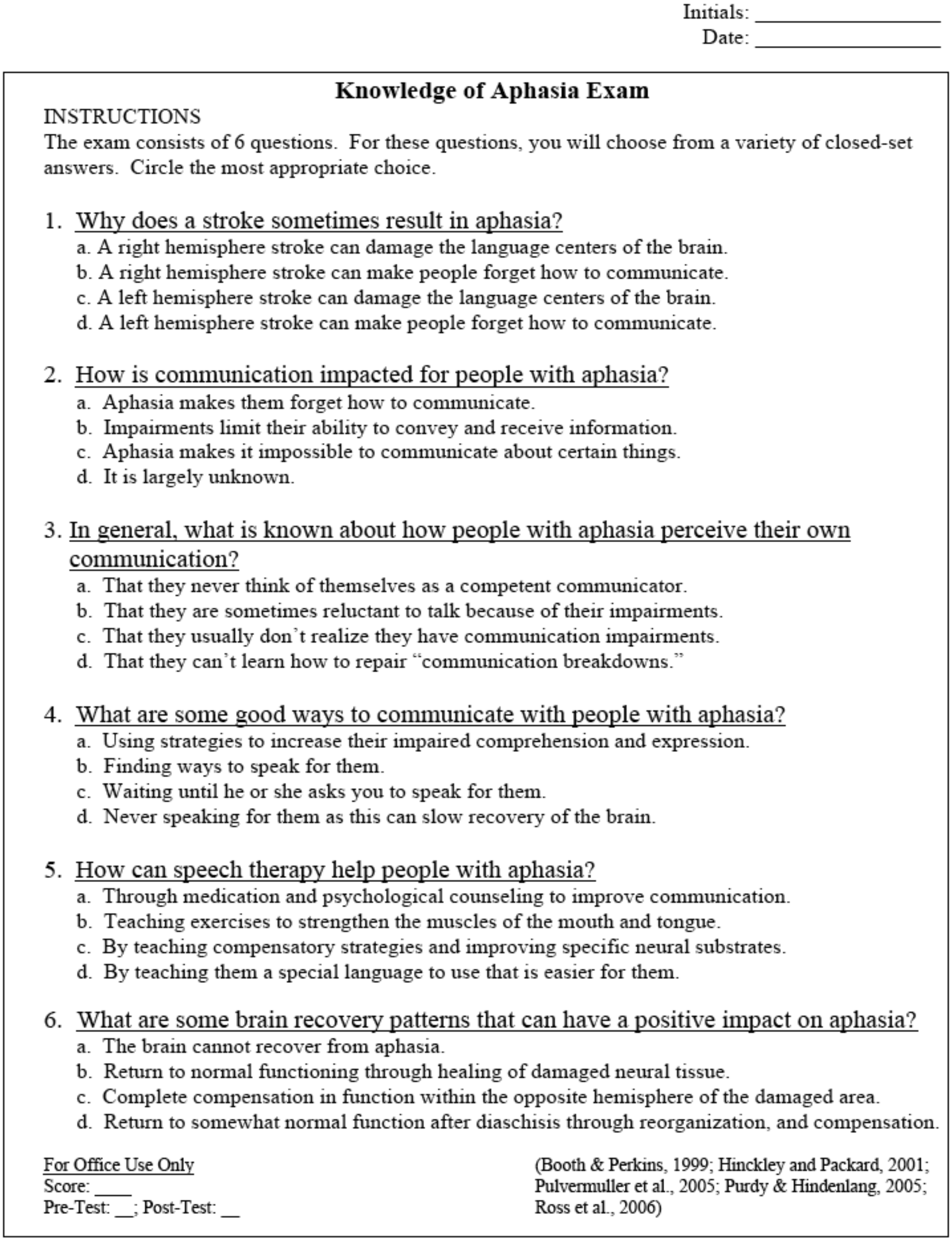
As you score the items, remember that the best score is a 5 (high), and the poorest score is a 1 (low).

Item #	Item	Score
1.	I like to talk with people.	______
2.	It's easy for me to communicate.	______
3.	My role in the family is the same.	______
4.	I like myself.	______
5.	I meet the communication needs of my job or school.	______
6.	I stay in touch with family and friends.	______
7.	People include me in conversations.	______
8.	I follow news, sports, and stories on TV/movies.	______
9.	I use the telephone.	______
10.	I see the funny things in life.	______
11.	People understand me when I talk.	______
12.	I keep trying when people don't understand me.	______
13.	I make my own decisions.	______
14.	I am confident that I can communicate.	______
15.	I get out of the house and do things.	______
16.	I have household responsibilities.	______
17.	I speak for myself.	______

Total:	# Items Scored	Mean Score Overall
______	______	______

18.	In general, my quality of life is good.	______

Appendix D: *Knowledge of Aphasia Exam (1 of 2)*



Initials: ________________
Date: ________________

Knowledge of Aphasia Exam

INSTRUCTIONS

The exam consists of 6 questions. For these questions, you will choose from a variety of closed-set answers. Circle the most appropriate choice.

1. Why does a stroke sometimes result in aphasia?
   - a. A right hemisphere stroke can damage the language centers of the brain.
   - b. A right hemisphere stroke can make people forget how to communicate.
   - c. A left hemisphere stroke can damage the language centers of the brain.
   - d. A left hemisphere stroke can make people forget how to communicate.

2. How is communication impacted for people with aphasia?
   - a. Aphasia makes them forget how to communicate.
   - b. Impairments limit their ability to convey and receive information.
   - c. Aphasia makes it impossible to communicate about certain things.
   - d. It is largely unknown.

3. In general, what is known about how people with aphasia perceive their own communication?
   - a. That they never think of themselves as a competent communicator.
   - b. That they are sometimes reluctant to talk because of their impairments.
   - c. That they usually don't realize they have communication impairments.
   - d. That they can't learn how to repair "communication breakdowns."

4. What are some good ways to communicate with people with aphasia?
   - a. Using strategies to increase their impaired comprehension and expression.
   - b. Finding ways to speak for them.
   - c. Waiting until he or she asks you to speak for them.
   - d. Never speaking for them as this can slow recovery of the brain.

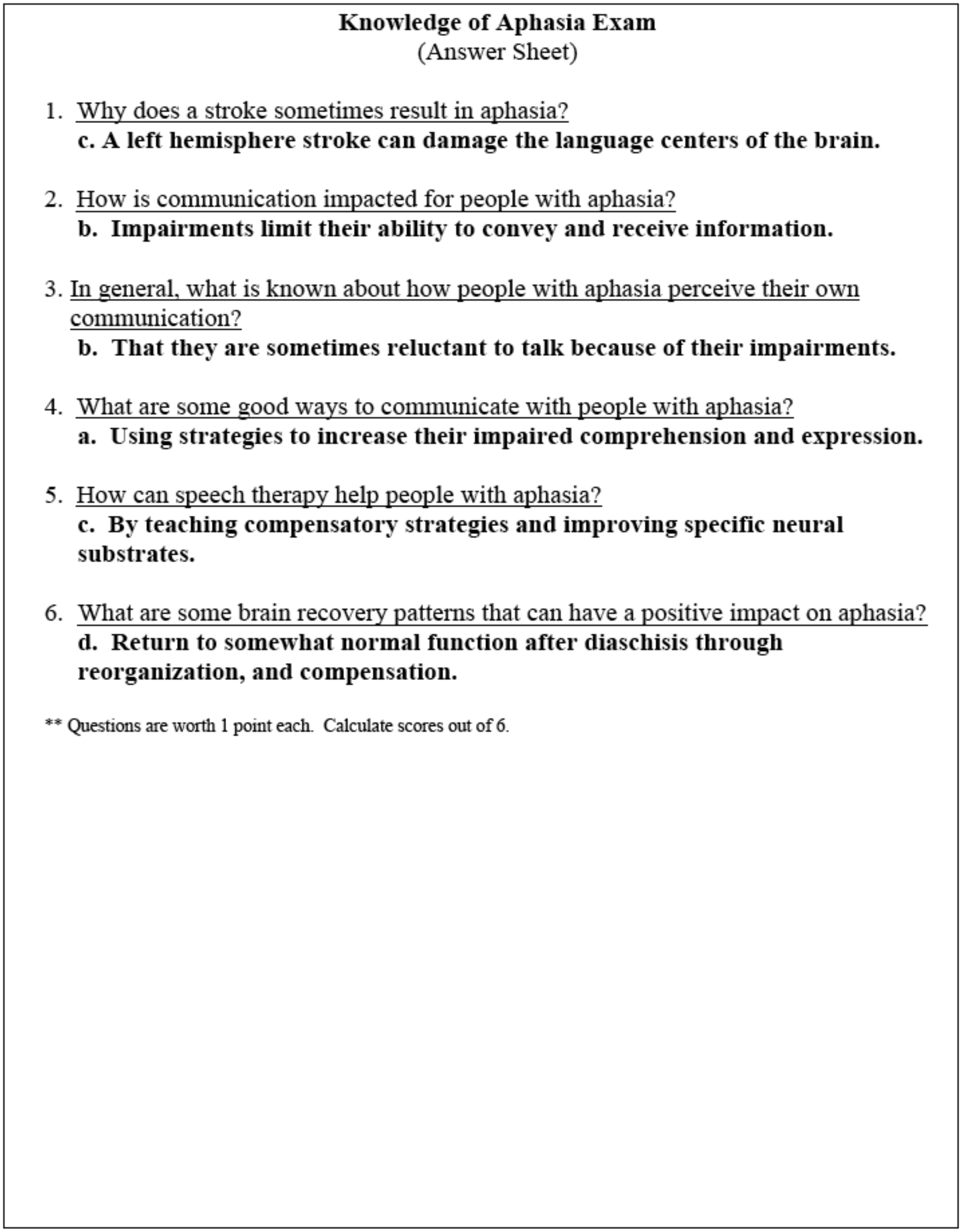
5. How can speech therapy help people with aphasia?
   - a. Through medication and psychological counseling to improve communication.
   - b. Teaching exercises to strengthen the muscles of the mouth and tongue.
   - c. By teaching compensatory strategies and improving specific neural substrates.
   - d. By teaching them a special language to use that is easier for them.

6. What are some brain recovery patterns that can have a positive impact on aphasia?
   - a. The brain cannot recover from aphasia.
   - b. Return to normal functioning through healing of damaged neural tissue.
   - c. Complete compensation in function within the opposite hemisphere of the damaged area.
   - d. Return to somewhat normal function after diaschisis through reorganization, and compensation.

