

# THE NARRATIVE PERFORMANCE OF ADOLESCENTS AND EMERGING ADULTS

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## INTRODUCTION

- Traumatic Brain Injury is a major cause of death and disability in the United States.
- Every 21 seconds, one person in the U.S. sustains a TBI, with 50,000 people dying as a result of their injuries annually.
- Often referred to as the “silent epidemic” (Brain Injury Association, 2002).
- Approximately 5 million Americans currently suffer from some form of disability resulting from a TBI.
- African Americans sustain brain injuries at a higher rate than other racial/ethnic groups, and are more likely to die from their injuries (Thurman, 1999).

Traumatic Brain Injury (TBI) is an insult to the brain that is not degenerative or congenital.

- It is caused by an external force that creates diminished or altered states of consciousness.
- It results in deficits of cognitive, linguistic, physical, emotional, and behavioral functioning (Brain Injury Association, 2002).
- Broadly categorized as either closed (non-penetrating) or open (penetrating).

## DEMOGRAPHICS & INCIDENCE

- It is estimated that out of the 2 million traumatic brain injuries each year, 1.6 million of the injuries are mild in severity.
- The mortality rate among individuals with mild TBI is approximately 50,000.
- Incidence of TBI peaks during adolescence and early adulthood to approximately 250 per 100,000.
- The incidence rate for adolescents between the ages of 15-19 is 120 per 100,000, thus making them the highest risk group for TBI.

## BACKGROUND

- This study focused on narrative discourse because it is an effective measure of deficits in the language of individuals with TBI (Biddle, et al., 1996).
- Narrative discourse requires the use of skills from the linguistic and cognitive communication domains (Peterson & McCabe, 1983).
- Narrative discourse requires the complex use of language, explicit communication, and knowledge of event sequencing and story structure (Liles, et al., 1989).

## PURPOSE

To investigate the effect of age on the narrative performance of African Americans with CHI to determine the differences in their performance on two types of elicitation methods: personal event narrative tasks and story generation tasks.

## METHOD

### *Study Participants*

- The participants in the study comprised 2 groups, 10 with mild closed head injury (CHI) and 20 non-brain-injured whom served as the control group (CON).
- The CHI participants were recruited from Howard University Hospital (HUH).
- All of the participants were African American ranging in age from 14.0 -25.0 years.

## Sample

Group	Age	Race	SES	Gender	Time Post-Onset	GCS Score
CHI Group	M=21	African American	M=2.75	6 male 4 female	2-11 months	13-15
Normal Controls	M=20	African American	M=3.30	9 male 11 female	N/A	N/A

- All of the CHI participants received at least one of the following neuroimaging studies: magnetic resonance imaging and/or computed tomography (CT) assessment at the time of injury to determine the presence and location of lesions.
- Injury severity was assessed using Alexander's (1995) method for determining mild injury severity: GCS score between 13-15; brief or no loss of consciousness; no post-traumatic amnesia; and no focal signs and negative neuroimaging studies.

### EXCLUSIONARY CRITERIA

- No significant history of neurological or psychiatric disorders;
- No significant hearing or visual problems;
- No extensive history of alcohol and/or drug use; and
- No significant medical problems that required the use of medications which may influence the participant's ability to perform the required tasks.
  - In addition to the exclusionary criteria all of the control group participants must have normal hearing and score between 24-30 on the Mini-Mental State Exam.

## Neurological Profile of the CHI group

Subject ID#	Cause	CT Scan	GCS	Level of Consciousness	Time Post-Onset
CHI-1A	MVC	Negative	15	No LOC	11 months
CHI-2A	Fall	R-Parietal STS	13	No LOC	3 months
CHI-3A	Assault	Negative	15	LOC <30 min	4 months
CHI-4A	MVC	Negative	15	No LOC	3 months
CHI-5A	MVC	Negative	15	LOC <30 min	4 months
CHI-1B	MVC	Negative	14	No LOC	3 months
CHI-2B	Assault	Negative	14	LOC <30 min	2 months
CHI-3B	Assault	Negative	15	No LOC	2 months
CHI-4B	MVC	Negative	15	LOC <30 min	7 months
CHI-5B	MVC	Negative	15	LOC <30 min	6 months

### EXPERIMENTAL PROCEDURES

The participants were administered three narrative tasks designed to provide a multilevel analysis.

