Evaluating a Novel Rating Tool to Measure Healthcare Providers' Accommodations for People with Communication Disorders: A Cognitive Interview Study

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Abstract

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Effective communication between healthcare providers and their patients is essential to quality healthcare and has been linked to numerous positive health outcomes. Individuals with communication disorders are at increased risk for ineffective patient-provider communication, which can lead to undesirable outcomes for both the healthcare provider and the patient. The University of Washington developed a seminar to teach medical students how to communicate effectively with patients who have communication disorders. The purpose of this study was an initial exploration examining a novel rating tool developed to measure healthcare providers' accommodations when interacting with individuals who have communication disorders. A convenience sample of twelve second-year graduate students was recruited from the University of Washington Speech and Hearing Sciences Department. This study employed in-person cognitive interviews where participants were asked provide feedback about the rating tool while

evaluating the communication behaviors of medical students interacting with standardized patients portraying communication disorders. An iterative process was used during the study to modify the rating tool based on participants' feedback. Results of the study identified the significant changes made to the overall format of the rating tool as well as the content of several items.

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INTRODUCTION

Effective patient-provider communication is essential to the quality of healthcare (World Health Organization, 2001). Effective communication helps maintain patient safety, ensures a good experience of care, and provides the basis for therapeutic engagement and participation in decision making with healthcare providers (Horton, Clark, Barton, Lane, & Pomeroy, 2016). Research has shown a link between effective patient-provider communication and numerous positive health outcomes such as improved pain control, increased functional ability, and emotional well-being (Street, Makoul, Arora, & Epstein, 2009). Just as effective patient-provider communication can improve the experience of healthcare for general patient populations, research has also suggested that healthcare providers can reduce barriers and increase communicative access for people with communication disorders (PwCD) (Kagan, 1998). However, the current curricula for many healthcare professions do not include specialized training on how to effectively communicate with PwCD (Burns, Baylor, Morris, McNalley, & Yorkston, 2012).

Recently, there have been an increasing number of programs designed to train healthcare providers how to communicate effectively with PwCD. Valid, reliable, and feasible measurement tools are needed to capture the outcomes of these training programs. Currently, there is little consistency in the outcome measures used to evaluate communication partner training (CPT) with healthcare providers (Simmons-Mackie, Raymer, & Cherney, 2016). The focus of this study was to examine a novel rating instrument which was developed with the intention of providing a reliable and clinically feasible method of measuring the outcomes of CPT with healthcare providers. The novel rating instrument was evaluated in this preliminary study for feasibility and acceptability using cognitive interviews. The following sections will review the literature

relevant to the challenges that PwCD face in healthcare settings, issues regarding CPT training programs for healthcare providers, and the current instruments available to measure outcomes of those programs.

Communication in Healthcare for Individuals with Communication Disorders

PwCD represent a vulnerable population in healthcare. A communication disorder may affect an individual's comprehension, expression, or both. As such, the interaction between PwCD and their providers may be impacted by patients' difficulties understanding and/or conveying information (Burns et al., 2012). The communication barriers between PwCD and their providers can lead to errors in diagnosis and treatment, resulting in a patient population that is three times more likely to experience preventable and harmful patient safety incidents as opposed to patients without similar communication challenges (Bartlett, Blais, Tamblyn, Clermont, & MacGibbon, 2008).

Research has shown that PwCD are often unable to communicate with their providers about their health needs (O'Halloran, Grohn, & Worrall, 2012), including basic needs such as being hungry, thirsty, and needing to go to the toilet (Iacono & Davis, 2003). PwCD are also more likely to report receiving lower quality of care, feeling reduced patient satisfaction, as well as experiencing frustration and diminished autonomy in making decisions relating to their healthcare (Hoffman et al., 2005; McGilton, 2010; Murphy, 2006). PwCD have reported switching providers or not following through with treatment recommendations as a consequence of poor communication with their healthcare providers (Burns, Baylor, Dudgeon, Starks, & Yorkston, 2015). Furthermore, when PwCD seek out treatment, problems understanding therapeutic goals and instructions may lead to diminished progress in rehabilitation (Gialanella, Bertolinelli, Lissi, & Prometti, 2011). The problems PwCD have understanding therapeutic goals

may be impacted by their decreased participation in the selection and formation of goals. It has been reported that while healthcare providers in rehabilitative settings recognized the importance of patient participation in goal formulation and treatment planning, some reported that it was not possible because of the patient's degree of aphasia (Leach, Cornwell, Fleming, & Haines, 2010).

The communication barriers that affect the medical care and safety of PwCD can arise from the physical environment as well as the attitudes and skills of their communication partners (Horton et al., 2016). When asked about the barriers to effective patient-provider communication with PwCD, many healthcare providers reported that the physical environment is often noisy, the provider is often under time constraints, and the individual with the communication impairment may be under stress and/or have associated cognitive or emotional problems (Horton, Lane, & Shiggins, 2015). Healthcare providers have reported they frequently rely on family members when struggling to communicate with PwCD (Burns et al., 2015), which can lead to communication barriers when family members are not present or are not effective in facilitating communication. When PwCD were asked to report what contributed to communication challenges during medical interactions, they report having difficulty remembering what to say, not being understood, feeling rushed, not being able to follow what their doctor said, and even feeling the doctor did not believe them (Murphy, 2006).

The consequences of ineffective communication between PwCD and their healthcare providers extend beyond the immediate impact on the PwCD; both the healthcare providers and the overall healthcare system can be affected. Healthcare providers have been reported to experience elevated levels of anxiety and reduced confidence when interacting with PwCD (Cameron et al., 2015). The healthcare system can be affected by the impact that preventable safety incidents have in terms of resources and financial cost (Bartlett et al., 2008). This is

especially important for healthcare systems as healthcare reimbursement shifts from a procedure-based system (payment for what you do) to an outcomes-based system (payment based on the successful results of what you do) (Yorkston, Baylor, Burns, Morris, & McNalley, 2015). While not specific to PwCD, in the broader population ineffective patient-provider communication (which is more likely to occur between healthcare providers and PwCD) can be associated with increased rates of malpractice lawsuits (Mauksch, Dugdale, Dodson, & Epstein, 2008).

Training Healthcare Providers to Communicate with Individuals with Communication Disorders

In recent years, most medical schools have included in their curricula some form of training in effective patient-provider communication (Burns, Baylor, Morris, McNalley, & Yorkston, 2012). The training—which often assumes the patient has typical communication abilities—encourages physicians to listen to their patients, promote shared decision-making, and emphasize patient self-efficacy. While this is a positive step towards maximizing patient-provider communication, these existing training programs do not necessarily identify and alleviate the specific barriers that PwCD may encounter when communicating with healthcare providers. Training healthcare providers to support communication with PwCD meets the imperative of the United Nations Convention on the Rights of Persons with Disabilities which states that ratifying countries shall, "Require health professionals to provide care of the same quality to persons with disabilities as to others..." (Hendriks, 2007). While health providers are often trained in the symptoms of various communication disorders, such as aphasia, they may not have received specific training in how to communicate with PwCD (Burns et al., 2012). Consequently, it is not surprising that physicians have reported finding it difficult to diagnose, manage, and inform

PwCD (Ziviani, Lennox, Allison, Lyons, & Del Mar, 2004), thus potentially diminishing the quality of care provided to this population.

There are many challenges in the development and measurement of interventions to train healthcare providers to support effective communication with PwCD. Communication is multidimensional, flexible, and sequential, making it a complex object to measure in research (Croteau et al., 2017). Communication is not an individual process, but a shared responsibility between two or more partners. It is a complex social activity, with participants occupying various roles during the exchange. The degree of impact that a communication disorder will have on natural conversation depends on many factors: the type and severity of the communication impairment, the goals of the conversation, the setting in which it takes place, and the characteristics of the individuals involved including their relation to each other and their current state of mind (Eriksson et al., 2014). These factors have interactive effects. Therefore, the communication partner must continuously adjust the type and amount of support required to facilitate conversation. For example, healthcare providers must not only make different adjustments in conversational support when interacting with different patients who have various communication disorders, but they must also make adjustments within each individual interaction over the span of the conversation as the communication situation changes (Burns, Baylor, Dudgeon, Starks, & Yorkston, 2017). As a result, programs training healthcare providers to facilitate effective communication with PwCD must teach both universal principles (e.g., confirming you understand the patient's message) and specific strategies (e.g., use of written modalities for auditory comprehension deficits) to empower providers to use their clinical judgment to tailor each interaction. To demonstrate the effectiveness of training programs, outcome measurements need to be both reliable and feasible.

Measuring Outcomes of Communication Skills Training for Healthcare Providers

There is a growing body of literature documenting outcomes of programs to train medical and allied health providers about communication disorders and how to communicate effectively with PwCD. Appendix A provides an overview of studies that examined the effects of CPT with healthcare providers. The table in Appendix A presents an overview of the studies including the diagnoses of communication disorders addressed, the discipline of healthcare providers trained, the training method, and the setting in which the training was provided. Appendix B provides additional information about these same studies including any quantitative or qualitative outcome measures used and the results of the studies.

Outcomes using third-party observation to evaluate the effects of training.

