Narrative forms a large part of our everyday discourse repertoire (Eggins & Slade 1997) and serves important social functions in virtually all societies (Biddle, McCabe & Bliss 1996). Individuals with traumatic brain injury (TBI) often perform within the normal range on traditional clause level language assessments (Galski, Tompkins & Johnston 1998), however their communicative effectiveness is reduced across a number of *discourse* genres, including narrative (Coelho, Liles & Duffy 1995; Coelho 2002). This reduced communicative effectiveness compromises the interpersonal relationships of those with TBI, leading to social isolation and decreased quality of life (Galski, Tompkins, Johnston 1998; Snow, Douglas & Ponsford 1999).

Previous research has examined narrative as a monologue with a passive listener. However, storytelling by a single individual naturally differs from the polyphonic storytelling typical of conversation (Norrick 2000). In addition, narrative with multiple active co-tellers is much more frequent in conversation (Quasthoff & Becker 2005). Thus, while monologic narrative research has valuable implications for identifying deficits in particular linguistic parameters, it may not be representative of everyday abilities in the genre.

Conversational discourse has been less frequently investigated than monologic genres in people with TBI. And despite important advances over the past decade with respect to the refinement of conversational measurement tools and sampling techniques (Coelho 2007; Togher, Taylor, Aird & Grant 2006; Turkstra, Brehm & Montgomery 2006), too frequently the other person in the interaction is a researcher or therapist. Since the way a person interacts is determined by a number of factors that vary immensely from one interaction to the next (Halliday 1985), the representativeness of the discourse sample may be questionable.

As a result, the exchange of information between people with TBI and a range of communication partners has been studied (Togher, Hand & Code 1997). The use of everyday communication partners to jointly construct narratives has also been suggested for children following TBI (Ylvisaker, Sellars & Edelman 1998). Additionally, programs targeting communication partners have increased the communicative effectiveness of people with TBI in service encounters (Togher, McDonald, Code & Grant 2004) and have been successful for people with aphasia (Lock, Wilkinson, Bryan, Maxim, Edmundson, Bruce & Moir 2001). This paper aims to address the gap in research by investigating the effects of a familiar partner on the production of narrative after TBI.

Two questions are specifically addressed:
(1) Are participants with TBI equally able to jointly-produce a narrative as control participants?
(2) Does a familiar partner facilitate the production of narrative in those with TBI?

Method

The study included two groups of participants: a clinical group of ten participants with TBI, each paired with a friend, and a control group of ten participants without TBI matched for sex, age and education, each paired with a friend. The demographics of participants with TBI can be found in Table 1.

Participants with TBI and control participants were asked to complete two narrative tasks: a monologic narrative on their own and a jointly-produced narrative with their friend. For the monologic narrative, participants were asked to generate a story from the comic picture sequence 'The Flowerpot Incident' (Kossatz 1972) which has been used in previous investigations (e.g. Snow, Douglas & Ponsford 1999). For the jointly-produced narrative, participants were asked to retell a segment from a holidays/home improvement video with a friend.

Measurement of story narrative performance in the monologic task was made at three levels: productivity (total number of C-units, words per C-unit), cohesion, and content (story grammar as per Stein and Glenn (1979) and informational content as per Cherney and Canter (1993)). In the jointly-produced narrative task, measurement of performance included these three levels as well as exchange structure analysis (Berry 1981). Each of the measures is summarised in Table 2.

Results & Discussion

Given the small sample size, non-parametric statistics were used to determine if the discourse differed between and within clinical and control groups. The mean scores, standard deviations and ranges for all measures are contained in Tables 3 and 4.

The performance of the clinical and control groups in the monologic narrative was compared to establish a basis for comparison in the jointly-produced task. A significant difference was found between the two groups in *all* measures for the monologic task. That is, participants with TBI produced more C-units but fewer words per C-unit, were less cohesive, and used fewer story grammar elements and less essential information. These results are consistent with many findings of previous research, for example cohesion and informational content in Hartley and Jensen (1991), thus confirming the diagnostic value of asking people with TBI to complete these tasks.

The second part of the between group comparison addressed the question 'Are participants with TBI equally able to jointly-produce a narrative as control participants?' Participants with TBI could not be statistically differentiated from control participants in *all* of the discourse measures in the jointly-produced task. People with TBI appeared to be empowered to participate in and produce narrative equally as well as controls while engaging in a meaningful interaction with friends. This is consistent with the findings of Kilov, Togher and Grant (in press), where individuals with TBI contributed equally to a problem-solving task with friends.