For Office Use Only
Score: ____
Pre-Test: __; Post-Test: __

(Booth & Perkins, 1999; Hinckley and Packard, 2001; Pulvermuller et al., 2005; Purdy & Hindenlang, 2005; Ross et al., 2006)

Appendix D: *Knowledge of Aphasia Exam (2 of 2)*



Knowledge of Aphasia Exam

(Answer Sheet)

1. Why does a stroke sometimes result in aphasia?
   c. A left hemisphere stroke can damage the language centers of the brain.

2. How is communication impacted for people with aphasia?
   b. Impairments limit their ability to convey and receive information.

3. In general, what is known about how people with aphasia perceive their own communication?
   b. That they are sometimes reluctant to talk because of their impairments.

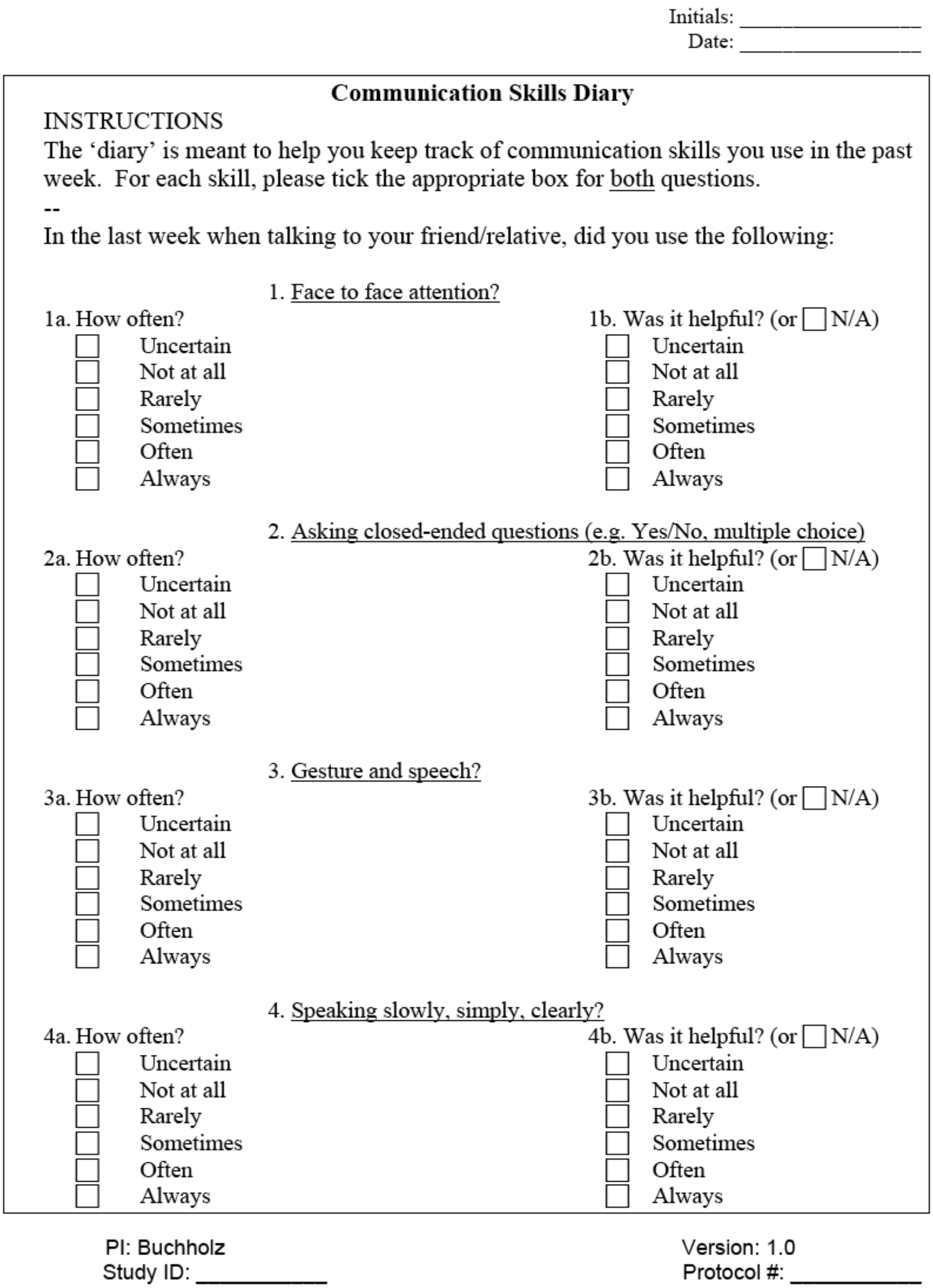
4. What are some good ways to communicate with people with aphasia?
   a. Using strategies to increase their impaired comprehension and expression.

5. How can speech therapy help people with aphasia?
   c. By teaching compensatory strategies and improving specific neural substrates.

6. What are some brain recovery patterns that can have a positive impact on aphasia?
   d. Return to somewhat normal function after diaschisis through reorganization, and compensation.

** Questions are worth 1 point each. Calculate scores out of 6.

Appendix E: ***Communication Skills Diary (1 of 3)***



Initials: ________________
Date: ________________

Communication Skills Diary

INSTRUCTIONS

The 'diary' is meant to help you keep track of communication skills you use in the past week. For each skill, please tick the appropriate box for both questions.

--

In the last week when talking to your friend/relative, did you use the following:

1. Face to face attention?

1a. How often?
- ☐ Uncertain
- ☐ Not at all
- ☐ Rarely
- ☐ Sometimes
- ☐ Often
- ☐ Always

1b. Was it helpful? (or ☐ N/A)
- ☐ Uncertain
- ☐ Not at all
- ☐ Rarely
- ☐ Sometimes
- ☐ Often
- ☐ Always

2. Asking closed-ended questions (e.g. Yes/No, multiple choice)

2a. How often?
- ☐ Uncertain
- ☐ Not at all
- ☐ Rarely
- ☐ Sometimes
- ☐ Often
- ☐ Always

2b. Was it helpful? (or ☐ N/A)
- ☐ Uncertain
- ☐ Not at all
- ☐ Rarely
- ☐ Sometimes
- ☐ Often
- ☐ Always

3. Gesture and speech?

3a. How often?
- ☐ Uncertain
- ☐ Not at all
- ☐ Rarely
- ☐ Sometimes
- ☐ Often
- ☐ Always

3b. Was it helpful? (or ☐ N/A)
- ☐ Uncertain
- ☐ Not at all
- ☐ Rarely
- ☐ Sometimes
- ☐ Often
- ☐ Always

4. Speaking slowly, simply, clearly?

4a. How often?
- ☐ Uncertain
- ☐ Not at all
- ☐ Rarely
- ☐ Sometimes
- ☐ Often
- ☐ Always

4b. Was it helpful? (or ☐ N/A)
- ☐ Uncertain
- ☐ Not at all
- ☐ Rarely
- ☐ Sometimes
- ☐ Often
- ☐ Always

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Study ID: ___________

Version: 1.0
Protocol #: ___________

Appendix E: ***Communication Skills Diary (2 of 3)***

Initials: ________________
Date: ________________

Communication Skills Diary

5. Encouraging communication and self corrections?

5a. How often?	5b. Was it helpful? (or ☐ N/A)
☐ Uncertain	☐ Uncertain
☐ Not at all	☐ Not at all
☐ Rarely	☐ Rarely
☐ Sometimes	☐ Sometimes
☐ Often	☐ Often
☐ Always	☐ Always

6. Carefully fill in words?

6a. How often?	6b. Was it helpful? (or ☐ N/A)
☐ Uncertain	☐ Uncertain
☐ Not at all	☐ Not at all
☐ Rarely	☐ Rarely
☐ Sometimes	☐ Sometimes
☐ Often	☐ Often
☐ Always	☐ Always

7. Using a verbal cue?

7a. How often?	7b. Was it helpful? (or ☐ N/A)
☐ Uncertain	☐ Uncertain
☐ Not at all	☐ Not at all
☐ Rarely	☐ Rarely
☐ Sometimes	☐ Sometimes
☐ Often	☐ Often
☐ Always	☐ Always

8. Using a visual cue?

8a. How often?	8b. Was it helpful? (or ☐ N/A)
☐ Uncertain	☐ Uncertain
☐ Not at all	☐ Not at all
☐ Rarely	☐ Rarely
☐ Sometimes	☐ Sometimes
☐ Often	☐ Often
☐ Always	☐ Always

Appendix E: ***Communication Skills Diary (3 of 3)***

Initials: ________________
Date: ________________

Communication Skills Diary

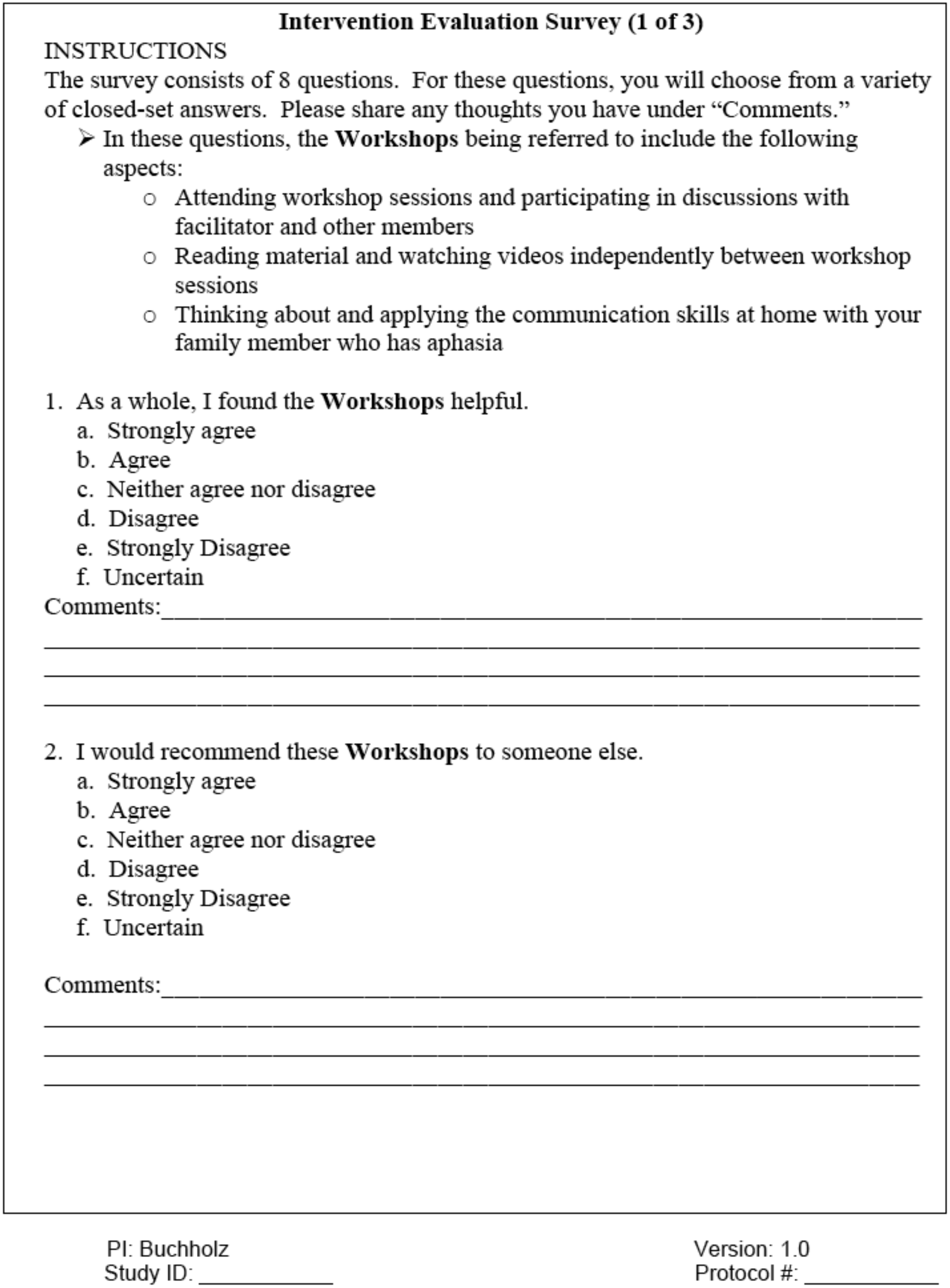
9. Using a tactile cue?

