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Measuring the social interactions of people with traumatic brain injury and their communication partners: The adapted Kagan scales

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Background: Considerable attention has been given to the nature of communication impairments of individuals with TBI (Coelho, 2007; Ylvisaker, Turkstra, & Coelho, 2005). However, there have been few data focusing on the way communication partners deal with the often distressing sequelae of TBI.

Aims: This study reports inter- and intra-rater reliability of the Adapted Measure of Support in Conversation (MSC) and Measure of Participation in Conversation (MPC) for TBI interactions.

Method & Procedures: The MSC and MPC were adapted to reflect theoretical models of cognitive-communication support for people with TBI. A total of 10 casual and 10 purposeful TBI interactions were independently rated by two raters to establish inter-rater reliability and by one rater on two separate occasions to determine intra-rater reliability.

Outcomes & Results: Excellent inter-rater agreement was established on the MSC (ICC = 0.85–0.97) and the MPC (ICC = 0.84–0.89). Intra-rater agreement was also strong (MSC: ICC = 0.80–0.90; MPC: ICC = 0.81–0.92). Over 90% of all ratings scored within 0.5 on a 9-point scale.

Conclusions: This is the first scale to measure the communication partner during TBI interactions. It shows promise in evaluating communication partner training programmes.

Keywords: Traumatic brain injury; Rating scales; Conversation; Assessment; Cognitive-communication.

According to the World Health Organisation, traumatic brain injury (TBI) will surpass many diseases as the major cause of death and disability by the year 2020 (Hyder,

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Wunderlich, Puvanachandra, Gururaj, & Kobusingye, 2007). It is estimated that 10 million people are affected worldwide annually, leading to a significant pressure on health and medical resources. TBI most often affects young adults who suffer devastating life-long disabilities; however, there is also a higher incidence in early childhood and the elderly (Bruns & Hauser, 2003). Traumatic brain injury (TBI) can result in cognitive communication impairments, which may significantly affect interpersonal relationships (Struchen et al., 2008). Considerable attention has been given to the nature of communication impairments of individuals with TBI (Coelho, 2007; Ylvisaker, Turkstra, & Coelho, 2005); however, there have been few data focusing on the way communication partners deal with the often distressing sequelae of TBI.

In any conversation the person with communication difficulties represents only one side of the interaction. The behaviour of their conversational partner is important, facilitating, or diminishing opportunities for the individual with brain injury to continue the conversation in a successful manner. Indeed, it has been found that TBI individuals are often disadvantaged in interactions because of the way their communication partners interact with them. For example, in a study of telephone conversations where TBI participants requested information from a range of communication partners, they were asked for and were given less information than matched control participants (Togher, Hand, & Code, 1996, 1997a, 1997b). Therapists and mothers never asked people with TBI questions to which they did not already know the answer. Additionally, TBI participants were more frequently questioned regarding the accuracy of their contributions and contributions were followed up less often than matched control participants. Communication partners used patronising comments, flat voice tone, and slowed speech production when talking to people with TBI. This was in contrast to the control interactions, where participants were asked for unknown information, encouraged to elaborate, did not have their contributions checked frequently, and had their contributions followed up. It is therefore important to consider the contributions of the communication partner, as they can be a barrier or facilitator to effective interactions for people with TBI. Examining interactions with everyday communication partners is also consistent with the WHO ICF (WHO, 2001) call to consider environmental and other factors during assessment. As a consequence of increased understanding of the impact of partners on communication, partner training aimed at improving communication support has arisen as an approach to intervention. The difficulty is that few assessment tools have been designed to examine the contributions of communication partners in interactions of people with acquired brain injury.

One exception, developed for use with volunteers in conversations with people with aphasia (PWA) (Kagan, Black, Duchan, Simmons-Mackie, & Square, 2001; Kagan et al., 2004), is the Measure of skill in Supported Conversation (MSC). The MSC rates the uninjured communication partner's ability to (i) acknowledge and (ii) reveal communication competence of the PWA. The Measure of Participation in Conversation (MPC) examines the PWA's ability to participate in the interactional and transactional elements of conversation (Kagan et al., 2004). Kagan et al. (2004, p. 75) states, "The set of measures was deliberately designed to assess aspects of communication on a macro or global level." The motivation behind the measures was to reduce the focus of ratings solely on the person with aphasia and represent the person in the context of another, along with the degree of support their communicative partner provides.