Outcomes of CPT with healthcare providers have been measured in a variety of ways. Because the purpose of this study is to contribute to the development of a quantitative measure of healthcare providers' communication skills with PwCD using direct observation by a third party (i.e., not self-reported measures), this literature review will focus on prior studies that have used similar outcomes measures. The studies listed in Table 1 are a subset of those in Appendices A and B described above, and are highlighted here because they include quantitative, third-party measures of communication training outcomes with healthcare providers. This will be followed by a brief summary of studies that have used other methods for measuring training outcomes.

Table 1
Studies using Quantitative Measurement Tools of Observed Communication Behaviors

Article	**PwCD population**	**Name of measurement tool**	**Sample item**
Legg et al. (2005)	Aphasia	Modified Supported Conversation Analysis (version of the MSC)	"Ensures that partner with aphasia understands"
Horton et al. (2016)	Aphasia	Measure of Skill in Supported Conversation (MSC)	"Ensures that partner with aphasia understands"
Finch et al. (2017)	Aphasia	Measure of Skill in Supported Conversation (MSC)	"Ensures that partner with aphasia understands"
Eriksson et al. (2016)	Various	Measure of Interaction in Conversation (MIC), Unnamed rating scale	"Feel and flow of natural adult conversation appropriate to context"
Forsgren et al. (2016)	Aphasia	Novel 22-item checklist	"Summarizes what has been said"
McGilton (2011)	Various	The Interaction Rating Form (IRF)	"Use of short, simple, direct sentences and directions"

Legg et al. (2005) showed significant improvement among medical students who received CPT training in their ability to use effective strategies to establish rapport and gain information from PwCD during an interaction. The study measured outcomes of their program that trained medical students in Supported Communication for Aphasia (SCA™) (Kagan, 1998) using two observational scales: the Modified Calgary Cambridge Observation Guide (MCCOG) and the Measure of Skill in Supported Conversation (MSC) (Kagan et al., 2004). The MCCOG was developed based on the Calgary Cambridge Observation Guide (Silverman, Kurtz, & Draper, 1998), which is a standardized tool designed to evaluate medical interviewing, but was not specifically designed for interactions with PwCD. The tool was modified for the study to include only those categories that were relevant to gathering case history. The study found statistically significant improvements in the students' abilities to explore the patients' problems,

provide structure to the consultation, and develop rapport as the medical students conducted simulated interviews with people with aphasia. The MSC is a rating scale developed for evaluating how people communicate with someone with aphasia. The MSC has two subscales, Acknowledging Competence and Revealing Competence. The Acknowledging Competence score measures if the conversation is appropriate to the context and that the communication partner is sensitive to the person with aphasia. The Revealing Competence scale scores the partner's ability to ensure the person with aphasia understands the conversation and has a method of participating, and to verify what the person with aphasia communicated (Kagan et al., 2004). Results from the study showed statistically significant improvements across all aspects of the MSC.

Horton et al. (2016) also examined the effects of training healthcare providers to support communication with patients with aphasia as measured by the MSC. The study measured outcomes of their program training a variety of healthcare providers in Supported Communication for Aphasia (SCA™) (Kagan, 1998). The MSC was applied to 10-minute recorded video interactions between staff and volunteers with aphasia. Despite three attempts at assessor training, satisfactory inter-rater reliability was not achieved. As a result, the researchers did not carry out group comparisons and instead used alternative qualitative analyses.

Finch et al. (2017) also evaluated the effects of training healthcare providers to support communication with patients with aphasia as measured by the MSC. The study looked at training Speech-Language Pathology (SLP) students using the program from Connect (Connect-The Communication Disability Network, 2007). Transcriptions of video recordings taken of the SLP students and participants with aphasia in both experimental (trained) and control (untrained) groups were analyzed using the MSC and conversational analysis. The MSC was used to provide

an overall score of the interaction. While no significant differences were found between the groups according to the MSC Acknowledging Competence scores, the trained group received significantly higher scores on the MSC Revealing Competence than the control group. Conversational analysis was also performed to analyze the frequency with which certain communicative behaviors occurred. The analysis examined aspects of the conversation such as non-verbal communicative behavior, conversation breakdowns, introduction of new ideas, and interruptions. The study found the trained group used significantly more communication aids during conversation and introduced significantly more new ideas into the conversation than the untrained group.

Eriksson et al. (2016) used an adaptation of the MSC rating scale called the Measure of Interaction in Conversation (MIC) (Kagan et al., 2004; Togher, Power, Tate, McDonald, & Rietdijk, 2010) to measure the effects of training on nurses working with patients with various communication disorders. The study used the MIC and another unnamed rating scale to evaluate the effect of an intervention based on the program Supporting Partners of People with Aphasia in Relationships and Conversation (SPPARC) (Lock et al., 2001) on nurses working in nursing homes. Multiple baseline video recordings were collected in nursing homes of five dyads consisting of a nurse and a patient with either aphasia or dysarthria. The interactions were analyzed for stability using the MIC which measures the communication partner's ability to create a feeling of natural adult conversation and the ability to ensure that the PwCD understands and has a way of responding. Another unnamed rating scale was used to evaluate the nurses' behaviors specific to communicative goals (e.g., check to make sure you understood what the PwCD means) previously set for each dyad in the intervention phase. Independent assessors rated video recordings of interactions on a scale from 1 to 4 (anchors not explicitly reported)

from least to most progress, with each communicative goal having a separate rating. Ratings were based on the appropriate use of a strategy, with both missed opportunities and overuse affecting the score. The study found that dyads with only two goals showed positive outcomes in both goals, while the other dyads with three goals showed predominately positive outcomes with at least one goal and at least one goal with no improvement.

Forsgren et al. (2016) used a novel 22-item checklist to evaluate a group of medical students during simulated interactions with a patient with aphasia. The medical students received an adapted version of a training program consisting of a lecture and workshop described in Burns et al. (2012). The checklist was constructed for this study in order to incorporate the specific strategies taught during the workshop. The raters, who were experienced SLPs, used the checklist to evaluate video recordings as to whether the conversation was perceived as respectful and age-appropriate for an adult, as well as other items describing supportive communication strategies. The raters judged each minute of the clip, and comparisons were made between the mean number of each strategy used before and after training. The study found that there was a statistically significant increase in the use of three supportive strategies post-workshop: encourages the patient to use gestures/pointing, uses writing/written alternatives, and encourages the patient to use a calendar. These three strategies were found to be used by a greater number of medical students post-workshop, as well as being present in significantly more minutes within the interaction.

McGilton et al. (2011) used an observational checklist called the Interaction Rating Form (IRF) to evaluate the effect of training on the interactions between nursing staff and patients with various communication disorders. The intervention named Patient-Centered Communication Intervention (PCCI), developed by the authors, was carried out by nursing staff in a complex

continuing care facility treating patients following a stroke. The Interaction Rating Form (IRF) (Shelton & Shryock, 2007) includes specific strategies that are commonly used by SLPs when treating PwCD such as asking the patient to repeat what they have heard. Completed by a member of the research team during this study, the tool provides data on the discrepancy between the number of strategies that were required versus the number that were delivered during an interaction. While no pre-intervention data were collected, based on direct observations of nursing-patient dyads, the study found that nurses on average used 85% of suggested communication strategies immediately following the workshop. During a second observation two months later, the nurses on average used 76% of the strategies.

Other outcomes used to evaluate the effects of training.

The section above focused on prior research that has included quantitative measurement of observable changes in communication skills in healthcare providers before and after training. Outcomes of training programs have been evaluated in other ways such as through qualitative analyses (Horton et al., 2016; Horton et al., 2015; Jensen et al., 2014; McGilton et al., 2010; Simmons-Mackie et al., 2007), self-reported measures of confidence (Cameron et al., 2015; Cameron et al., 2017; Forsgren, Hartelius, & Saldert, 2016; Heard, O'Halloran, & McKinley, 2017; McKinley & O'Halloran, 2016; Saldert, Forsgren, & Hartelius, 2016), self-reported measures of attitudes towards communicating with PwCD (Forsgren et al., 2016; McGilton et al., 2010; Saldert et al., 2016), and measures of knowledge of communication disorders and/or effective strategies to facilitate communication with PwCD. (Cameron et al., 2015; Cameron et al., 2017; Forsgren et al., 2016; Heard et al., 2017; Jensen et al., 2014; McGilton et al., 2010; Saldert et al., 2016; Simmons-Mackie et al., 2007; Sorin-Peters, McGilton, & Rochon, 2010;

Welsh & Szabo, 2011). These studies will not be reviewed further here because they are not central to the focus of this project.

Purpose of this Study

In both clinical practice and research, it is essential to assess the outcomes from interventions (Worral, 1999). Currently, there is a gap in available measurement tools for measuring communication behaviors of healthcare providers when interacting with PwCD. Specifically, tools designed with both the unique context of patient-provider interaction and the wide variety of communication disorders in mind. Per a recently published systematic review, there is little consistency in the outcome measures used to evaluate communication partner training (Simmons-Mackie, Raymer, & Cherney, 2016). That review included studies that were conducted with healthcare providers. Simmons-Mackie et al. (2016) call for increased use of objective measures to supplement the trend towards self-reported measures. Self-reported measures are often used to measure changes in confidence, attitudes, or knowledge as a result of training. However, increased knowledge about effective communication strategies does not necessarily result in increased application in clinical settings. Simmons-Mackie et al. (2016) further assert that outcome measures should be rated by independent assessors to avoid biased results or placebo effects. The authors conclude with, "The research community should identify tools to capture primary and secondary outcomes relevant to communication partner training, and these tools should be routinely applied to communication partner training research" (p. 2220). The selection of suitable outcomes measures must be addressed before more definitive research can be done (Horton et al., 2016), so that researchers and clinicians can be better equipped to measure the efficacy of communication partner training with clinically feasible measurement procedures (Croteau et al., 2017).

