Inter-disciplinary Reliability of an Instrument to Measure Patient-Provider Communication

During Medical Interactions

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A thesis

submitted in partial fulfillment of the

requirements for the degree of

Master of Science

University of Washington

2020

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Program Authorized to Offer Degree:

Speech & Hearing Sciences

University of Washington

Abstract

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Effective communication between patients with communication disorders and their
healthcare providers is essential in maintaining a high quality and efficiency of medical services
and care. The University of Washington has developed the FRAME training seminar, and
subsequently the FRAME instrument, to help medical students more effectively communicate
with this patient population. Previous studies have only examined the reliability of the FRAME
instrument when used by practitioners and graduate students from the field of speech-language
pathology. The purpose of this study was to determine whether preceptors across other
healthcare disciplines could reliably rate communication behaviors of medical student trainees
interacting with standardized patients portraying communication disorders using the FRAME
instrument used in the University of Washington training. Thirteen participants who are UW
preceptors from the fields of speech-language-pathology, rehabilitation medicine, medicine, and
nursing were recruited to rate the communication behaviors medical students interacting with

standardized patients portraying communication disorders and submit qualitative feedback on their experiences. Results of the study found low inter-rater reliability using the FRAME instrument for both members of speech-language pathology and rehabilitation medicine. Qualitative survey feedback indicated that a majority of participants had positive experiences overall with some suggesting modifications to the comprehensiveness of the orientation and to the layout of the FRAME instrument.

ACKNOWLEDGEMENTS

I would like to give special thanks to my thesis advisor, Michael Burns, Ph.D., CCC-SLP, for his dedicated guidance and instruction throughout the entirety of this project. I would also like to share my gratitude for my thesis committee members Carolyn Baylor, Ph.D., CCC-SLP and Sara Kover, Ph.D. for their support throughout the completion of this study. Further, I would like to thank my study participants for their valuable time and insight. Finally, I would like to thank my wonderful family and friends for cheering me on throughout the process. It takes a village!

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Introduction

Successful communication between patients and healthcare providers lies at the foundation of delivering quality healthcare services. Consequently, patient-provider communication (PPC) has become a core clinical skill included both in the provision of clinical services and in clinical training programs across multiple healthcare disciplines (Blackstone, Beukelman, & Yorkston, 2015). This is due to the influence communication between a patient and provider can have on various healthcare outcomes. Effective PPC is associated with numerous positive healthcare outcomes such as overall patient healthcare experience, effectiveness of clinical interventions, and patient safety and care (Doyle, Lennox, & Bell, 2013). Conversely, poor or ineffective PPC has been shown to result in a variety of detrimental impacts on healthcare outcomes such as delayed treatment, misdiagnosis, medication errors, patient injury, and even death (Foronda, MacWilliams, McArthur, 2016).

Importance of Effective Communication with Patients with Communication Disorders

Effective communication is particularly important between patients with communication disorders and their healthcare providers. Individuals with communication disorders are a unique patient population, as their disorders may inhibit their abilities to convey or receive information—ultimately increasing the risk for miscommunication. In fact, patients with communication disorders have been shown to be "three times more likely to experience a preventable adverse event," exemplifying the crucial need to preserve patient-provider communication (Bartlett, Blais, Tamblyn, Clermont, & McGibbon, 2008, pg. 1559). Additionally, a study from the Journal of General Internal Medicine found that those with communication disorders had poorer outcome measures than those who did not (Stransky, Jensen, & Morris, 2018). This poses a future goal for members of all healthcare disciplines to

ensure that "our healthcare providers and system [are] prepared to provide high-quality patient-centered healthcare to patients with communication disorders."

Based on the results of a 2012 National Health Interview Survey, 10% of the United States population have been diagnosed with communication disorders (Morris, Meiser, Griffin, Branda, & Phelan, 2016). Despite the prevalence of individuals with communication disorders, patients and family members have reported that when communication breakdowns occur, healthcare providers are quite often ill-equipped with the necessary awareness and training to repair poor medical interactions (Burns, Baylor, Dudgeon, Starks, & Yorkston, 2015). Further, patients with communication disorders, their families, and healthcare providers have all recognized that adjustments and modifications to PPC are essential in preserving the integrity of the interactions between each party (Burns et al., 2015). One means of addressing potential communication breakdowns is implementing communication skills training specific to interacting with patients with communication disorders across healthcare disciplines.

Emerging research reports that equipping healthcare providers with strategies for efficient communication through comprehensive training and evaluation can significantly improve patient-provider communication outcomes (Burns, Baylor, McDonough, Mach, & Yorkston, 2019; Rao, Anderson, Inui, Frankel, 2007). One means of ensuring proper education on communication is though the implementation of skills training specific to working with patients with communication disorders at the academic level.

Communication Skills Training

To ensure that their future providers are competent communicators, healthcare disciplines have historically incorporated communication skills training into the clinical education curriculum provided to their students. Receiving education and training in implementing

communication strategies can help healthcare providers work towards maintaining the integrity of interactions with their patients and improving overall patient healthcare outcomes (Berkhof, van Rijjsen, Schellart, Anema, & van der Beek, 2011; Gysels, Richardson, Higginson, 2004; Merckaert, Libert, Razavi, 2005). Communication skills training embedded into clinical education provides future providers with the foundational knowledge and techniques to serve the general population seeking care and treatment (Doyle et al., 2013). Resultantly, healthcare providers are now more familiarized with and trained to use PPC techniques across a variety of situations that they may encounter during service delivery (Yorkston, Baylor, Burns, Morris, & McNalley, 2015). For example, the University of Washington of School of Medicine has implemented a patient-centered communication curriculum during one of its six-week, core rotations for its medical students with an emphasis on establishing focus, understanding the patient's perspective of the illness, and reaching common ground (Egnew, Mauksch, Greer, & Farber, 2004).

Historically, however, training and research surrounding the improvement of PPC skills have neglected content addressing strategies to best serve and accommodate patients with communication disorders (Burns, Baylor, Morris, McNalley, & Yorkston, 2012). This is highly problematic as a lack of communication training integrated into educational programs can potentially perpetuate the disparity between the healthcare outcomes of those with communication disorders and those without. The general lack of communication training specific to patients with communication disorders and uniformity across existing training methodology exemplify the pressing need for a standard protocol of training to be upheld and administered across healthcare disciplines that is specifically aimed at serving this patient population.

In response to this 'gap' in communication skills training, speech-language pathologists (SLPs) from the University of Washington (UW) began implementing a medical student training protocol specific to interacting with patients with communication disorders, currently known as the FRAME training program. At the core of this communication skills training seminar is the FRAME mnemonic for improving interactions with patients diagnosed with communication disorders: *Familiarize, Reduce rate, Assist with communication, Mix communication methods,* and *Engage the patient* (Burns et al., 2012). Trainees participating in this program are taught to incorporate the strategies of FRAME to improve overall communication with patients across communication disorders. Additionally, they are also taught which communication strategies are more appropriate to use with patients presenting with specific communication disorders (e.g., speaking at a reduced rate, providing a written modality for the client to communicate, etc.).

As part of the FRAME training, UW medical students first participate in a 20-minute online orientation video providing an overview of various types of communication disorders. They then attend a two-hour, in-person training session which includes a didactic lecture on different communication-enhancing strategies, and a series of simulated medical interviews in which they have the opportunity to practice using these strategies with UW Speech and Hearing Sciences students trained as standardized patients to portray the communication disorders aphasia and dysarthria. After the simulation, trainees are then provided feedback from SLP students that they can incorporate during future interactions with actual patients with communication disorders (Yorkston et al., 2015).

Specific communication skills training has been found to have generally positive effects on the communication competency of trainees. For instance, research has examined the effects of the FRAME training program on the communication skills of students belonging to a variety

of different healthcare disciplines (Burns, Baylor, & Yorkston, 2017; Burns et al., 2012; Mach, H., Baylor, C., Burns, M., & Yorkston, K. [submitted]). Post-training performance results reveal several positive outcomes with students including increased knowledge about communication disorders and increased student confidence in being able to work with patients with communication disorders (Baylor et al., 2019; Yorkston et al., 2015). FRAME training has also been associated with an increased ability to demonstrate learned communication strategies when working with simulated patients (Baylor et al., 2019). Similarly, studies conducted by other parties have also found positive outcomes associated with focused communication training specific to serving patients with communication disorders (Cameron, McPhail, Hudson, Fleming, Lethlean, & Finch, 2017; Eriksson, Forsgren, Hartelius, & Saldert, 2016; Forsgren, Hartelius, & Saldert, 2016; Legg Young, & Bryer, 2005).

Evaluating Communication Skills

Being able to reliably measure the outcomes of communication skills training allows educators to confirm the effectiveness of training programs and ensure that future healthcare providers are performing to a certain degree of communicative competency. However, similar to existing trainings, the methodology and criteria used in the evaluation of general communication skills competency and performance also varies widely across healthcare disciplines. For example, medical students' communication skills are measured using the Objective Structured Clinical Examination (OSCE). One of the many skills that are assessed in the OSCE is a rating of medical students' general, global communication skills. OSCE's typically use a 6-item rubric measuring various aspects of communication (e.g., mechanics of verbal expression, interaction with the patient/health professional, etc.) that is scored by medical school faculty using a 4-point Likert scale (Schwartzman, Hsu, Law, & Chung, 2011). In comparison, the communication skills

of physical therapy students are often assessed by their clinical instructors using the Physical Therapist Clinical Performance Instrument for Students. Instructors use this instrument to evaluate their students' abilities to communicate "in ways that are congruent with situational needs" during general patient encounters using a discrete, 6-point scale ranging from *Beginning Performance* to *Beyond Entry-Level* performance with additional comments on overall performance dimensions (American Physical Therapy Association, 2019).

