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CULTURAL LANGUAGE VARIATIONS: AN EXAMINATION OF APPALACHIAN DISCOURSE

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**CULTURAL LANGUAGE VARIATIONS: AN EXAMINATION OF
APPALACHIAN DISCOURSE**

A thesis submitted to
the Graduate College of
Marshall University

In partial fulfillment of the
requirements for the degree of
Master of Science

in

Communication Disorders

By

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Approved by
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ABSTRACT

Cultural Language Variations: An Examination of Appalachian Discourse

Katherine Ward

Examinations of discourse are essential for documenting the linguistic variations of a particular culture. In turn, linguistic variations across cultures may suggest similar variations in global discourse measures. It is imperative for clinicians to first understand the framework and cultural norms of a particular dialect or language to properly identify deficits in disordered language. By first looking closely at specific aspects of discourse such as story grammar within a normative or non-brain injured population, clinicians can improve treatment protocols for working with aphasic or brain-injured clients. With Appalachia being the heart of the “stroke belt,” research in intervention strategies for discourse deficits is especially important for the future of quality rehabilitation and subsequent impact on the lives of Appalachian citizens in this region.

CULTURAL LANGUAGE VARIATIONS: AN EXAMINATION OF APPALACHIAN DISCOURSE

CHAPTER I: INTRODUCTION

Studies in discourse are vital to the field of communication disorders for understanding the constructs of language in both healthy and cognitively impaired individuals. Discourse, as defined by Ulatowska and Olness (2004), is “any language beyond the boundaries of isolated sentences.” Discourse may refer to any manner in which individuals convey messages, and the means through which we do so. Differences in discourse production may be observed across individuals, as well as various cultures and subcultures.

The Appalachian region as a subculture is home to the heart of the “stroke belt” of the United States, making it a region with many opportunities to treat the complications arising from stroke (Casper & Knowles, 1995). One of these complications is the disruption of discourse. Gaining a better understanding of how discourse occurs in healthy populations and through healthy aging is essential for speech-language pathologists to provide the best quality service to people in Appalachia. Although studies have been conducted in relationship to healthcare, dialect, and the macrolinguistic structures of language within Appalachia, there have been no significant studies looking at specific discourse patterns of natives to this region. We know that dialect differences may occur at the macrolinguistic level; however, these differences should not be confused with language deficiencies (Qazilbash, 1972).

Discourse is made up of multiple components, depending on the form of communication being used, or the message being relayed. One of these features is story grammar, which refers to the general process and language units one uses when telling a story (Le, Coelho, Mozeiko, & Grafman, 2011). Other discourse measures focus on coherence, both local and global. Coherence

is defined as “the appropriate maintenance of some aspect of the topic within the discourse; based on the raters’ impressions of the meaning of the whole verbalization with respect to meaning in the adjoining discourse, irrespective of lexical or syntactic errors” (Wright, Koutsoftas, Capilouto, & Fergadiotis, 2014). Local coherence refers to how well the content of one unit of discourse refers to the preceding unit; additionally, global discourse refers to how well the overall topic or main theme is maintained in each individual unit (Wright & Capilouto, 2013). All of these measures provide information essential in determining specific breakdowns and disruptions in the production of discourse.

The discourse studies of Carl Coelho, as well as Wright, Capilouto, and associates, provided the framework for the present study. From the evolution of Coelho’s works involving the brain-injured population, a framework for studies of discourse in the field of communication disorders was established. His early studies examined discourse behaviors of older adults, finding that basic conversational skills are well preserved in the elderly (1997). Later studies from Coelho explored how discourse changes in the closed-head-injury population (including traumatic brain injury and stroke). Coelho’s works revealed gaps in our knowledge base for how discourse is measured and what typical discourse patterns look like; this generated a need for a better understanding of discourse performance patterns.

In breaking down these patterns, we must first analyze individual forms of discourse. Additionally, as he conducted studies comparing the narrative discourse skills of cognitively healthy individuals and brain-injured individuals, a need for more definitive and reliable measures of discourse was established. Story retell tasks have been cited as beneficial in collecting samples of narrative discourse (Capilouto & Wright, 2009). Looking specifically at story grammar as a measure of story retell tasks (narrative discourse), Wright and Capilouto

examined story grammar measures in conjunction with attention and comprehension (2011). Although differences in story grammar scores were not significant between age groups, differences in comprehension between younger and older age groups were noted. Looking at additional, notable aspects of discourse, coherence was examined in a subsequent study (Wright, Capilouto, & Koutsoftas, 2013).

The aim of the present study was to examine relationships on the constructs of story grammar, local coherence, and global coherence among healthy aging individuals from the same subculture, across two separate age groups. The presentation and significance of these findings will lead to better clinical services for individuals with disrupted discourse and communication, particularly those from Appalachia, and to recommendations for future studies. Disruptions in the production of discourse are especially prevalent in stroke victims, making the Appalachian region an area in great need of further studies of discourse. By first understanding the discourse patterns of cognitively healthy individuals, and how they may change over the course of healthy aging, speech-language pathologists can better treat individuals with abnormal or disrupted discourse. This study sought to answer the following research questions:

1. Will story grammar, as measured by mean number of propositions, differ between two age groups (participants aged 20-29 and those aged 50-59) from the Appalachian region?
2. Will coherence (local and global) as measured by a four-point rating scale, differ between two age groups (participants aged 20-29 and those aged 50-59) from the Appalachian region?
3. Will there be correlations between number of story grammar propositions and measures of local and global coherence for either age group?

This present study included thirty participants; fifteen 20-29 year olds and fifteen 50-59 year olds. Participants were chosen using convenience and snowball sampling methods. All participants were natives and current residents of the Appalachian region and deemed to be cognitively healthy according to participant report (e.g., no history of head injury resulting in hospitalization) and administration of a depression scale and dementia screening (MMSE; Folstein, Folstein, &McHugh, 1975). The discourse sample analyzed was collected using a combination of the AphasiaBank protocol and a story retell task using the picture book, *Good Dog Carl* by Alexandra Day. This story-telling measure has been used consistently in past studies of discourse conducted by Wright and Capilouto (Wright, Capilouto, Srinivasan, & Fergadiotis, 2011). Using a set of a priori propositions, a score for story grammar was determined (See *appendix B* for propositions). Additionally, local and global coherence scores were obtained for each sample based on a four-point scale. Interrater reliability was established for the aforementioned measures of discourse.

The design of this study was a strength; as it was a methodological replication of previous, reliable studies. Limitations included the sample size and a human error within the scoring measures (although this was controlled for with multiple-rater checks of scoring). An additional limitation was that only one type of discourse was examined in the study— story retelling. Finally, differences in regional variations of the Appalachian subculture (urban and rural sub-regions) were not accounted for in the present study. Although statistical significance was sensitive to the current number of participants, additional participants may have strengthened the overall results.

CHAPTER II: REVIEW OF LITERATURE

Throughout the past two decades, studies of discourse have not only focused on how speech-language pathologists can measure discourse abilities and use these ratings for treatment, but also how individuals with a history of neurological trauma differ from their non-brain-injured counterparts in terms of discourse comprehension and production. Of interest to clinical practitioners are the questions of how these ratings of discourse are obtained and what value they hold in terms of clinical significance for the care of our patients, as we hold paramount their best interests in our efforts to provide the most effective services. Consequently, this study sought to explore the relationships between story grammar and coherence measures across healthy aging, and additionally, investigate how these findings compare to groups outside Appalachia.

Many researchers have studied discourse, its clinical applicability, and reported on the most efficient methods and types of measurements. In this chapter, we review the most current literature available regarding discourse as it relates to healthy aging and cultural subgroups (Appalachia). Specifically, a survey of the relationship between discourse and what we currently know related to healthy aging and discourse will be provided. Finally, a review of the pertinent literature relating to the subculture and discourse of Appalachia will be outlined.

What is Discourse?

Discourse is defined by Ulatowska and Olness (2004) as “any language beyond the boundaries of isolated sentences.” Also referred to as the basic unit of social communication, we can infer that discourse refers generally to any means by which we transfer information between speaker and listener (Brownell & Joannette, 1993). Discourse, as it is divided into sub-categories, may reveal a variety of information about how an individual communicates at the conversational and narrative levels. Conversational discourse is interactive in that exchanges occur throughout

with an active communication partner. The roles shift between speaker and listener throughout the entire exchange. Although narrative discourse may be embedded within conversational discourse, these are not interactive discourse exchanges. Assessment of narrative discourse is often the most beneficial clinically as the speaker is not receiving underlying assistance from the communication partner, but rather is forced to maintain a topic, procedure, and complexity individually. The main difference to be noted between these two discourse types is the input received from the communication partner. Within narrative discourse we may further separate discourse elicitation tasks into event casts, recounts, stories, and procedural descriptions (Capilouto & Wright, 2009).