The question 'Does a familiar partner facilitate the production of narrative in those with TBI' was addressed by the between task analysis. Participants with TBI used significantly more story grammar elements and significantly more essential units of information when jointly-producing a narrative than when producing a monologic narrative. That is, people with TBI were facilitated to produce a more content-competent narrative in collaboration with their friends. However, no significant differences were found between the narrative tasks for productivity and cohesion. Communication partners appeared to have a significant facilitatory effect on informational content and story grammar due to their ability to scaffold the macrostructure of the discourse, but did not have an effect on measures that perhaps rely on the cognitive-linguistic skills of the individual with TBI (i.e. productivity or cohesion).

The jointly-produced narrative environment clearly provides insightful information about the potential for people with TBI to use their language resources in different situations. The results may indicate the use of jointly-produced narrative as an additional assessment tool for creating a more representative view of everyday language abilities in an empowering environment.

Friends may have the potential to fill supportive and therapeutic roles in treatment. Participants with TBI performed better than their peers in the jointly-produced task when they engaged in talk with their friends about the video before the researcher came back into the room. As previously mentioned, collaborative and elaborative techniques like these have been found useful in training communication partners of people with aphasia (Lock et al. 2001) and TBI (Togher et al. 2004).

The variability and overlap among clinical and control groups present in this study as well as other studies (e.g. Armstrong 2002; Body & Perkins 2004) implies the need to maintain multi-level analysis in studying the discourse of those with TBI (Coelho, Liles & Duffy 1991). As such, exchange structure analysis appears to be a valuable tool for assessing the performance of people with TBI and other groups in interactional discourse. As a preliminary study, the findings highlight the need for further research into representative assessment and rehabilitation for this population.

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Table 1: Demographics of participants with TBI

ID Code	Sex	Age (years)	Type TBI	Duration of PTA (weeks)	Time Post TBI (years)	Frontal injury on CT scan (Yes/ No)	SCATBI Severity Score	Education
S1	M	38.00	MVA	24	16.00	Yes	9	High School, TAFE
S2	M	41.00	Pedestrian	16	20.00	Yes	12	High School
S3	M	24.00	Assault	13	4.10	Yes	11	High School
S4	M	38.00	MVA	40	22.00	Yes	8	High School
S5	M	58.00	MVA	12	28.00	No	12	High School, University
S6	M	30.00	MVA	20	>10.00	No	10	High School
S7	M	32.00	Fall	>24	6.00	Yes	10	High School,Course
S8	M	35.00	MVA	1.5 days	5.50	No	12	High School, TAFE
S9	M	31.00	Pedestrian	>20	7.10	No	9	High School, TAFE
S10	M	67.00	Fall	9	7.80	No	8	High School, University, Rep Training

PTA= Post Traumatic Amnesia; (L)= Left; (R)= Right

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: Summary of discourse measures

Measures	Description
Productivity	
Total number of C-units	Total number of communication units (C-units) produced by the speaker
Words per C-unit	Average length of C-units calculated by dividing the number of words by the number of C-units
Cohesion	
Percentage of complete cohesive ties	Total number of complete cohesive ties divided by the total number of cohesive ties × 100
Content	
Percentage of story grammar elements	Number of story grammar elements present divided by the number of expected elements × 100
Percentage of essential units of information	Number of essential information units divided by the total number of information units × 100
Exchange structure	
Percentage of K1 moves	Number of K1 (information-giving) moves contributed by the target participant divided by the total number of moves × 100

Table 3: Results for all measures across groups in monologic narrative task

		Monologic narrative measures				
		Total C-units	*Words per C-unit*	*% complete cohesive ties*	*% story grammar elements*	*% essential units of information*
Control group	*Mean*	11.60	11.28	91.42	88.57	86.29
	SD	8.62	1.97	4.91	11.95	14.80
	Min	5.00	9.40	86.36	71.43	70.00
	Max	22.00	14.00	98.73	100.00	100.00
TBI group	*Mean*	19.57	8.72	82.20	59.18	31.19
	SD	5.91	1.63	9.41	25.32	20.11
	Min	9.00	5.56	64.29	28.57	7.14
	Max	26.00	10.23	95.00	85.71	64.71

Table 4: Results for all measures across groups in jointly-produced narrative task

		Jointly-produced narrative measures					
		Total C-units	*Words per C-unit*	*% complete cohesive ties*	*% story grammar elements*	*% essential units of information*	*% K1 moves*
Control group	*Mean*	15.60	8.55	93.19	93.33	60.64	34.82
	SD	6.58	0.68	3.21	14.91	18.57	15.50
	Min	10.00	8.00	88.46	66.67	28.57	19.47
	Max	26.00	9.60	96.23	100.00	76.00	61.54
TBI group	*Mean*	17.00	7.56	86.61	90.48	72.61	32.62
	SD	9.29	3.56	9.72	16.26	11.00	13.45
	Min	6.00	3.60	66.67	66.67	61.11	19.56
	Max	30.00	13.76	95.74	100.00	88.46	55.95