The variety that exists among evaluation criteria may be due to the complex and multi-faceted nature of communication, resulting in a variety of ways to quantify skill and ability. Differences in assessment measures may also be attributed to the fact that each tool has been designed to measure different elements of PPC performance (e.g., general communication abilities versus a highly specific set of unique skills). Furthermore, communication is unique in that it is highly context-dependent (Bensing, Van Dulmen, & Tates, 2003). The dynamics of the interaction can be dictated by a seemingly infinite number of factors including the setting, the type of encounter, the level of medical emergency (e.g., acute care visit, annual physical, etc.), the topic of discussion, who the communication partners are, and their respective abilities to communicate and connect with one another (Horton, Clark, Barton, Lane, & Pomeroy, 2016). Despite of large variation in what each tool is designed to measure and how it quantifies competency, one consistency can be found across available tools: none have historically measured PPC skills specific to interacting with patients with communication disorders.

As part of an initial pilot research study examining changes in medical students' communication skills after receiving the FRAME training, a measurement tool (subsequently referred to as the 'FRAME instrument') was developed by UW researchers. This measurement tool was used to rate specific communication behaviors representing each component of the

FRAME mnemonic (Baylor et al., 2019) and has evolved over a series of multiple studies to preserve and improve the overall feasibility, validity, and reliability in the evaluation of communication competency (Després, 2017; Myres, 2018).

The FRAME instrument initially consisted of a behavioral checklist assessing skills from each of the FRAME areas along with general PPC interviewing skills that medical trainees are expected to have mastered at this stage in their education. Additionally, raters using the FRAME instrument were required to provide visual analog scale (VAS) ratings for each FRAME section and an overall rating of communication skills. However, the original version of the FRAME instrument was judged too cumbersome to use and score (e.g. checklist behaviors were rated in different ways and VAS measurements required use of a ruler to obtain numerical scores). Additionally, while some students made no significant changes in strategy-use pre and post training using the FRAME instrument, they improved in terms of the overall quality of their PPC. This suggested that the FRAME instrument was not sensitive enough to accurately capture specific performance (i.e. communication behavior) changes of participating students pre- to post-training (Després, 2017).

Based on these limitations of the FRAME instrument, Després (2017) sought to distill effective communication into a short list of the key behaviors in order to revise and simplify the FRAME instrument to improve its overall sensitivity. As a part of this master's thesis study, second year SLP graduate students at the University of Washington were recruited to view examples of medical students exhibiting both highly effective PPC and generally poor PPC with patients with communication disorders, and then discuss helpful and unhelpful communication behaviors they observed during a series of focus groups. Transcribed focus group interviews were then analyzed to determine the most salient communication behaviors to demonstrate

competency when interacting with patients with communication disorders. These salient

communication behaviors are summarized in Table 1.

Table 1. Key Behaviors for Effective Patient-Provider Communication (from Després, 2017).
1. Familiarize yourself with the patient's preferred mode 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.

Based on Després' findings, multiple revisions were made to the FRAME instrument

(Myres, 2018). Domains assessed with the new version of the instrument were based on the key

behaviors reported by the Després, 2017 study (e.g., "shows respect," "uses multi-modal

communication," "adjusts pace appropriately," etc.). Additionally, the revised version of the

FRAME instrument consisted of a 100mm VAS rating for each of the nine key communication

behaviors with endpoints of "Not at all appropriate" and "Very appropriate" to guide participant

ratings.

In a follow-up study, Myres, 2018 sought to evaluate use of the revised FRAME

instrument through a series of cognitive interviews and used participant feedback to inform any

further modifications. Second year UW graduate SLP students were again recruited to participate

in the Myres, 2018 study. Participants in the study engaged in cognitive interviews where they

were asked to watch the same prerecorded video interactions between medical students and

standardized patients as was used in the Després study, and then rate the communication

performance of medical students using the FRAME instrument. As part of these interviews, participants were also asked to discuss how they were evaluating using the FRAME instrument and to provide feedback on how to improve it. As each participant's feedback was collected, modifications were made to improve the instrument, including changes in formatting (e.g., vertically orienting each VAS, adding calibrating descriptions to multiple points along each VAS, etc.) and in the content of specific items (e.g., combining two similar evaluation items into one single item to avoid redundancy).

Using modifications from the Després and Myres studies, a pilot study analyzing the inter-rater reliability of the FRAME instrument was conducted in 2019. This study was the first to utilize an online version of the FRAME instrument adapted from previous versions of the instrument on paper. Results of this study found that SLPs and SLP students were able to use the instrument with a high level of inter-rater reliability when rating provider interactions with simulated patients portraying dysarthria from Parkinson's disease (Sherman, Burns, & Baylor, 2019).

While the FRAME training is meant to be presented across healthcare disciplines, the evaluations of participants' communication skills are typically performed by SLPs. In each of these previous studies at the University of Washington, performance was assessed by SLPs and SLP graduate students (Burns et al., 2012). A search of the literature finds that similar studies examining the effects of communication training are also either rated by SLPs or by the researchers running the prospective study (Cameron et al., 2017; Eriksson et al., 2016; Forsgren et al. 2016; Legg et al., 2005).

Though it seems to be the most logical to default to SLP to conduct seminars and evaluate post-training performance specific to communication interactions involving patients

with communication disorders, inherent limitations exist. To begin, it is not typical for SLPs to allocate time to training communication skills for students and practitioners of other disciplines. Though it is true that members of the field of SLP are equipped with this specialized knowledge, universities must consider a variety of other factors such as additional compensation, travel costs, and other logistical challenges. A potential, more efficient alternative is to have providers and faculty members of other disciplines manage the training and post-seminar evaluation process. However, it remains unclear whether preceptors from other disciplines can reliably use the FRAME instrument.

Having preceptors belonging to other healthcare disciplines evaluate their own students would likely streamline the process. Since they are the primary educators of students in their disciplines, it would be logical for them to incorporate communication evaluation specific to working with patients with communication disorders into their existing curriculum. This would remove the need for a third-party SLP instructor and evaluator and minimize some logistical challenges. This would also allow for a much wider distribution of the program which in turn, increases the opportunity for expansive, positive impact of specialized training. Moreover, by placing the responsibility of communication skills evaluation into the hands of providers outside of the field of SLP, there is an added level of shared accountability on the end of each discipline to ensure that all future healthcare providers are given the necessary education in how to best serve their patients with communication disorders.

However, there are potential challenges that may arise in having members of each discipline evaluate their own students. For example, preceptors in other healthcare disciplines with no previous background in SLP or past interdisciplinary experience collaborating with SLPs may not be as cognizant of some of the more subtle communication behaviors underlying

effective communication with patients with communication disorders. This may result in perceptual variability among evaluators of different disciplines in terms of the quality of student PPC competency specific to working with patients with communication disorders. This prompts further investigation into whether or not members of other disciplines are able to use the given rating instrument to provide a reliable evaluation of performance.

Purpose of This Study

Communication skills training administered to students of various healthcare disciplines has been shown to positively affect their knowledge, confidence, and use of communication-enhancing strategies when interacting with standardized patients portraying communication disorders (Burns, Baylor, & Yorkston, 2017). Pairing this training with an effective way to measure the trainees' communication skills can help equip future healthcare providers with the necessary education and skills to best serve patients with communication disorders.

While the FRAME instrument has demonstrated some initial inter- and intra-rater reliability within the field of SLP, it is unclear whether preceptors of a variety of disciplines can reliably measure trainees' communication behaviors using the FRAME instrument. The aim of this pilot study is to investigate if members of various healthcare disciplines are able to rate the performance of student trainees with the same degree of reliability within each respective discipline. Additionally, this study seeks to explore whether or not different discipline groups provide similar ratings to one another. Thus, this study addresses to answer the following research questions:

RQ1: What is the within-discipline inter-rater reliability of practitioners from various

healthcare disciplines (i.e. medicine, nursing, physical therapy, occupational therapy,

speech-language pathology) when rating medical student communication behaviors using the FRAME instrument?

RQ2: Is there a significant difference in how members of different healthcare disciplines rate medical student communication behaviors using the FRAME instrument?

RQ3: What is the experience of practitioners from various healthcare disciplines regarding the use of the FRAME instrument?

Methods

This study included practicing clinicians who are preceptors and/or mentors in several different healthcare disciplines across departments at the University of Washington. Each participant completed one, 60-minute research session. Following a pre-recorded orientation video, each participant used the FRAME instrument to rate two simulated medical interactions between UW medical students and standardized patients trained to portray either aphasia or dysarthria recorded from previous trainings. After completing their two ratings, participants completed a survey designed to collect demographic information and qualitative feedback regarding their experiences using the FRAME instrument. This study was approved by the Institutional Review Board from the University of Washington.

Participant Recruitment

A convenience sample of participants was recruited from various healthcare disciplines within the University of Washington including SLP, nursing, medicine, and rehabilitation medicine (i.e., physical therapy, occupational therapy, and prosthetics & orthotics). A total of 13 individuals participated in this study, with five participants recruited from the discipline of SLP, six participants from rehabilitation medicine, one participant from nursing, and one participant from medicine. All participants were practicing clinicians and preceptors or mentors of students

from their respective disciplines. Participants were primarily recruited through email based on their roles and titles as preceptors in their respective departments at the University of Washington. Recruitment emails and invitations that detailed a general overview of the study's purpose and tasks were distributed by the lead researcher (See appendices A & B for the text of the recruitment emails and invitations).

Data Collection

The following section describes the FRAME instrument and online orientation used in this study. The specific methodology of data collection used in this study is then summarized.

Rating using the FRAME instrument. Each participant rated all nine items assessed by the FRAME instrument for each video reviewed, with the last rating being an overall rating of the medical students' communication skills. Table 2 lists the nine areas of communication that correspond to the items in the FRAME instrument. All rated items are outlined in Appendix C.

Table 2. Behaviors Rated in the FRAME Instrument

1. 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

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The FRAME instrument uses a series of VAS ratings to measure communication skills. Though VASs are traditionally 100mm in length with scores being calculated as the distance from one anchor to where the rater marked along the scale, this was not feasible due to the online format of the FRAME instrument used in this study. Recognizing that the length of the lines would vary across different technological devices, the VASs used in this study were designed as a scale of percentages with the anchor wording of *Not at all effective* and *Very effective* at each end—corresponding to scores of 0% and 100%, respectively.