Administration of the MSC and MPC involves the rater scoring a 10-minute videotape of a social interaction between the person with aphasia and their communication partner on a 9-point Likert scale. Psychometric data have been reported (Kagan et al., 2004) attesting to the robust nature of this measure when evaluating the interactions of PWA

and volunteer conversational partners. Inter-rater reliability was estimated using intraclass correlations. Intraclass correlations provide a refined estimation of rater reliability, taking into account whether agreement is between the same or different raters (Shrout & Fleiss, 1979). Using this approach, inter-rater reliability on the Patient Participation (MPC) and Partner Support (MSC) Measures ranged between .91 and .96 ($p < .001$). Construct validity was measured by correlating informal clinical judgements by speech pathologists of communicative proficiency with MPC and MSC ratings on 10 individuals with aphasia. There was a significant positive correlation between informal clinical judgement and scores on all categories of the measures for both raters (rater 1: rho ranged from .87 to .95, $p < .01-.001$; rater 2: rho ranged from .83 to .88, $p < .001-.003$).

The structure and main elements of the Kagan scales provide a solid basis for use in examining the interactions of people with TBI. However, the nature of support required in TBI interactions is different. Skills theorised to be important for supporting people with TBI have been developed by Ylvisaker and colleagues including scaffolding, cognitive supports, collaboration, and elaboration techniques (Ylvisaker, Feeney, & Urbanczyk, 1993; Ylvisaker, Sellars, & Edelman, 1998). For example, in teaching collaborative techniques, the following information is given to the communication partner:

We are doing this together, as a cooperative project.

When in conversation, this means that we intend to convey this message to the other person. That is, we take turns, each having a go and helping the other person.

Conversation is more about shared meaning than whether content is right or wrong alone.

Collaboration is a way of "sharing the floor" in a conversation, making sure that each person contributes as much as they can in the situation, supporting the person with brain injury to participate as much as possible.

Ylvisaker and colleagues have given specific guidelines regarding how to make a conversation collaborative. These include using collaborative intent, cognitive support, emotional support, positive questioning style, and collaborative turn taking. For example, collaborative intent includes sharing information, using collaborative talk, "Let's think about this", showing an understanding of what was said, inviting the partner to evaluate their contribution, confirming the partner's contribution, showing enthusiasm for contributions, and establishing equal leadership roles. Similarly, Ylvisaker recommends that facilitating elaboration is an effective way to promote the person with TBI's ability to engage in interactions. There are two key ways to do this including, first, elaboration of topics (e.g., introduce and initiate topics of interest which can go further, maintain the topic for many turns, partner contributes many pieces of information to the topic and partner invites elaboration with open-ended questions), and second, elaborative organisation which involves the communication partner providing scaffolding to enable to the person with TBI to organise their ideas in conversation, to make connections when topics change, to make connections among day to day conversational themes, and review organisation of information.

These techniques are currently being evaluating in a multi-centre clinical trial examining communication partner training in improving communication skills for people with severe TBI (Togher, McDonald, Tate, Power, & Rietdijk, 2009). With a paucity of measures to evaluate the contributions of communication partners in addition to those of the person with TBI, we sought to adapt the MSC and MPC to capture the specific conversational supports that were relevant to TBI interactions.

AIMS OF THE STUDY

This study has the following aims:

1. To describe the modification of the Measure of Support in Conversation (MSC) and Measure of Participation in Conversation (MPC) (Kagan et al., 2004) for people with TBI and their communication partners based on current theoretical perspectives (Ylvisaker et al., 1993).
2. To report on the inter- and intra-rater reliability of these adapted measures using the same conversation text types as will be employed in the clinical trial.

METHOD

The original MPC and MSC scales are 9-point Likert scales, presented as a range of 0–4 with 0.5 levels for ease of scoring. The scale ranges from 0 (no participation) through 2 (adequate participation) to 4 (full participation in conversation). Within the MPC, there are two subscales encompassing Interaction and Transaction, while the MSC has two subscales including Acknowledging Competence and Revealing Competence. The Revealing Competence subscale is, in turn, composed of three elements that are scored separately and averaged to give the score for this subscale. The elements are: (a) Ensuring the adult understands, (b) Ensuring the adult has a means of responding, and (c) Verification.