9a. How often?	9b. Was it helpful? (or ☐ N/A)
☐ Uncertain	☐ Uncertain
☐ Not at all	☐ Not at all
☐ Rarely	☐ Rarely
☐ Sometimes	☐ Sometimes
☐ Often	☐ Often
☐ Always	☐ Always

Comments:____
____
____
____
____
____

(Draper et al., 2007)

Appendix F: ***Intervention Evaluation Survey (1 of 3)***



Intervention Evaluation Survey (1 of 3)

INSTRUCTIONS

The survey consists of 8 questions. For these questions, you will choose from a variety of closed-set answers. Please share any thoughts you have under "Comments."

- In these questions, the **Workshops** being referred to include the following aspects:
  - Attending workshop sessions and participating in discussions with facilitator and other members
  - Reading material and watching videos independently between workshop sessions
  - Thinking about and applying the communication skills at home with your family member who has aphasia

1. As a whole, I found the **Workshops** helpful.
   a. Strongly agree
   b. Agree
   c. Neither agree nor disagree
   d. Disagree
   e. Strongly Disagree
   f. Uncertain

Comments:____
____
____
____

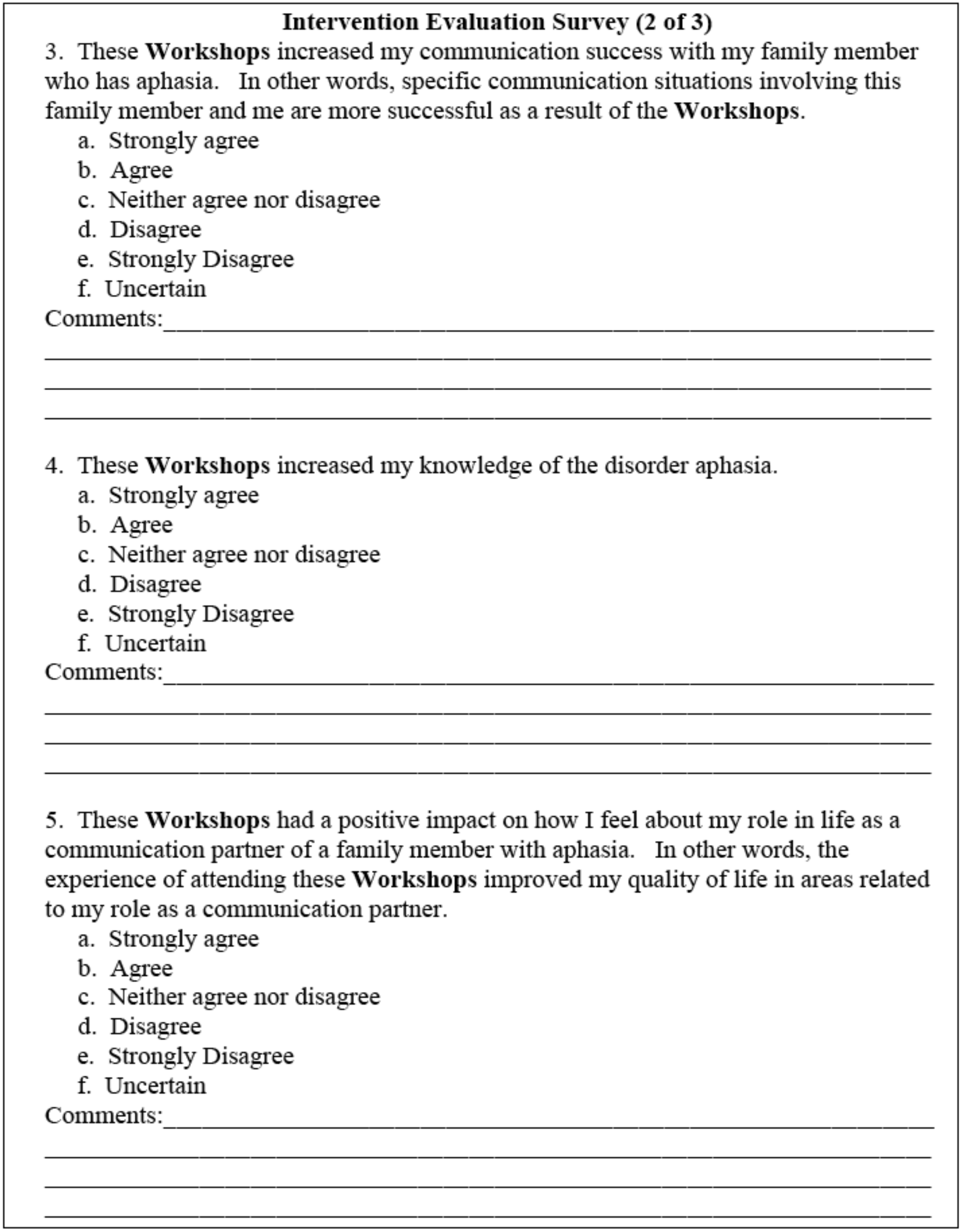
2. I would recommend these **Workshops** to someone else.
   a. Strongly agree
   b. Agree
   c. Neither agree nor disagree
   d. Disagree
   e. Strongly Disagree
   f. Uncertain

Comments:____
____
____
____

PI: Buchholz
Study ID: ___________

Version: 1.0
Protocol #: ___________

Appendix F: ***Intervention Evaluation Survey (2 of 3)***



Intervention Evaluation Survey (2 of 3)

3. These **Workshops** increased my communication success with my family member who has aphasia. In other words, specific communication situations involving this family member and me are more successful as a result of the **Workshops**.
   a. Strongly agree
   b. Agree
   c. Neither agree nor disagree
   d. Disagree
   e. Strongly Disagree
   f. Uncertain

Comments:____
____
____
____

4. These **Workshops** increased my knowledge of the disorder aphasia.
   a. Strongly agree
   b. Agree
   c. Neither agree nor disagree
   d. Disagree
   e. Strongly Disagree
   f. Uncertain

Comments:____
____
____
____

5. These **Workshops** had a positive impact on how I feel about my role in life as a communication partner of a family member with aphasia. In other words, the experience of attending these **Workshops** improved my quality of life in areas related to my role as a communication partner.
   a. Strongly agree
   b. Agree
   c. Neither agree nor disagree
   d. Disagree
   e. Strongly Disagree
   f. Uncertain

Comments:____
____
____
____

PI: Buchholz
Study ID: ___________

Version: 1.0
Protocol #: ___________

Appendix F: ***Intervention Evaluation Survey (3 of 3)***

Intervention Evaluation Survey (3 of 3)

6. These **Workshops** had an indirect benefit to my family member who has aphasia. In other words, I have observed an improvement to my family member's life as a result of my attending the **Workshops** and applying the knowledge and skills I've learned.
   a. Strongly agree
   b. Agree
   c. Neither agree nor disagree
   d. Disagree
   e. Strongly Disagree
   f. Uncertain

Comments:____
____
____
____

7. The overall content and structure of the **Workshops** was meaningful, accessible, and suited my learning style as a participant.
   a. Strongly agree
   b. Agree
   c. Neither agree nor disagree
   d. Disagree
   e. Strongly Disagree
   f. Uncertain