The VASs in this online rating instrument were vertically oriented, with calibrating descriptions provided alongside the approximate 0%, 25%, 50%, 75%, and 100% marks. These descriptions provided more concrete and operational definitions of the communication behaviors being rated to guide participants' ratings (e.g., "Provider is generally effective in assessing client's preferences, existing strategies, AND/OR abilities; BUT efforts may still be awkward or somewhat incomplete" represented an anchor score of 75). Participants used a mouse to drop a cursor at the location on the VAS that they felt best represented a student's performance on a specific skill. The location of the cursor was then automatically translated into a 0-100 score based on the location (percentage of the length) along the VAS and recorded for each item rated. An example of the FRAME instrument for item 1 is depicted in Figure 1.

Figure 1. VAS for Item 1 of the FRAME instrument.

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

Orientation to the FRAME instrument. All participants were asked to complete an approximately 10-minute long, pre-recorded online orientation to the FRAME instrument. This self-paced orientation provided a brief summary of the purpose of this study, an introduction to the online FRAME instrument, and an example of how to rate three different items on the instrument (e.g. 1. *Learning how the patient communicates*, 2. *Multi-modal communication*, and 9. *Overall communication accommodations*) using a short sample video clip of a simulated interaction between a medical student and a standardized patient with aphasia.

Participant ratings of simulated medical interactions. Participants enrolled in the study were assigned a unique identifier and 5-digit passcode to use when logging into the FRAME instrument website. Following completion of the online orientation, all participants viewed and rated the same two, pre-selected videos of medical students interacting with standardized patients portraying communication disorders. Each of the two videos were approximately 10-minutes long, with one including a standardized patient portraying dysarthria from Parkinson's disease and the other a standardized patient portraying moderate expressive and receptive aphasia. Immediately following each video, participants were asked to use the online FRAME instrument to rate the quality of the communication behaviors of the medical students in each video.

All behavioral ratings from each participant enrolled in the study were collected via the online FRAME instrument. These ratings were then exported to an Excel spreadsheet. Statistical analyses were then conducted using SPSS. Given the limited number of participants representing the fields of nursing and medicine, only the data for the disciplines of SLP and rehabilitation medicine were used to answer RQ1 and RQ2.

Demographic information and online rating instrument feedback. After viewing and

rating both videos using the FRAME instrument, participants completed a short online survey

within Catalyst Webtools. This survey collected demographic information about each participant

and qualitative feedback on their experience completing both the online orientation and using the

FRAME instrument, including whether or not the participant felt that the orientation and/or

instrument could be modified or improved. Questions included in this participant survey are

summarized in Tables 3 and 4.

Table 3. Participant Survey Items – Demographic Information

1. Please enter your healthcare discipline.
2. Please enter your current position title.
3. Please enter the number of years you have been practicing in your discipline.
4. Please enter the number of years you have served as a preceptor/mentor/supervisor of student clinicians in your discipline.
5. Please enter your gender.
6. Please indicate your age group.
7. In your clinical work, have you ever had previous experience working with patients with communication disorders? If so, please describe the nature and extent of your experience.
8. Have you had previous experience supervising students working with patients with communication disorders? If so, please describe the nature and extent of this experience.
9. Have you ever received explicit communication skills training as part of your clinical education? If so, please briefly (2-3 sentences) describe the nature and extent of this training.
10. Have you ever received specialized communication skills training for working with patients with communication disorders? If so, please briefly (2-3) sentences describe the nature and extent of this training.

Table 4. Participant Survey Items – User Experience

Please answer the remaining 3 questions in regards to your experience with both the use of the online FRAME instrument and the online orientation:

1. Please briefly (2-3 sentences) describe your overall experience using the online FRAME instrument (e.g., ease of navigation and use, efficiency of entering ratings, etc.).

2. Please briefly (2-3 sentences) describe any modifications you would recommend to the online FRAME instrument to improve the user experience (e.g., any wording changes, layout changes, etc.).

3. Finally, please describe any additional information that you would recommend be included in the online orientation to increase the competency of raters using the online FRAME instrument.

Reported demographic information from all participants was exported into an Excel spreadsheet. Demographic data are reported in Table 5.

Table 5. Demographic Information.

ID*	Discipline	Gender	Age Range	Years as a Practitioner	Years as a Preceptor
SLP1	SLP	Female	41-55	15	1
SLP2	SLP	Female	26-40	12	6
SLP3	SLP	Female	26-40	13	7
SLP4	SLP	Female	26-40	6	4
SLP5	SLP	Female	41-55	18	14
R1	OT	Female	41-55	25	4
R2	P&O	Female	26-40	16	10
R3	P&O	Female	26-40	14	12
R4	P&O	Female	41-55	20	10
R6	PT	Male	41-55	17	15
R9	PT	(Did not submit survey.)			
N1	Nursing	Male	41-55	25	20
M2	Medicine	Male	56+	25	25

*ID & Discipline Key:
Speech-Language Pathology (SLP)
Nursing (N)
Medicine (M)

Rehabilitation Medicine (R)
- Occupational Therapy (OT)
- Prosthetics and Orthotics (P&O)
- Physical Therapy (PT)

Data Analysis

Research questions 1 and 2 used data collected only from SLPs and rehabilitation professionals due to only having a single participant from both the fields of nursing and medicine. All analyses were calculated using SPSS. For RQ1, a series of intra-class correlations (ICCs) were used to assess inter-rater reliability for participants within each of the disciplines of SLP and rehabilitation medicine for each video. The threshold for good reliability was set at an ICC of 0.7 and above (Koo & Li, 2016). For RQ2, the average scores across raters for each item in each discipline were used to conduct Mann-Whitney U tests using t-tests in SPSS to determine any differences in how participants from the SLP group rated communication skills in comparison to participants from the rehabilitation medicine group. The significance threshold was set at a p-value of 0.05. For RQ3, qualitative feedback was collected and sorted into an Excel spreadsheet, and trends in participant feedback from all disciplines regarding their experience with the online orientation and use of the rating instrument were summarized.

Results

All participant ratings for each item across the two videos are summarized in Appendix D. These ratings were used to answer RQ1 and RQ2 below.

**RQ1: Inter-rater reliability of item ratings amongst those in their same disciplines.** Reliability of raters within each of the rehabilitation and SLP disciplines were assessed for each video using intra-class correlation coefficients (ICCs). The individual SLP participant item ratings for each of the two videos that were used to calculate inter-rater reliability for RQ1 are depicted in the scatterplots in Figure 2.
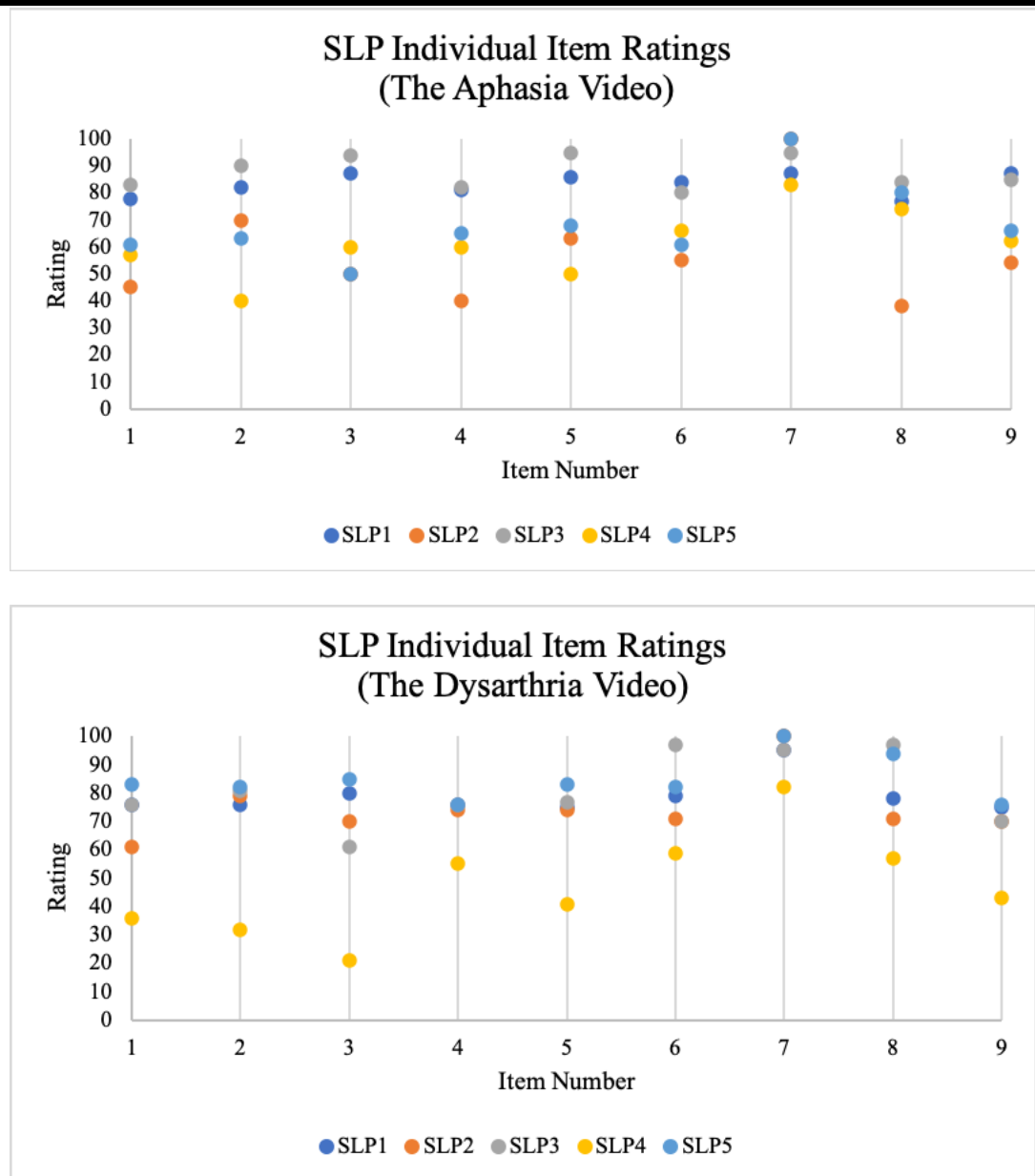
The individual rehabilitation medicine item ratings for each video that were used to calculate inter-rater reliability for RQ1 are depicted in the scatterplots in Figure 3.

