PERSUASIVE LANGUAGE IN HIGH SCHOOL STUDENTS: DIFFERENCES IN SYNTACTIC COMPLEXITY IN SPOKEN AND WRITTEN LANGUAGE

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ABSTRACT

The purpose of this study is to determine the difference in syntactic complexity in written and spoken persuasive language tasks for adolescents. The students who participated in this study were ninth grade English students (*M* age = 14; 10), all with typical language development. For each language task, participants were asked to write a persuasive composition and speak about their opinion of high-school students having part-time jobs. The language samples were transcribed using the standard transcriptions of the Systematic Analysis of Language Transcripts software, also known as SALT. To analyze the errors in each sample, I coded for errors at the word level and errors at the utterance level. I found that adolescent students use more complex syntax in written persuasive language samples than in spoken language samples. On average, the participants made more utterance-level errors in the written language samples. I found a significant negative relationship between errors at the word level and scores on writing tests. This means that the higher the student's writing score was, the lower number of word-level errors that student made in the written persuasive task. This finding suggests that SLPs and educators should look to identify grammatical errors in written persuasive language and work to correct them because persuasive language may be an important indicator of academic success and writing abilities.

Introduction

Clinicians use written or spoken language samples to assess language proficiency. As children develop, they use language for different purposes and each purpose, or genre, affects how language is used to convey information. Several language genres exist, such as expository, narrative, conversational, and persuasive genres. Previous research on spoken and written language has focused on narrative, conversational, and expository tasks; however, research overlooks the persuasive genre. Persuasive language is an important academic and social skill. Researchers have found that persuasive writing encourages the writer to use complex syntax because complex thought yields complex syntax (Nippold, 2005; Nippold, 2009). Researchers also note that academic success is related to the ability to write across different modalities (Berman & Nir-Sagiv, 2007; Singer, 2007; Scott, 2009). Persuasive language "can potentially empower an individual, group, or community…" (Nippold &Ward-Lonergan, 2010, p. 7). Persuasive writing has academic implications because it is a focus on many state-mandated examinations and is an important part of public school curriculum (Nippold 2005, Nippold et al,, 2010). For example, there is a persuasive writing prompt on the SAT, a college entrance examination. Although we know that the persuasive genre in both spoken and written language is an important academic skill, extant research has not analyzed the syntactic complexity in written and spoken persuasive language. Therefore, the purpose of this research project is to assess the differences between complex syntax in spoken and written persuasive language.

Literature Review

Complex Syntax

Research shows that as children get older, they increase their use of complex syntax in spoken and written language (e.g., Berman & Verhoeven, 2002; Hunt, 1970). Berman & Verhoeven (2002) analyzed the written and spoken language of children, high school students, and adults on both narrative and expository prompts. No significant difference was found in text length; however, a significant difference was found in utterance length. On average, the participants produced longer utterances on the written expository task than the spoken expository task. According to Hunt (1970), children tend to produce longer clauses and sentences in written language as they get older.

There is substantial evidence to support the relation between spoken language and written language (e.g., Berninger, 2000; Berninger & Abbott, 2010; Shanahan, 2006). However, inherent differences between spoken and written language exist. In using spoken language, a child has to formulate thoughts into words rapidly and continuously, often with immediate interactive feedback from a listener. In using written language, a child has to formulate thoughts too; however, a child has the opportunity to preplan his or her thoughts and revise his or her responses. Written language does not have an immediate listener who presents online feedback (Akinnaso, 1982; Ravid & Berman, 2006).