Comments:____
____
____
____

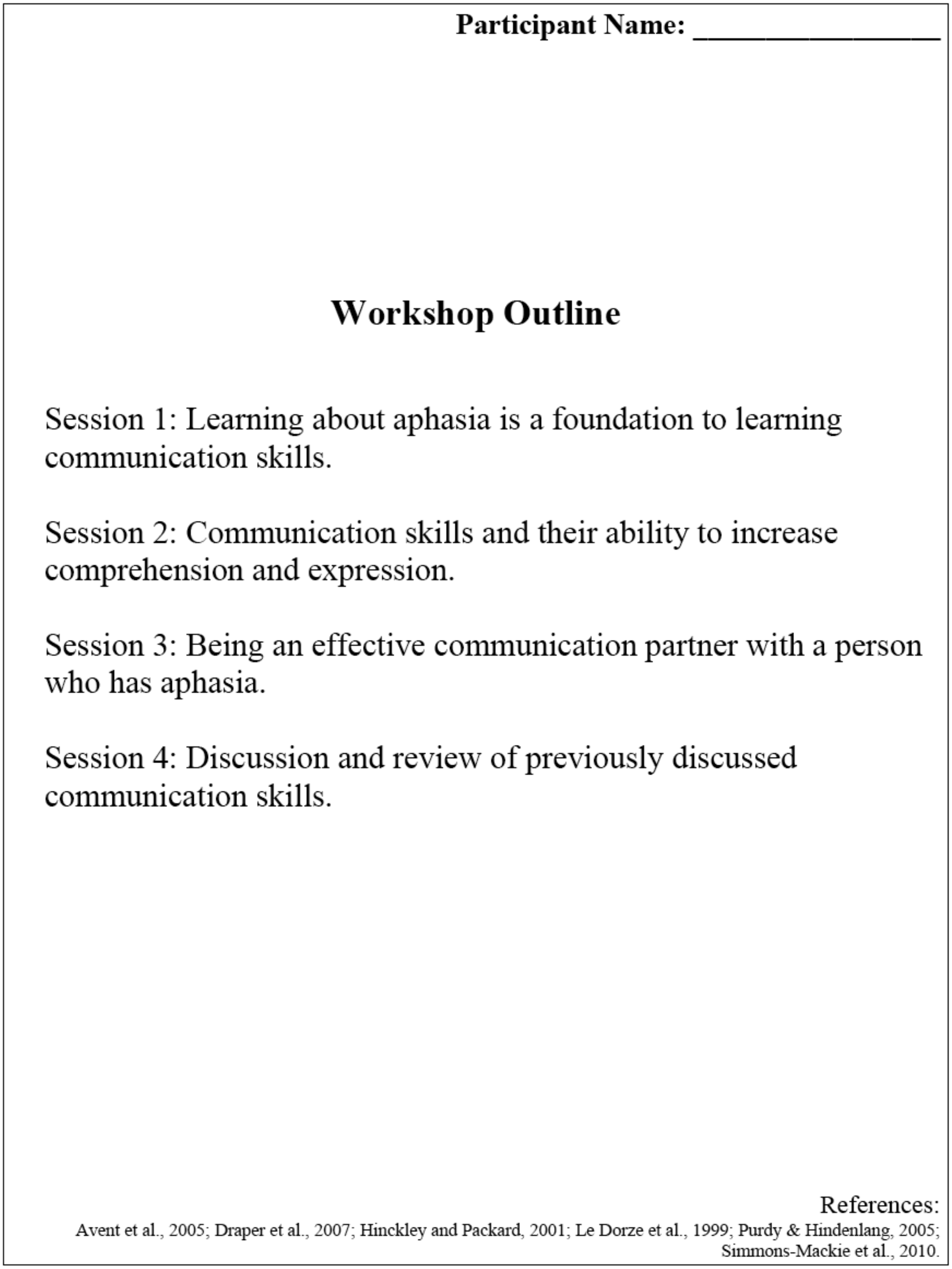
8. I have suggestions for how to improve the **Workshops**
   a. Yes *
   b. No

* If Yes, please explain: ____
____
____

Comments:____
____
____
____

(Schulz et al., 2002)

Appendix G: ***Proposed Workshop Outline (1 of 5)***



Participant Name: ________________

Workshop Outline

Session 1: Learning about aphasia is a foundation to learning communication skills.

Session 2: Communication skills and their ability to increase comprehension and expression.

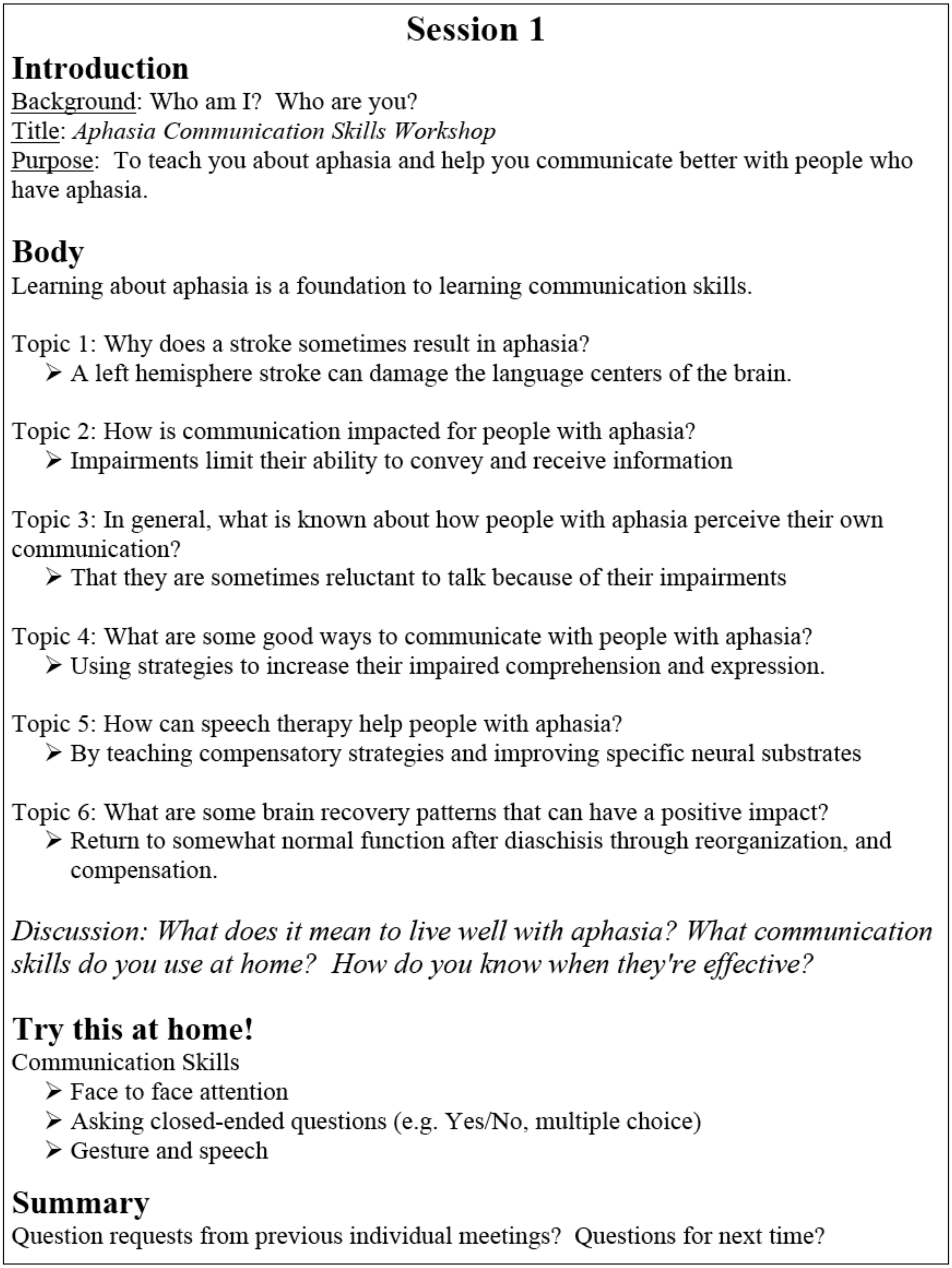
Session 3: Being an effective communication partner with a person who has aphasia.

Session 4: Discussion and review of previously discussed communication skills.

References:
Avent et al., 2005; Draper et al., 2007; Hinckley and Packard, 2001; Le Dorze et al., 1999; Purdy & Hindenlang, 2005; Simmons-Mackie et al., 2010.

(Buchholz, 2013)

Appendix G: ***Proposed Workshop Outline (2 of 5)***



Session 1

Introduction

Background: Who am I? Who are you?
Title: *Aphasia Communication Skills Workshop*
Purpose: To teach you about aphasia and help you communicate better with people who have aphasia.

Body

Learning about aphasia is a foundation to learning communication skills.

Topic 1: Why does a stroke sometimes result in aphasia?

- ➢ A left hemisphere stroke can damage the language centers of the brain.

Topic 2: How is communication impacted for people with aphasia?

- ➢ Impairments limit their ability to convey and receive information

Topic 3: In general, what is known about how people with aphasia perceive their own communication?

- ➢ That they are sometimes reluctant to talk because of their impairments

Topic 4: What are some good ways to communicate with people with aphasia?

- ➢ Using strategies to increase their impaired comprehension and expression.

Topic 5: How can speech therapy help people with aphasia?

- ➢ By teaching compensatory strategies and improving specific neural substrates

Topic 6: What are some brain recovery patterns that can have a positive impact?

- ➢ Return to somewhat normal function after diaschisis through reorganization, and compensation.

Discussion: What does it mean to live well with aphasia? What communication skills do you use at home? How do you know when they're effective?

Try this at home!

Communication Skills

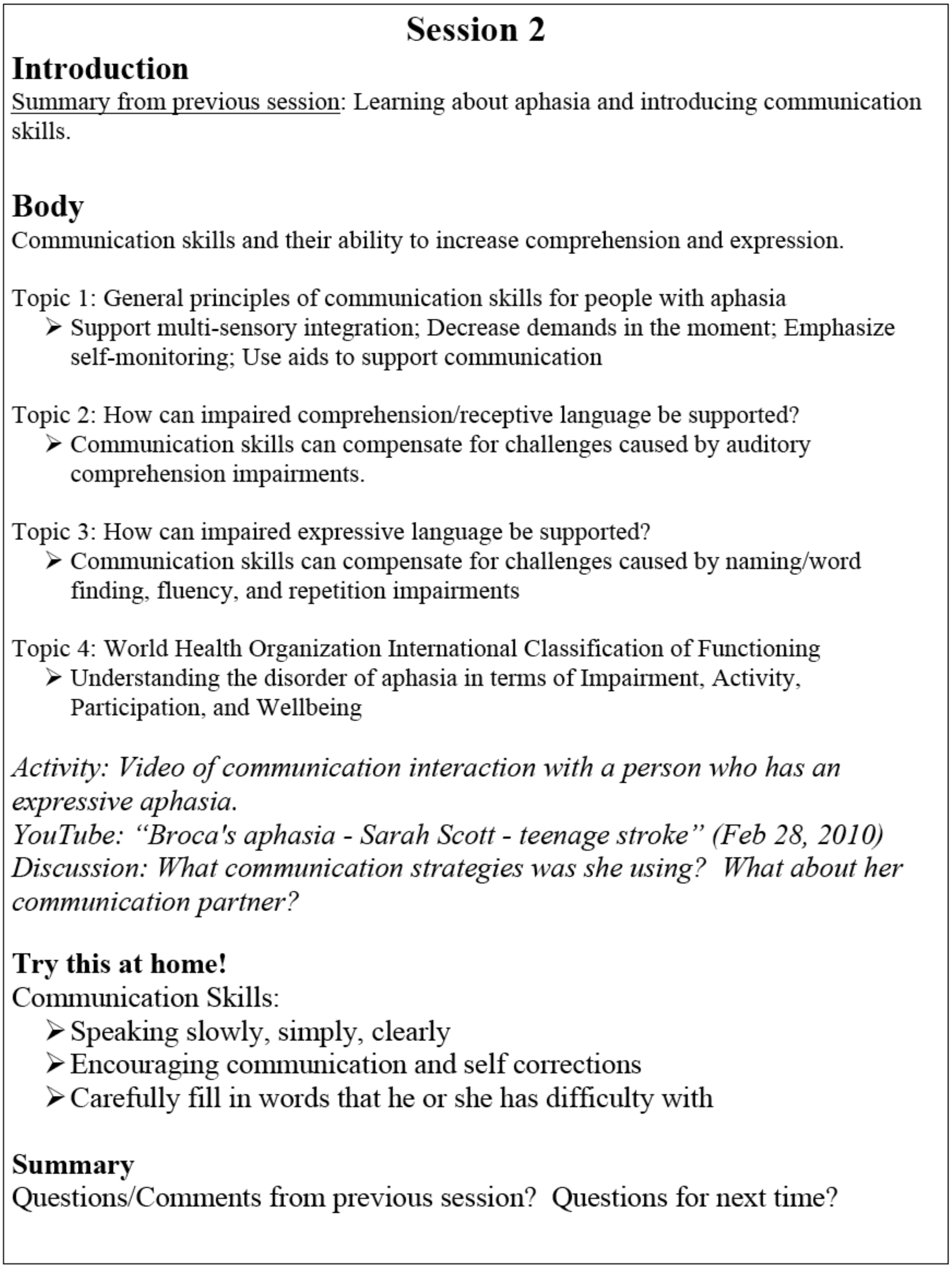
- ➢ Face to face attention
- ➢ Asking closed-ended questions (e.g. Yes/No, multiple choice)
- ➢ Gesture and speech