Studies of narrative discourse performance in cognitively healthy individuals may be traced back to a study conducted by Kemper, Rash, Kynette, and Norman (1990). This particular study looked at story telling abilities in older adults ranging in age from 60 to 80 years old. In a more recent study by Wright, Capilouto, Srinivasan, & Fergadiotis (2011) the researchers discovered that older adults (70 and 80 year olds) told more complex narratives, and produced fewer clauses and cohesive ties, with less complexity per utterance than individuals performing the same discourse protocol in a 20 to 29 year old age group. In other words, older adults exhibited the ability to produce complex narratives, with fewer connections between each utterance and the main topic, as well as shorter utterances/phrases. This study emphasized the importance of analyzing the discourse of individuals who are cognitively healthy before speech-language pathologists can make judgments of discourse in brain-injured populations.

Many studies of discourse within the field of communication disorders are designed to compare the discourse skills of the non-brain-injured population to the brain-injured population. Shadden conducted several comparative studies in the 90s, and Coelho and associates in the

early 2000's, as 'discourse' became a more widely used term and means by which to evaluate communication skills of individuals with disordered speech (Cannizzaro & Coelho, 2002; Coelho, 2002; Coelho, Ylvisaker, & Turkstra, 2005; Coleho, Youse, & Le, 2002; Coelho, Youse, Le, & Feinn, 2003; Kennedy & Coelho, 2005; Shadden, 1997; Shadden, Burnette, Eikenberry, & DiBrezza, 1991). Coelho's notable works, as they relate to measures of discourse and story grammar, will be discussed further in subsequent sections.

An early study by Shadden (1997) measured basic conversational discourse skills in non-brain-injured older adults. Although she discovered that basic conversational discourse skills remained well preserved in aging, she also established a need for better understanding of normal discourse patterns and conversational behaviors in cognitively healthy individuals. Shadden suggested that conversational discourse as one measure of functional communication does not tell us everything about discourse skills. However, "understanding of normal behavior is prerequisite to understanding language abnormalities in pathological aging (as in dementia) or in cases of specific neurological damage" (Shadden, 1997, p.143). This study aided in identifying a greater need for research evaluating undisrupted discourse patterns. Shadden importantly noted that "the macrostructural level of discourse shows the greatest disruptions" and "basic conversational discourse skills are well preserved in the elderly" (Shadden).

Measuring Discourse

Eliciting Discourse Samples

Performance can vary depending on the type of discourse being obtained from a particular task as each form holds its own structure and function, as well as different cognitive and linguistic demands (Shadden, 1997). Multiple variables may influence the performance on a particular discourse task; such as, the task itself, attributes of the stimulus, shared reference,

memory demands, complexity, sequencing, organizational constraints, and subject instructions (Shadden, Burnette, Eikenberry & DiBrezzo, 1991). Consequently, we are unable to compare discourse performance across two or more different tasks. In order for meaningful information to be taken away from discourse studies, there must be some sort of standardization for measuring and analyzing discourse production.

In 2005, Wright, Capilouto, Wagovich, Cranfill, and Davis addressed elicitation procedures when they conducted a study on the reliability and development of quantitative measures of adults' narratives. Narrative discourse tasks in studies only hold credibility if the protocol can be replicated and yield similar results for an individual over time (Wright et al. 2005). They postulated that comparing healthy narrative discourse between younger and older age groups would enhance the clinical use of discourse tasks incorporating picture stimuli. Samples were collected using picture stimuli to elicit discourse samples. They compared narrative discourse skills of picture description between younger and older healthy age groups. It was determined that the use of picture stimuli was reliable as a replicable means of elicitation of narrative discourse. The narrative discourse protocol used within this study was deemed to be reliable over time and introduced measures of calculating main events conveyed and determining propositions as a way to quantify measures of narrative discourse. Propositions are a developed a priori list of elements of sufficient importance to the story as determined by story proposition analysis (Wright, Capilouto, Srinivasan, & Fergadiotis 2011).

Thinking in terms of how narrative discourse tasks are elicited and measured, Wright & Capilouto conducted another study (as previously mentioned), which examined the ability of cognitively healthy adults to convey main events in a picture task when different task instructions were given (Wright, Capilouto, Srinivasan, & Fergadiotis, 2011). The results of this

study revealed that participants who were given explicit instructions to “tell a story” before completing the discourse task provided significantly more of the main events/propositions of the story, and in turn conveyed more information units (Wright et al., 2011). This emphasized the importance of consistency and specificity when providing instructions for discourse tasks. Variance in how discourse tasks are elicited can significantly affect the results of discourse measures, making it important for researchers and clinicians to maintain consistency when eliciting such samples (Wright et al., 2005).

While maintaining consistency and reliability of discourse elicitation protocols, attention should also be given to the stimuli presented in such tasks. Stimulus type has an influence on the measure of discourse obtained, as participants respond more positively (conveying more information regarding the main events) when sequential picture stimulus tasks are used as compared to single picture stimuli, regardless of age (Capilouto, Wright, & Wagovich, 2005). *Good Dog Carl*, by Alexandra Day (1985) is often used as a reliable picture stimulus as it contains a sequential story inferred by pictures with few words, on only the first and last pages (Wright, Capilouto, Srinivasan, and Fergadiotis, 2011).

There is an emphasis for improving and developing nonstandardized assessment tools for individuals with TBI and how we can clinically use discourse measures to implement effective therapy techniques for this population. Beyond standardized assessment, we can determine more effectively how individuals communicate via natural discourse (Coelho, Ylvisaker, and Turksta, 2005). This is attributed to the fact that discourse itself occurs as a result of natural communication used in daily living, rather than scripted environments. In terms of disrupted discourse, the Blank and Franklin procedure for analysis of conversational discourse was evaluated for effectiveness, and determined successful, but not completely flawless (Coelho,

Youse, and Le, 2002). This procedure places a special emphasis on ratings of appropriateness and topic initiation throughout the discourse sample. This particular study revealed that the participant, an individual with a closed-head-injury, might be dependent on the examiner to maintain and continue conversation.

As a means for compiling samples of discourse from brain-injured or cognitively disrupted individuals, AphasiaBank was created. AphasiaBank is an organization that developed a database of discourse samples from individuals with aphasia. These samples are available for other researchers to use and analyze; additionally, AphasiaBank has a compilation of healthy controls, or individuals with normal discourse patterns from a variety of regions and cultures. Researchers from the AphasiaBank consortium outlined multiple methods for analyzing discourse and developed a protocol including four major discourse tasks (personal narratives, picture descriptions, story telling, and procedural discourse). In addition to developing computerized tools by which to transcribe and analyze discourse, the AphasiaBank researchers emphasize that a need is obvious to “translate and revise the protocol to match local cultural expectations, as well as patterns of bilingualism” (MacWhinney, Fromm, Forbes, & Holland, 2011, p. 1,305). The implications of their collected data among both aphasic individuals and healthy controls are clinically valuable. Collecting data and contributing it to an accessible electronic database for other researchers to use not only provides a new tool for clinical studies of aphasia, but lends itself to future methodological studies of discourse elicitation (MacWhinney et al., 2011).

Story Grammar

Story grammar, as a characteristic of narrative discourse, is frequently measured within story retell tasks, and is discussed in many studies. Perhaps the most common way to measure

the genre of narrative discourse (specifically story grammar) is through the use of wordless picture books. Froriep (2007) and Harris & Hodges (1995) developed the term “visual literacy” referring to the process of inferring meaning from pictures. Such tasks require comprehension and expression of the story elements at hand, and are relatively high-level in terms of discourse production as these types of tasks closely parallel natural narrative discourse and are “more representative of spontaneous communication” (Liles, 1993, cited in Wright et al, 2011).

A study conducted by Wright, Capilouto, Srinivasan, and Fergadiotis (2011) yielded results on relationships across aging for story processing ability in cognitively healthy individuals. The purpose of the study was to “examine the relationships among measures of comprehension and production for stories depicted in wordless picture books and measures of memory and attention for 2 age groups.” Like the present study, two groups of cognitively healthy individuals (one 20-29 year old group and one 70-89 year old group) were given a wordless picture book as stimuli for producing narrative discourse. Although these two age groups did not differ significantly for the proportion of story propositions conveyed, differences in comprehension measures were noted.

This work from Wright, Capilouto, Srinivasan, and Fergadiotis (2011) also provided the a priori list of story propositions for the *Good Dog Carl* story (see appendix B for complete list of propositions). This was developed for their story processing study and included collecting narrative samples from twenty cognitively healthy adults who viewed the picture book independently, then told the story with as much detail as possible. As lists of consistent themes and details were compared, a final list was compiled to make up the thirty-one total propositions. Wright et al, (2011) used previous works of story grammar analysis to develop this a priori list including appropriate elements from the story. Reliability and validity measures determined this

to be an appropriate tool for story grammar samples and analysis (Montague, Graves, & Leavell, 1991).