Development of the Adapted MPC and MSC scales occurred over approximately a 1-year period in four stages. In stage 1, behavioural descriptors from Ylvisaker et al.'s collaborative/elaborative approach were mapped onto the themes and categories of the original MPC/MS scales. In stage 2, we undertook a process of deletion of overlapping and irrelevant information to TBI. Next (stage 3), piloting was conducted on scale descriptors and anchors. Both the descriptors and anchors were then modified as the original anchors of the scale ("very poor, adequate, and outstanding") produced binomial results because raters had difficulty differentiating "adequate" and "outstanding". Anchors were therefore changed to: MPC: "No participation / Some participation / Full participation". MSC: "Not supportive / Basic skill in support / Highly skilled support".

In the fourth stage of development the final adapted versions (Appendix 1) were developed after group discussion between the authors and pilot testing on 40 conversational samples of people with TBI from previous studies. Inter- and intra-rater reliability was then examined on 10 casual conversations, and 10 purposeful conversations to cover conversation text types used in the clinical trial.

Participants

A total of 10 participants and their communication were included in this study. They were part of a larger study of discourse and communication outcomes in individuals with TBI. Table 1 presents demographic and injury-related variables for participants with TBI. Table 2 presents demographic information for the everyday communication partners (ECP) of TBI participants as well as information on the type of relationship between the ECP and person with TBI. All participants with TBI were at least 12 months post onset, and had a severe brain injury as indicated by the duration of their post traumatic amnesia (PTA) (> 24 hours), a social communication disorder on the Pragmatic Protocol (Prutting & Kirchner, 1987), and a cognitive communication disorder based on a severity score below 17 obtained in the Scales of Cognitive Abilities for Traumatic Brain

TABLE 1
Demographics of participants with TBI (P)

<i>Participant</i>	<i>Sex</i>	<i>Age (years)</i>	<i>Type TBI</i>	<i>Duration of PTA (weeks)</i>	<i>Time Post TBI (years)</i>	<i>Frontal injury on CT scan (Yes/ No)</i>	<i>SCATBI Severity score</i>	<i>Education</i>
P1	M	38	MVA	24	16.00	Yes	9	High School, TAFE
P2	M	19	MVA	9	3.00	Yes	8	High School
P3	M	24	Assault	13	4.10	Yes	11	High School
P4	M	38	MVA	40	22.00	Yes	8	High School
P5	F	24	Pedestrian	13	15.00	No	8	Junior School
P6	M	30	MVA	20	10.00	No	10	High School
P7	M	32	Fall	>24	6.00	Yes	10	High School
P8	M	35	MVA	1.5 days	5.50	No	12	High School, TAFE
P9	M	31	Pedestrian	>20	7.10	No	9	High School, TAFE
P10	M	62	Assault	15	1.5	Yes	7	High School

PTA = Post traumatic amnesia.

SCATBI (Adamovich & Henderson, 1992) severity score ranges: 3–6 = Severe, 7–9 = Moderate, 10–13 = Mild, 14–16 = Borderline, ≥ 17 = Average normal.

TAFE = Technical and further education.

TABLE 2
Demographics of everyday communication partners (ECP) of participants with TBI

<i>Participant</i>	<i>Sex</i>	<i>Age</i>	<i>Education</i>	<i>Time known TBI participant (years)</i>	<i>Type of Friendship</i>	<i>Knew prior to TBI (Yes/ No)</i>
ECP1	F	34	High School, TAFE	0.50	Girlfriend	No
ECP2	F	47	High School	19.00	Mother	Yes
ECP3	M	42	High School	4.50	Friends	Yes
ECP4	M	46	University	5.00	Professional carer	No
ECP5	F	58	High School	24.00	Mother	Yes
ECP6	M	45	High School	6.00	Carer	No
ECP7	M	33	High School	25.00	Friends	Yes
ECP8	F	35	High School, TAFE	0.04	Girlfriend	No
ECP9	M	34	High School, TAFE	20.00	Friends	Yes
ECP10	F	60	High School	40.00	Wife	Yes

Injury (SCATBI) (Adamovich & Henderson, 1992). All participants gave informed written consent to take part in the study.

Conversational samples

An unstructured 5-minute casual conversational sample and a 5-minute purposeful conversational sample were obtained from each of the 10 participants. The conversations occurred in a quiet room and were videotaped. In the purposeful sample, participants with TBI and their ECP engaged in one of three jointly constructed discourse tasks after instructions from the research clinician. For example:

1. *Together, we want you to come up with a list of situations you are expecting to face over the next four weeks or so where communication is important to you both. It*

might be something routine like a family dinner or social event. In the next 5 minutes, come up with a list of these situations together and WHY they are important. We have given you a pen and paper and a reminder of the instructions to help.