In the context of healthcare provider communication training, the development of a rating instrument must consider how the outcome measures are appropriate for the intervention:

> The ultimate value of a clinical trial or outcome study will be directly tied to how well the selected outcome measure matches the researcher's understanding of what he or she expects to change, to what degree it is expected to change, over what period of time this change will happen, and how that change can best be identified. (Coster, 2013, p. 163)

The expected behaviors of healthcare providers when interacting with PwCD need to be well chosen, well defined, and targeted in training to be appropriate outcomes to measure (Saldert, Jensen, Blom Johansson, & Simmons-Mackie, 2018). Since CPT targets the communication behaviors of communication partner (i.e., healthcare providers), the primary outcome measure is the communication partner's behavior. Although the behaviors of the PwCD are not a primary outcome measure—since they are not the focus of the training program—potential rating instruments should be sensitive and responsive enough to reflect a change in the healthcare providers' behavior subsequent to variable behavior of the PwCD. The rating instrument should also account for healthcare providers' expected behavioral changes across contexts, and between and within interactions with PwCD.

Researchers at the University of Washington (UW) have developed a training program to teach healthcare providers strategies to communicate effectively with individuals who have communication disorders, using the mnemonic FRAME: Familiarize, Reduce Rate, Assist with message construction, Mix communication modalities, and Engage the patient first (Burns et al., 2012). See Table 2 for a detailed description of the FRAME mnemonic. One of the key features of the FRAME training program is that it addresses revealing the communicative competence for people across the full range of communication disorders, as opposed to focusing on a single disorder (Yorkston et al., 2015). The FRAME model has been used in several studies to teach

medical students to effectively communicate with individuals who have communication disorders (Burns, Baylor, & Yorkston, 2017; Forsgren et al., 2016; Saldert et al., 2016).

Table 2
The FRAME Framework

Acronym	Title of step	Description of step
F	Familiarize	Figure out how the patient best communicates before proceeding with the appointment. This may involve becoming familiar with existing strategies or establishing new strategies.
R	Reduce Rate	Reduce your speaking rate and ask one thing at a time to lessen the communication burden on the patient. Allow extra time for the patient to respond.
A	Assist with Message Construction	Acknowledge what information you have understood from the patient, and agree on how to resolve communication breakdowns. Actively assist the patient with communication.
M	Mix Communication Modalities	Incorporate different ways of communicating such as writing, drawing, gestures, pictures, and eye gaze to help patients improve both understanding and expression.
E	Engage the Patient	Engage the patient directly. Use family or caregivers as interpreters when needed. Keep your focus on interacting with the patient to respect his/her autonomy.

*Taken from (Burns et al., 2012, p. 683)

To evaluate the effects of the training program, the research group developed a rating instrument to use as a measurement tool. The instrument was developed to address the paucity of available measurement tools that measure observable communication behaviors of healthcare providers when interacting with patients with a variety of communication disorders. The goal of the rating instrument was to provide a research-based rating instrument that could be used across studies, in addition to being clinically feasible.

Due to concerns about reliability and feasibility with the first version of the rating instrument, a revision was needed. As a first step of revising the instrument, the research group conducted qualitative interviews with SLP graduate students to identify the key behaviors demonstrated by healthcare providers as part of competent communication between healthcare

providers and PwCD (Despres, 2017). The study employed two focus groups, in which the SLP students watched videos of medical students interacting with standardized patients portraying communication disorders. The purpose of the focus group discussions was to collect information about which salient behaviors should be included in an assessment tool. Analysis from the focus group discussions revealed nine key behaviors for competent communication, as seen in Table 3. The information from that study was incorporated into a revision of the instrument under development. The purpose of this study is to evaluate the newly developed instrument using cognitive interviews as an initial investigation into the feasibility and acceptability of the instrument.

Table 3
Key Behaviors for Effective Patient-Provider Communication

1. Familiarize yourself with the patient's preferred method of communication.
2. Respectful Communication helps build the patient-provider relationship.
3. Be flexible with strategies.
4. Be consistent with strategies.
5. Overly restrictive strategies can be detrimental to communication and rapport.
6. Body language communicates important information.
7. Slow down the rate of communication.
8. Confirming understanding is vital.
9. Don't forget general interview skills.

*Taken from (Despres, 2017, p. 24)

METHODS

This study employed cognitive interviewing, which is a technique used in research to elicit qualitative data on how participants interpret and respond to stimuli. Participants were SLP graduate students from the Speech and Hearing Sciences Department at the University of Washington (UW). Participants were shown 1-2 videos of interactions between medical students and standardized patients portraying communication disorders, and asked to evaluate the medical students' communication skills using a novel rating instrument. Participants were asked to

discuss how they were evaluating the medical students' communication skills using the rating instrument, and to provide feedback as to how to improve the instrument. The study was reviewed by the University of Washington Institutional Review Board and identified as exempt.

Participant Recruitment

A convenience sample of participants was recruited from the UW Speech and Hearing Sciences Department. Participants were required to be second-year students enrolled in either the Master of Science in Speech-Language Pathology or the Master of Science in Medical Speech-Language Pathology program. Participants were required to be a minimum of 18 years of age, and proficient in English in order to participate in the interview.

Participants were recruited with flyers, in-class announcements, and email through the Speech and Hearing Sciences Department's electronic mailing list for graduate students. Emails were distributed by a member of the research team, and included the details of the study. Targeted enrollment for the study was 12 participants (Willis, 2005). Participants were compensated with a $15 Amazon gift card as a token of appreciation for their participation.

Data Collection

In-person, one-on-one cognitive interviews were conducted with all participants. Cognitive interviewing techniques are commonly used to study the way a participant understands, processes, and responds to presented material. Emphasis is placed on any potential breakdowns in the process, for example identifying any elements in the material that are confusing, ambiguous, or offensive. Cognitive interviewing uses both "think aloud" and verbal probing procedures to elicit feedback (Willis, 1999). In this study, cognitive interviewing was employed to explore how participants used the rating instrument to rate the communication accommodations used by healthcare providers.

Rating Instrument. The rating instrument is currently under development by the research team, without a working title. The original version of the instrument asked participants to rate nine communication behaviors using a visual analogue scale (VAS). The VAS consisted of a 100-mm line with scores measured in millimeters from the left. The end points were labeled, "Not at all appropriate" and "Very appropriate." A higher score represented communication behaviors that were more appropriate. Example behaviors to be rated included dimensions such as "Shows Respect," "Uses Multimodal Communication," and "Adjusts Pace Appropriately." The rating instrument was accompanied by a separate instruction guide that provided further definitions and examples of the behaviors to be rated. The original version of the rating tool and the accompanying guide are available in Appendix C and Appendix D, respectively.

Online Training. To provide a foundation for participants to orient themselves to the subject matter and the rating instrument, participants were required to complete an online training module prior to the in-person cognitive interview. The online module introduced the nature and purpose of the study, as well as provided an overview of the rating instrument. This pre-session orientation allowed for more of the time in the interview session to be spent seeking feedback from the participants. The self-paced online training module lasted approximately 30 minutes. A member of the research team verified that each participant completed the online training prior to the in-person interview.

Interview sessions. The interviews took place in a quiet and well-lit room in the Department of Speech and Hearing Sciences building on the University of Washington campus. Two researchers were present for the majority of the interviews; however, only one researcher was present during two of the interviews due to scheduling conflicts. The interviews lasted approximately 90-120 minutes, with breaks as needed. The interview sessions started with a

review of the purpose of the study and a review of the rating instrument; then participants were given the opportunity to ask questions or provide any initial feedback. Next, participants were asked to watch a video of a medical student interacting with a standardized patient portraying a communication disorder. Participants were encouraged to take notes on the medical students' communication behaviors they observed while watching the video and were instructed that they could pause or replay any portion of the video at any time during the session.

The videos of medical students interacting with standardized patients portraying communication disorders were obtained from previous research studies (Baylor et al., 2017; Despres, 2017). The videos are of medical students conducting 10-minute interviews with standardized patients trained to portray communication characteristics of aphasia due to stroke or dysarthria due to Parkinson's Disease. The videos were selected for use in a previous study (Despres, 2017) because they represented examples of particularly helpful versus unhelpful communication behaviors based on data collection in a prior study (Baylor et al., 2017). Videos were selected prior to each in-person interview to counterbalance the types of communication disorder (i.e., Aphasia or dysarthria) and level of communication accommodation (i.e., more or less helpful) observed across participants.