Looking at the use of story grammar in clinical treatment of traumatic brain injury (TBI), improvements were noted in overall discourse when story grammar tasks were used as part of a protocol targeting discourse deficits in this particular population (Cannizzaro & Coelho, 2002). These improvements however, were not sustained over time and left gaps in the research relating to treatment protocols including discourse tasks for specific populations (Cannizzaro). A similar study was conducted in 2011, again looking at the differences in story grammar production between the two groups. This time it was determined that individuals with TBI produced statistically significant lower scores on measures of story grammar than those who were determined to be cognitively healthy (Mozeiko, Le, Coelho, Krueger, and Grafman, 2011).

Coelho examined the use of story narratives in closed head injury as compared to non-brain injured individuals again in 2002, looking specifically at the influence of themes such as socioeconomic status, elicitation tasks, and executive function. This study revealed major gaps in the use of executive function as a means of investigating discourse and provided no consistency in effective measures of executive function (Coelho, 2002). A need for more sensitive and clinically efficient discourse measures was established, as story narratives did not reliably discriminate closed head injury individuals from non-brain-injured individuals. Conversational discourse measures proved to be more effective in discriminating between the two groups (Coelho, Youse, Le, & Feinn, 2003).

Local and Global Coherence Ratings

Another commonly used measure of discourse is that of local and global coherence. Measures of coherence (both local and global) can provide essential information in regards to an

individual's ability to engage in coherent narrative discourse. Global discourse refers to the global ties, or "big picture" connections to the main topic. Local coherence refers to the lexical ties between each consecutive conversational unit (or "c-unit"), (Agar & Hobbs, 1982; Glosser & Deser, 1992). Specific tasks of discourse analysis including these measures have been proven sensitive to identifying deficits in narrative discourse depending on the elicitation procedures employed (Davis & Coelho, 2004).

Global coherence ratings allow a view of how discourse is organized. Glosser and Deser (1990) developed an original five-point rating scale for measures of global coherence in which they defined the level to which the main topic was maintained throughout the discourse task. They said that a higher global discourse score meant that the discourse sample included "substantive information directly related to the designated topic" (Glosser & Deser, 1992, p.268). This rating scale was later revised to a four-point scale (Wright, Koutsoftas, & Capilouto, 2013) in favor of more accurate ratings.

When examining coherence within conversational discourse tasks, discourse features of adults with dementia are identified by several discourse-impairing conversational features (Dijkstra, Bourgeois, Allen, & Burgio, 2004). This particular study compared the conversational discourse skills of cognitively healthy adults to those with dementia. In comparing younger and older age groups on ratings of various discourse tasks and global coherence, only global coherence ratings for story recounts were determined to be significantly different between the two age groups (Wright et al., 2014). Research on local coherence of cognitively healthy adults' discourse is currently limited within the field.

Relationships Between Discourse and Aging

It is imperative for us to understand normal discourse patterns across the aging continuum (Shadden, 1997), as we are aware of these changes occurring in natural aging. Implications from previous studies revealed that changes in discourse production occur over the course of natural aging (Shadden, 1997; Wright & Capilouto, 2005; Capilouto, Wright, & Wagovich, 2005). Younger adults have consistently been shown to produce more accurate information and more details regarding the main event stimulus in picture stimuli tasks than have older adults (Capilouto, Wright, & Wagovich, 2005; Wright, et al., 2005).

When provided with sequential picture stimuli, participants in the younger group consistently produced more causal links and relationships between pictures than did the participants in the older groups (Wright, et al., 2005). Younger participants also have consistently been shown to produce a greater number of correct information units (CIU) and main events when looking at sequential picture stimuli (Wright, Capilouto, & Wagovich, 2005).

In using the wordless picture book stimulus *Good Dog Carl* (Day, 1985), it was determined that no significant differences existed between younger and older participants in terms of percentage of *story propositions conveyed*; however, younger participants showed better *comprehension performance* (Wright et al., 2011). This could be due in part to the difference of task stimuli as compared to previous studies. Cognitive abilities (including memory and attention) were found to be different between younger and older age groups, as cognitive ability was significantly related to the discourse production of older adults, as compared to no differences in discourse production for the younger group (Wright et al., 2011).

Although there have been several bodies of work related to cognitive performance of discourse tasks across age spans, very few of these have focused specifically on an individual

discourse measure, such as story grammar. It has been determined that older adults may produce more complex narrative discourse, but a decline may be found in the overall complexity, cohesion, and abstractness of the sample (Kemper, Rash, Kynette, & Norman, 1990). Age-related decline in memory may explain the exhibited changes in measures of narrative discourse production across age groups (Kemper et al. 1990). Changes across healthy aging may be attributed heavily to the discourse task at hand and the ratings measured within the study.

Discourse Abilities in Cultural Subgroups

Appalachian English is a cultural variation of standard American English. Stroke incidence and mortality rates are reportedly much higher within the Appalachian region as compared to the rest of the population (Center for Disease Control). This region is particularly noted for overall health risks including high incidence of stroke, hypertension, diabetes, obesity, heart disease, etc. Additionally, natives often do not have access to adequate healthcare. Shadden (1997) observed that understanding normal language behaviors leads to a better understanding of language abnormalities, such as dementia or other nonspecific neurological damage. This observation provides justification for a study of the discourse practices common in the Appalachian subculture.

In a culture where story telling is a marked trait and pride of its people, narrative discourse is vital to the normative function and general discourse of Appalachians (Montgomery, 1989). Discourse patterns of Appalachian natives have not been studied heavily. In the field of linguistics, much research has placed a focus on semantic feature analysis such as vocabulary comprehension and usage within Appalachia (Qazilbash, 1972). These linguistic studies provide valuable information, but do not lend themselves to information about discourse and total communication, and how it can be applied in a clinical setting for those with disrupted language.

Although we have information about rehabilitation, culture, and dialect of this subculture, studies of discourse are practically nonexistent. This again emphasizes the importance of a study representing this cultural linguistic variation.

Researchers from the AphasiaBank consortium also place an emphasis on the importance of obtaining measures from individuals in various cultural settings in order to develop a best-suited protocol for discourse analysis (MacWhinney, Fromm, Forbes, and Holland, 2011). As discourse production varies cross-culturally, it is relevant to produce further research within various language variations to evaluate these possible differences.

CHAPTER III: METHODS

In designing the methods for this study, careful consideration was taken in how to most effectively elicit samples to analyze story grammar, as well as which populations would most benefit from the analysis of such parameters, as discussed in the preceding rationale. This study is described as a quantitative between-group comparative study. In the following chapter, elements of the present study's research design including participants, setting, methods, materials, analysis and scoring, will be defined and explained.

Participants

All participants included in this study met the following criteria: were natives of the Appalachian region (according to regional maps provided by Appalachian Regional Commission, <http://www.arc.gov/counties>) and current residents of Appalachia. Convenience and snowball sampling methods were used to identify participants. Convenience sampling is when participants are chosen from a pool of individuals that are "available because of their close geographic proximity" (Meline, 2009, pp. 97) as well as meet the inclusion criteria. Snowball sampling refers to asking current study participants for references of possible future participants based on the inclusion criteria (Meline, 2009). One group of participants was made up of 15 twenty to twenty-nine year olds ($m = 23.8$), nine female, and six male, and the second group consisted of 15 fifty to fifty-nine year olds ($m = 54.8$), nine females and six males. Kadam and Bhalerao (2010) determined this to be a statistically powerful sample size calculation for this type of research.

Before beginning the discourse sample collection, each participant read and signed an informed consent. To ensure cognitive health, in addition to participant report, each participant completed the *Mini Mental State Examination* (MMSE; Folstein, Folstein, & McHugh 1975).

Additionally, *The Geriatric Depression Scale* (GDS; Sheikh & Yesavage, 1986) was administered to each participant to rule out signs of depression. None of the thirty participants had scores that were indicative of dementia or depression via the standard means and normal ranges indicated by each test. This information regarding health status was dependent on participant response via a questionnaire used at the beginning of the sample collection process and no participants were excluded based on these measures.

Demographic information included gender, age, working status, profession, ethnicity, and education level; however, a prior study revealed that gender is not a contributing factor to differences and scores reported for story grammar analysis and narrative discourse tasks (Wright & Capilouto, 2009). Wright and Capilouto also reported a lack of gender biases related to picture book selection for obtaining the story grammar sample. A variety of demographics are shown as participants ranged from working to retired, and had various levels of education and diverse vocations. Complete demographic information concerning the participants may be found in Appendix A.