Rehabilitation Medicine Individual Item Ratings (The Aphasia Video)

Rehabilitation Medicine Individual Item Ratings (The Dysarthria Video)
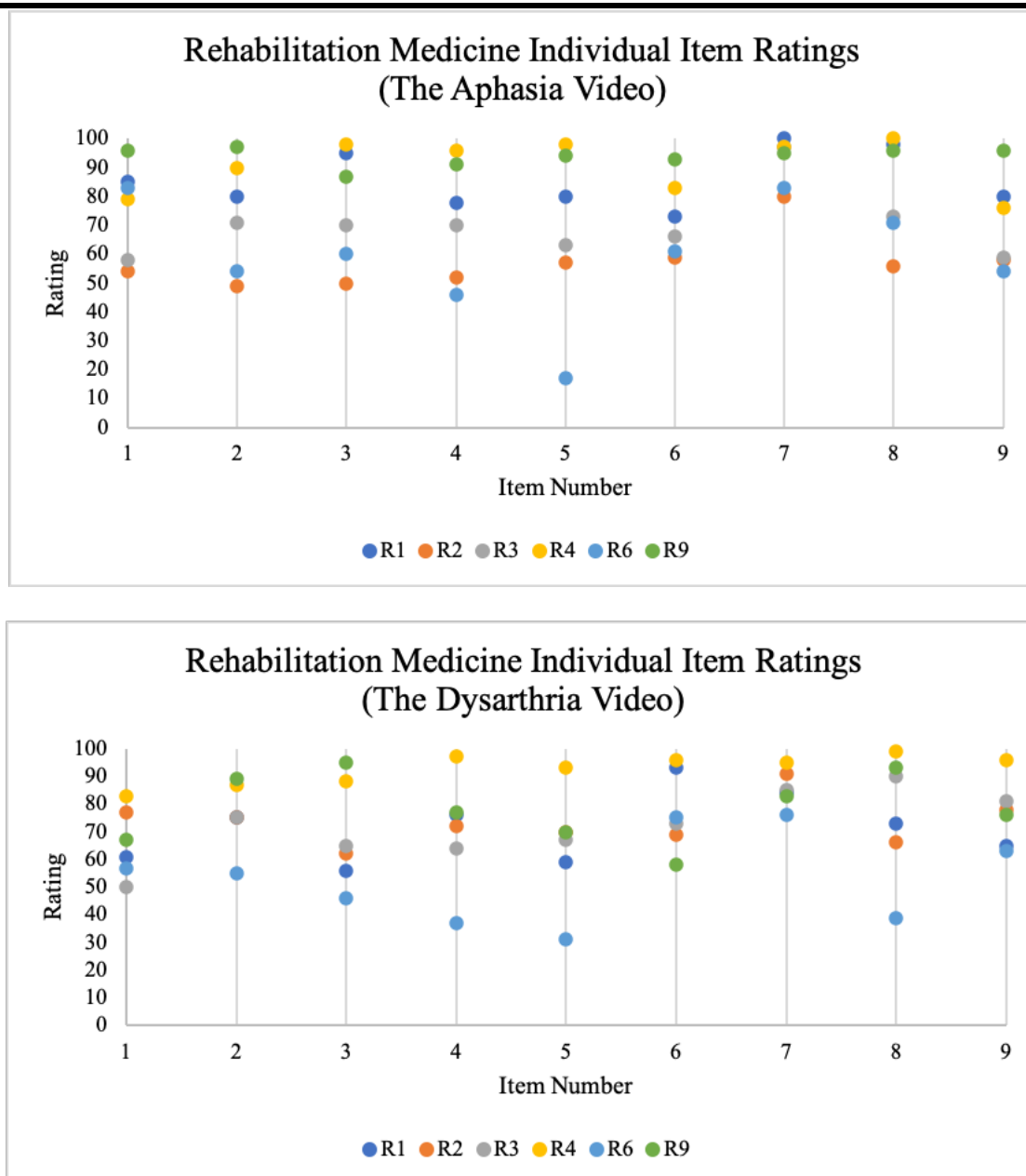
For the aphasia video, a low degree of reliability was found among ratings from members belonging to the field of SLP. As depicted in Table 6, The ICC for SLPs rating during the aphasia video was 0.478 with a 95% confidence interval from 0.029 to 0.831. A low degree of

reliability was also found among members from the field of rehabilitation medicine. The ICC for

rehabilitation professionals was 0.379 with a 95% confidence interval from 0.009 to 0.770.

Table 6. The Aphasia Video – Intraclass Correlation Coefficients

	95% Confidence Interval	ICC
SLP	0.029 to 0.831	0.478
Rehabilitation	0.009 to 0.770	0.379

Similarly, a low degree of reliability was also found for the dysarthria video between ratings

from members belonging to the field of SLP. As summarized in Table 7, the ICC for SLPs was

0.576 with a 95% confidence interval from 0.124 to 0.871. A low degree of reliability was also

found between ratings from members from the field of rehabilitation. The ICC for rehabilitation

professionals was 0.368 with a 95% confidence interval from -0.055 to 0.779.

Table 7. The Dysarthria Video – Intraclass Correlation Coefficients

	95% Confidence Interval	ICC
SLP	0.124 to 0.871	0.576
Rehabilitation	0.124 to 0.871	0.368

In addition, it was observed that SLP4 rated communication skills much lower (up to 47 points)

than other SLP participants. To investigate whether there was a significant change without

SLP4's ratings, a separate set of ICCs was computed for SLPs without the data collected from

SLP4. As depicted in Table 8, the ICC increased to 0.776 with a 95% confidence interval from

-0.040 to 0.813 for the aphasia video but decreased to 0.433 with a 95% confidence interval from

0.421 to 0.941 for the dysarthria video.

Table 8. Intraclass Correlation Coefficients without SLP4

	95% Confidence Interval	ICC
Aphasia Video	-0.040 to 0.813	0.776
Dysarthria Video	0.421 to 0.941	0.433

RQ2: Differences in how disciplines are rating communication behaviors. In order to
identify whether there was a significant difference in how SLPs rated the communication skills
of medical students in comparison to rehabilitation professionals, the FRAME instrument item
ratings between SLPs and rehabilitation professionals were compared. To make these
comparisons, the mean score for each item across raters in each discipline for both videos was
first computed. These mean scores are summarized in Tables 9 and 10 below.

Table 9. Mean Item Ratings Across Raters per Item - The Aphasia Video

	SLP	Standard Deviation	Rehabilitation Medicine	Standard Deviation
Item 1	64.80	15.59	75.83	16.41
Item 2	69.00	19.29	73.50	19.25
Item 3	68.20	20.91	76.67	19.65
Item 4	65.60	17.27	72.17	20.26
Item 5	72.40	18.06	68.17	29.89
Item 6	69.20	12.40	72.50	13.32
Item 7	93.00	7.71	92.00	8.34
Item 8	70.60	18.60	82.33	18.18
Item 9	70.80	14.55	70.50	16.32

Table 10. Mean Item Ratings Across Raters per Item - The Dysarthria Video				
	SLP	**Standard Deviation**	**Rehabilitation Medicine**	**Standard Deviation**
Item 1	66.40	18.80	65.83	12.43
Item 2	70.00	21.37	76.00	12.12
Item 3	63.40	25.44	68.67	18.97
Item 4	71.40	9.21	70.50	19.71
Item 5	70.00	16.58	65.00	20.15
Item 6	77.60	14.03	77.33	14.57
Item 7	94.40	7.37	85.67	6.62
Item 8	79.40	16.56	76.67	22.31
Item 9	66.80	13.59	76.50	11.98

Using these mean scores, Mann-Whitney U tests were then conducted in SPSS to determine whether SLP ratings were significantly different than rehabilitation professional ratings for both the aphasia video and the dysarthria video. Results are summarized in Table 11.

For the aphasia video, no significant difference was found in the item ratings made by SLPs compared to those made by rehabilitation professionals ($p = 0.537$). Similarly, for the dysarthria video, it was also found that there was no significant difference between the item ratings of SLPs and rehabilitation professionals ($p = 0.537$).

Table 11. Mann Whitney U-Tests

|	**Significance**
Aphasia Video	0.537
Dysarthria Video	0.537

Additionally, scatterplots were generated to visually compare the mean item ratings of SLPs and rehabilitation practitioners (see Figures 4 and 5). A visual examination of these scatterplots

supported the results of the Mann-Whitney U-tests, suggesting a majority of data points for each item being clustered together.