After watching the video, participants were asked to complete the rating instrument. While they completed the forms, they were asked to describe why they were completing the ratings as they did. Examples of probing questions included asking participants to explain how what they viewed in the videos led them to rate the behaviors in a particular way. They were also asked about the content and formatting of different aspects of the instrument, including instructions, the rating scale and anchors, and wording of the questions. They were asked to identify anything that was unclear or confusing about the rating instrument. If time permitted, the

participant was then asked to repeat the process with a second video. Interviews were audio-recorded with a digital recorder.

Data Analysis

To begin analysis, the lead researcher listened to each audio recording in its entirety. The participants' comments regarding the elements of the rating instrument were then transferred into an Excel spreadsheet. The Excel spreadsheet was organized in a way that allowed tracking of each participant's comments about each item or instrument element. Individual cells contained a summary of each participant's feedback about each item of the rating instrument, as well as any overall feedback given about the rating instrument.

Feedback from participants was reviewed by two researchers after every 3-4 interviews. Based on any trends in the feedback from earlier participants, proposed changes in the instrument were incorporated into subsequent participants' sessions to seek additional feedback. The final presentation of the data consists of qualitative summaries of the participants' feedback in terms of the elements that they preferred and those for which they recommended changes. Data collection continued with the goal of reaching saturation (i.e., no new feedback is provided by additional participants). A minimum of 12 participants was targeted due to feasibility and recommendations on the number of interviews typically required before reaching diminishing returns (i.e., additional interviews would provide little useful feedback) (Willis, 2005).

Trustworthiness. The trustworthiness of qualitative data can be shown through a variety of methods to establish credibility, transferability, dependability, and confirmability (Lincoln & Guba, 1985). Credibility, or the extent to which the interpretation of the data accurately reflects the reported viewpoints of the participants was established through the methods described above to ensure accurate collection of salient data from the interviews. As mentioned above, two

researchers were presented for ten of the twelve interviews, and both researchers took field notes during the interviews. Field notes were compared following each interview to ensure accurate representations were gathered. Following each interview, the lead researcher listened to the audio recording of the session in its entirety to confirm the accuracy of field notes and include any additional feedback not yet captured. The iterative nature of the study allowed for participants to view and provide feedback on suggestions from earlier participants. Furthermore, the target enrollment of 12 participants was achieved. Over the course of the study, there were significantly decreased amounts of overall feedback from participants regarding suggested changes to the rating tool.

RESULTS

Throughout the study, the rating instrument was updated based on feedback from the participants during the cognitive interviews. It is important to note that while the participants used iterative versions of the rating instrument, they were frequently provided with earlier versions for comparison (i.e., participants routinely provided feedback on several different versions of the rating instrument). The original version of the rating instrument can be found in Appendix C and the current version after all interviews were completed is in Appendix E. Results of the interviews will be organized first into more global changes in formatting that were made across items, followed by changes made to the content of specific items. Throughout the remainder of this document, each participant will be identified by their code number which was assigned based on the order of their cognitive interview (i.e., P1, P2, etc.).

Participant Description

A total of 12 individuals participated in cognitive interviews for the study. Demographic characteristics for participants are summarized in Table 4.

Table 4. Participant Demographics

Participant	*Age*	*Sex*	*Race*
1	25	Female	Asian
2	27	Female	Caucasian
3	26	Female	Caucasian
4	42	Female	Caucasian
5	24	Female	Caucasian
6	23	Female	Asian
7	23	Female	Caucasian
8	29	Female	Caucasian
9	23	Female	Asian
10	23	Female	Caucasian
11	30	Female	Caucasian
12	24	Male	Caucasian

Global Changes in Formatting

There were several significant changes made to the formatting of the rating tool based on trends in the participants' feedback. The formatting changes included adding descriptions along the VAS, changes in VAS anchor terminology and orientation, and the order of items in the rating tool.

Addition of 'calibrating descriptions' along the VAS.

The first two participants used the original version of the rating instrument (see Appendix C) which consisted of a horizontal 100-mm line with the only descriptors being 'Not at all appropriate' and 'Very appropriate' at the two ends. Feedback from the first two participants indicated that they experienced some difficulty rating communication behaviors along a VAS because they were not sure what types of behaviors would be considered more or less appropriate along the scale. They were interested in more detailed guidance. As a result, what we will refer to as 'calibrating descriptions' were added at the 0%, 25%, 50%, 75%, and 100%

points along the scale. These descriptions provided more concrete and operational definitions of the types and/or frequencies of behaviors that would warrant a rating at each level. These descriptions were based on information that had initially been included in the separate instruction guide for the instrument. The format of the VAS was changed from a horizontal to vertical layout to accommodate the increased amount of text (See Appendix E). After the calibrating descriptions were added along the VAS, the original instruction guide was discontinued based on feedback from participants that it was no longer needed. The remaining ten participants used the rating tool with the vertical VAS and calibrating descriptions, although all participants were familiar with the original version through the online training video and were provided with the opportunity to compare the two versions during the cognitive interviews.

Of the ten participants who saw both versions of the rating instrument, all ten preferred the format of the updated version (i.e., vertical VAS with calibrating descriptions) over the original. Participants provided feedback that they preferred the updated version of the rating instrument for several different reasons: the elimination of an accompanying guide (which was reported to require splitting attention between the rating instrument and the guide), changing the VAS from a horizontal to a vertical line, and the incorporation of the calibrating descriptions along the VAS. Positive feedback regarding the addition of calibrating descriptions along the VAS was a particularly strong trend. Participants reported that the calibrating descriptions made rating communication interactions easier by providing concrete guidance and examples of behaviors that would represent different points along the VAS, as well as increasing the participant's self-reported confidence and anticipated reliability in their ratings.

VAS anchor wording changed from "Appropriate" to "Effective".

The original version of the rating instrument (See Appendix C) included the phrases 'Not at all appropriate' and 'Very appropriate' at the ends of the VAS to mark the anchors of the scale from 0 to 100 mm, respectively. P2 was the first participant to provide feedback regarding the terminology used for the anchors. P2 reported that the word 'appropriate' seemed judgmental, was not neutral, and had social connotations that may impact the rater's ability to rate without bias. After the researchers offered exploratory alternatives for the VAS anchor terminology, P2 reported that she would prefer the term 'effective'.

The updated version of the rating instrument (See Appendix E) changed the terminology used for the VAS anchor points, from 'appropriate' to 'effective'. The remaining ten participants used the updated rating instrument during the cognitive interviews. Eight of the remaining ten participants were asked about their preference between the terms 'appropriate' or 'effective', and all eight reported that they preferred 'effective'. The remaining two participants who were not directly asked about the change from 'appropriate' to 'effective' due to time constraints did not initiate any feedback regarding the term ‘effective’.

Vertical orientation of VAS changed to place scores near 100 (i.e., Very Effective) on top.

As previously mentioned, the orientation of the VAS was changed from horizontal to vertical in order to accommodate the addition of calibrating descriptions. Initially, the VAS was oriented so that scores near zero (i.e., Not at all effective) were at the top and scores near one hundred (i.e., Very effective) were at the bottom. P6 and P7 both independently offered feedback that they would prefer the VAS orientation to be reversed so that the better scores were located at the top of the VAS, and subsequently the rating tool was updated to reflect their feedback. Of the remaining participants, 4/5 reported preferring higher scores to be on top of the VAS.

Order of items changed to decrease bias and improve flow of the instrument.

Although the topic of item order was not discussed frequently, there were several key changes to the order of items based on participant feedback. For ease of reading, numerical references to items are based on the items' current order in the rating instrument (See Appendix E). The key changes to order include moving item #8 (respect) to the second-to-last item, switching the order of items #2 (multi-modal communication) and #3 (supporting communication without overly restricting), and switching the order of items #4 (exchange of information) and #5 (communication breakdowns). The reasons for these changes are provided in the following paragraphs.

P2 provided feedback regarding the order of item #8 (respect; originally the first item). The participant reported that rating the healthcare provider's respect towards the patient as the first item, as it was in the original version, may influence subsequent ratings and suggested that item be moved to later in the instrument. A version of the rating tool which placed the item second-to-last was seen by the last seven participants, who were not directly asked about the change but initiated no feedback.

P6 provided feedback to reverse the order between item #4 (exchange of information) and item #5 (communication breakdowns), as well as the order between item #2 (multi-modal communication) and item #3 (supporting communication without overly restricting). P6 indicated that these two changes would improve the flow of the rating instrument. For example, P6 suggested that it was better to ask about how well information was exchanged (item #4; a positive situation) before focusing on the problems of communication breakdowns (item #5). In regards to items #2 and #3, participants were initially heavily considering multimodal communication when they rated the item about general communication support first, when the

general support item was intended to encompass more than multimodal communication. By moving the multimodal item before the general support item, participants were then aware that they had an item to specifically address multimodal communication, and it allowed them to focus on other types of support for item #3. The rating instrument was updated to reflect these suggestions and was then viewed by the last three participants. P10 and P11 were not directly asked about the change in order and did not initiate any feedback. When the above noted changes to the order of items was brought to the attention of P12, he reported preferring the new order for items #4 and #5; however, he disagreed with the order of items #2 and #3 and recommended they be switched back. P12 stated that it was more logical and consistent to have both sets of items arranged in a general-to-specific format.