Instrumentation

Discourse samples were collected in a variety of physical settings, such as participant homes, university clinic, and university offices, ensuring convenience for the participants. The protocol for the study followed that of the AphasiaBank protocol for healthy controls, with the addition of the picture book *Good Dog Carl* (Day, 1985) for narrative discourse production with the consistent use of a picture sequenced story. We used two approaches to collecting data. First, samples collected earlier in the study adhered to the AphasiaBank protocol for healthy controls (to later be contributed to the database). This included video recording for the first ten samples collected. The protocol was later modified for obtaining quality language samples while doing so

in the most effective and efficient manner possible, yet still maintaining consistency of tasks elicited across participants. Each interview was audio recorded, and used the AphasiaBank instructions for collecting discourse samples from non-aphasic controls (AphasiaBank, 2009). The researcher collected all samples.

Methods

The following are the discourse tasks elicited from the protocol for AphasiaBank's non-aphasic controls:

1. Free Speech Samples

a. Illness Story and Coping: Participants were asked to tell a story about a time when they were sick to elicit a free speech sample.

b. Important Life Event: Participants were asked to describe an important life event.

2. Picture Description Tasks: For each of the two picture sequence tasks (broken window and refused umbrella), participants looked at the sequence of pictures and were asked to tell a story with a beginning, middle, and end about what was happening in the picture. For an independent picture (cat rescue), participants were again asked to tell a story with a beginning, middle, and end.

3. Story Narrative

a. Cinderella picture book: participant was presented with the wordless picture book, allowed to look through it, then asked to tell the story in their own words as accurately as possible using prior knowledge of the story and details from the pictures.

4. Procedural Discourse

a. Participants were asked to tell how to make a peanut butter and jelly sandwich.

All of the above tasks were given using the scripted instructions per the AphasiaBank non-aphasic control protocol. After these tasks were performed, the children's picture book *Good Dog Carl* was used to obtain a story narrative. This was determined to be a viable measure for story grammar elicitation tasks through Wright and Capilouto's 2011 study. The researcher provided the same instructions to each participant by asking him or her to tell the story as they looked through the book, by providing as much detail as possible about what is happening in the story. The book contains words only on the first and last pages. Although only the *Good Dog Carl* discourse sample was used for analysis in the present study, the AphasiaBank protocol was followed with intentions of submitting discourse samples to the database as healthy controls to be used in future research.

Analysis and Scoring

After each sample was collected, the co-investigator transcribed the *Good Dog Carl* task. A story grammar score was determined using the a priori story telling proposition procedures for *Good Dog Carl*. This included a set list of thirty-one propositions each participant should discuss within telling the story, using the picture book (Wright, Capilouto, Srinivasan, and Fergadiotis, 2011). A raw score was obtained by calculating how many of these propositions were discussed out of a possible thirty-one. Appendix B contains the propositions used in this analysis.

Measures of local and global coherence were also obtained using the narrative discourse sample. Each transcript was first broken into conversational units (c-units) and a 4-point scale was used to determine coherence ratings for each c-unit. As previously mentioned, global coherence may be defined as the overall relation of the c-unit to the main details and importance of the stimulus. Local coherence is rated according to how well lexical items within each c-unit

tie to the preceding utterance. Appendix C contains the ratings scales used for both global and local coherence.

Inter-rater Reliability

Inter-rater reliability ratings were established across all measures of analysis, including story grammar, local coherence, and global coherence. Inter- and intra-rater agreement for linguistic analyses was determined for 30% of samples, chosen at random. Agreements and disagreements were subjected to the following formula: $(\text{total agreements} / [\text{total agreements} + \text{total disagreements}] \times 100)$. Inter and intra-rater reliability for all variables of interest were above 90%.

Table 1: Interrater Reliability Measures

Linguistic Measure	Reliability Percentage
Story Grammar	96%
Local Coherence	97%
Global Coherence	93%

CHAPTER IV: RESULTS

The purpose of the present study, as previously defined, was to examine performance between younger and older age groups within the Appalachian subculture on measures of story grammar, local coherence, and global coherence. A variety of statistical tests were performed to determine relationships among these various factors pertaining to the original research questions. The findings, derived through statistical analysis using *Statistical Package for the Social Sciences* (SPSS) software, are presented in the remainder of this chapter.

Story Grammar Measures Across Age Groups

A one-way ANOVA was used to examine the difference in means between the younger and older group for measures of story grammar. In other words, the results of a one-way ANOVA will suggest whether the mean of scores in one group is statistically different from the mean of scores in the opposite group. These measures were analyzed according to procedures described by Wright, Capilouto, Srinivasan, and Fergadiotis (2011). As represented in the table below, no statistically significant difference was found between story grammar scores in the younger and older age groups ($F(1, 28) = 1.948, p = .174$).

Table 2: Descriptive Statistics for Story Grammar Measures

	Older Group			Younger Group		
	n	M	SD	n	M	SD
Story Grammar	15	19.20	5.31	15	21.80	4.89

Table 3: Comparison of group means on story grammar measures

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	50.700	1	50.700	1.948	.174
Within Groups	728.800	28	26.029		
Total	779.500	29			

Relationships Among Coherence Measures Across Age Groups

A one-way ANOVA was also used to examine the differences in mean global coherence scores between the older and younger age groups. There was no statistically significant difference found between global coherence scores as represented below ($F(1, 28) = .484, p = .492$).

Table 4: Descriptive Statistics for Global Coherence Measures

	Older Group			Younger Group		
	n	M	SD	n	M	SD
Global Coherence	15	3.42	.29	15	3.36	.16

Table 5: Comparison of group means on global coherence

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.028	1	.028	.484	.492
Within Groups	1.621	28	.058		
Total	1.649	29			

Additionally, a one-way ANOVA was used to examine differences in local coherence scores between groups. The younger group demonstrated significantly higher local coherence scores than the older group. This is a phenomenon that has not been presented in earlier studies of discourse and coherence, as the literature review suggested ($F(1, 28) = 12.349, p = .002$). The effect size for significance of local coherence was determined to be, $d=1.31374$ (large). Effect size is a measure that describes the magnitude of difference between two groups (Cohen, 1988).

Table 6: Descriptive Statistics for Local Coherence Measures

	Older Group			Younger Group		
	n	M	SD	n	M	SD
Local Coherence	15	2.92	.17	15	3.15	.18

Table 7: Comparison of group means on local coherence

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.396	1	.396	12.349	.002
Within Groups	.898	28	.032		
Total	1.294	29			

Story Grammar and Coherence Measures Across Age Groups

Measures of story grammar were not correlated with either local or global coherence for the older group, according to the results of a Pearson Correlation Test. The Pearson Correlation

Test measures the linear correlation between two variables (in this case story grammar and coherence scores). There were no significant correlations found between global or local coherence and story grammar in the older group of participants (GC, $r = -.097$, $p = .732$, and LC, $r = -.174$, $p = .534$).

Table 8: Correlations between story grammar and global coherence (50-59)

		SG	GC
SG	Pearson Correlation	1	-.097
	Sig. (2-tailed)		.732
	N	15	15
GC	Pearson Correlation	-.097	1
	Sig. (2-tailed)	.732	
	N	15	15

Table 9: Correlations between story grammar and local coherence (50-59)

		SG	LC
SG	Pearson Correlation	1	-.174
	Sig. (2-tailed)		.534
	N	15	15
LC	Pearson Correlation	-.174	1
	Sig. (2-tailed)	.534	
	N	15	15

Similar results were found with the younger group in regards to correlations between story grammar and coherence scores. For the younger group, there was no significant correlation between global coherence and story grammar, ($r = 1.152$, $p = .588$). Similarly, statistical analysis revealed no significant correlation between local coherence and story grammar, ($r = .107$, $p =$

.705). These results are indicated in the tables below. Pearson correlation tests were also ran for total group scores and results were as indicated in the tables presented here. In summary, there was no significant correlation found across age groups between coherence and story grammar scores.

Table 10: Correlation between story grammar and global coherence (20-29)

		SG	GC
SG	Pearson Correlation	1	-.152
	Sig. (2-tailed)		.588
	N	15	15
GC	Pearson Correlation	-.152	1
	Sig. (2-tailed)	.588	
	N	15	15

Table 11: Correlation between story grammar and local coherence (20-29)

		SG	LC
SG	Pearson Correlation	1	.107
	Sig. (2-tailed)		.705
	N	15	15
LC	Pearson Correlation	.107	1
	Sig. (2-tailed)	.705	
	N	15	15

Incidental Findings

Although not originally one of our research questions, Wright et al. (2011) explored the relationship between total number of words and story propositions. In a similar fashion, we analyzed total number of words between groups and across measurements. We used a one-way

ANOVA test to examine the difference in means between the two groups for total number of words used (TNW). There was no significant difference found between the older and younger groups for TNW, ($F(1, 28) = 1.443, p = .240$). Therefore, TNW was not accounted for in subsequent analyses between groups. The table below depicts these results.