Researchers report differences in children's production of complex syntax in written and spoken modalities across genres (Nippold, 2008; Gillam & Johnston, 1992; Windsor, Scott, & Street, 2000, Berman et al., 2002). Researchers suggest that complex genres or tasks elicit complex language (e.g., Nippold et al., 2008). Gillam et al. (1992) studied 9- to 12-year-old children's spoken and written narrative samples. Gillam et al. (1992) found that typically developing children produced longer sentences in spoken narratives than written narratives; however, they did not find differences in production of correct complex sentences. Windsor et al. (2000) analyzed 7- to 12- year-old children's spoken and written narrative and expository samples. They found that children produced more complex syntax in spoken language than in written language, but did not find differences in complex syntax between the expository and narrative genres. They also discovered that school-age children make more grammatical errors in written language than in spoken language. Berman et al., 2002 found that, on average, the participants produced longer clauses and longer essays on the written expository tasks. According to current research, narrative and expository genres elicited more complex language than conversational tasks; however, researchers did not find a significant difference in syntactic complexity between written and spoken language.

Syntactic Complexity in the Persuasive Genre

Far less research has examined the production of complex syntax in spoken and written persuasive samples. "The persuasive discourse genre requires knowledge of the topic, perspective-taking, the ability to weigh both sides of an issue, and the use of literate language, including complex syntax to express one's ideas efficiently" (Nippold et al., 2010, p. 1-2) which is different from expository, conversational, and narrative genres. Researchers suggest that the persuasive genre may elicit more complex syntax than expository, narrative, and conversational genres. Nippold (2005) analyzed the persuasive writing skills in children, adolescents, and adults (average age for each age group: 11, 17, and 24 years old) to examine later language development on a persuasive writing task. Nippold (2005) found that as age increased, the length of both the essays and MLU increased. In the writing samples of the adolescents and adults, Nippold (2005) also found more relative clauses and metalinguistic/metacognitive words (i.e., reflect, argue, disagree). The older writers also acknowledged both sides of an argument and could provide more reasoning to back up their personal opinion. Beers and Nagy (2011) elicited four genres (i.e., narrative, descriptive, compare/contrast, and persuasive) in the written modality. Beers et al. (2011) found that third through seventh grade children produced more clauses per sentence in the persuasive writing task than the narrative, descriptive, and compare/contrast writing tasks. Contrastively, children produced more words per sentence in the narrative and descriptive writing tasks than the persuasive writing task. No significant differences were found for the compare/contrast writing task. Beers et al. (2011) suggest that mean length of sentence and clauses per sentence are measuring two different aspects of the production of grammar. It seems that the persuasive genre elicits a greater number of complex thoughts in a single sentence than the other genres analyzed. In the persuasive genre, previous research reports that, in written language, older participants displayed more complex syntax on a persuasive prompt; however, researchers are unable to report notable differences in syntax on a persuasive prompt when compared to other genres.

Complex syntax use in the persuasive genre has only been assessed via written language. We do not know the effect of persuasive spoken language on complex syntax. Therefore, the purpose of my study is to determine the difference in syntactic complexity in written and spoken persuasive language tasks.

Research Questions

Do 9th grade students produce more complex syntax in written persuasive language than in spoken persuasive language?

Do 9th grade children produce more grammatical errors in written persuasive language than spoken persuasive language?

Is there a relation between children's production of complex syntax and state writing assessment scores?

Method

Participants

The students who participated in this study were enrolled in ninth grade English classes in a general education track in a public high school located in a mid-sized city in the southeastern United States. Thirty males and thirty-nine females participated (*M* age = 14 years, 10 months old) all with typical language development. The participants included thirty-seven Caucasian (53.6%), twenty-three Black (33.3%), six Latino (8.7%), and three multiracial (4.3%) students. Approximately one-third of the participants were eligible for free or reduced lunch rates, the school's measure of family-level socioeconomic status. The average nonverbal IQ of the participants was 93.55, with a standard deviation of 13.12. The average 8th grade FCAT reading score was 2.54, with a standard deviation of 1.04. The average 8th grade FCAT writing score of the sample was 2.69, with a standard deviation of 1.17.

Approval was obtained from the university's Institutional Review Board (IRB) as well as the school district for the procedures and consent forms used in this study. To participate in this study, students had to be monolingual English speakers and enrolled in general education with no history of sensory impairments as determined by school records. Consultation between the primary investigator (PI) and research director at the school helped confirm whether participants with parental consent met the inclusionary criteria.