Summary

Question requests from previous individual meetings? Questions for next time?

(Buchholz, 2013)

Appendix G: ***Proposed Workshop Outline (3 of 5)***



Session 2

Introduction

Summary from previous session: Learning about aphasia and introducing communication skills.

Body

Communication skills and their ability to increase comprehension and expression.

Topic 1: General principles of communication skills for people with aphasia
- Support multi-sensory integration; Decrease demands in the moment; Emphasize self-monitoring; Use aids to support communication

Topic 2: How can impaired comprehension/receptive language be supported?
- Communication skills can compensate for challenges caused by auditory comprehension impairments.

Topic 3: How can impaired expressive language be supported?
- Communication skills can compensate for challenges caused by naming/word finding, fluency, and repetition impairments

Topic 4: World Health Organization International Classification of Functioning
- Understanding the disorder of aphasia in terms of Impairment, Activity, Participation, and Wellbeing

Activity: Video of communication interaction with a person who has an expressive aphasia.
YouTube: "Broca's aphasia - Sarah Scott - teenage stroke" (Feb 28, 2010)
Discussion: What communication strategies was she using? What about her communication partner?

Try this at home!

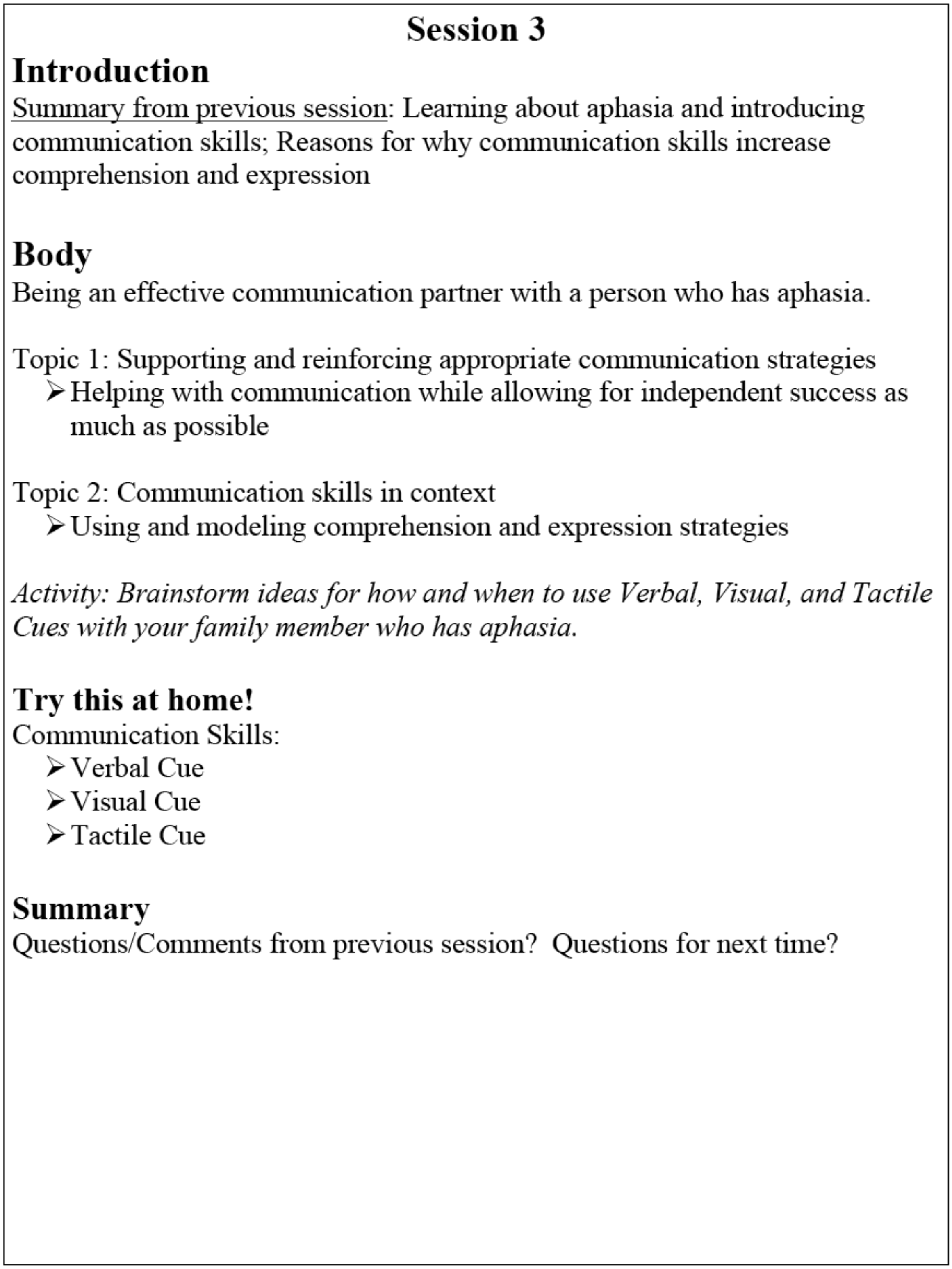
Communication Skills:
- Speaking slowly, simply, clearly
- Encouraging communication and self corrections
- Carefully fill in words that he or she has difficulty with

Summary

Questions/Comments from previous session? Questions for next time?

(Buchholz, 2013)

Appendix G: ***Proposed Workshop Outline (4 of 5)***



Session 3

Introduction

<u>Summary from previous session</u>: Learning about aphasia and introducing communication skills; Reasons for why communication skills increase comprehension and expression

Body

Being an effective communication partner with a person who has aphasia.

Topic 1: Supporting and reinforcing appropriate communication strategies

- Helping with communication while allowing for independent success as much as possible

Topic 2: Communication skills in context

- Using and modeling comprehension and expression strategies

Activity: Brainstorm ideas for how and when to use Verbal, Visual, and Tactile Cues with your family member who has aphasia.

Try this at home!

Communication Skills:

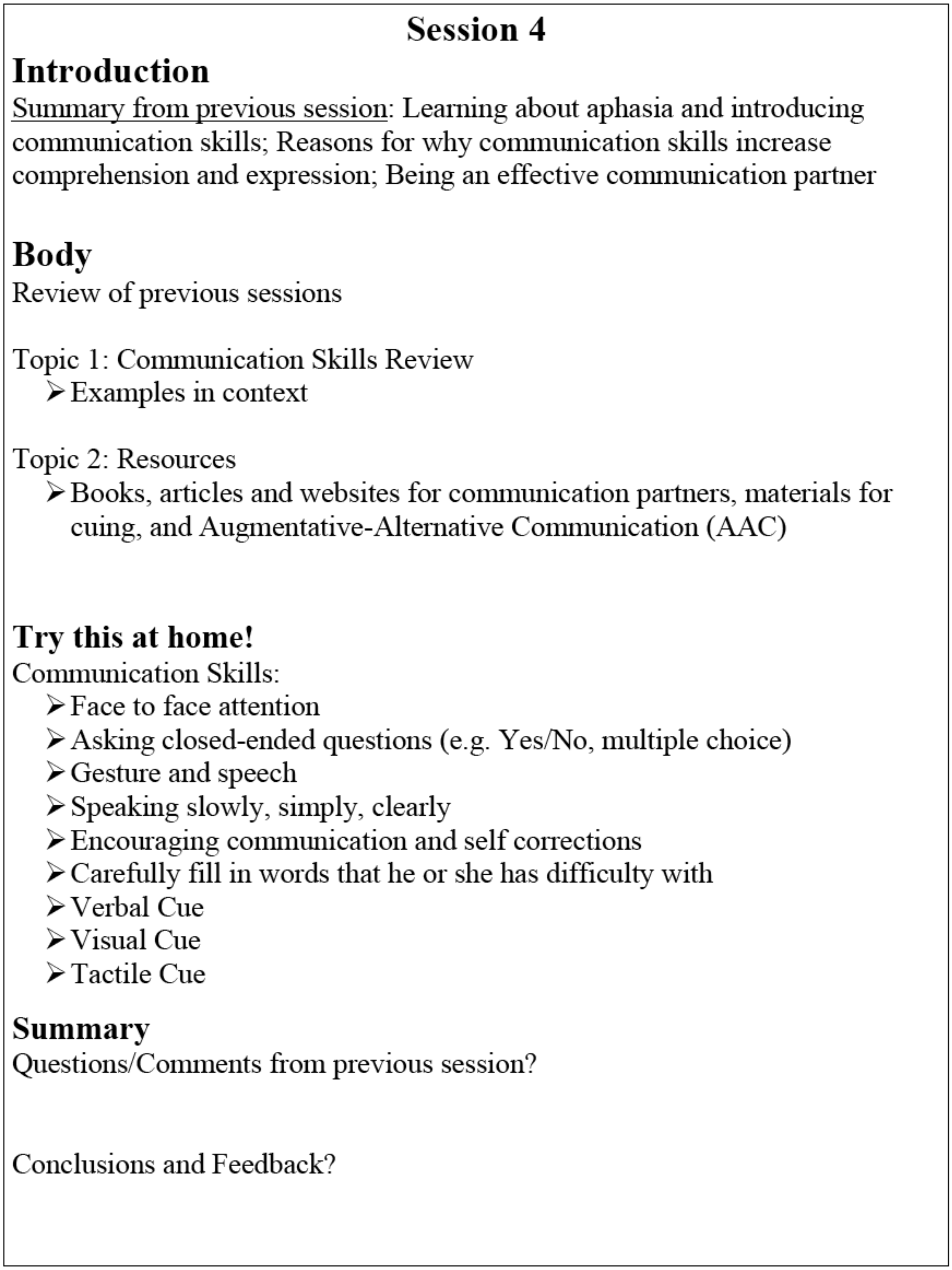
- Verbal Cue
- Visual Cue
- Tactile Cue

Summary

Questions/Comments from previous session? Questions for next time?