Table 12: Comparison of group means for total number of words

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	101966.700	1	101966.700	1.443	.240
Within Groups	1978481.600	28	70660.057		
Total	2080448.300	29			

We additionally conducted a regression analysis test, which suggested that total number of words (TNW) might be a predicting factor for story grammar measures. Global coherence was also shown to be trending towards significance, suggesting that TNW and global coherence together may be significant predictors of story grammar. There was an overall significant correlation between story grammar and global coherence ($r = .763, p < .001$) as well as an overall significant correlation between TNW and story grammar ($r = .763, p < .001$). These correlations were found across both the younger and older groups. For the older group, there was a statistically significant correlation between TNW and story grammar, ($r = .700, p = .004$). For the younger group, TNW and story grammar were significantly correlated, ($r = .805, p = .01$). This significant correlation has not been presented in previous studies. The table below represents the statistical findings across both age groups.

Table 13: Correlation between TNW and story grammar

		SG	TNW
SG	Pearson Correlation	1	.763
	Sig. (2-tailed)		.000
	N	30	30
TNW	Pearson Correlation	.763	1
	Sig. (2-tailed)	.000	
	N	30	30

In summary, the statistical analysis indicated that no significant difference was found between mean story grammar scores in the older and younger age groups. Additionally, no significant differences were found between global coherence measures in the younger and older age groups. Contrastively, local coherence scores were determined to be significantly higher in the younger group than in the older group. Additional testing and findings revealed a positive correlation between story grammar and total number of words across both age groups as increased number of words indicated consistently higher story grammar scores. There was no significant difference however, between total number of words across age groups.

CHAPTER V: DISCUSSION

The present study was designed with the specific purpose of answering three specific questions regarding relationships among measures of story grammar and coherence within a subculture. First, we wanted to know about the relationship between story grammar measures in two different age groups from the same subculture. Second, we wanted to determine the relationship between local and global coherence in two different age groups, from the same subculture. Third, we wanted to know about the relationship between story grammar and measures of coherence in two different age groups, from the same subculture.

As previously outlined, this study was comprised of two groups of cognitively healthy Appalachian natives (younger and older), and discourse samples were taken from each participant for the purpose of analyzing measures of story grammar and coherence (local and global), as well as differences in aging within this cultural subgroup. Samples were transcribed and scored for each of the aforementioned measures, and then results were analyzed using SPSS statistical software to examine the relationships and correlations. This chapter will further discuss the results found, as they relate to the proposed research questions, and explain the findings as they relate to clinical implications and importance. Limitations and areas of future research interest related to the findings presented in the current study will be outlined.

Story Grammar Measures Across Age Groups

The first question proposed in the framework of this study was to investigate the relationship between story grammar production and aging. Based on the statistical analysis, there was no significant relationship found between mean story grammar scores of the two age groups.

This is consistent with what Wright and Capilouto found in their 2011 study comparing story grammar scores across age groups in younger and older adults (20-29 and 70-89 year olds).

This is suggestive that story grammar does not change with aging. We can account for this clinically by recognizing that story grammar scores should remain similar across the lifespan. This information is especially important to consider when looking at changes in disrupted discourse and how we measure such types of discourse. Based on these findings, it could be suggested that story grammar is not a good predictor clinically for detecting changes. It can be inferred that any declines noted in story grammar scores are not likely to be a result of aging alone.

Looking specifically at the results of story grammar, although not significant in differences between the means in each group, differences were found in the specific propositions that were most consistently missed by each age group. Each group had trending story grammar propositions that were most frequently missed, but these patterns in production errors differed between the groups. Although this was not a factor that was initially questioned, it was notable and worthy of investigation in future studies of story grammar.

Relationships of Coherence Measures Across Age Groups

The second question asked in this study was about the existence and nature of relationships between coherence measures across the two age groups. Looking specifically at coherence scores, no significant difference was found between the global coherence scores of the younger and older age groups. This suggests that global coherence in general does not change over time and, like story grammar, declines in global coherence are not likely to be a function of aging alone.

Although there was no significant difference between global coherence scores across age groups, a significant difference was found in local coherence measures between age groups. The younger group had significantly higher local coherence scores than the older group. This is a new phenomenon, as this type of data has not been reported in previous studies of discourse found in the current literature. This finding suggests that declines in local coherence may be expected as part of the normal aging process and may be a future area of interest for discourse studies to examine.

Story Grammar and Coherence Measures Across Age Groups

The third research question of the present study was to investigate a possible relationship between story grammar and measures of coherence across two age groups from the same subculture. There was no correlation found between story grammar and global or local coherence in the older group. Similarly, no correlation was found between story grammar and global or local coherence in the younger group.

This lends itself to say that coherence scores standing alone cannot predict good story grammar discourse, and likewise, story grammar cannot in turn predict quality coherence. This is somewhat conflicting with information presented in the additional findings as global coherence as a whole (between both age groups) was determined to be a significant factor for predicting story grammar ability. These findings indicate that further research should be conducted regarding coherence measures as they relate to story grammar and its predicting factors.

Additional Findings

In addition to looking at the specific statistics with the purpose of answering the presented research questions, measurements were examined for total number of words (TNW) and this measurement was compared across age groups and to other factors within the study of

discourse. There was no difference found between the older and younger age groups for TNW used. This is to be expected, as there is no present literature suggestive of total length of story retells decreasing with aging. This may possibly be attributed to the age ranges used in the study however; it is impossible to determine if results would differ among different age groups without further investigation.

When we conducted a regression analysis test however, it determined that TNW might be a possible indicator for story grammar measures. This could be explained by the fact that participants, who described more about each picture and provided more verbal information during the task, had a likelier chance of mentioning each story grammar prompt (simply because they talked more). TNW was not an original variable included in the research questions proposed for this particular study however, it proved to be an unexpected factor in looking at correlations between story grammar measures and additional aspects of discourse production.

In looking at other additional factors that may indicate predictors of good story grammar, it was also discovered that global coherence and story grammar were overall significantly correlated. This is somewhat conflicting with the previous data that suggests no significant correlations between story grammar and coherence measures per individual age groups. However, this may be attributed by TNW as an additional regression factor, suggesting that TNW and global coherence measures together rather than individually more strongly predict story grammar as contributing factors. Although these relationships were not part of the original research question, it is interesting to have this information with the possibility of conducting further studies which look more closely at the relationships between these factors of discourse and discourse measures.

Clinical Implications

Using the information presented in this study we can make several inferences regarding tools and strategies used to measure discourse. We may draw clinical implications that measures of story grammar are not sensitive enough to pick up on discourse deficits; we do not see a change across the life span in these scores. Patients should exhibit a similar mean story grammar score despite their age. In general, it may be stated that the absent relationship of story grammar to aging is indicative of its clinical insignificance.

Subsequently, clinical information can be drawn from the results found in relation to coherence measures. Knowing that in the Appalachian subculture, local coherence may decrease with age in healthy populations, this tells us clinically that a change across the age span in local coherence is not a sensitive measure to discourse deficits. It is important to have established means of coherence measures in order to understand deficits that may be indicated by scores outside those means.

Limitations

One of the primary limitations within the present study is the diversity found within the Appalachian region. Participants from this study were sampled from various regions including both rural and urban Appalachia. This may be a confounding factor to control for in future studies examining the discourse of this particular subculture. It is impossible to determine if differences exist and influence discourse measures without participants being separated further geographically (urban vs. rural Appalachia). It can be predicted that urban and rural Appalachian discourse may differ in some ways, but for the purpose of the present study, this specific variable was not investigated. Rather, the discourse patterns including story grammar and coherence of individuals across the Appalachian region were examined.

It could also be stated that a confounding variable within the study is the number of participants. Although fifteen participants are considered a reasonable amount to produce statistically sound results for comparisons, additional participants would have made us more confident in the results presented (Kadam & Bhalerao, 2010). Additionally, this could have possibly provided more information regarding the measures of story grammar, and detected further significant correlations. For the purpose and timeline of the present study, fifteen participants proved to be a reasonable and acceptable amount. It could be said that more information could have been discovered, but this factor is not subject to prediction.

Analyzing only one type of discourse within this study is an additional limitation. When collecting a discourse sample, we are left with the ability to analyze many forms of discourse, but the time in which it takes us to do this is a constraining factor. As discussed in previous chapters, there are many forms and modes of discourse that can be analyzed, but only one (story grammar) was chosen for this study. In future studies, it may be of value to compare multiple forms of discourse across aging within a particular subculture.

Implications for Future Research

The results of the present study yielded novel results, which indicate possible implications for further research in specific areas of discourse. As significant differences in local coherence scores were found across age groups, this should be investigated further in future studies of discourse and particularly, coherence measures. This study suggested that local coherence may decline with aging, which should be further tested in future studies to determine why this may have happened, or if the results from the present study were simply an outlier. It would be beneficial to know if these results are consistent across other studies with additional participants, and if similar results are found within other subcultures.