Figure 4. SLP and Rehabilitation – Ratings Per Item Averaged Across Participants (The Aphasia Video)
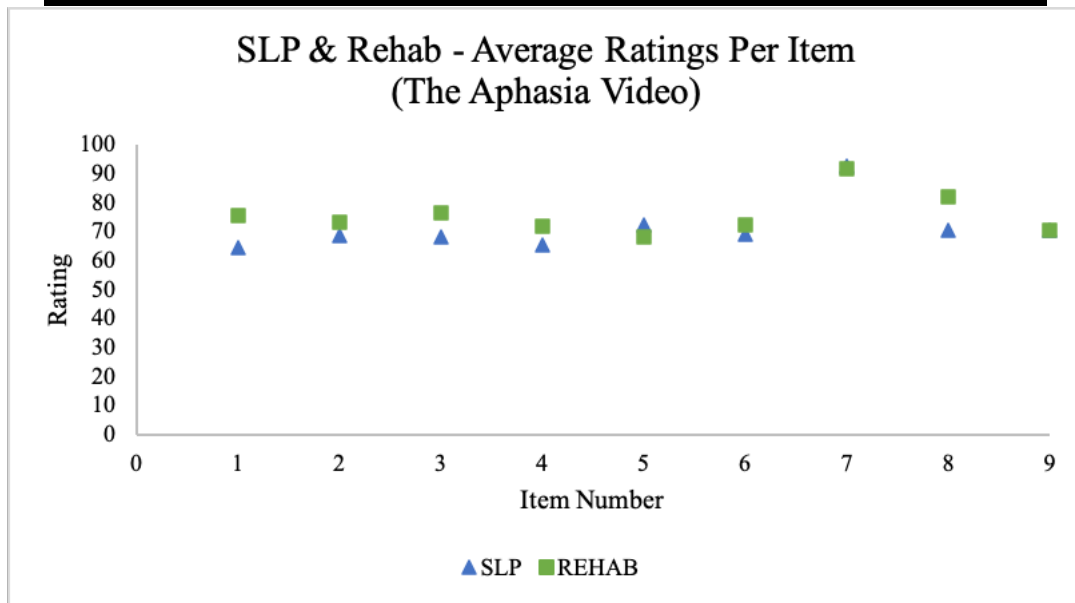
Figure 5. SLP and Rehabilitation – Ratings Per Item Averaged Across Participants (The Dysarthria Video)
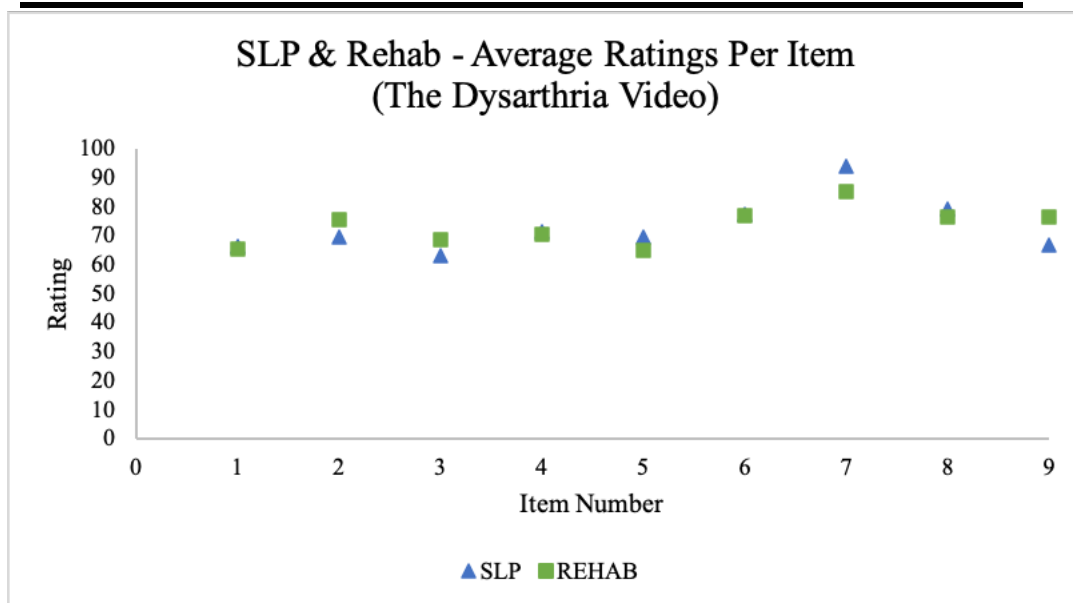
For the purpose of visual comparison, the data from the single nursing participant and the single medicine participant were included in an additional set of scatterplots depicting the item ratings provided by all participants of this study as depicted below in Figures 6 and 7. A visual analysis of the data points for the aphasia video suggest that aside from the participant from medicine who tended to provide a lower score for each item than other disciplines, most participants amongst the remaining disciplines provided item ratings that were similar to each other (Figure 6). A visual analysis of the data points for the dysarthria video (Figure 7) indicate that the item ratings from participants from all disciplines tended to cluster together.
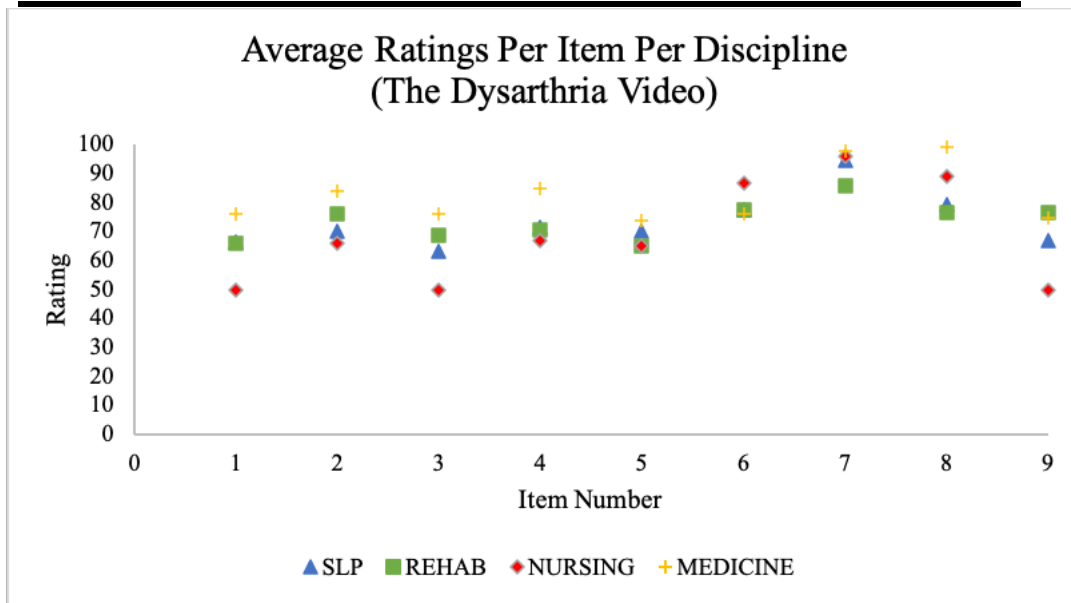
Figure 6. All Disciplines – Ratings Per Item Averaged Across Participants (The Aphasia Video)
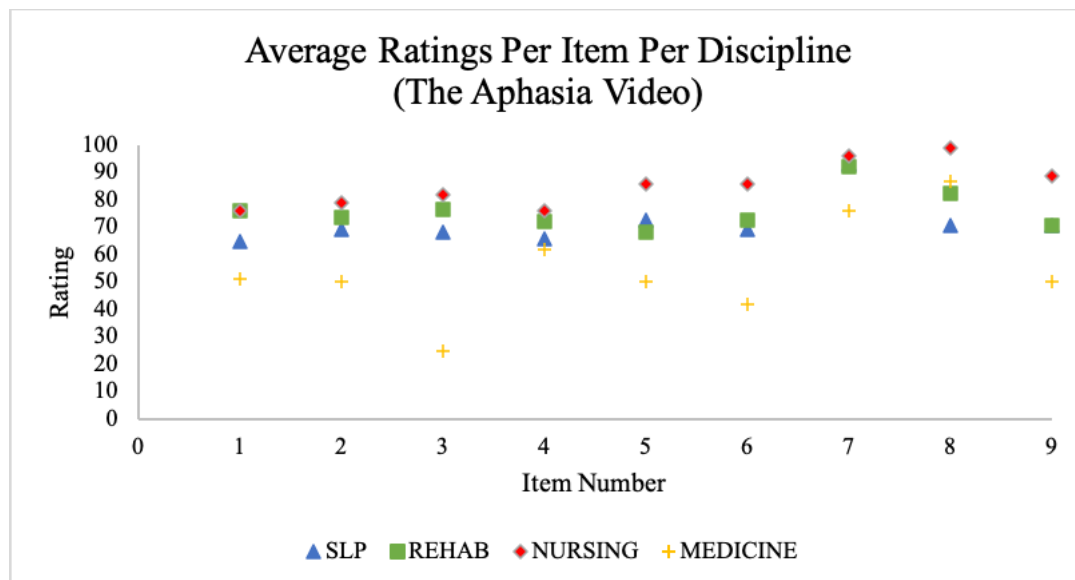
Figure 7. All Disciplines – Ratings Per Item Averaged Across Participants (The Dysarthria Video)

RQ3: Feedback on the user experience. Participants provided qualitative feedback on their experiences with both the online orientation and using the FRAME instrument through an online survey. Feedback was collected and summarized for 12 out of the 13 participants of this study. For unknown reasons, R9 (a physical therapist categorized as rehabilitation practitioner) did not submit a post-rating survey, despite several attempts to follow up with the participant via email.

Feedback on the online orientation. One area of focus on the survey was the participants' experience and feedback with the online orientation component of the study. The majority of the participants, including all SLPs, reported positive experiences with the orientation—finding it to be sufficient in its current form and not recommending any changes. Specifically, some participants found the video examples depicting specific behaviors being rated helpful. SLP1 reported satisfaction with the orientation, stating: "I liked the video example provided in the orientation video. This helped me to see how trained raters were rating the medical students to

give some guidance of what they are looking for." Similarly, SLP3 wrote that, "It was especially helpful to have the calibration/instruction video to ensure that I wasn't too hard on the med students, and SLP5 reported an "overall good experience."

Several participants suggested some specific changes that could be made to make the online orientation more helpful for rating using the online FRAME instrument. The orientation used in this study provided example ratings for only a few items (items 1, 2, and 9). One change participants suggested was a thorough explanation for all 9 items of the instrument to be presented during the orientation. SLP2 suggested, "It would be helpful for the online orientation to go through all 9 of the parameters, with examples for each." Similarly, R6 noted, "It would be nice to go through the entire tool, not just a couple of questions [items]."

In addition, several participants suggested that multiple examples of varying degrees of competency for each item would be beneficial during the orientation for the purpose of calibration of item ratings. R6 offered the following insight:

> "It would also be very helpful to describe the negative aspects of why a better rating wasn't given. I thought the provider in the training did really well, and there was a lot of positive praise given in the orientation, but not description of why a "less-than-perfect" rating was given for things to look out for to inform other ratings."

R3 similarly reported, "Having examples of each category for each item would be helpful. For example, I would be curious to see a really poor communication attempt versus one that is slightly better." SLP3 wondered, "if a video example of a poor communication interaction could be used in addition to the more positive videos." R1 recommended that "an example of high,

medium and poor skills" would help enable users of the FRAME instrument "to better gauge the continuum."