Substantive Changes to the Content of Specific Items

Throughout all items and across all participants there were occasional suggestions regarding the wording of items (e.g., making the wording more brief or precise). Based on participant feedback, iterative minor edits were used to update the rating instrument. These minor edits will not be discussed further (see Appendices C and E for the original and final versions of the rating instrument). There were several strong trends in participants' feedback regarding the content of specific items in the instrument, which are briefly described below.

Item #3: AS THE SESSION PROGRESSES, how effective is the healthcare provider in supporting the patient's communication needs without overly restricting the patient's communication opportunities?

This item was collapsed from two separate items (i.e., items #3 and #5) in the original version of the rating instrument. The original two items asked the rater to assess if the healthcare provider, "Finds an appropriate level of communication support," and "Adjusts communication

strategies according to patient's needs," respectively. P2 was the first to express difficulty when rating the original item #5 (Adjusts communication strategies) - specifically how to rate the healthcare providers' attempts versus the outcomes. P3 also reported difficulty rating the two separate items, stating that they were very similar, and reported that she interpreted the difference between the two items as the attempt versus the outcome. P5 also reported that the two items were, "...almost the same question."

The updated version of the rating instrument combined the two items (original version items #3 and #5) into one item. The updated version item #3 was seen by the third and all subsequent participants. Seven of the remaining ten participants were asked to comment on the updated item, and six of the seven reported that they felt it was appropriate for the two items in the original version to be collapsed into one item.

Item #6: How effective is the provider in adjusting the pace of the interaction to be comfortable for the patient?

The feedback from participants regarding this item primarily revolved around difficulty rating the multidimensional aspects of pace. Of the five initial participants, three reported that it was difficult to rate the item due to pace being multidimensional (e.g., speaking rate versus wait time; consistency of effective pace). As a result, an updated version of this item which explicitly addressed the two dimensions of pace (i.e., provider's rate of speech and the amount of time the provider gives the patient to respond) in the calibrating descriptions was provided to nine participants, who had the opportunity to view the original and revised versions of the item. Seven of those nine participants were directly asked to provide feedback regarding the changes, and all seven reported that they preferred the newer version which explicitly addressed the

multidimensional aspects of pace. The other two participants who were not directly asked to comment on the changes to the item initiated no feedback.

Other feedback from participants regarding this item that were incorporated into the current version of the rating tool included emphasizing that ineffective pace includes a pace that either too fast or too slow, therefore both dimensions should be included in the calibrating descriptions. In addition, participants suggested including "OR" statements in the calibration examples to reflect situations where the provider is effective with one dimension of pace but not the other.

Item #7: How effective is the provider in addressing the role of family members / companions in the interaction?

For this item, feedback from participants did not reach saturation despite many iterations of changes. The original version of the item was used by the first five participants, and four of the five reported difficulty with establishing what constituted 'ideal' behaviors of the healthcare providers (i.e., what is "Very effective"?). Participants suggested that what constituted effective involvement of family members was relatively easy to define when family members were present, but that the appropriate actions to take when family members were NOT present was ambiguous. For example, should providers ALWAYS ask a patient if a family member is available, even if that would not typically happen in an appointment with a patient without a communication disorder? Considering what happens in typical medical encounters, is *not* asking if the patient would like a family member more or less respectful than asking?

A second version of the rating instrument, which included the calibration examples along the VAS for this item was used by participants four through nine. Of those six participants, all six reported that the calibration examples only referenced situations where family/companions are already present during the visit. Four of the six participants were asked if this item should be

split into two VASs (where the rater only uses one based on the following conditions: A) Family/companions present, OR B) Family/companions not present), and all four agreed.

The rating instrument was updated to split this item into conditions A and B as just described. Participants ten, eleven, and twelve used this updated version. Participants ten and eleven reported preferring this version. The twelfth participant also reported preferring this version to the original but further stated that the item was still not complete. P12 reported that option B, which is the VAS used when a family member is not present, only addressed the healthcare providers' behaviors when they do not request the presence of family/companions (because assistance with communication was not needed) OR when they ask and respect the patient's wishes. P12 stated that there should be a third option to address situations where the healthcare provider did not ask for the presence of family/companions but SHOULD have due to the ineffectiveness of the communicative interaction between patient and provider. As this feedback was received later in the study and saturation was not achieved, the rating tool was not modified based on feedback from P12.

Throughout the study, there were mixed reports regarding the expectations for healthcare providers to ask for family or companions when communication appeared inadequate to address the needs of the patient. Some participants claimed that asking for a third party was inherently disrespectful of patient autonomy, while others stated that it was necessary in the context of increasing the patient's access to quality healthcare. Furthermore, five of the twelve participants reported that this item was linked to the healthcare provider's respect towards the patient (i.e., this item is an extension of the item regarding respect).

DISCUSSION

The primary purpose of this study was to evaluate a novel rating instrument using cognitive interviews as an initial investigation into its feasibility and acceptability. The rating instrument was designed to rate the communication behaviors of healthcare providers when interacting with PwCD and was developed based on findings from a previous study which identified the salient communication behaviors healthcare providers use to accommodate the communication needs of PwCD (Despres, 2017). The novel rating instrument was continuously modified over the course of the study using an iterative process where feedback from participants was used make changes to the rating instrument which were viewed by subsequent participants. The results of the study identified the key changes that were made to the rating instrument, which addressed both the rating instrument's overall format and the content of specific items.

Based on trends in participant feedback, there were several key changes made to the overall format of the rating instrument. The first key change was modifying the original horizontal VAS to a vertical VAS to accommodate the inclusion of calibrated descriptions along the line. The calibrated descriptions provided more concrete and operational definitions to orient the rater and were based on information formerly in the separate instruction guide for the tool. The second key change was to update the terminology used at the anchors of the VAS from 'appropriate' to 'effective'. The anchor terminology was replaced based on feedback from multiple participants that 'appropriate' had extraneous connotations that may impact the rater's ability to rate without bias. The third key change was to re-orient the VAS so that scores near 100 (reflecting more favorable scores) would be at the top of the VAS. The fourth and final key change to the rating instrument's overall format was to adjust the specific order of the items.

There were also several key changes made to the specific content of items in the rating instrument. These changes included collapsing two items from the original version into one, making semantic modifications to items for clarity and ease of rating, and adjustments in formatting for the item about the role of family or companions in the room. For the item regarding family or companions, despite consistent feedback from participants that they preferred the updated format (completing one of two available VASs depending on context), no saturation or consensus among participants' feedback was achieved with regards to the content of the calibration descriptions. Discrepancies in participant feedback appeared to arise from conflicting expectations for the ideal behavior of the healthcare provider (i.e., When/if the provider should address the inclusion of a third party) when a family member or companion was not present with the patient.

Comparison of the Novel Rating Instrument to the Existing Literature

As previously discussed, there is a gap in the currently available measurement tools that can be used to track outcomes for healthcare providers' communication-related behaviors following communication partner training. This rating instrument appears to be novel compared to existing tools in the current literature. For clarity, brief comparisons will be made between the novel rating instrument and several other ratings instruments found in the current literature which provide quantitative data to measure changes in healthcare providers' communication behaviors based on direct observation.

The Measure of Skill in Supported Conversation (MSC), or adaptations of it, have been used in several studies to measure communication behaviors of healthcare providers (Finch et al., 2017; Horton, Clark, Barton, Lane, & Pomeroy, 2016; Legg, Young, & Bryer, 2005). The rating scale provides measurement on two dimensions, referred to as Acknowledges Competence and

Reveals Competence. The MSC is similar to the instrument under development in this study in several ways: proximal outcomes are based solely on the behaviors of the communication partner (e.g., healthcare provider), measurement is based on direct observation of communication interactions, and the use of quantitative data. However, there are key differences between the rating tools. The MSC provides two quantitative data points comprised of a score for Acknowledging Competence and a score for Reveals Competence (based on the average of three subcategories), while the novel rating instrument provides nine quantitative data points. Furthermore, the MSC uses discrete ratings (i.e., 0-4) while the novel rating instrument allows for continuous rating along the VAS. Having a more substantial number of data points using continuous ratings may potentially result in stronger measurement properties. Additionally, the MSC was developed to provide information about a conversation partner's communication behavior when interacting with an individual who has aphasia (Kagan et al., 2004), while the instrument under development was designed to be used across a variety of communication disorders.

In contrast to the MSC which provides data for two general constructs for communicative behaviors, other rating instruments in the literature have used a checklist format to identify specific behaviors. The Interaction Rating Form incorporates both, with a rating for the overall success of the interaction (on a discrete scale from 1-5) and a checklist to identify factors affecting the success of the interaction with the option for free response (Shelton & Shryock, 2007). The novel checklist used in the Forsgren et al. (2016) study had 21 dimensions under the broad category 'Adult and respectful conversation' (e.g., Slows down to give time for understanding). The discrete yes/no nature of a checklist limits data collection to identifying the presence or absence of specific predetermined behaviors or conditions. In contrast, the

instrument developed in this study allows for variations due to the complex and multidimensional nature of communication by encompassing a variety of specific behaviors under nine general types of communication behaviors to allow for continuous measures along a VAS; the impetus being that the communication behaviors of the healthcare provider can be measured in such a way as to reflect specific communication behaviors (provided in the calibration examples) across general areas of communication behaviors (the nine items).