It is an interesting phenomenon that differences were not found between groups on global, yet they were identified for local coherence measures. This leaves us to ponder what the differences in production are between healthy local and global coherence. Rather, how does global coherence stay the same across aging, and why is local coherence subject to decline with healthy aging? This identifies an imperative need for more research regarding local and global coherence.

Because there is so little research to be presently found in the area of discourse and measures of discourse production, it is recommended that future studies analyze multiple types of discourse and possibly compare these with one another to look for additional correlations between discourse types across age groups and subcultures. The present study only looked at one type of discourse— story retell. It would be beneficial to analyze coherence measures in conjunction with multiple forms of discourse samples, as well as multiple age ranges and subcultures.

In regards to Appalachia, future studies may consider possible differences and relationships between regional differences within this subculture. It would be interesting to compare the discourse of urban and rural Appalachians. Continuation of studies of microlinguistic structures of discourse and language are vital to the field of communication disorders.

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REFERENCES

- Agar, M., & Hobbs, J. R. (1982). Interpreting discourse: Coherence and the analysis of ethnographic interviews. *Discourse Processes*, 5, 1-32.
- Brownell, H. H., & Joannette, Y. (1993). Narrative discourse in neurologically impaired and normal aging adults. *A Neurosemiotic Perspective on Text Processing*, Peter Grzybek, Narrative Discourse, 46-73. Singular Publishing Group, San Diego, CA.
- Cannizzaro, M. S., & Coelho, C. A. (2002). Treatment of story grammar following traumatic brain injury: a pilot study. *Brain Injury*, 16, 1065-1073.
- Capilouto, G.J. & Wright, H.H. (2009). Scripting information components to improve narrative discourse performance. *Journal of Medical Speech-Language Pathology*, 17(2), 99-110.
- Capilouto, G. J., Wright, H. H., & Wagovich, S. A., (2005). CIU and main event analysis of the structured discourse of older and younger adults. *Journal of Communication Disorders*, 38. 431-444.
- Casper, M. L., & Knowles, M., (1995). Changes in the geographic patten of stroke mortality in the United States, 1962 to 1988. *American Stroke Association Journal*, 26, 755-760.
- Coelho, C. A. (2002). Story narratives of adults with closed head injury and non-brain-injured adults: Influence of socioeconomic status, elicitation task, and executive functioning. *Journal of Speech, Language, and Hearing Research*, 45, 1232-1248.
- Coelho, C., Ylvisaker, M., & Turkstra, L. (2005). Nonstandardized assessment approaches for individuals with traumatic brain injuries. *Seminars in Speech and Language*, 26, 223-241.
- Coelho, C. A., Youse, K. M., & Le, K. N. (2002). Conversational discourse in closed-head-injured and non-brain-injured adults. *Aphasiology*, 16, 659-672.
- Coelho, C. A., Youse, K. M., Le, K. N., & Feinn, R. (2003). Narrative and conversational discourse of adults with closed head injuries and non-brain-injured adults: a discriminant analysis. *Aphasiology*, 17, 499-510.
- Cohen, J. (1988). *Statistical Power for the Behavioral Sciences* (2nd ed.). Hillsdale, NJ: Lawrence Earlbaum Associates.
- Counties in Appalachia. Appalachian Regional Commission. Retrieved from <http://www.arc.gov/counties>.
- Davis, G. A., & Coelho, C. A. (2004). A referential cohesion and logical coherence of narration after closed head injury. *Brain and Language*, 89, 508-523.

- Day, A. (1985). *Good Dog Carl*. New York, NY: Simon & Schuster.
- Dijkstra, K., Bourgeois, M. S., Allen, R., & Burgio, L. D. (2004). Conversational coherence: Discourse analysis of older adults with and without dementia. *Journal of Neurolinguistics, 17*, 263-283.
- Ehlhardt, L. A., Sohlberg, M. M., Kennedy, M., Coelho, C., Ylvisaker, M., Turkstra, L., & Yorkston, K. (2008). Evidence-based practice guidelines for instructing individuals with neurogenic memory impairments: What have learned in the past 20 years? *Neuropsychological Rehabilitation, 18*, 300-342.
- Folstein, J. A., Folstein, S. E., & McHugh, P. R. (1975). "Mini-mental state": A practical method for grading the mental state for the clinician. *Journal of Psychiatric Research, 12*, 189-198.
- Froriep, K. A., (2007). The conscious thought processes of college English faculty when reading wordless books: A verbal protocol study. *Dissertation Abstracts International, Section A: Humanities and Social Sciences, 62 (10-A)*, 4241.
- Glosser, G., Brownell, H., & Joannette, Y. (1993). Discourse production patterns in neurologically impaired and aged populations. *Narrative discourse in neurologically impaired and normal aging adults*, 191-211.
- Glosser, G., & Deser, T. (1990). A comparison of changes in macrolinguistic and microlinguistic aspects of discourse production in normal aging. *The Journal of Gerontology, 47*, 266-272.
- Glosser, G., & Deser, T. (1992). A comparison of changes in macro linguistic and micro linguistic aspects of discourse production in normal aging. *Journal of Gerontology: Psychological Sciences, 47(4)*, 266-272.
- Harris, T. L., & Hodges, R. E. (Eds.). (1995). *The literacy dictionary: The vocabulary of reading and writing*. Newark, DE: International Reading Association.
- Kadam, P., & Bhalerao, S. (2010). Sample size calculation. *International Journal of Ayurveda Research, 1*, 55-57.
- Kemper, S., Rash, S., Kynette, D., & Norman, S. (1990) Telling stories: The structure of adults' narratives. *European Journal of Cognitive Psychology, 2*, 205-228.
- Kennedy, M., & Coelho, C. (2005). Self-regulation after traumatic brain injury: A framework for intervention of memory and problem solving. *Seminars in Speech and Language, 26*, 242-255.
- Kennedy, M. R. T., Coelho, C., Turkstra, L., Ylvisaker, M., Sohlberg, M. M., Yorkston, K., Chiou, H., & Kan P. (2008). Intervention for executive functions after traumatic brain injury: A systematic review, meta-analysis and clinical recommendations. *Neuropsychological Rehabilitation, 18*, 257-299.

- Le, K., Coelho, C., Mozeiko, J., & Grafman, J. (2011). Measuring goodness of story grammar. *Journal of Speech, Language, and Hearing Research, 54*, 118-126.
- Liles, B. (1993). Narrative discourse in children with language disorders and children with normal language: A critical review of the literature. *Journal of Speech and Hearing Research, 36*, 868-882.
- MacWhinney, B., Fromm, D., Holland, A., Forbes, M., & Wright, H. (2010). Automated analysis of the Cinderella story. *Aphasiology, 24*, 856-868.
- MacWhinney, B., Fromm, D., Forbes, M., & Holland, A. (2011). AphasiaBank: Methods for studying discourse. *Aphasiology, 25*, 1286-1307.
- Meline, T. (2010). *A research primer for communication sciences and disorders*. Boston, MA: Allyn & Bacon.
- Montague, M., Graves, A., & Leavell, A. (1991). Planning, procedural facilitation, and narrative composition of junior high students with learning disabilities. *Learning Disabilities Research and Practice, 6*, 219-224.
- Montgomery, M. (1989). The roots of Appalachian English: Scotch-Irish or Southern British? *Appalachian Studies Conference, March 23-25*, 1-24.
- Mozeiko, J., Le, K., Coelho, C., Krueger, F., & Grafman, J. (2011). The relationship of story grammar and executive function following TBI. *Aphasiology, 25*, 826-835.
- Qazilbash, H. (1972-1973). Appalachian: People, dialect, and communication problems. *Journal of Reading Behavior, 5*, 14-25.
- Shadden, B. B. (1997). Discourse behaviors in older adults. *Seminars in Speech and Language, 18*, 143-156.
- Shadden, B. B., Burnette, R. B., Eikenberry, B. R., & DiBrezzo, R. (1991). All discourse tasks are not created equal. *Clinical Aphasiology, 20*, 327-341.
- Sohlberg, M., Ehnhardt, L., & Kennedy, M. (2005). Instructional techniques in cognitive rehabilitation: A preliminary report. *Seminars in Speech and Language, 26*, 268-279.
- Turkstra, L. S., Coelho, C., & Ylvisaker, M. (2005). The use of standardized tests for individuals with cognitive-communication disorders. *Seminars in Speech and Language, 26*, 215-222.
- Ulatowska, H. K., & Olness, G. S. (2004). Discourse. In R. D. Kent (Ed.), *The MIT encyclopedia of communication disorders* (pp. 300-302), Cambridge, MA: The MIT Press.
- Wozniak, R. J., Coelho, C. A., Duffy, R. J., & Liles, B. Z. (1999). Intonation unit analysis of conversational discourse in closed head injury. *Brain Injury, 13*, 191-203.