Feedback on the FRAME instrument. Participants also commented on their experiences using the online FRAME instrument. Several participants across all disciplines reported general satisfaction with the FRAME instrument. For example, SLP1 wrote:

"I liked the toggle switch approach. I liked that I could place the marker between rating items but not have to assign an exact number. This felt like less pressure and I was able to give more nuance to my answer."

SLP4 commented that the instrument was "user-friendly and… clear." SLP5 also shared that the instrument was "easy to use, operational definitions clear, and efficiency high." In addition, participants from other disciplines also reported satisfaction with the instrument. R2 wrote:

"The FRAME rating instrument was very easy to understand, and I really appreciated the descriptions of each rating level. I found that the rating levels were intuitive- and paralleled how I might have described the interactions."

N1 shared that the FRAME instrument was "very easy to use, the descriptions helped me orient my ratings." R3 also noted that they "thought the system was very easy to navigate and understand" and that "entering ratings was straightforward."

Participants also provided suggestions for future modifications. Several participants reported the dimensions and layout of the instrument presenting challenges. SLP2 noted: "When [the instrument] was large enough to read, the slider tended to move too far up or down when I adjusted it. When I made it small enough to fit on the screen, it was difficult to read the anchors." R6 wrote that they experienced "some difficulty managing the scroll bar as the whole page

moved instead of just the bar." Further, R4 provided insight on how difficulties resulting from the layout of the instrument may have impacted item ratings:

"I may have rated higher because I wasn't able to see the entire slider scale to gauge where to put the dot. In addition, the location of the scale varied from page to page, which likely had an effect on my perception of the overall length of the scale."

Participants also made a variety of specific recommendations to alter the layout of the tool or to change how ratings were made using the instrument in order to improve the user experience. With the impression that the FRAME instrument "seemed a bit awkward," R4 posed the following:

"What do you think about using a rubric like the canvas rubrics where the rater clicks a cell? Or, if you prefer a sliding scale, what do you think about putting them all on the same page? I think being on the same page would help me as a rater be more exact between items."

SLP 2 discussed a preference for "radio buttons," which would limit the participant to a choosing one rating from a predefined set of options, and "wondered if a horizontal slider would fit better on the screen." The option to "write in feedback" was also suggested (SLP2). M1 noted that "an optional open-ended question rating the trainee(s) with a text box for the respondent would yield useful qualitative information."

Discussion

The primary purpose of this study was to determine whether preceptors across healthcare disciplines were able to reliably rate communication behaviors of medical student trainees interacting with standardized patients portraying communication disorders using the FRAME instrument. Preliminary studies demonstrated inter- and intra-rater reliability using the

instrument among practicing SLPs and SLP graduate students. However, these studies did not examine the reliability of ratings from members of other healthcare disciplines. Thus, this study explored the inter-rater reliability of the FRAME instrument within the SLP discipline as well as among rehabilitation professionals. It also investigated any differences in ratings between the two disciplines. The results suggest that there was poor inter-rater reliability using the FRAME instrument within each healthcare discipline group, and that item ratings did not vary significantly across discipline groups.

In order to increase the reliability of ratings and improve the user experience of the FRAME instrument, this study also collected qualitative feedback on the online orientation and experience using the current version of the instrument. Qualitative survey feedback indicated that a majority of participants found the online orientation to be adequate and the FRAME instrument to be easy to use and navigate. Some commonly suggested modifications included a more comprehensive orientation with explanations of each item being assessed, and changes to the dimensions and layout of the FRAME instrument.

Decreased inter-rater reliability within disciplines suggests that there was a relatively large range of scores for each item rated by members of each discipline. Additionally, the lack of a significant difference between the average scores for each item between disciplines may be attributed to the overlap in each discipline's score range (i.e. the lack of reliability of each rated item) versus similar item ratings between disciplines. Taken at face value, results of this study suggest that disciplines other than SLP possess sufficient knowledge and skill related to interacting with patients with communication disorders to effectively use the FRAME instrument. However, if the reliability of the FRAME instrument increases, it may then reveal a significant difference in the ratings other disciplines provide using the instrument compared with

SLPs. Thus, it is important to increase the reliability of the FRAME instrument (i.e. narrowing the range of item ratings for each discipline) to determine whether there actually is a difference in the item ratings provided by SLPs and other disciplines. This may be accomplished through a more comprehensive orientation video, creating a standard visual representation of the instrument across devices, and increasing the sample size in future studies.

Clinical Implications

The results of this study indicate that preceptors of the field of SLP are not necessarily more adept at rating communication during medical interactions involving patients with communication disorders compared to other healthcare disciplines due to their specialized knowledge in working with this patient population. This finding suggests that members of other healthcare disciplines are able to use the FRAME instrument to assess students who are training to work with patients with communication disorders similarly to SLPs.

As previously discussed in this paper, little research has explored the ability of members of other healthcare disciplines outside of SLP to rate communication skills of providers working with patients with communication disorders. Those assessing communication skills competency of student clinicians from various disciplines when working with patients with communication disorders tend to be SLPs or the researchers conducting the prospective studies (Cameron et al., 2017; Eriksson et al., 2016; Forsgren et al. 2016; Legg et al., 2005). This study provides some preliminary evidence to suggest that SLPs are not uniquely qualified to rate communication behaviors of student trainees from different disciplines when interacting with patients with communication disorders, provided the raters are prepared with sufficient training and a rating tool that provides adequate guidance such as the calibrating rating statements in the FRAME tool used here. If further modifications are made to the orientation and FRAME instrument to

increase its reliability and if there remains no significant difference in ratings across healthcare disciplines, preceptors of various healthcare disciplines should to be able to rate communication skills equally well.

Research Implications

Based on the feedback provided by participants, the lack of inter-rater reliability using the FRAME instrument may be attributed to the online orientation not being comprehensive enough (i.e., not reviewing each item assessed by the instrument). The lack of thorough explanation may have led to greater variability in item ratings. Moreover, the lack of standardized dimensions and the variable appearance of the FRAME instrument due to the variety of devices used by participants may have also had an impact on reliability (e.g., the size and scale may have skewed one's ratings).

Study Limitations

There were a few limitations to this study. First, this project was designed to be a pilot study and had a small sample size of 13 total participants. Of these 13 participants, a majority of participants were preceptors of the fields of SLP or rehabilitation medicine, with only a single preceptor participant representing medicine and nursing. Resultantly, inter-rater reliability could not be calculated for those two disciplines and differences in item ratings across all four disciplines would not provide meaningful results. Moreover, all participants were preceptors at the University of Washington. Had this study been conducted with participants belonging to a variety of different institutions and healthcare settings, the demographic backgrounds (e.g., years as a practitioner, previous communication training, etc.) may have been more diverse and yielded different results.

Further, the participant sample did not represent a wide range of experience levels as preceptors and as practitioners. 9 out of 13 participants reported 10 or more years of experience as a preceptor. Similarly, while 12 out of 13 participants had extensive experience as practitioners in their fields (12+ years), SLP4 was the only one who did not (~6 years). Though years as a preceptor did not seem to contribute to increased variability in item ratings, years as a practitioner seemed to play a factor. During the data analysis process, it was observed that SLP4 rated communication skills much lower than other SLP participants. This indicates that years of experience as a practitioner may be a potential factor in how one rates communication skills reliably. In this study, the greater representation of more-experienced practitioners may have led to reliability results that are more indicative of how senior practitioners would rate communication skills versus a more general population of practitioners.

The remote nature of this study may have also contributed to its limitations. For instance, the researchers were unable to account for the environments in which participants completed the study (e.g., a quiet room with minimal distractions versus a noisy coffee shop). Second, researchers were unable to ensure that the layout and dimensions of the FRAME instrument were consistent across all devices used by participants (e.g. iPad, desktop PC, Macbook) and their browsers of choice (e.g., Google Chrome, Firefox, Safari, etc.). A more controlled environment and the use of one, standard device and browser may have potentially had an impact on participant ratings and their feedback regarding the user experience. Lastly, aside from email correspondence, there was no direct contact between the researchers and the participants. Thus, the pre-recorded orientation and online nature of the rating portion of the study did not allow for synchronous questions from the participants to the researchers, and no participants reached out

with questions during the study. Participants were limited to the information they were provided in the orientation to guide them throughout the tasks of the study.

Future Research

The results of this study contribute to the continued development of a reliable and user-friendly version of the FRAME instrument to be used by preceptors belonging to a variety of different healthcare disciplines. Given our limited data set, with no statistical difference between *how* participants across disciplines are rating communication behaviors, further studies may first focus primarily on increasing the reliability of the instrument. This may be accomplished through a more comprehensive orientation process (e.g., providing examples for each item, having frequent "check-points" with participants during the orientation, etc.) for calibrating purposes and the creation of a standard, visual representation of the FRAME instrument across devices.

Additionally, increasing the sample size and diversifying the population of participants will provide more insight into inter-rater reliability within disciplines and how practitioners tend to rate across disciplines when using the most up-to-date version of the FRAME instrument. This will also allow for broader perspectives in terms of qualitative feedback on the user-experience. This may be accomplished through the inclusion of participants affiliated with a variety of universities and academic institutions as well as participants of varying years of experience as practitioners in their fields.

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APPENDIX A: Recruitment Email

Subject: Participation in an Online Master's Thesis Study

Dear [Name]

My name is Gretchen Go, and I am a graduate student from the University of Washington's Speech & Hearing Sciences Department. I am writing to invite you to participate in my graduate thesis research study focused on the evaluation of healthcare students' communication skills when working with patients with communication disorders.

We have developed an online rating instrument to measure the effectiveness and efficiency of communication skills exhibited by healthcare students when working with patients with communication disorders. Currently, members of speech-language pathology have been the only practitioners who have used this instrument as an evaluation tool. Moving forward, we aim to expand our research and investigate the reliability of this instrument when used by preceptors belonging to a variety of different healthcare disciplines.

I received your contact information from my thesis advisor, Dr. Michael Burns, CCC-SLP. Based on your role as a [preceptor (and mentor/supervisor)] in the field of [nursing, medicine, rehabilitation medicine (specific discipline), or SLP], you have the background and experience to provide valuable input into this project.