- Personal Event Narrative Task: This task provided a personal event narrative about the subject's happiest day of their life."
- Story Generation Task Using a Picture: The participants were presented with a picture related to African Americans and asked to create a story using their imagination about the picture.
- Story Generation Task Using a Comic Strip: The participants were presented with a comic strip in which the words were removed and asked to tell a story using the picture sequence.



Jump Start

by Robb Armstrong

August 18, 2002



**Data Analysis:** The narratives were analyzed using three discourse measures at the levels of sentence production, intersential cohesive adequacy, and story episode grammar (Coelho et al., 1995).

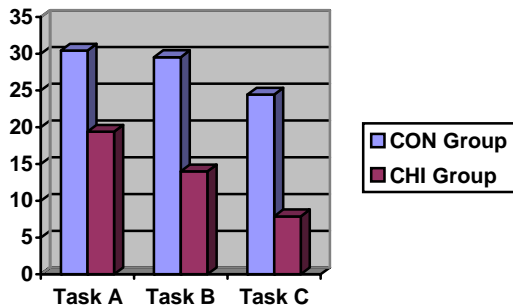
- Sentence Production - included the number of words per t-unit and the number of subordinate clauses per t-unit. A t-unit is defined as an independent clause plus any dependent clauses associated with it. The ratio of number of subordinate clauses/t-unit allowed for comparisons across stories of various

lengths. Also, the frequency of the clause can was used to measure the complexity of sentence-level grammar.

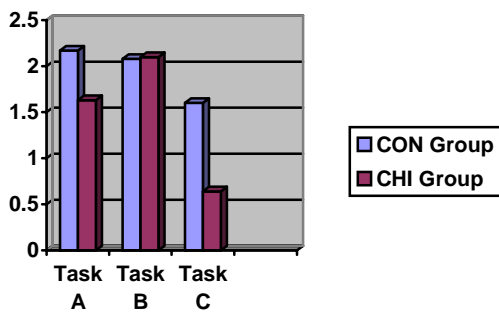
- Intersential Cohesive Adequacy – was measured using Liles (1985) three categories of cohesive adequacy: complete, incomplete, or error. The number of complete ties relative to the total number of ties represented a measure of cohesive adequacy. This percentage was calculated by dividing the number of complete ties into the total number of ties. Earlier studies (Mentis, 1987) reported that CHI participants used less cohesive ties than the normal participants did.
- Story Episode Grammar - The Roth and Spekman Method (1986), a modified version of Stein & Glenn (1979) was used to analyze the story episode grammar. Each t-unit was coded into one of the seven story grammar categories according to the type of information contained within the t-unit and the function of that t-unit. Then, based upon the story categories, a narrative was judged to be complete or incomplete. In order to be complete the narrative must have included an initiating event, response, attempt, and direct consequence. This information was used to determine if the story was a complete episode.

## RESULTS

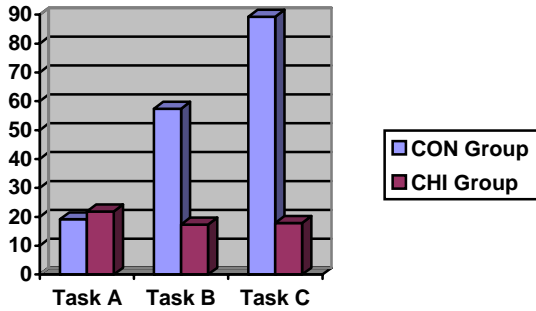
- The results of the ANOVA indicated that there are highly significant differences in the intersential cohesive adequacy and the story grammar measure based upon the elicitation task.
- The first research questions focused on two sentence production tasks---words per t-unit and subordinate clauses per t-unit to ascertain whether there was a difference between the non-brain injured group (CON) and the brain injured group (CHI) on the three elicitation tasks under investigation.



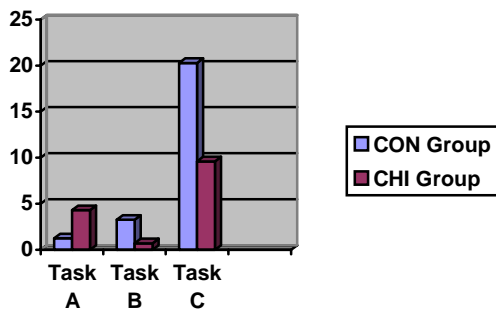
On all of the tasks the non brain-injured group (CON) produced longer sentences than the brain-injured group (CHI). The p value on Task A ( $p = 0.059$ ) and Task C ( $p = 0.065$ ) revealed a trend in that both tasks yielded a slightly significant difference according to the criteria for this study ( $p < 0.01$ ).