- Wright, H. H., Capilouto, G. J., & Koutsoftas, A. (2013). Evaluating measures of global coherence ability in stories in adults. *International Journal of Communication Disorders*, 48, 249-256.
- Wright, H. H., Capilouto, G.J., Srinivasan, C., & Fergadiotis, G. (2011). Story processing ability in cognitively healthy younger and older adults. *Journal of Speech, Language, & Hearing Research*, 54, 900-917.
- Wright, H. H., Capilouto, G. J., Wagovich, S. A., Cranfill, T. B., & Davis, J. E. (2005). Development and reliability of a quantitative measure of adults' narratives. *Aphasiology*, 19, 263-273.
- Wright, H. H., Koutsoftas, A. D., Capilouto, G. J., & Fergadiotis, G. (2014). Global coherence in younger and older adults: Influence of cognitive processes and discourse type. *Aging, Neuropsychology, and Cognition: A Journal on Normal and Dysfunctional Development*, 21(2), 174-196.
- Ylviasker, M., Turkstra, L., & Coelho, C. (2005). Behavioral and social interventions for individuals with traumatic brain injury: A summary of the research with clinical implications. *Seminars in Speech and Language*, 26, 256-267
- Youse, K. M., & Coelho, C. A. (2009). Treating underlying attention deficits as a means for improving conversational discourse in individual with closed head injury: a preliminary study. *NeuroRehabilitation*, 24, 355-364.
- Youse, K. M., Coelho, C. A., Mozeiko, J. L., & Feinn, R. (2005). Discourse characteristics of closed-head-injured and non-brain-injured adults misclassified by discriminant function analyses. *Aphasiology*, 19, 297-313.

APPENDICES

Appendix A: Participant Demographic Information

Appendix B: Story Telling Propositions for *Good Dog Carl*

Appendix C: Ratings For Global and Local Coherence

Appendix D: IRB Approval

Appendix E: Katherine Ward Resume

Appendix A: Participant Demographic Information

Participant #	Age	M/F	Highest Level of Education	Occupation	Working Status	Handedness
P50_1	57	Male	Master of Arts in Teaching	Professor	Working	Right
P50_2	58	Female	Associates-Nursing	Registered Nurse	Working	Right
P50_3	57	Female	Associates-Business	Stock Broker	Retired	Ambidextrous
P50_4	50	Female	High School +2 years	Photographer	Working	Left
P50_5	57	Male	High School	Crane Operator	Working	Right
P50_6	51	Male	High School +2 years	Photographer	Working	Right
P50_7	59	Female	High School	Homemaker	Retired	Right
P50_8	56	Male	High School	Safety Technician	Working	Right
P50_9	52	Female	High School	Clerk	Working	Right
P50_10	52	Male	High School	Laborer	Working	Right
P50_11	56	Female	Associate-Nursing	Registered Nurse	Working	Right
P50_12	52	Female	Associates-Business	Studio Owner	Working	Right
P50_13	53	Male	Associate's	Contractor	Working	Right
P50_14	53	Female	Master's-Library Science	Counselor	Working	Right
P50_15	59	Female	BBA-Accounting	Administration /Acct.	Working	Right
Mean: 54.8						
P20_1	24	Female	Bachelor's-Theatre and Dance	Bank Teller	Working	Right

P20_2	22	Female	High School	Student	Working	Right
P20_3	24	Female	Bachelor's	Student	Working	Right
P20_4	22	Female	High School	Student	Working	Right
P20_5	21	Female	High School	Student	Working	Right
P20_6	20	Male	High School	Student	N/A	Right
P20_7	23	Male	Bachelor's	Student	N/A	Right
P20_8	25	Female	Bachelor's	Student	N/A	Left
P20_9	24	Female	Bachelor's	Student	N/A	Right
P20_10	25	Female	Bachelor's	Event Manager	Working	Right
P20_11	27	Male	Master's- Business and Marketing	Management	Working	Right
P20_12	28	Male	Bachelor's	Manager	Working	Right
P20_13	21	Female	High School	Retail	Working	Right
P20_14	28	Male	Bachelor's-CJ and History	Army Nat. Guard	Working	Right
P20_15	24	Male	Bachelor's- Math	Student	Working	Left

Mean: 23.87

Appendix B: Story Telling Propositions for *Good Dog Carl*

Scoring: A binary scoring system is used. Responses are compared to an a priori list of main events and scored either correct (+), indicating that all the necessary information is provided or incorrect (-).

Computations:

1. Convert raw scores to proportion of story telling propositions told (SP told/total # SP)
2. Calculate proportion of story telling propositions for the following
 - a. Each stimulus (Picnic, Good Dog Carl)
 - b. For each session (total proportion of SP told)

Story Telling Propositions for each stimulus:

Note: The essential information is provided. Information in () represents additional information that could have been added to complete the proposition but is not necessary for a correct (+) response; [/] represents alternative information that could have been stated to complete the proposition.

Story Propositions may be out of order and/or 1 SP may be spread across multiple utterances in the sample: label accordingly

Good Dog Carl

1. Mother is leaving and says, “Look after the baby Carl. I’ll be back shortly.”
 - Paraphrasing acceptable if all elements of quotation are included
2. Carl looks/watches out the window & the baby climbs out of the crib/bed/hops on Carl’s back
 - Note final (/): acceptable descriptions include mentioning baby climbing out of crib OR getting on Carl’s back
3. They go into the bedroom & they jump/lay/play on the bed
 - Must include both parts of SP
4. Get into/go through the mother’s makeup and jewelry
 - Acceptable if specific terms for makeup are used (e.g. “powder puff”)
5. The dog has on a necklace/pearls
 - Note for SP’s 4 and 5: must include more general term close to “jewelry” for SP 4 as well as specific term/description in SP 5 (“necklace”)
6. They look in the mirror
7. The baby is about to/getting ready to go down the laundry chute so/as Carl runs down the stairs.
8. The baby has gone through the laundry chute/is at the bottom of the laundry chute (waving at Story Telling Proposition Procedures 2 Carl) who is at the top of the stairs (looking at him)
 - Some mention of baby being at bottom of laundry chute/Carl being at top of

stairs is required

9. Baby gets back/hops on Carl's back

10. They go to the living room and knock over the papers/table (are making a mess/destroying everything)

- Terms similar to "living room" or appropriate descriptions may also be acceptable such as "family room," etc.

11. Carl's holding the back of baby's shirt while the baby is swimming in the fish tank/aquarium

- Must somehow imply that Carl is holding up the baby as he swims

12. Carl puts on music/plays music/turns on the stereo & dances/entertains the baby (as baby watches)

- Must imply that Carl is dancing **for** the baby rather than both baby and Carl dancing

13. The baby gets back on Carl's back/Carl takes the baby into the kitchen & they open/see what's

in the refrigerator

- Note first (/): accept other reasonable alternatives as long as it is stated/IMPLIED that Carl is taking/carrying baby to kitchen

- Must include both parts of SP

14. They get bread and butter & try to open the bread

- Mention of "bread" and "butter" in a coherent utterance sufficient for (+)

15. They have some grapes (they baby eats some grapes)

- Mention of "grapes" in a coherent utterance sufficient for (+)

16. They are thirsty so they get milk/cream and Hershey's/chocolate syrup

- Must mention both items individually: "chocolate milk" not acceptable

17. They find/get into/have a cookie (jar)

- Mention of "cookie" in a coherent utterance sufficient for (+)

18. They've made a mess (in the kitchen/house)

- General statement referring to the mess or specific reference to the environment: "the baby is dirty/sticky/messy" not acceptable

19. Carl puts the baby on his back and they go upstairs

- Accept other reasonable alternatives (e.g. Carl takes/brings baby upstairs) as long as it is stated/IMPLIED that Carl is taking/carrying baby upstairs

20. Carl starts a bath/turns on the water and gets soap and a washrag/washcloth

- Must mention turning on water/starting bath + the 2 items

21. He puts the baby in the tub

22. After the bath, Carl dries the baby off with the hair/blow dryer

- Must use "blow dryer" or comparable term

23. Carl puts the baby back in the crib

24. Carl cleans the house/kitchen/cleans up the mess

25. He throws away the trash & licks up the milk

- Note for SP's 24 and 25: must include general statement about cleaning up mess (24) AND more specific description as to **how** he cleans it up (25)

26. He looks out the window to look for the mother

27. He makes the bed and cleans up/straightens the dresser/jewelry/makeup

28. (Carl sees) the mother coming back/up the street/through the gate

- Note that Carl "seeing" the mother is optional

- Some mention of mom coming home is required

-

29. Carl lays down beside the baby/crib/where he was (when the mother left) while the baby is in bed/the crib

- “While the baby is in bed/the crib” only required for alternate description (“where he was”)