Participation in this study is voluntary, and involves a self-paced, 60-minute online session (with breaks as needed). We are looking to collect data up until May 15th.
If you are interested in participating or learning more about the study, please email me at gretchgo@uw.edu. Thank you for your time and consideration.

Sincerely,
Gretchen Go

Dear _____,

Thank you for agreeing to participate in my graduate thesis research study focused on the evaluation of healthcare students' communication skills when working with patients with communication disorders. We appreciate your valuable time. Below you will find consent information for participating in the study, as well as the steps to complete.

CONSENT FOR PARTICIPATION
We are asking you to consent to participating in a self-paced online study that will last up to 60 minutes in total (you can take breaks as needed).

Participation in this study is voluntary. You can refuse to participate, and withdraw from the study at any time, even if you have not yet finished.

This study focuses on checking the reliability of an online instrument we developed to measure communication skills of medical students during simulated medical interactions. We are looking to see if preceptors and mentors of students from different healthcare disciplines (speech-language pathology, medicine, nursing, and rehabilitation medicine) can use this instrument to reliably measure these communication behaviors.

Participation in this study involves watching a 10-minute online orientation regarding the purpose of the study and how to log in and use the online rating instrument, watching 2, 10-minute pre-recorded videos of simulated medical interactions and rating the communication skills of the healthcare provider in each video, and completing a 10-minute survey consisting of basic demographic information and feedback regarding your experience using the online rating instrument.

Results from this study (and thus, your participation) can help us determine whether this instrument is ready to be used in future research studies in this area, or if changes need to be made before it is ready for use in future research.
Participants for this study will not be compensated.
By logging in and completing the online orientation for this study, you are consenting to participating in the study.

STEPS FOR PARTICIPATION
STEP 1: COMPLETE THE BRIEF ORIENTATION
    1. Please view the short (approximately 10 minute) "Online orientation" video which outlines the purpose of the study and how to access and use the online instrument. This video can be accessed in the OneDrive folder "Participant orientation docs" (you may have received an email granting you access).

STEP 2: VIEW AND RATE THE VIDEOS
To set up your ratings using the online instrument:
    1. Please visit **framecommunication.org** and log in using the following credentials:
        A. Username: <unique username>
        B. Password: <unique pw>

2. Please select the study "Multidisciplinary Raters" and click "submit".
3. Then, select the name of the first video assigned to you for rating in the drop down menu that you will view and rate. Click "submit." You will view and rate these 2 videos in the following order:
    1. Video_O1DC2
    2. Video_R2CD3
    Select "Start Questions" to begin completing ratings on that video.
4. Once you have completed ratings on our first video, select "Rate a new video" and locate the name of the second video your list to rate from the drop-down menu. Click "submit."
5. Once you have rated both videos using the online instrument, click "Log out of this session."

To access the videos to view and rate:
1. Please again access the "Participant orientation docs" OneDrive folder to access the videos to rate.
2. Please click to view the video that corresponds with the name of the video you are set to rate using the online instrument (i.e. make sure the video you watch is the same as the name of the video you are rating in the online instrument).
3. Watch the first video, and complete your ratings using the online instrument (hint: best to have these open in 2 separate browser windows to more easily toggle between the video and the rating instrument).
4. Once you have watched and rated the first video, click to view the second the aphasia video your list to watch and rate.
6. Please feel free to refer back to the video as needed while you are completing your ratings.

STEP 3: COMPLETE THE CATALYST SURVEY
1. Once you have completed your two (2) video ratings, please visit the following link to complete a short Catalyst survey including some demographic information and your perspective on the viewing and rating experience: https://catalyst.uw.edu/webq/survey/mburns/385939
2. Login with the following ID: <unique ID>
3. Please answer all questions and submit your survey.

Please feel free to take breaks as needed **so long as the study is completed within a 48-hour window** once you have begun and **no later than May 15th**. I will reach out to you with a reminder email if there are any outstanding tasks past that time frame.
Please email me at gretchgo@uw.edu with any questions. Thank you!

Sincerely,
Gretchen Go, B.S.

APPENDIX C: VASs for Each of the Items Assessed by the FRAME Instrument

Item 1. Learning how the patient communicates.

1. Learning how the patient communicates

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?

Back   End   Next

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, or abilities; **BUT** efforts may be awkward or somewhat incomplete.

Provider asks client about preferences, 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 - Provider makes no acknowledgement of or inquiry into the client's communication needs or preferences early in the session.

Item 2. Multi-modal communication.

2. Multi-Modal Communication

<u>Throughout the session</u>, 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. 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 recognizes that patient does not need multi-modal communication so does not offer it.
OR Provider uses multi-modal communication for effective, natural information exchange.

Provider establishes one or several effective multi-modal strategies,
BUT efforts may be awkward or inefficient.

Provider explores multi-modal materials with client,
BUT
- Does not find a multi-modal strategy that works **OR**
- Abandons a strategy that is working and thus fails to use it consistently **OR**
- Finds a good strategy too late in the session to be very effective

Provider makes brief suggestion or inquiry, or briefly looks at or shows materials to client
BUT does not follow through to determine if the materials are useful.

Not at all effective - Provider makes no effort to offer or use multi-modal communication when it is needed, **OR** ignores patient's attempts to do so.

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Item 3. Balancing support without overly reacting.

3. Balancing support without overly restricting

Throughout the session, how effective is the healthcare provider in **supporting the patient's communication needs without overly restricting** the patient's communication opportunities?
Examples of communication supports the provider might use (beyond multi-modal communication which was addressed 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

An example of insufficient support would be asking the client open-ended questions when the client is clearly not able to provide a response.

An example of overly restrictive communication would be asking the client only yes/no questions when the client is able to convey more complex or varied information.

Very effective - Provider consistently uses a good balance of communication supports without restricting the client's autonomy; the exchange seems natural.

Provider establishes a good balance of providing supports without overly restricting the client,
BUT there are occasional lapses of providing too much or too little 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 **OR**
- Fails to keep trying new strategies if current one is not working **OR**
- Is consistently overly restrictive for client's communication abilities

Not at all effective - Provider makes no effort to change communication style to support patient's needs.
OR Provider consistently limits patient's communication opportunities by imposing overly restrictive communication methods
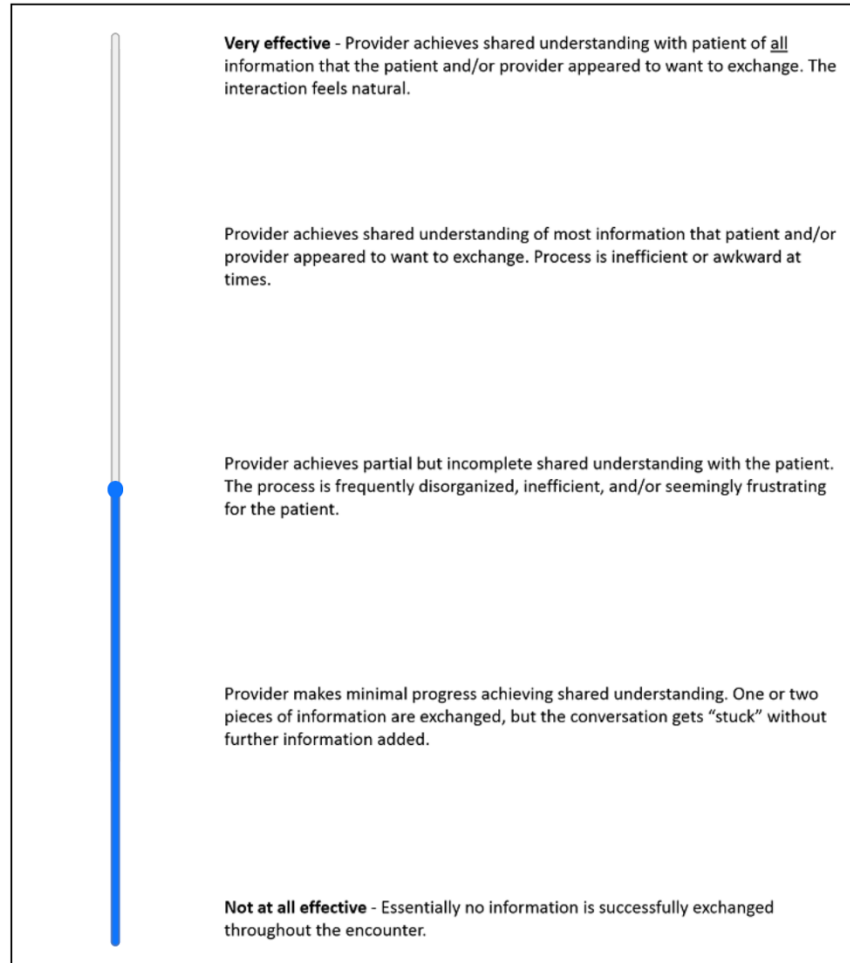
Item 4. Achieving shared understanding.

4. Achieving shared understanding

How effective is the provider in moving the conversation forward to **achieve a shared understanding of information** with the patient?
By 'shared understanding' we mean the provider appears to:

- Understand what the patient is trying to convey AND
- Convey information in a way that the patient can understand

Very effective - Provider achieves shared understanding with patient of <u>all</u> information that the patient and/or provider appeared to want to exchange. The interaction feels natural.

Provider achieves shared understanding of most information that patient and/or provider appeared to want to exchange. Process is inefficient or awkward at times.

Provider achieves partial but incomplete shared understanding with the patient. The process is frequently disorganized, inefficient, and/or seemingly frustrating for the patient.

Provider makes minimal progress achieving shared understanding. One or two pieces of information are exchanged, but the conversation gets "stuck" without further information added.

Not at all effective - Essentially no information is successfully exchanged throughout the encounter.

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Item 5. Managing communication breakdowns.

5. Managing communication breakdowns

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 patient's dignity.