2. *We are collecting information about TBI for people with TBI and their families, friends and carers. We would like you to generate five ideas regarding what you have found useful during your recovery. This may be information about: therapy, ways of dealing with stress, depression, practical ideas, how to deal with your family, how to deal with the medical system, financial or legal matters or anything that you wish you had known after your head injury.*
3. *I have a friend who never seems to have a good holiday. Last holiday she went to the Gold Coast and it rained, and there were blue ringed octopuses so she couldn't go in the water. To top it all off she was bitten by sandflies and swelled up like a balloon. Has anything like that happened to you? We'd like you to generate five ideas regarding what you'd recommend to other people going on a holiday. So, simple practical advice about how to choose your holiday as well as advice about dealing with all elements of a holiday.*

Raters

Two certified practising speech pathologists (EP and RR) were trained in rating the adapted Kagan scales. One rater had over 13 years' clinical experience working with neurogenic communication disorders including TBI. The second rater had 2 years clinical experience working with people with TBI in a specialised community rehabilitation team. Training involved raters familiarising themselves with the scale descriptors and anchor videos. The raters then rated practice videos and discussed any discrepancies before commencing the rating trial.

Procedure for rating

A total of 10 unstructured casual conversational samples between a person with TBI and their everyday communication partner (ECP) were randomised and rated on the Adapted MSC and MPC scales independently by the two trained raters. Then 10 purposeful conversational samples between a person with TBI and their ECP were randomised and rated by both raters. For intra-rater reliability, Rater 1 (EP) rated the 20 samples 4 months later with re-orientation and training to the scales. The calculations of Walter, Eliasziw, and Donner (1998) indicated 20 samples were required to provide sufficient power to detect fair ($ICC \geq 0.4$) to excellent ($ICC \geq 0.75$) levels of reliability (as defined by Cicchetti, 1994). Data were entered in SPSS and reliability analysis was conducted using Intraclass correlation coefficients (Inter-rater reliability: ICC 2, 1, absolute agreement, single measures; Intra-rater reliability: ICC 3, 1, absolute agreement, single measures).

RESULTS

Results of the inter-rater reliability ratings are presented in Table 3 and intra-rater ratings are presented in Table 4. Inter-rater reliability for both the Adapted MPC and the MSC scales was excellent, with ICCs ranging from .84 to .97. The ICC ratings were comparable with those reported by Kagan et al. (2001, 2004). Intra-rater agreement

TABLE 3
Inter-rater reliability results for Adapted MSC and MPC scales. Intra class correlations (ICC) and confidence interval data for two raters

	Adapted MPC			Adapted MSC		
	Interaction	Transaction	Acknowledge competence	Reveal competence (average of 3 subscales)		
Casual Conversation (<i>n</i> = 10 samples)	ICC = 0.84, <i>p</i> < .01 95% CI = 0.47–0.96	ICC = 0.84, <i>p</i> < .01 95% CI = 0.47–0.96	ICC = 0.97, <i>p</i> < .001 95% CI = 0.87–0.99	ICC = 0.85, <i>p</i> < .001 95% CI = 0.53–0.96		
Purposeful Conversation (<i>n</i> = 10 samples)	ICC = 0.88, <i>p</i> < .01 95% CI = 0.59–0.97	ICC = 0.89, <i>p</i> < .001 95% CI = 0.62–0.97	ICC = 0.89, <i>p</i> < .001 95% CI = 0.63–0.97	ICC = 0.88, <i>p</i> < .001 95% CI = 0.59–0.97		
Kagan et al. (2001) / Kagan et al., (2004) (Original scales)	ICC = 0.85 / 0.93	ICC = 0.73 / 0.94	ICC = 0.83 / 0.91	ICC = 0.89 / 0.96		

TABLE 4
 Intra-rater reliability results for Adapted MSC and MPC scales. Intra-class correlations (ICC) and confidence interval data for Rater 1 on two occasions