30. Mother says, “Good Dog Carl”/Mother tells Carl he’s a good dog

- No other paraphrasing acceptable

31. She doesn’t know what happened (while she was gone)

Appendix C: Ratings for Global and Local Coherence

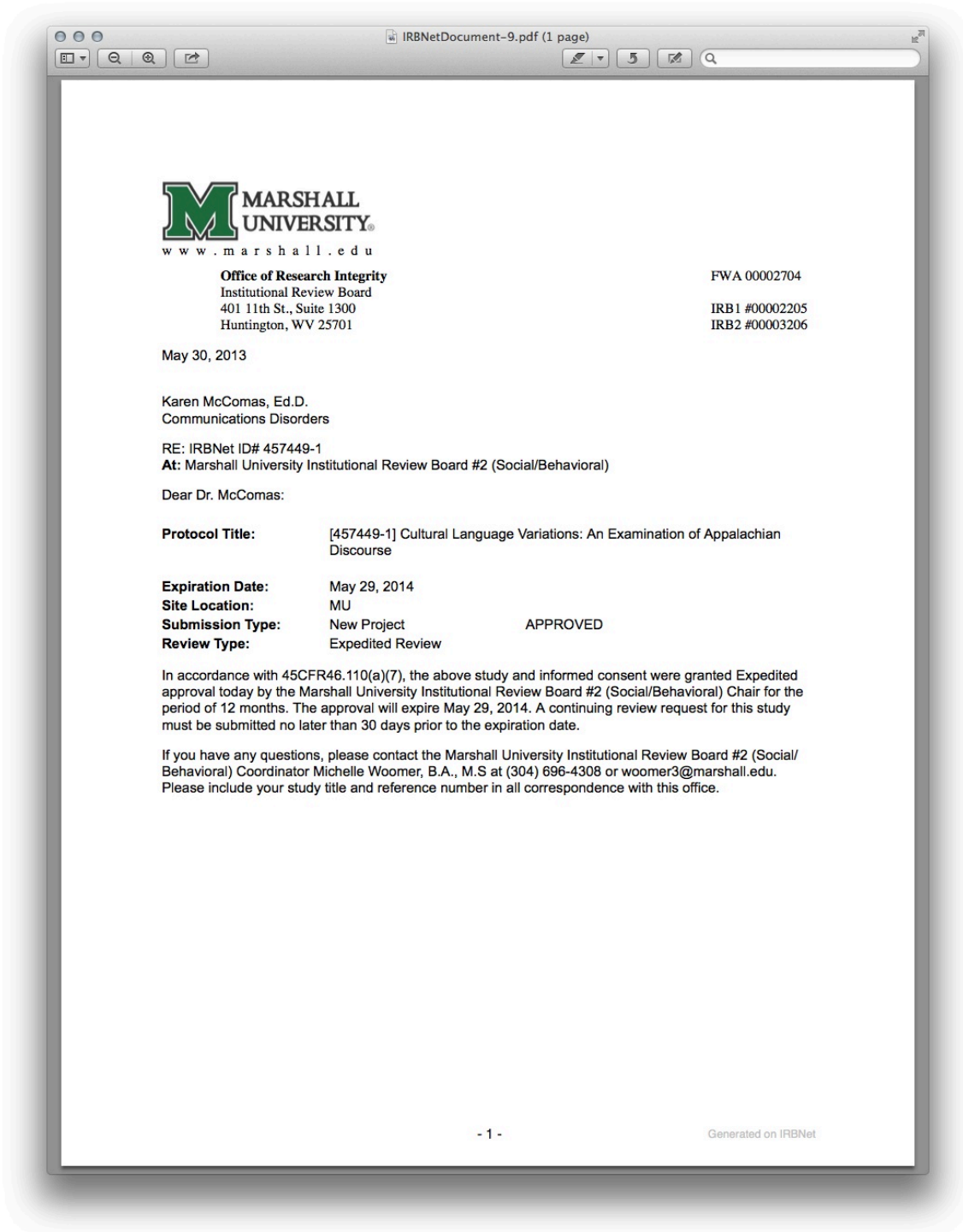
Global Coherence Rating Scale

- 4 The utterance is overtly related to the stimulus as defined by mention of actors/actions/objects present in the stimulus, which are of significant importance to the main details of the stimulus. In the case of procedural descriptions and recounts when a designated topic acts as the stimulus, overt relation is defined by provision of substantive information related to the topic so that no inferencing is required by the listener
- 3 The utterance is related to the stimulus or designated topic but with some inclusion of suppositional (extra) or tangential information that is relevant to the main details of the stimulus; *or* substantive information is not provided so that the topic must be inferred from the statement. *In recounts, appropriate elaborations that are not essential but related to the main topic should be scored a 3.
- 2 The utterance is only remotely related to the stimulus/topic, with possible inclusion of inappropriate egocentric information; may include tangential information or reference some element of the stimulus that is regarded as non- critical.
- 1 The utterance is entirely unrelated to the stimulus/topic; the utterance may be a comment on the discourse or tangential information is solely used

Local Coherence Rating Scale

- 4 The topic of the preceding utterance/C-unit is continued by repetition or elaboration of the general theme, as defined by the use of two or more previously presented lexical items (maintaining the same actor, action, and/or object). **These lexical items must be of significant importance to the main details provided in the previous utterance.**
- 3 The topic of the preceding utterance is continued by repetition or elaboration of the general theme through the use of only one previously presented lexical item. **This lexical item must be of significant importance to the main details provided in the previous utterance.**
- 2 The utterance contains appropriate transitional verbiage (e.g. and, so, then, but, next, because, meanwhile, etc.) to link completely unrelated information to the preceding utterance (i.e. **no previously presented lexical items are used**).
- 1 The utterance has no relationship to the content of the preceding utterance; **no transitional verbiage or previously presented lexical items are used.**

Appendix D: Institutional Review Board Approval



Office of Research Integrity
Institutional Review Board
401 11th St., Suite 1300
Huntington, WV 25701

FWA 00002704
IRB1 #00002205
IRB2 #00003206

May 30, 2013

Karen McComas, Ed.D.
Communications Disorders

RE: IRBNet ID# 457449-1
At: Marshall University Institutional Review Board #2 (Social/Behavioral)

Dear Dr. McComas:

Protocol Title: [457449-1] Cultural Language Variations: An Examination of Appalachian Discourse

Expiration Date: May 29, 2014

Site Location: MU

Submission Type: New Project APPROVED

Review Type: Expedited Review

In accordance with 45CFR46.110(a)(7), the above study and informed consent were granted Expedited approval today by the Marshall University Institutional Review Board #2 (Social/Behavioral) Chair for the period of 12 months. The approval will expire May 29, 2014. A continuing review request for this study must be submitted no later than 30 days prior to the expiration date.

If you have any questions, please contact the Marshall University Institutional Review Board #2 (Social/Behavioral) Coordinator Michelle Woomer, B.A., M.S at (304) 696-4308 or woomer3@marshall.edu. Please include your study title and reference number in all correspondence with this office.

Appendix E: Katherine Ward Resume

RESEARCH, HONORS, AND PUBLICATIONS

Cultural Language Variations: An Examination of Appalachian Discourse (Graduate Thesis)

Presented at ASHA National Convention, 2013 and Appalachian Studies Convention 2014

Katherine Ward

Using Life Stories in Communication Sciences and Disorders Research

Presented at ASHA National Convention, 2012 and West Virginia Speech Language Hearing Association Annual Convention, 2012.

EDUCATION

B.S. Communication Disorders (May 2012) recipient

Minors: English and Psychology
ASHA Research Travel Award, 2012 recipient

M.S. Communication Disorders (August 2014) recipient, 2012

Marshall University, Huntington WV

RESEARCH

Biomechanics Lab Teaching Assistant/Research Assistant- Marshall University August 2012-May 2014
Duties include: teaching a lab course in biomechanics and assisting with biomechanical research using motion capture technology.

CLINICAL PRACTICUM EXPERIENCE

Marshall University Speech and Hearing Center, Huntington, WV **August 2012- May 2014**
Experiences include evaluation and treatment of children with communication disorders including: expressive and receptive language deficits, social/pragmatic deficits, and autism. Experience obtained in the evaluation and use of AAC devices.

Huntington Health and Rehabilitation, Huntington, WV **August 2013-December 2013**
Experiences include the evaluation and treatment of swallowing and cognitive disorders primarily in the geriatric population. Professional collaboration with physical and occupational therapy, as well as experience with modified barium swallow studies.

Chesapeake Union School District, Chesapeake, OH **January 2014- May 2014**
Experience includes evaluation and treatment of language disorders, pragmatic deficits, and speech disorders in school-age children.

Cardinal Hill Rehabilitation Hospital, Lexington, KY **May 2014- Present**
Experience with evaluation and treatment of adult to geriatric clients in the spectrum of brain injury, stroke, spinal cord injury, and general rehabilitation. Experiences included working with patients with a variety of communication diagnoses including: cognitive/attention, language, speech, swallowing, and voice deficits ranging from mild to severe.