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

Provider successfully repairs some but not all communication breakdowns. **OR** Provider occasionally but not consistently verifies information

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

Not at all effective - Examples:
- Provider ignores or makes no overt acknowledgement of breakdowns **OR**
- Provider makes no effort to repair communication breakdowns **OR**
- Provider may pretend to understand patient when s/he does not **OR**
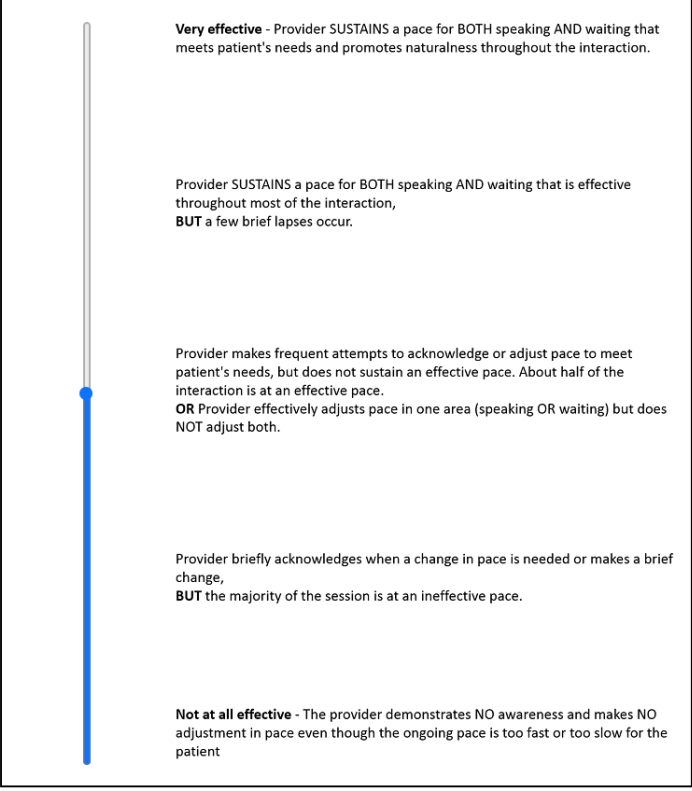- Provider may place undue burden or blame on client for breakdowns

Item 6. Adjusting the pace.

6. Adjusting the pace

How effective is the provider in **adjusting the pace of the interaction** to be comfortable for the patient?

- For pace, consider if the provider BOTH
  - SPEAKS at a pace that is comfortable for the patient to understand
  - WAITS sufficient time for the patient to respond
- Pace can be INEFFECTIVE if the provider goes:
  - TOO FAST
    - Speaks too fast for client to understand
    - Does NOT wait long enough for patient to respond
  - TOO SLOW for the client
    - Speaks so slowly that speech is awkward, uncomfortable, or condescending, OR
    - Waits too long when patient clearly is not able to respond

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

Provider SUSTAINS a pace for BOTH speaking AND waiting that is effective throughout most of the interaction,
BUT a few brief lapses occur.

Provider makes frequent attempts to acknowledge or adjust pace to meet patient's needs, but does not sustain an effective pace. About half of the interaction is at an effective pace.
OR Provider effectively adjusts pace in one area (speaking OR waiting) but does NOT adjust both.

Provider briefly acknowledges when a change in pace is needed 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 too fast or too slow for the patient

Item 7. Autonomy related to family member or companion.

7. Autonomy related to family member or companion

How effective is the provider in **maintaining patient autonomy** in the interaction with regards to the involvement of a family member or companion?

(In this set of videos there are no companions present. The following scale is designed to be used when no companion is present.)

- If the patient is able to communicate independently, a companion is not needed. The issue may be ignored as it would likely be in a typical medical encounter.
- The provider may ask if the patient wishes a companion to be present but respects patient's wishes.
- If the provider needs help communicating with the patient, the provider addresses this with the patient in a way that respects the patient's autonomy.
- Examples of threats to patient autonomy would include the provider stating a strong preference to communicate with a companion instead of the patient.

Very effective - Provider recognizes patient is able to communicate independently and proceeds as they would in a typical encounter. **OR** Provider asks about / suggests including a companion in a way that shows respect for patient's preference and autonomy.

Provider makes 1-2 brief comment(s) that threaten patient autonomy, **BUT** otherwise respects autonomy and preferences of client regarding involvement of companion.

Provider continues efforts to communicate with patient throughout session, **BUT** makes frequent comments / efforts that disrespect patient autonomy / preferences regarding involving a companion.

Provider makes initial attempts to communicate with patient, HOWEVER
  • Abandons attempts and insists on finding a companion to communicate with
    OR
  • Makes comments to the patient that are highly disrespectful of patient autonomy

Not at all effective - Provider refuses to communicate with the patient without a companion present AND does so in a way that is very disrespectful to patient autonomy

Item 8. Respecting dignity.

8. Respecting dignity

How effective is the provider in **showing respect for the dignity of the patient** through tone of voice, language, demeanor, and generally maintaining naturalness of the interaction?

Very effective - Provider uses a genuinely natural and respectful style throughout the interaction.

Provider uses a natural and respectful style throughout the interaction **BUT**
 • There are a few brief lapses **OR**
 • The interaction style does not seem quite genuine

Provider makes efforts to use a natural and respectful style through most of the interaction **BUT**
 • There are frequent lapses **OR**
 • Some aspect of interactions are respectful while other aspects are consistently NOT respectful

Provider demonstrates brief or occasional efforts at a natural and respectful style, **BUT** throughout most of the session, the provider talks down to the patient in terms of vocabulary, tone of voice, or other disrespectful or condescending behaviors

Not at all effective - Throughout the entire session, the provider consistently talks down to the patient in terms of vocabulary, tone of voice, or other disrespectful or condescending behaviors.
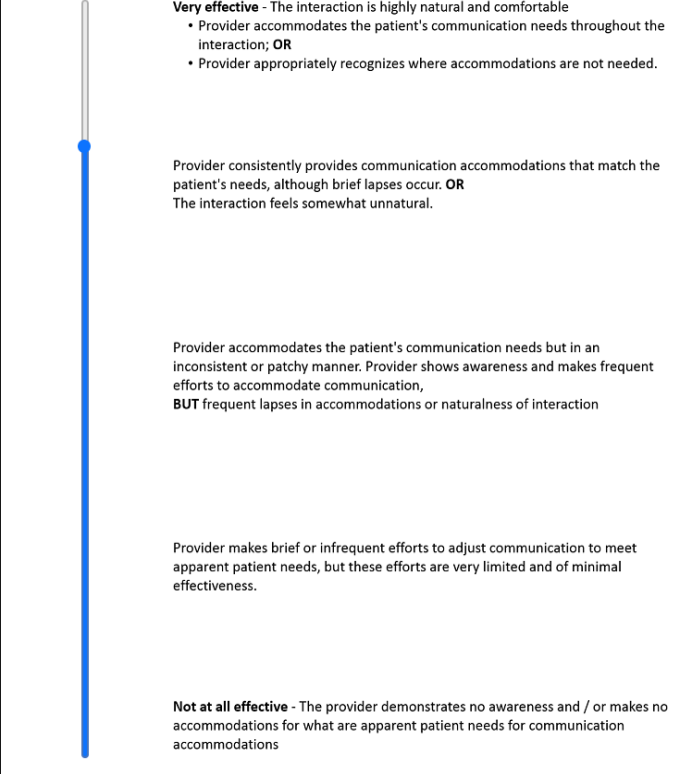
Item 9. Overall communication accommodations.

9. Overall communication accommodations

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 - The interaction is highly natural and comfortable
  • Provider accommodates the patient's communication needs throughout the interaction; **OR**
  • Provider appropriately recognizes where accommodations are not needed.

Provider consistently provides communication accommodations that match the patient's needs, although brief lapses occur. **OR**
The interaction feels somewhat unnatural.

Provider accommodates the patient's communication needs but in an inconsistent or patchy manner. Provider shows awareness and makes frequent efforts to accommodate communication,
BUT frequent lapses in accommodations or naturalness of interaction

Provider makes brief or infrequent 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

APPENDIX D: Individual Participant Ratings for Each Item Assessed for The Aphasia

Video and The Dysarthria Video

Speech-Language Pathology						
Video	Item #	SLP1	SLP2	SLP3	SLP4	SLP5
The Dysarthria Video	1	76	61	76	36	83
	2	76	79	81	32	82
	3	80	70	61	21	85
	4	76	74	76	55	76
	5	75	74	77	41	83
	6	79	71	97	59	82
	7	95	100	95	82	100
	8	78	71	97	57	94
	9	75	70	70	43	76
The Aphasia Video	1	78	45	83	57	61
	2	82	70	90	40	63
	3	87	50	94	60	50
	4	81	40	82	60	65
	5	86	63	95	50	68
	6	84	55	80	66	61
	7	87	100	95	83	100
	8	77	38	84	74	80
	9	87	54	85	62	66

Rehabilitation Medicine							
Video	Item #	R1	R2	R3	R4	R6	R9
The Dysarthria Video	1	61	77	50	83	57	67
	2	75	75	75	87	55	89
	3	56	62	65	88	46	95
	4	76	72	64	97	37	77
	5	59	70	67	93	31	70
	6	93	69	73	96	75	58
	7	84	91	85	95	76	83
	8	73	66	90	99	39	93
	9	65	78	81	96	63	76
The Aphasia Video	1	85	54	58	79	83	96
	2	80	49	71	90	54	97
	3	95	50	70	98	60	87
	4	78	52	70	96	46	91
	5	80	57	63	98	17	94
	6	73	59	66	83	61	93
	7	100	80	97	97	83	95
	8	98	56	73	100	71	96
	9	80	58	59	76	54	96

Medicine		
Video	Item #	M2
The Dysarthria Video	1	76
	2	84
	3	76
	4	85
	5	74
	6	76
	7	98
	8	99
	9	75
The Aphasia Video	1	51
	2	50
	3	25
	4	62
	5	50
	6	42
	7	76
	8	87
	9	50

Nursing Video	Item #	N1
The Dysarthria Video	1	50
	2	66
	3	50
	4	67
	5	65
	6	87
	7	96
	8	89
	9	50
The Aphasia Video	1	76
	2	79
	3	82
	4	76
	5	86
	6	86
	7	96
	8	99
	9	89