	Adapted MPC		Adapted MSC	
	Interaction	Transaction	Acknowledge competence	Reveal competence (average of 3 subscales)
Casual Conversation (<i>n</i> = 10 samples)	ICC = 0.92, <i>p</i> < .001 95% CI = 0.747–0.98	ICC = 0.91, <i>p</i> < .001 95% CI = 0.57–0.98	ICC = 0.89, <i>p</i> < .001 95% CI = 0.63–0.97	ICC = 0.80, <i>p</i> < .01 95% CI = 0.40–0.95
Purposeful Conversation (<i>n</i> = 10 samples)	ICC = 0.81, <i>p</i> < .01 95% CI = 0.44–0.95	ICC = 0.84, <i>p</i> < .01 95% CI = 0.49–0.96	ICC = 0.84, <i>p</i> < .001 95% CI = 0.64–0.97	ICC = 0.90, <i>p</i> < .001 95% CI = 0.51–0.98

was also strong with ICCs ranging from .80 to .90. Over 90% of all ratings scored within 0.5 on a 9-point scale.

DISCUSSION

With recent acknowledgement of the need to assess communication performance in real-life contexts (Coelho, Ylvisaker, & Turkstra, 2005) there has been renewed focus on the development of socially valid tools. Two broad approaches have been taken including: (1) report from the person with TBI or a close-other; or (2) direct observation of the communication skills of the person with TBI in real situations. These approaches have resulted in questionnaire tools, such as the La Trobe Communication Questionnaire (Douglas, O'Flaherty, & Snow, 2000) to gain information on perceptions of communicative ability from everyday communication partners, and direct observation of conversations using fine-grained discourse analysis techniques (Turkstra, Brehm, & Montgomery, 2006). Observational assessments range from frequency counts of the occurrences of inappropriate conversational behaviours (Coelho, 2007), and ratings of frequencies of behaviours based on a 4-point scale (Linscott, Knight, & Godfrey, 1996), to an overall rating of language content and communication efficiency (Bellon & Rees, 2006).

Most global conversational proficiency ratings of people with TBI focus either on the person with TBI or on the interaction as a whole (Bond & Godfrey, 1997; Shelton & Shryock, 2007). They do not provide insight into the specific role of the communication partner, and may not be sensitive to the effects of communication partner training. The Adapted MPC and MSC scales provide a tool that specifically focuses on the skills of communication partners in providing conversational support to the person with TBI, and may therefore be sensitive to detecting change following communication partner training. The results of this study lend preliminary support to the psychometric robustness of this scale.

The ICCs in the current study are strong and consistent with those found by Kagan et al. (2004). It should be noted, however, that the high ICCs may have been possible due to the controlled contexts of the conversational samples studied. In Kagan's initial work all conversational partners were volunteers who engaged in semi-structured interactions, whereas in the current study the communication partners represented a variety of relationships types (e.g., carer, mother, friend, girlfriend, wife) but engaged in controlled and potentially predictable discourse. Future research is required to determine the reliability of the Kagan scales with larger sample sizes, other types of communication partners (e.g., unfamiliar conversation partners, volunteers), different discourse types (e.g., service encounters), and other raters (e.g., community clinicians). Our plan is to use the Adapted Kagan scales as a primary outcome measure in a current multi-centre clinical trial to determine whether training communication partners can change acknowledging and revealing competence behaviours and subsequently improve the communicative participation of the person with TBI. While it is recognised that further work is needed to continue to evaluate this scale, the Adapted MPC and MSC scales offers a new way of examining communication partner contributions to TBI interactions.

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B. Revealing Competence	
1. Ensure adult understands (e.g. topic, questions)	<ul style="list-style-type: none"> • Verbal (e.g. short, simple sentences; redundancy; is there some verbal adaptation?) • Nonverbal <ul style="list-style-type: none"> ○ Gesture Meaningful; slightly exaggerated; used to emphasize or clarify ○ Writing Clear and visible; appropriate key words ○ Resources Used only when necessary (would something simpler suffice?) • Response to communicative cues (e.g., reacting to facial expressions indicating confusion?) • Gives cues in a conversational manner • Provides an appropriate level of cognitive support (e.g. referring to diary, making notes) • Organises information in the conversation as clearly as possible to support comprehension (e.g., sequential order, causality, similarity and difference, association) • Makes connections between topics, reviews organisation of information (e.g. summarises)
Score MSC Reveal Comp 1:	
2. Ensure adult has means of responding (and elaborating)	<ul style="list-style-type: none"> • Response to communicative cues (e.g., giving enough time to respond) • Establishes equal leadership roles in the conversation • Introduces and initiates topic of interest • Allows partner to take appropriate conversational turns • Maintains the topic by adding information • Invites elaboration (e.g. uses open-ended questions, statements, links to experiences of TBI) • Uses questions appropriate to person's ability (e.g. simple or closed questions when necessary) • Helps partner express thoughts when struggle occurs
Score MSC Reveal Comp 2:	
3. Verification (Accuracy of adult's response not assumed)	<ul style="list-style-type: none"> • Response to communicative cues (e.g. infers intended message of the person with brain injury, based on all available cues) • Confirms understanding of what has been said (paraphrasing, checking) • Uses clarifying questions as appropriate • <i>Note:</i> Verification often involves checking in a different way (e.g., using a yes/no question)
Score MSC Reveal Comp 3:	