(Buchholz, 2013)

Appendix G: *Proposed Workshop Outline (5 of 5)*



Session 4

Introduction

<u>Summary from previous session</u>: Learning about aphasia and introducing communication skills; Reasons for why communication skills increase comprehension and expression; Being an effective communication partner

Body

Review of previous sessions

Topic 1: Communication Skills Review
- Examples in context

Topic 2: Resources
- Books, articles and websites for communication partners, materials for cuing, and Augmentative-Alternative Communication (AAC)

Try this at home!

Communication Skills:
- Face to face attention
- Asking closed-ended questions (e.g. Yes/No, multiple choice)
- Gesture and speech
- Speaking slowly, simply, clearly
- Encouraging communication and self corrections
- Carefully fill in words that he or she has difficulty with
- Verbal Cue
- Visual Cue
- Tactile Cue

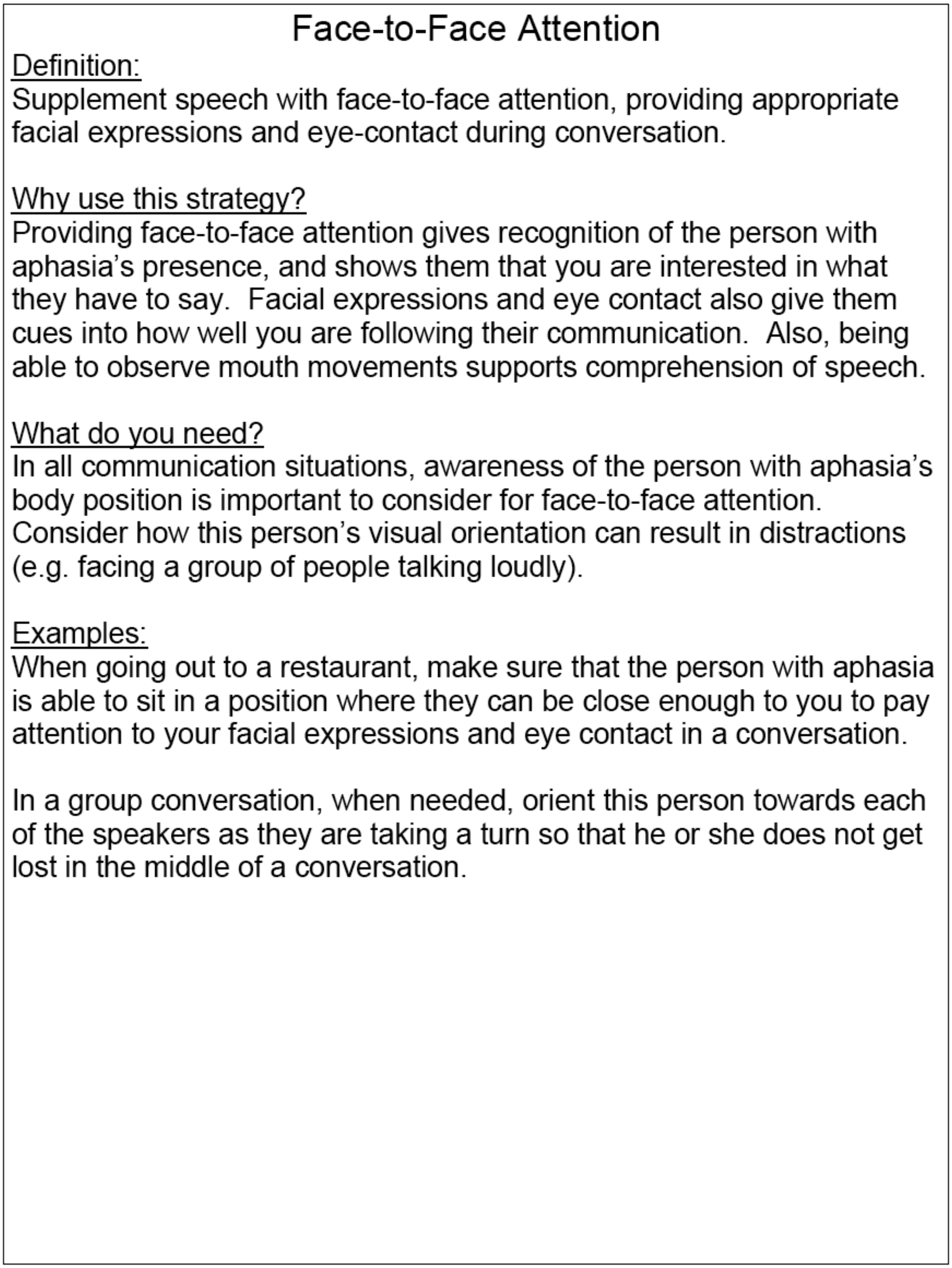
Summary

Questions/Comments from previous session?

Conclusions and Feedback?

(Buchholz, 2013)

Appendix H: ***Communication Enhancement Strategies Handouts (1 of 10)***



Face-to-Face Attention

Definition:

Supplement speech with face-to-face attention, providing appropriate facial expressions and eye-contact during conversation.

Why use this strategy?

Providing face-to-face attention gives recognition of the person with aphasia's presence, and shows them that you are interested in what they have to say. Facial expressions and eye contact also give them cues into how well you are following their communication. Also, being able to observe mouth movements supports comprehension of speech.

What do you need?

In all communication situations, awareness of the person with aphasia's body position is important to consider for face-to-face attention. Consider how this person's visual orientation can result in distractions (e.g. facing a group of people talking loudly).

Examples:

When going out to a restaurant, make sure that the person with aphasia is able to sit in a position where they can be close enough to you to pay attention to your facial expressions and eye contact in a conversation.

In a group conversation, when needed, orient this person towards each of the speakers as they are taking a turn so that he or she does not get lost in the middle of a conversation.

(Buchholz, 2013)

Appendix H: ***Communication Enhancement Strategies Handouts (2 of 10)***

Asking closed-ended questions (e.g. Yes/No, multiple choice)

Definition:

Forming questions to specify and simplify how they can be answered. Closed questions include Yes/No and multiple-choice questions that can be answered with a set of options. Open-ended questions usually begin with a wh-question word (e.g. who, what, where, etc.) and can be answered with simple or complex responses.

Why use this strategy?

In general, it is easier to answer closed-ended questions (e.g. Are you ready to go?) than open-ended ones (e.g. Where do you want to go?).

What do you need?

Patience! Retrieving information when relying primarily on closed-ended questions can often take more time than using open-ended questions. Consider planning for situations when you might need to retrieve information from the person with aphasia.

Examples:

In a conversation about choosing daily activities with the person with aphasia, provide alternative options in a question format (e.g. "Would you rather watch a movie, go out for coffee, or something else?").

Narrow down open-ended choices with less specific responses (e.g. "Do you feel like getting some exercise or doing something more relaxing"?). Also try eliciting broad responses ("Do you want to try showing me the word?") before narrowing down to specific choices ("Want to use this paper or find it in the room?").

If expressing full responses is too challenging for this person, supplement with gesture and/or simplify answer choices (e.g. "Should I invite them over today [hold up 1 finger], or tomorrow [hold up 2 fingers]? Today [1] or tomorrow [2]?). The person with aphasia can then respond with holding up fingers if he or she is having word finding challenges.

(Buchholz, 2013)

Appendix H: ***Communication Enhancement Strategies Handouts (3 of 10)***

Gesture and Speech

Definition:

Supplement speech with gestures and pointing to objects if helpful.

Why use this strategy?

Using gesture when talking to a person with aphasia may support comprehension of your speech. Modeling gestures may encourage gesture use by the person with aphasia. In general, gestures help people to clarify their ideas and access words. For a person with aphasia, gestures may stand in for lost words, clarify speech, recover lost words, or help to cue speech.

What do you need?

An understanding of what differentiates the possible techniques for depicting gestures (Mol et al., 2011).

- ➢ *Outlining/Molding*: outlining something in the gesture's space to depict perceptual features, such as an object's contour or molding its shape (e.g. drawing an outline of a sweater in the air).
- ➢ *Handling*: depicting the handling of a virtual object (e.g. holding the hands up as if using a steering wheel to depict a car). This requires translating conceptual knowledge into gesture (e.g. how an object is used or held in the hands).
- ➢ *Object/Enact*: where hands represent an object, or in which the entire body depicts an object, or the body of another person (e.g. moving an upright hand forward and then flipping it horizontally to show that someone fell). This also requires translating conceptual knowledge (e.g. how to represent an object with the hands/body).
- ➢ *Deictic*: pointing, and locating objects in the gesture space (e.g. pointing to a sleeve in the outline of a sweater).

Creativity and persistence in using gestures as you speak. When discussing an unfamiliar topic, try to use consistent gestures that represent less frequent words to support comprehension.

Examples:

When telling a story involving location of people and places, use *Outlining/Molding* to show where things were.

(Buchholz, 2013)

Appendix H: ***Communication Enhancement Strategies Handouts (4 of 10)***

Speaking slowly, simply, clearly (1 of 2)

Definition:

Adjust your speech to support receptive processing and response formulation time by slowing down your rate, simplifying your sentences, and using clear language.

Why use this strategy?

Giving the person with aphasia enough time to process what you have said can help them follow a conversation. Monitoring the complexity of your sentences, and being clear in your language supports this person in comprehending what you are saying, as you are saying it. Modeling slow, simple, and clear speech is an indirect way of reducing communication demands for the person with aphasia, which can also help to make them more successful in expressing themselves.

What do you need?