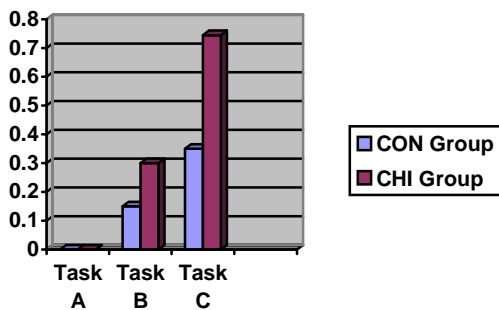
In terms of sentence complexity, there were no significant differences in the two groups on the three tasks. There was a slightly significant difference on Task C (story generation with a comic strip) [ $p = .082$ ], with the non brain-injured group (CON) producing more complex sentences than the brain-injured (CHI) group.



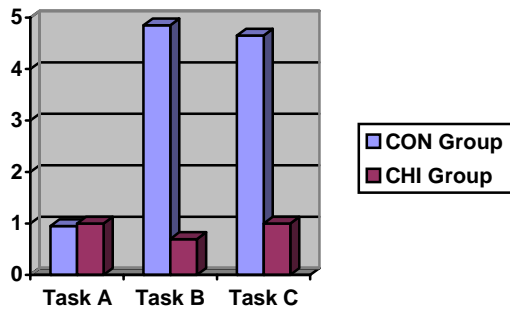
The second group of research questions focused on the cohesion of the narratives. On the first measure, the number of complete ties, the CON group produced more complete ties than the CHI group on both Task B (story generation task with a picture) and Task C (story generation tasks with a comic strip). These findings indicated that the CON group produced more cohesive narratives than the CHI group on the story generation tasks. On Task A (personal event narrative), there was no significant difference between the two groups.



There was no significant difference in the number of incomplete ties at the p level 0.01 on any of the three tasks; however Task A ( $p = 0.059$ ) and Task C ( $p = 0.077$ ) produced slightly significant results. There was also no significant difference in the number of error ties produced between the two groups on the three elicitation methods.



The third group of research questions focused on story grammar. The story grammar measure examined the number of complete episodes contained within the narratives. The criteria for a complete narrative included four parts: an initiating event, a response, an attempt, and a direct consequence (Jordan, et al., 1991). There were no significant differences in the number of complete episodes between the two groups, however, on both of the story generation tasks the brain-injured group (CHI) produced more complete episodes than the non brain-injured group (CON).



On the number of incomplete episodes there was a significant difference on both of the story generation tasks. Once again, the brain-injured group (CHI) produced more incomplete episodes than the non brain-injured group (CON). It should be noted that according to the criteria, not many of the narratives were complete episodes.

- Based upon these results, the participants' performance on the personal event narratives did not reveal many significant differences, while the story generation tasks did yield significant differences in the measures of cohesion and story grammar. This definitely provides information that will be useful in designing assessment and treatment paradigms that utilize narratives as the measures of cognitive and linguistic functions.

## DISCUSSION

- The CON group produced more cohesive narratives than the CHI group, on the story generation tasks. Although there was no significant difference found between the two groups in the number of complete ties on the personal event narrative task, significant differences were present on the story generation tasks. One explanation for this finding could be that the story generation tasks required the participants to use more executive functions (e.g., thought organization, sequencing). Also, the stimulus items for the story generation task is novel, in comparison to the stimulus item for the story re-telling tasks, which are familiar to the subject.
- There were no significant differences between the non-brain-injured group and the brain-injured group in the number of complete episodes in the story generation tasks. Culture as a variable could have affected the outcome of this analysis. In the present study, most of the narratives were judged to be incomplete according to the criteria used by Jordan et al., (1991). An alternative method proposed by Stein and Policastro (1983) may be a more culturally appropriate method of judging the completeness of an episode. Using this minimal method of analysis takes into account the cultural differences in the definition of what constitutes a story.

## DIRECTIONS FOR FUTURE RESEARCH

- There is a need for further exploration into the variables that effect narrative performance—elicitation method, age, culture, and injury severity.
- This study compared African Americans, but it is important to explore the differences in narrative performance of various racial-ethnic groups using culturally sensitive analysis methods.
- Executive functions impact the individual's ability to perform in many different areas and will require an interdisciplinary approach. Collaboration of the speech-language pathologist with psychologist/psychiatrists, neurologists, school counselors, vocational & community re-entry specialists, and teachers will be necessary to help these individuals with CHI.

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