B. Revealing Competence Anchors		
NONE	0	No use of techniques to reveal competence. Inhibits the potential participation of the person with TBI.
	1	Low level of skill in revealing competence. Minimises the potential participation of the person with TBI.
SOME	2	Basic level of skill. Uses techniques to maintain the potential participation of the person with TBI. Able to get some information from the person with TBI.
	3	Uses techniques to promote the potential participation of the person with TBI.
FULL	4	Technically outstanding. Uses techniques to maximise the potential participation of the person with TBI. May not always succeed, but applies techniques flexibly and in a sophisticated way.

A. Interaction		
Verbal / vocal		<ul style="list-style-type: none"> • Does TBI share responsibility for maintaining feel/flow of conversation (incl: appropriate affect)? • Does TBI add information to maintain the topic? • Does TBI ask questions of ECP which follow-up on the topic? • Does TBI use appropriate turn-taking (taking their turn, passing turn to ECP appropriately)? • Does TBI demonstrate active listening (e.g. acknowledging, backchannelling)? • Does TBI choose appropriate topics and questions for the context? • Does TBI show communicative intent even if content is poor?
Nonverbal		<ul style="list-style-type: none"> • Does TBI initiate / maintain interaction with CP or make use of supports offered by CP to initiate / maintain interaction? • Is TBI pragmatically appropriate? • Does TBI ever acknowledge the frustration of the CP or acknowledge their competence/skill? • Behaviours might include: <ul style="list-style-type: none"> ○ Appropriate eye contact, use of gesture, body posture and facial expression, use of writing or drawing in any form, use of resource material
Score MPC Interaction:		
A. Interaction Anchors		
NONE	0	No participation at all. No attempt to engage with communication partner or respond to their interactional attempts.
	1	Person with TBI beginning to take occasional responsibility for sharing the conversational interaction , in order to achieve the purpose of the task.
SOME	2	Person with TBI making clear attempts to share the conversational interaction some of the time , in order to achieve the purpose of the task.
	3	Person with TBI taking increased responsibility most of the time for sharing the conversational interaction, in order to achieve the purpose of the task.
FULL	4	Person with TBI has full and appropriate participation . Takes responsibility for sharing the conversational interaction, in order to achieve the purpose of the task.

B. Transaction		
Verbal / vocal and Nonverbal	<ul style="list-style-type: none"> • Does TBI maintain exchange of information, opinions and feelings with CP, by sharing details or by inviting CP to share details? (i.e. is there good content and more than intent alone)? • Does TBI present information in an organised way? • Does TBI provide an appropriate amount of information? • Does TBI ask clarifying questions when necessary? • Does TBI ever initiate transaction? <ul style="list-style-type: none"> • Introducing or referring back to a previous topic • Spontaneously using a compensatory technique • Does content of transaction appear to be accurate? (depending on context and purpose of rating, rater would have more/less access to means of verification of information) • Does TBI use support offered by CP for purpose of transaction? Eg., Referring to a list/diary, using the organization of the conversation provided by CP (e.g. responding to closed choice questions) 	
Score MPC Transaction:		
B. Transaction Anchors		
NONE	0	No evidence of person with TBI conveying content , in order to achieve the purpose of the task.
	1	Person with TBI occasionally conveying content , in order to achieve the purpose of the task.
SOME	2	Person with TBI is conveying some content , in order to achieve the purpose of the task.
	3	Person with TBI is conveying content most of the time , in order to achieve the purpose of the task.
FULL	4	Person with TBI consistently conveys content in order to achieve the purpose of the task.