An understanding of what constitutes slow, simple, and clear speech. Specific techniques include:

- *Being deliberate in your speech pattern*: pace your speech, formulate your sentences, and choose your words carefully before speaking them. To help remind yourself to pace your speech, use try to wait at least 5 seconds after finishing a sentence before speaking again (i.e. use wait time) to give the person with aphasia enough time to process and respond.
- *Chunking information*: if you are misunderstood when speaking to a person with aphasia, break down complex sentences and 'chunk' ideas one phrase a time. It is better to be redundant than vague.
    - Example: Complex: "Before we go to the movies, lets get some dinner" vs. Simple: "First let's get dinner." "After dinner, we'll go out." "We can go to the movies later."
- *Reflecting and summarizing*: monitor the conversational topic and vocally reflect on it to make sure the person with aphasia is comprehending and following topic changes (e.g. "Let's talk about ______"). Summarize slowly and clearly what you think the person is trying to say (e.g. "Let me make sure I understand…").

(Buchholz, 2013)

Appendix H: ***Communication Enhancement Strategies Handouts (5 of 10)***

Speaking slowly, simply, clearly (2 of 2)

Consider the following variables:

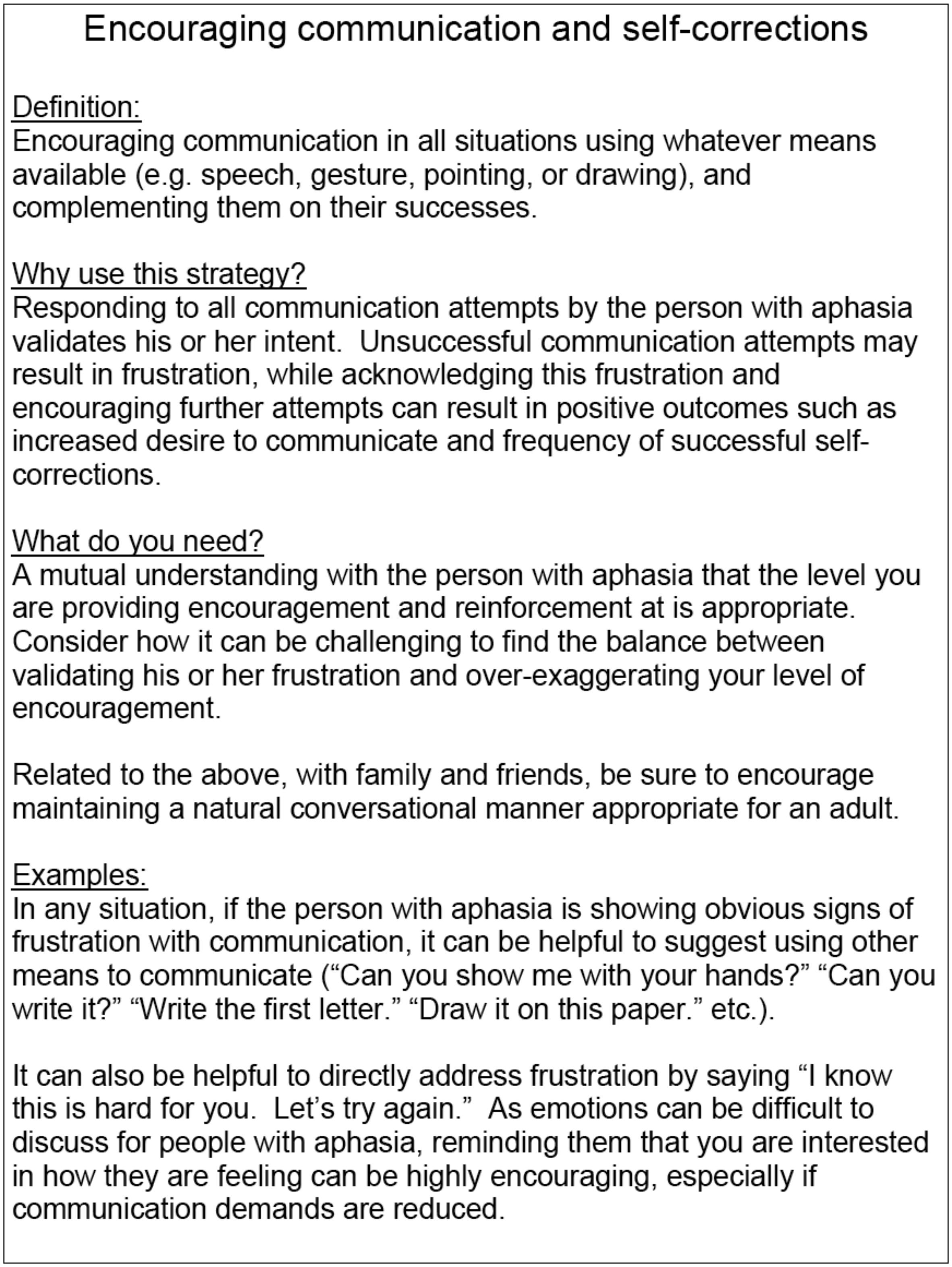
- *Concreteness*: concrete concepts that have physical referents are easier to understand than abstract figurative language, as these concepts/ideas are conceptually more difficult to grasp.
- *Sensory feedback*: exaggerated intonation provided by changes in vocal inflection and speech rate can provide additional sensory feedback that helps to convey messages.
- *Single-word comprehension*: influenced by frequency of occurrence in a language, concept ambiguity and concreteness, and part of speech. In general, nouns, verbs, and adjectives (especially 'picture producers') are easier to comprehend than adverbs, prepositions, and other, smaller grammatical words.
- *Sentence comprehension*: short, simple phrases will be more easily comprehended than long, complex sentences. In general, the less ideas present in a single sentence, the simpler it is. Also predictability of sentence, the presence of personal reference to the person with aphasia in the sentence, how much reasoning is required for comprehension, and redundancy inherent in the sentence affect whether it will be comprehended or not.
- *Spoken discourse comprehension*: influenced by all of the above in addition to background knowledge, directness, and cohesion and coherence of the discussion.

Examples:

In a group conversation, insert comprehension checks (e.g. "Did you understand what _____said?" "Are you following what we are talking about?"), and alert to topic changes ("Did you have anything else you wanted to say about _____?" "Now we are talking about _____"). Overt and consistence topic maintenance can simplify discourse comprehension between multiple people for the person with aphasia.

(Buchholz, 2013)

Appendix H: ***Communication Enhancement Strategies Handouts (6 of 10)***



Encouraging communication and self-corrections

Definition:
Encouraging communication in all situations using whatever means available (e.g. speech, gesture, pointing, or drawing), and complementing them on their successes.

Why use this strategy?
Responding to all communication attempts by the person with aphasia validates his or her intent. Unsuccessful communication attempts may result in frustration, while acknowledging this frustration and encouraging further attempts can result in positive outcomes such as increased desire to communicate and frequency of successful self-corrections.

What do you need?
A mutual understanding with the person with aphasia that the level you are providing encouragement and reinforcement at is appropriate. Consider how it can be challenging to find the balance between validating his or her frustration and over-exaggerating your level of encouragement.

Related to the above, with family and friends, be sure to encourage maintaining a natural conversational manner appropriate for an adult.

Examples:
In any situation, if the person with aphasia is showing obvious signs of frustration with communication, it can be helpful to suggest using other means to communicate (“Can you show me with your hands?” “Can you write it?” “Write the first letter.” “Draw it on this paper.” etc.).

It can also be helpful to directly address frustration by saying “I know this is hard for you. Let’s try again.” As emotions can be difficult to discuss for people with aphasia, reminding them that you are interested in how they are feeling can be highly encouraging, especially if communication demands are reduced.

(Buchholz, 2013)

Appendix H: ***Communication Enhancement Strategies Handouts (7 of 10)***

Carefully fill in words

Definition:

Assisting the person with aphasia to communicate by carefully filling in words when they give you a sign that they want or need your help.

Why use this strategy?

As a communication partner, it can be challenging to know what word the person with aphasia is trying to say. Filling in words can make these individuals successful in communicating a message, but it can also be frustrating for the person with aphasia when the word that was filled in is incorrect.

What do you need?

A reliable 'system' to know when the person with aphasia wants or needs you to fill in words that he or she has difficulty with. It can be helpful to address this directly together to agree upon a system that will be easily interpreted every time you are asked to attempt to fill in a word.

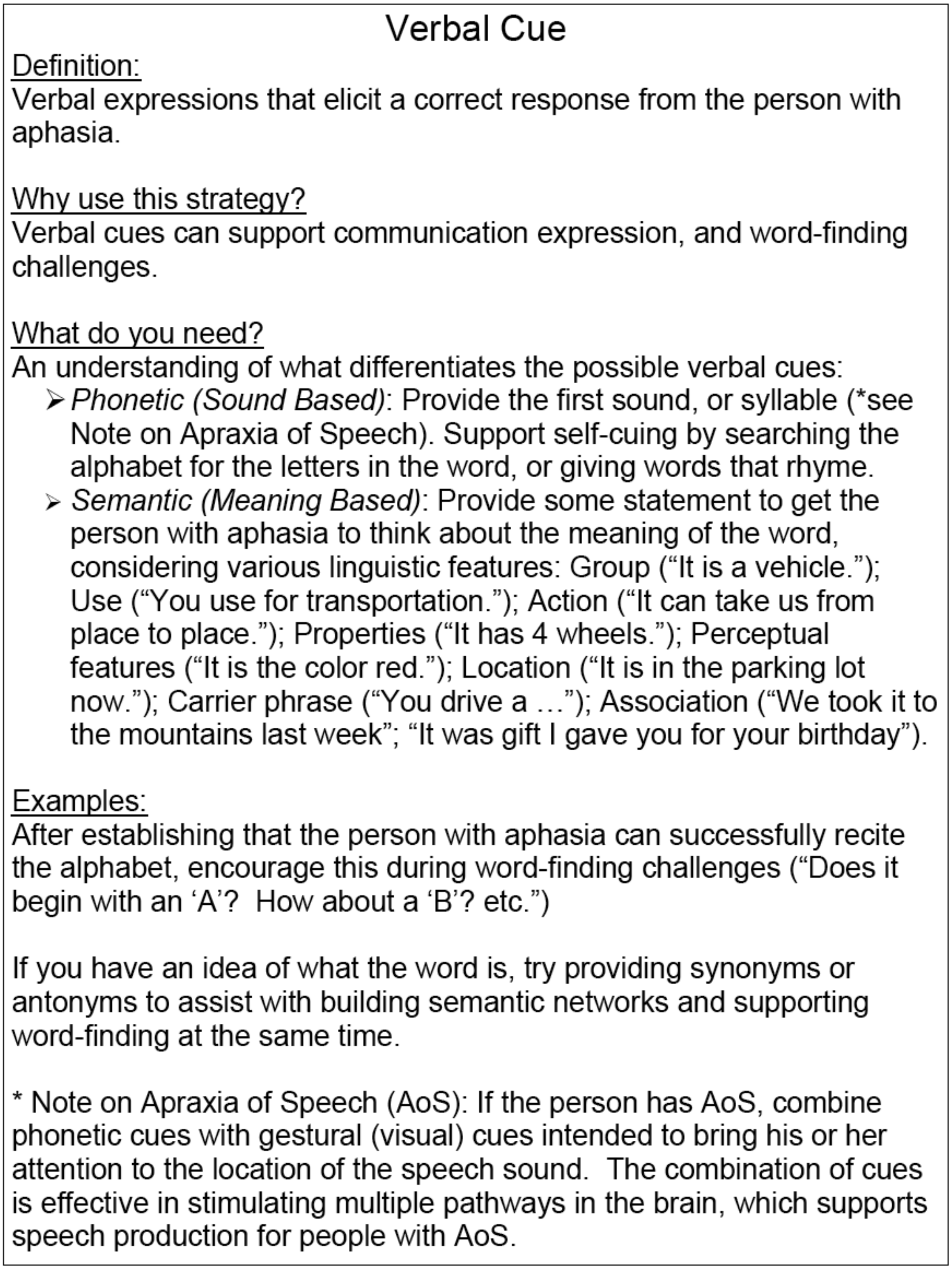
Examples:

If the person with aphasia is having a conversation with someone and has word finding challenges when you are present, wait until they give you a sign before filling in the word. For example, if this person normally uses both eye contact and a hand gesture to ask you to attempt to fill in a word, do not attempt this if they only make eye contact. In general, consider whether the person with aphasia is truly initiating a need for help with filling in a word.

In a group situation, you could try directly asking the person with aphasia if they want your help with filling in a word, which will validate the challenges that he or she is having in front of the other individuals. if speakers are addressing you when speaking to your family member with aphasia, make eye contact with your family member to help the speakers understand that you aren't there to speak for them. Also use natural, direct conversational cues to help direct speakers to engage your family member with aphasia (e.g. "What do you think?" "Do you have anything you want to say about that? etc.").

(Buchholz, 2013)

Appendix H: ***Communication Enhancement Strategies Handouts (8 of 10)***



Verbal Cue

Definition:

Verbal expressions that elicit a correct response from the person with aphasia.

Why use this strategy?

Verbal cues can support communication expression, and word-finding challenges.

What do you need?

An understanding of what differentiates the possible verbal cues:

- *Phonetic (Sound Based)*: Provide the first sound, or syllable (*see Note on Apraxia of Speech). Support self-cuing by searching the alphabet for the letters in the word, or giving words that rhyme.
- *Semantic (Meaning Based)*: Provide some statement to get the person with aphasia to think about the meaning of the word, considering various linguistic features: Group (“It is a vehicle.”); Use (“You use for transportation.”); Action (“It can take us from place to place.”); Properties (“It has 4 wheels.”); Perceptual features (“It is the color red.”); Location (“It is in the parking lot now.”); Carrier phrase (“You drive a …”); Association (“We took it to the mountains last week”; “It was gift I gave you for your birthday”).

Examples:

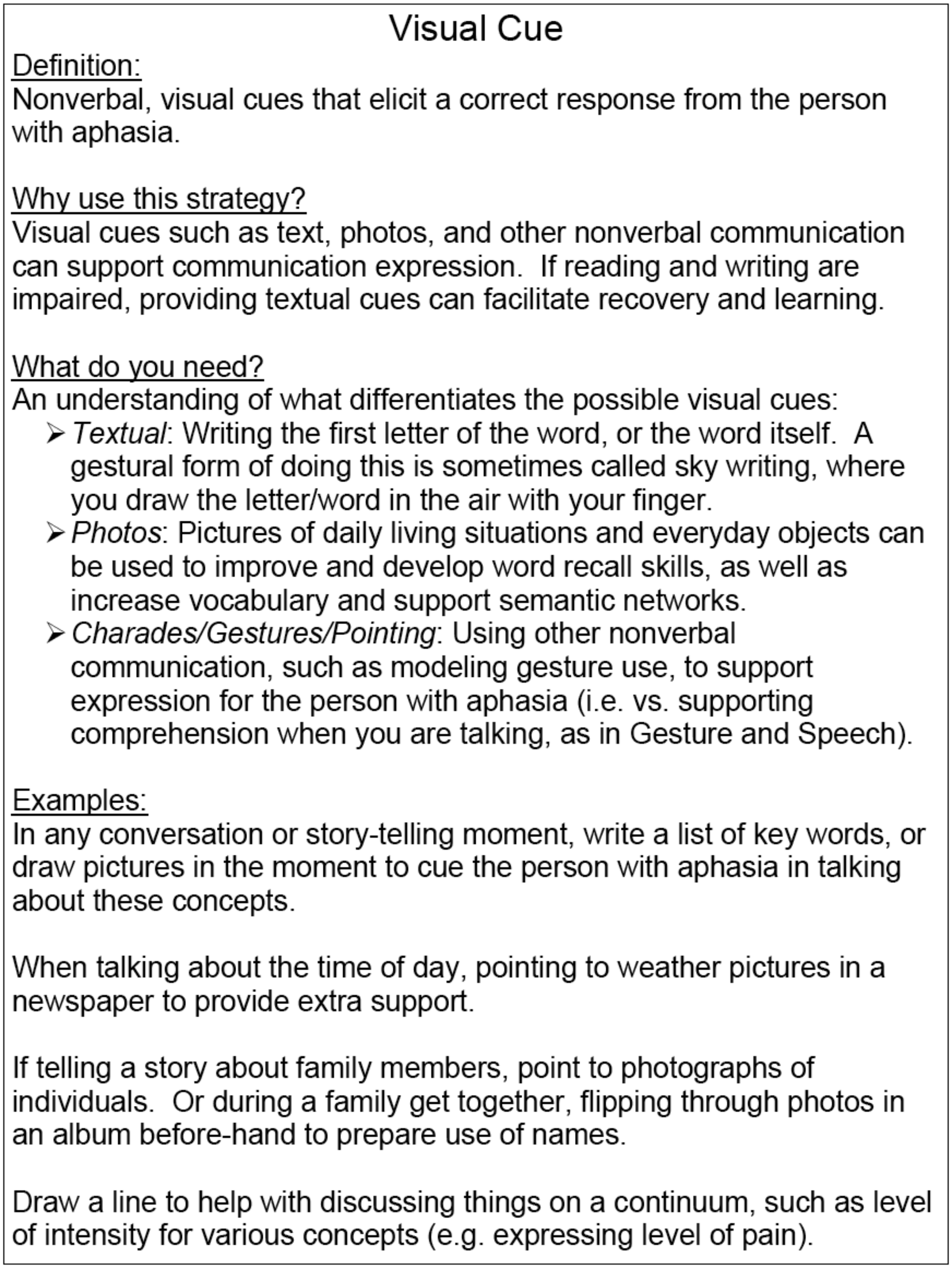
After establishing that the person with aphasia can successfully recite the alphabet, encourage this during word-finding challenges (“Does it begin with an ‘A’? How about a ‘B’? etc.”)

If you have an idea of what the word is, try providing synonyms or antonyms to assist with building semantic networks and supporting word-finding at the same time.

* Note on Apraxia of Speech (AoS): If the person has AoS, combine phonetic cues with gestural (visual) cues intended to bring his or her attention to the location of the speech sound. The combination of cues is effective in stimulating multiple pathways in the brain, which supports speech production for people with AoS.

(Buchholz, 2013)

Appendix H: ***Communication Enhancement Strategies Handouts (9 of 10)***



Visual Cue

Definition:

Nonverbal, visual cues that elicit a correct response from the person with aphasia.

Why use this strategy?

Visual cues such as text, photos, and other nonverbal communication can support communication expression. If reading and writing are impaired, providing textual cues can facilitate recovery and learning.

What do you need?

An understanding of what differentiates the possible visual cues:

- *Textual*: Writing the first letter of the word, or the word itself. A gestural form of doing this is sometimes called sky writing, where you draw the letter/word in the air with your finger.
- *Photos*: Pictures of daily living situations and everyday objects can be used to improve and develop word recall skills, as well as increase vocabulary and support semantic networks.
- *Charades/Gestures/Pointing*: Using other nonverbal communication, such as modeling gesture use, to support expression for the person with aphasia (i.e. vs. supporting comprehension when you are talking, as in Gesture and Speech).

Examples:

In any conversation or story-telling moment, write a list of key words, or draw pictures in the moment to cue the person with aphasia in talking about these concepts.

When talking about the time of day, pointing to weather pictures in a newspaper to provide extra support.

If telling a story about family members, point to photographs of individuals. Or during a family get together, flipping through photos in an album before-hand to prepare use of names.

Draw a line to help with discussing things on a continuum, such as level of intensity for various concepts (e.g. expressing level of pain).

(Buchholz, 2013)

Appendix H: *Communication Enhancement Strategies Handouts (10 of 10)*

Tactile Cue

Definition:

Tactile or kinesthetic cues that support communication expression, such as placing an object in the hand of the person with aphasia to help them name it or talk about it.

Why use this strategy?

Tactile feedback can support word finding and attention. If the person has visual impairments, this can help with focusing on the concept.

What do you need?

An understanding of what differentiates the possible tactile cues:

- *Placing objects in hands*: Objects can be used to trigger associations for word finding, or as a point of focus for discussion.
- *Hand-over-hand*: Can be used to help to write/trace the first letter, or entire words. This strategy can be also be used with gesturing.
- *Tapping*: Based on principles of Melodic Intonation Therapy (Albert et al., 1973), tapping the hand of the person with aphasia, and/or having them tap their own fingers during word production can be a cue that uses the rhythm of speech in the right hemisphere to compensate for linguistic deficits in the left hemisphere.

Examples:

If the person with aphasia is talking about something they watched on T.V. and is having word finding challenges, you could simply move a piece a paper in front of them to encourage use of drawing or writing.

Combinations of Cues

1. Talking about T.V.
Verbal: “Can you show me what you saw?” “Can you write or draw it?”
Visual: Point to the piece of paper in front of them.
Tactile: Put the pencil in their hand.

2. Conversation about family photos
Verbal: “Tell me something about this one.”
Visual: Circle one of the photos with your finger.
Tactile: Put the photo album in front of them.

(Buchholz, 2013)