Clinical and Research Implications

This study was part of a larger line of research, the goal of which is to develop a rating instrument to measure outcomes of training programs on the communication behaviors of healthcare providers when interacting with PwCD. This study contributed to the development of the instrument, in that the input of key stakeholders (i.e., SLP graduate students) will hopefully improve its relevance and ease of use, as well as its reliability and validity. The potential development of a psychometrically sound rating instrument used to measure directly observable outcomes of communicative behaviors of healthcare providers could impact the future direction of this line of research. By providing valid and reliable measures of the effects of communication partner training on healthcare providers, comparisons of these effects can be made across studies and different training programs.

Limitations

This study had several limitations. First, the study was limited by the homogenous sample of participants. As a result of the convenience sample study design, all participants were students enrolled in the second year of the same graduate program at the University of Washington, which could result in bias in the expectations of healthcare providers' communicative behaviors. Second, all participants were graduate students and therefore not fully

licensed SLPs. Participant feedback may have been different had this study been conducted using experienced SLPs. Third, participants were recruited from a single healthcare discipline (i.e., Speech-Language Pathology). Had this study been conducted with participants from various healthcare disciplines (e.g., Physical Therapy, Nursing, etc.), results from participant feedback may have varied. Finally, saturation in participant feedback was not achieved for item #9 (addressing the role of family and companions). The current version of the instrument at the end of this study may have changed had saturation been achieved for this item.

Future Research

Results of this study can contribute to the continued development of a psychometrically sound rating tool for measuring communication behaviors of healthcare providers. The next steps in this line of research could include cognitive interviews with healthcare providers from other disciplines, or continuing to identify and operationalize the consummate communication behaviors of healthcare providers during interactions with PwCD. Finally, quantitative assessments of the ratings tool's reliability and validity will need to be conducted.

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APPENDIX A

Articles Examining the Effect of Training Healthcare Providers to Communicate with Individuals with Communication Disorders

	Diagnosis	Type of provider	Training Method	Setting
Cameron, A (2015)	Aphasia	OT/PT students	Connect's-Making Communication Access a Reality	University
Eriksson (2016)	Aphasia or Parkinson's	Nurses	Modified version of Supporting Partners of People with Aphasia (SPPARC)	Nursing homes
Finch, E (2017)	Aphasia	SLP students	Connect's-Making Communication Access a Reality	University
Forsgren, E (2016)	Simulated aphasia	Medical students	Based on FRAME principles, all participants received a lecture and a subgroup attended an additional workshop	University
Heard, R (2017)		Mixed	E-Learning vs Supported Communication for Aphasia (SCA™)	Inpatient rehab
Horton (2016) Metho	Aphasia	Mixed	Supported Communication for Aphasia (SCA™)	Inpatient stroke rehab
Horton, S (2015)	Aphasia	Mixed	Connect's-Making Communication Access a Reality	
Jensen (2014)	Aphasia	Nurses/nursing assistants	Supported Communication for Aphasia (SCA™)	Stroke unit
Legg, C (2005)	Aphasia	Medical students	Based on Supported Communication for Aphasia (SCA™)	University
McGilton (2011)	Mixed	Nurses	Patient-Centered Communication Intervention (PCCI)	Complex Continuing Care
Mckinley (2016)	Aphasia	Nurses	The Communicating with patients with Aphasia online	Online
Saldert, C (2016)	Simulated aphasia	Medical students	Based on FRAME principles, all participants received a lecture and a subgroup attended an additional workshop	University
Simmons-Mackie (2007)	Aphasia	Mixed	Based on Supported Communication for Aphasia (SCA™)	Acute care, rehabilitation, and long-term care units
Sorin-Peters (2010)	Mixed	Nurses	Patient-Centered Communication Intervention (PCCI)	Complex continuing care unit
Welsh (2011)	Aphasia	Nursing assistant students	Based on Supported Communication for Aphasia (SCA™)	University

APPENDIX B

Articles Examining the Effect of Training Healthcare Providers to Communicate with Individuals with Communication Disorders

	Outcome measures	Qualitative measures	Quantitative measures	Results
Cameron, A (2015)	Self-reported confidence, identify strategies		Visual analogue scale (self-reported confidence), code for themes (identifying strategies)	Increase confidence, increase number of identified strategies
Eriksson (2016)	Implementation of target communication strategies, Goal attainment		Measure of interaction in conversation (MIC) (establish stability of baseline interactions), questionnaire (COAST), Goal Attainment Scaling (rated on a scale of 1-4)	Increased use of target communication strategies
Finch, E (2017)	Global level (scales), nonverbal behavior, conversation breakdowns, introduction of new ideas, interruptions		Measure of Skill in Supported Conversation (MSC), conversational analysis of transcription (counting frequency of behaviors)	Trained group had significantly higher score for the MSC-Revealing Competence, increased use of props, and introduced more new ideas into conversation
Forsgren, E (2016)	Self-reported confidence and attitudes, ability to suggest communication strategies		A 12-item questionnaire developed from principles in Yorkston et al. (2015), includes 10-point Likert scales and free-response, a novel 22-item checklist	No change in attitudes, increase self-reported confidence in both groups, increase ability to suggest strategies and use supportive strategies in the workshop group
Heard, R (2017)	Self-rated confidence and knowledge, test of knowledge of aphasia		Self-rated confidence 10-point scale, self-rating knowledge 10-point scale, Test of Knowledge of Aphasia	Increase in self-reported knowledge and confidence in both groups, increase in knowledge of aphasia in both groups
Horton (2016)	Change in staff skills, transfer of training to everyday practice	Learning Log, focus groups, interviews, video recorded observations	Measure of Skill in Supported Conversation (MSC)	MSC was not used due to unsatisfactory inter-rater reliability, transfer of training into day-to-day practice
Horton, S (2015)	Staff experiences and perspectives, clinical practice data	Focus group, individual interviews, learning logs, video recordings		Derived themes from staff reports of training experiences
Jensen (2014)	Knowledge, staff perceptions and experiences	Semi-structured interviews	Knowledge of Aphasia Questionnaire (KAQ), Scaled questionnaire of knowledge and aspects of communication, open ended response to strategies (counted by theme)	Increase in self-reported confidence, increase in knowledge of aphasia, changes in types of strategies staff used

APPENDIX B continued

	Outcome measures	Qualitative measures	Quantitative measures	Results
Legg, C (2005)	Medical interviewing, ability to acknowledge and reveal competence		Modified Calgary Cambridge Observation Guide, Modified Supported Conversation Analysis, visual analogue scale	Improved ability to explore patient's problems, provide structure to consultation, and establish rapport. Improvements in ability to acknowledge and reveal competence
McGilton (2011)	Extent of implementation of training, staff perceptions, and staff attitudes	Focus groups	Interaction Rating Form Checklist, Communication Impairment Questionnaire, knowledge on communication impairment scale,	Staff were able to implement training into practice and showed increase in communication attitudes
Mckinley (2016)	Self-reported confidence and knowledge of aphasia, ability to suggest communication strategies		Surveys before/after training rating confidence and self-perceptions of knowledge on a 4-point ordinal scale, as well as listing communication strategies.	Increase in self-reported knowledge and number of strategies, increase in self-reported confidence
Saldert, C (2016)	Self-reported confidence and attitudes, ability to suggest communication strategies		A 12-item questionnaire developed from principles in Yorkston et al. (2015), includes 10-point Likert scales and free-response.	Both groups increased in self-reported confidence. Only the workshop group reported changes in attitudes and ability to suggest strategies
Simmons-Mackie (2007)	Knowledge of supportive communication methods	Individual interviews, focus groups	Unnamed questionnaire designed to evaluate knowledge of aphasia and supported communication	Increased knowledge of methods of supporting communicative access
Sorin-Peters (2010)	Knowledge of aphasia		The Knowledge or Aphasia Questionnaire (KAQ)	Increase in knowledge of aphasia
Welsh (2011)	Knowledge of aphasia,		Questionnaire consisting of four true-or-false questions with one open ended item	Increase in knowledge of aphasia

APPENDIX C

Rating Sheet

1. **Shows respect:**
   The healthcare provider shows respect for the dignity of the patient through tone of voice, language, demeanor, and "normalizing" the interaction.

   _____
   Not at all appropriate Very appropriate

2. **Assesses communication abilities and preferences:**
   Early in the session, the healthcare provider asks about, assesses, and/or follows the patient's lead for communication preferences and abilities

   _____
   Not at all appropriate Very appropriate

3. **Finds an appropriate level of communication support:**
   After some adjustment, the provider gives enough support to help the patient with communication without overly restricting the patient's communication options.

   _____
   Not at all appropriate Very appropriate

4. **Uses multi-modal communication:**
   The healthcare provider brings in other communication modalities to assist with communication (e.g. picture boards, spelling boards, key word writing, speech devices, assisted listening devices) as needed.

   _____
   Not at all appropriate Very appropriate

5. **Adjusts communication strategies according to patient's needs:**
   As the session progresses, the healthcare provider is responsive to what works for the patient, keeping strategies that work and trying something different when communication is not going well.

   _____

Not at all appropriate Very appropriate

6. <u>Adjusts pace appropriately:</u>

Early in the session, the healthcare provider adjusts and then maintains a pace of communication that appears appropriate and comfortable for the patient.

_____

Not at all appropriate Very appropriate

7. <u>Acknowledges communication breakdowns and attempts repairs:</u>

The healthcare provider verifies accurate understanding along the way; and acknowledges and attempts to correct misunderstandings in a supportive manner.

_____

Not at all appropriate Very appropriate

8. <u>Organizes the conversation:</u>

The provider keeps the conversation organized and following a logical flow of information.

_____

Not at all appropriate Very appropriate

9. <u>Considers including family (third party) appropriately:</u>

1. IF family is present, the provider includes family (or other third party) in the conversation as appropriate but does not exclude the patient.

2. IF family is NOT present, it may be appropriate for the provider to not even mention this issue if family or other care providers do not seem relevant to the issue; OR suggestions / requests to include family are handled in a manner respectful of patient autonomy.

_____

Not at all appropriate Very appropriate

10. <u>Overall accommodations for communication needs:</u>

_____

Not at all appropriate Very appropriate

APPENDIX D

New FRAME Checklist - Ideas
12-5-17

Response Format:

Each of the following ten points is rated on a VAS with the anchors representing the following two endpoints. We won't use the numbers on the VAS but the VAS will be a 100-mm line with scores measured in mm from the left. Higher scores indicate more appropriate:

Not at all appropriate Very appropriate

0 = Provider's communication behavior / accommodations are NOT appropriate for the client
(could include either over-accommodation (doing too much and being too restrictive) or under-accommodation (not doing enough to help with communication.)
100 = Provider's communication behavior / accommodations are appropriate for the client

Scoring suggestions:

Scores near 0 would suggest:

- The provider makes no attempt to accommodate the communication needs of the patient
- The provider makes few attempts but they are completely insufficient to support the communication needs of the patient
- The provider makes such excessive and unnecessary accommodations that the patient is highly restricted in communication when s/he does not need to be

Scores near 100 would suggest:

- The provider and patient work together well for successful communication
- The provider enables the patient to participate in the conversation without overly restricting the client
- The provider demonstrates a genuine ease and comfort with the interaction

Each of the 10 points below will be rated on a separate VAS. The bullet points under each bold statement are not rated individually. The bullet points simply provide more explanation and examples of the key point to be rated.

1. Shows respect:
The healthcare provider shows respect for the dignity of the patient through tone of voice, language, demeanor, and "normalizing" the interaction.

The provider "normalizes" the interaction, interacting with the patient, as much as possible, as he/she would interact with a patient with typical communication skills.

- The provider uses a tone of voice appropriate to the age of the patient, not 'talking down' or using 'baby talk' with the patient.
- The provider uses respectful body language when interacting with the patient (e.g. looking at the patient who is trying to communicate vs. looking at the computer screen, etc.).
- The provider is attentive to the patient but not overbearing or condescending.
- The provider includes all the elements of a typical patient-provider interaction such as establishing rapport, setting an agenda, providing information about tests and treatments, inviting questions, etc.

2. Assesses communication abilities and preferences:
Early in the session, the healthcare provider asks about, assesses, and/or follows client's lead for communication preferences and abilities

- The healthcare provider might directly ask the patient for his/her preference on communication methods; or follows the client's lead in communicating how the patient seems to prefer.
- If the patient brings a communication device, the provider welcomes it into the interaction.
- If the patient's communication status is unknown or the patient is unable to express preferences, the provider seeks out information about or assesses patient's abilities for comprehension and expression

3. Uses a less-to-more hierarchy of communication support:
The provider gives enough support to help the patient with communication without overly
restricting the patient's communication options.

- The provider uses a hierarchy of communication support from less to more help as needed.
- For example, if a patient struggles with open-ended questions, the provider does not limit the patient to only yes/no questions but allows / tries other things such as multiple choice etc.
- If the patient struggles to understand the provider, the provider simplifies language / vocabulary.
- The healthcare provider does not sit back and rely on the patient to do all the communication work – the provider is stepping in to suggest strategies and try different things.
- The healthcare provider does not dominate the conversation but allows / encourages the patient to express himself/herself to the extent possible.

4. Uses multi-modal communication:
The healthcare provider brings in other communication modalities (not just speaking / listening) to
assist with communication (e.g. picture boards, spelling boards, key word writing, speech devices,
assisted listening devices) as needed.

- The provider has communication materials available to suggest using if the patient does not have his / her own.

- The provider makes communication materials readily accessible to the patient
- Provider uses different communication materials as needed.
- If the patient brings communication materials or a device, the provider uses them in the interaction

5. Adjusts communication strategies according to patient's needs:

As the session progresses, the healthcare provider is responsive to what works for the patient,

keeping strategies that work and trying something different when communication is not going well.

- When a communication strategy works, the provider does not abandon it unnecessarily.
- When communication is not working, the provider is flexible in using different strategies.
- The provider recognizes that a strategy that might have worked well in one situation or for a period of time may stop working at other times, requiring a shift in strategies.

6. Adjusts pace appropriately:

Early in the session, the healthcare provider adjusts and then maintains a pace of communication that appears appropriate and comfortable for the patient.

- When a patient requires more time to process information, the provider waits patiently. The provider may chunk information into small sections or slow rate of speech.
- The provider gives the patient time to respond.
- If a patient is able to communicate at a typical pace, the healthcare provider does not overly slow the pace in a condescending manner.

7. Acknowledges communication breakdowns and attempts repairs:

The healthcare provider verifies accurate understanding along the way; and acknowledges and attempts to correct misunderstandings in a supportive manner.

- The provider frequently ensures he/she has understood the patient by repeating / rephrasing information and asking if he/she is understanding correctly.
- The provider frequently checks with patient to see if the patient is understanding what the provider is communicating.
- The provider does not pretend to understand when s/he doesn't; and does not ignore or overlook miscommunications

8. Organizes the conversation

The provider keeps the conversation organized and following a logical flow of information.

- The provider does not jump around from topic to topic but follows a logical flow, building on information as it becomes available in the conversation.
- The provider helps the patient navigate the conversation by making topic changes clear and summarizing information

9. Considers including family (third party) appropriately:

1. IF family is present, the provider includes family (or other third party) in the conversation as appropriate but does not exclude the patient.
2. IF family is NOT present, it may be appropriate for the provider to not even mention this issue if family or other care providers do not seem relevant to the issue; OR suggestions / requests to include family are handled in a manner respectful of patient autonomy.

The provider facilitates communication such that family members help the provider communicate with the patient, but family does not communicate in place of the patient.

- If no third party is in the room, the provider may make appropriate questions / inquiries inviting family to participate and/or asking if patient would like to include family or have provider follow up with family. Inappropriate behaviors would be if the provider appears to dismiss the patient in favor of talking to family at another time.

10. Overall accommodations for communication needs

Overall, how well did the provider accommodate the communication needs of the patient?

APPENDIX E

In this instrument, you will be asked to rate various aspects of the healthcare provider's communication accommodations for a patient with a communication disorder. This page lists the key areas to pay attention to as you observe the provider in the interaction. The rating scales are on the following pages. On each rating scale you will see examples of communication behaviors that are intended to help calibrate you to what would be expected at different points along the scale. Behaviors you may observe may not match the examples exactly. The examples are meant to serve as a guide. Use your best judgment to mark anywhere along the line where you think the behaviors you are observing best fit to the examples provided.

1. In first few minutes, acknowledging and/or evaluating the client's communication preferences and abilities

2. Using multi-modal communication

3. Supporting the patient's communication needs without overly restricting communication opportunities

4. Achieving an accurate and complete exchange of information

5. Managing communication breakdowns

6. Adjusting the pace of the interaction

7. Addressing the role of family members / companions

8. Showing respect for the dignity of the patient

9. Overall rating of effectiveness in accommodating for the communication needs of the patient

Instructions: On the vertical line, mark how effectively the provider accommodates the patient's communication needs. Examples are provided at points along the line, but you may mark **ANYWHERE** along the line that you think best represents the provider's communication.

1. **EARLY IN THE SESSION (the first 2-3 minutes),** how effective is the healthcare provider in **acknowledging and/or evaluating the client's communication preferences and abilities** in order to establish how best to communicate with this patient?

Very effective –Provider has become knowledgeable about how the client communicates, and has done so in a way that promotes naturalness in the interaction.

Provider is generally effective in assessing client's preferences, existing strategies, AND/OR abilities; BUT efforts may still be awkward or somewhat incomplete.

Provider asks client about preference and, existing strategies or devices; or partially assesses communication abilities but does not establish a thorough understanding of patient's communication abilities / preferences.

Provider makes brief acknowledgement of communication disorder but does not ask about client's communication preferences or existing strategies, or assess need for accommodations

Not at all effective – the healthcare provider makes no acknowledgement of or inquiry into the client's communication needs or preferences early in the session

2. **THROUGHOUT THE SESSION**, how effective is the healthcare provider in supporting the patient in **using multi-modal communication**?

Multi-modal communication includes the use of any form of communication to either supplement or replace speaking / listening if the client struggles with understanding spoken language or expressing him/herself through speech. This includes:

- Gestures / body language / facial expression
- Pictures / photographs
- Alphabet board
- White board or paper for drawing, writing
- Use of electronics such as a speech-generating device or other communication apps

If the patient does not appear to need any multi-modal communication, look at the 'very effective' end of the rating line.

Very effective –Provider establishes multi-modal communication that promotes effective exchange of communication with a high degree of naturalness.
OR
Provider correctly recognizes that patient does not need multi-modal communication and does not offer it.

Provider establishes one or several multi-modal communication strategies that are effective in enabling communication, but efforts may still be awkward or inefficient. There still seems to be a better way.

Provider assesses materials with client to determine if they will work, **BUT**

- Does not find a multi-modal strategy that works **AND/OR**
- Abandons a strategy that is working and thus fails to use it consistently **AND/OR**
- Finds a good strategy too late in the session to be very effective

Provider makes brief suggestion or inquiry about using multimodal communication, or may briefly show materials to client, but does not follow through to determine if the materials are useful.

Not at all effective – despite the patient's problems with verbal communication, the provider makes NO EFFORT to offer or use multiple modal communication, and/or ignores patient's attempts to do so.

3. **AS THE SESSION PROGRESSES**, how effective is the healthcare provider in **<u>supporting the patient's communication needs without overly restricting</u>** the patient's communication opportunities?

Examples of communication supports the provider might use beyond multi-modal communication included in the prior question:

- Asking questions in different ways (yes/no; multiple choice; open-ended)
- Changing vocabulary to be more familiar; easy to understand
- Simplifying information
- Generally trying different ways to communicate

Very effective – Provider establishes good balance of communication supports without restricting the client's autonomy; the exchange seems natural.

Provider establishes a good balance of providing supports that enable the client to communicate without overly restricting the client. Yet there are still occasional lapses in effective levels of support.

Provider shows ongoing awareness of when a strategy is or is not working well, HOWEVER

- Frequently provides insufficient support for patient's needs
  OR
- Frequently uses overly restrictive strategies that unduly limit patient's communication opportunities

Provider makes some efforts to change communication style, BUT:

- Abandons strategies that initially worked AND/OR
- Fails to keep trying new strategies if current one isn't working; AND/OR
- Consistently overly restrictive for client's communication abilities.
  (e.g. The provider uses only yes/no questions when client could do more; or when client is evidently tired or frustrated)

Not at all effective –Provider makes no effort to change communication style to support patient's needs. (e.g. provider continues to use only open-ended questions even though the client cannot answer)
OR
Provider consistently and severely limits patients' communication opportunities through overly restrictive communication methods

4. How effective is the provider in moving the conversation forward to **achieve an accurate and complete exchange of information** with the patient?

By exchange of information, we mean the provider appears to:

- Understand what the patient is trying to convey

AND/OR

- Convey information in a way that patient can understand

Very effective –Provider SUCCESSFULLY achieves COMPLETE shared understanding with patient of all information that patient and/or provider wanted / needed to exchange in a manner that felt natural.

Provider builds ALMOST COMPLETE shared understanding of information that patient and/or provider appeared to want / need to exchange. Process is inefficient or awkward at times.

Provider is able to build PARTIAL but INCOMPLETE shared understanding. Although several points of information are exchanged, the process is disorganized, inefficient, and/or frustrating for client.

Provider makes minimal progress achieving shared understanding. One or two pieces of information are exchanged, but progress in the conversation then stalls. The conversation gets "stuck" on a point without further information added.

Not at all effective – there is very little progress in establishing shared understanding. Little or no information has been successfully exchanged throughout the encounter.

5. How effective is the healthcare provider in **managing communication breakdowns?**

Very effective –Provider consistently and successfully verifies correct understanding by all parties and repairs breakdowns in a manner that promotes naturalness and respects the client's dignity.

Provider consistently and successfully verifies correct understanding and repairs breakdowns, but efforts may remain somewhat awkward or unnatural.

Provider successfully repairs many but not all communication breakdowns.
AND/OR
Provider frequently verifies information.

Provider overtly acknowledges communication breakdowns, but does not repair them effectively.
AND/OR
Provider seldom verifies correct understanding of information by either person.

Not at all effective – Provider ignores or makes no overt acknowledgement of breakdowns, making NO EFFORT repair problems with communication. Provider may pretend to understand patient when s/he does not. Provider may place undue burden or blame on client for breakdowns

6. How effective is the provider in **<u>adjusting the pace of the interaction</u>** to be comfortable for the patient?

- Consider pace in terms of ONE or BOTH of the following depending on patient needs. Does the provider:
  - SPEAK at a pace that is comfortable for the patient to understand?
  - WAIT sufficient time for the patient to respond?
- Pace can be INEFFECTIVE if the provider goes:
  - TOO FAST for the client in speaking AND/OR waiting.
  - TOO SLOW for the client – speaking so slowly that speech is awkward and uncomfortable to listen to, AND/OR waiting too long for patient to respond when patient clearly is not able to.

Very effective –Provider SUSTAINS a pace for BOTH speaking AND waiting that meets patient needs and promotes naturalness throughout the interaction.

.

Provider SUSTAINS a pace for BOTH speaking AND waiting for response (or just one if only one needed) that is effective, although may still be slightly mismatched to patient needs at times.

Provider makes ongoing attempts to acknowledge and/or adjust pace to meet patient's needs, but does not sustain an effective pace
OR
Provider effectively adjusts pace in one area (speaking OR waiting for patient to respond) but does NOT adjust both although both are needed.

Provider briefly acknowledges if /when a needed change in pace is needed and/or makes a brief change but the majority of the session is at an ineffective pace.

Not at all effective – The provider demonstrates NO awareness and makes NO adjustment in pace even though the ongoing pace is ineffective or uncomfortable for the patient (too fast or too slow).

7. How effective is the provider in **addressing the role of family members / companions** in the interaction?

For this question use EITHER the left side if a family member / companion is present, **OR** the right side if a family member / companion is NOT present

Family member / companion PRESENT

- **Providers should ask how patients prefer the companion to be involved with communication.**
- **Providers might seek help from companion to communicate WITH the patient, but providers should NOT communicate with caregivers to the exclusion of the patient.**

Very effective: Consistent and effective triadic communication with patient as primary focus, companions included per patient wishes, and exchange is natural.

Provider consistently orients communication to patient with companion as backup with occasional lapses or awkward moments.

Provider frequently seeks brief patient input but relies mostly on companion for communication even through patient could carry more of the communication load.

Provider occasionally and briefly acknowledges patient or seeks patient input but majority of communication is oriented to companion.

Not at all effective: Provider ignores the patient, communicating solely with caregiver WITHOUT learning if this is patient's preference or if patient is able to participate.

Family member / companion NOT present

- **If the patient is able to communicate independently, a companion is not needed.**
- **The provider may ask if the patient wishes a companion to be present but respects patient's wishes and dignity**

Very effective: Regardless of whether the provider asks about a companion or not, the provider respects patient autonomy by:

- Recognizing communication help is not needed
  AND/OR
- Recognizing / respecting patient wishes to proceed without a companion

Provider makes initial attempts to communicate with patient, HOWEVER:

- Abandons attempts and insists on communicating only with family
  AND/OR
- Makes comments about needing a companion to help with communication that are somewhat disrespectful to patient dignity

Not at all effective: Provider refuses to communicate with patient without someone to help
AND/OR Provider highly disrespectful of patient dignity

8. How effective is the provider in **<u>showing respect for the dignity of the patient</u>** through tone of voice, language, demeanor, and generally maintaining naturalness?

Very effective –Provider CONSISTENTLY normalizes the interaction through rapport, tone of voice, and other communication behaviors to achieve a very natural and respectful tone throughout the interaction.

Provider CONSISTENTLY makes efforts to normalize the interaction through establishing and maintaining rapport, and using age-appropriate vocabulary and tone of voice. However, the interaction still lacks complete naturalness or a feeling of being genuine.

The provider makes ongoing efforts to normalize the interaction through establishing rapport and using age-appropriate vocabulary and tone of voice; but still lapses occasionally into disrespectful mannerisms. OR some of these areas may be appropriate where others are not.

Provider demonstrates brief and/or occasional efforts to establish rapport or otherwise normalize the interaction, but otherwise uses a tone of voice, vocabulary, or other behaviors that seem to be talking down to the patient.

Not at all effective – The provider makes no effort to establish rapport or otherwise normalize the interaction. The provider consistently talks down to the patient in terms of vocabulary, tone of voice, or other disrespectful behaviors.

9. **OVERALL**, how effective is the provider in **accommodating for the communication needs** of the patient?

This section is intended to be an overall rating encompassing all of the prior areas rated.

Very effective –Provider CONSISTENTLY accommodates patient's communication needs throughout the interaction;
OR provider recognizes where accommodations are not needed.
Either way, the interaction is highly natural and comfortable

Provider CONSISTENTLY provides communication accommodations that match the patient's needs, although brief or occasional lapses occur. Limited areas of unmet needs remain and/or interaction feels somewhat unnatural.

Provider makes frequent comments demonstrating awareness of patient communication needs and/or makes frequent efforts to accommodate. May provide accommodations in some areas but not others. The result is 'patchy' in that some communication needs are met but others are not.

Provider makes brief or rare efforts to adjust communication to meet apparent patient needs, but these efforts are very limited and of minimal effectiveness.

Not at all effective – The provider demonstrates no awareness and / or makes no accommodations for what are apparent patient needs for communication accommodations