Procedures

As part of a larger study, two written and two spoken language samples were obtained from each participant. For each language sampling task, participants viewed a short PowerPoint presentation with pre-recorded narration to present the topic, prompt, and writing activity consistently across all participants and classrooms. The pre-narrated presentation provided elicitation consistency across participants and classrooms and helped control for background knowledge on the topic. Expository and persuasive prompts were designed in a format similar to those used on the state writing assessment

model for public schools (see Appendix A). One topic and prompt was used for the spoken and written persuasive tasks, and another prompt and topic were used for the spoken and written expository tasks. Writing sessions were conducted during class time for a whole class period. For the purpose of this specific study, only the persuasive language samples were analyzed. The participants had 25 minutes to create a written composition in the intended modality with paper and pencil. Spoken language samples were obtained during individual sessions that took place in a quiet testing room at the participant's school. The spoken language samples were recorded using Olympus Digital Voice Recorders (VN-702PC).

The examiner provided a brief introduction to obtain the participant's verbal consent to participate (in addition to written parental consent), provide an opportunity for the participant to ask questions, explain the language tasks, and establish rapport. After giving the prompt to the participant, the examiner allowed the speaker as much time as he or she needed to complete his or her response. The examiner used a set of predetermined and open-ended prompts when the participant failed to respond or responded briefly to the original prompt. The average length of time to produce a spoken language sample was 5 minutes. The order of persuasive and expository tasks was counterbalanced by participant for the individual sessions and by classroom for the written sessions to control for order effects. During the individual sessions, the two spoken language tasks were separated by a non-related task (i.e., The Kaufman Brief Intelligence Test [KBIT]: The Matrices Subtest of the KBIT-2) to obtain a quick measure of non-verbal cognitive skills.

Transcription and Coding

The language samples were orthographically transcribed using the standard transcriptions of the Systematic Analysis of Language Transcripts software (SALT; Miller, Andriacchi, & Nockerts, 2011). Transcribers were undergraduate and graduate students in speech-language pathology who were trained in small groups by the author to conduct language sample transcription in SALT.

Errors at the morpheme-level and utterance-level were coded. An error at the morpheme level is any incorrect morpheme or any missing morpheme in an obligatory context. An error at the utterance-level is any utterance with multiple word-level errors or an error in which the author uses the incorrect word order.

A difficult part of comparing syntactic complexity in children within spoken and written language is the determination of the unit of segmentation. One common method is to separate utterances based on the minimal terminal unit (T-unit; Hunt 1970), which is defined as a main, independent clause and any associated subordinate, dependent, or embedded clauses (Nelson et al, 2004; Nelson & Van Meter, 2007; Puranik et al., 2007, 2008; Scott & Windsor, 2000). A single sentence may contain one or more T-units. In written language, the T-unit is used. The C-unit is the spoken language equivalent of the T-unit (Nippold, Hesketh, Duthie, & Mansfield, 2005).

The first author coded the transcripts for complex syntax using a standardized protocol established by Schuele (2009) and summarized in Barako Arndt and Schuele (2013). Complex utterances were assigned a code for complex syntax. Each complex utterance also received one or more syntax codes that further noted the structures (see summary of codes in Table I). If an utterance contained more than one instance of a complex syntax structure, then the code appeared more than once in the transcript line.

Errors were coded at the word-level and utterance-level (see summary of error codes in Table II).

Table I: Syntax Codes

Code	Meaning
[cc]	Conjoined clause; conjunction and two pieces of information included in the same utterance
[sc]	Subordinating clause; independent and dependent clauses joined by a subordinating conjunction
[rc]	Relative clause; any clause with its own verb that modifies a noun
[si]	Marked infinitival clause; infinitive verb that follows another verb
[uic]	Unmarked infinitival clause; concrete verb that does not include the word "to"
[wfc]	Wh finite clause; clause that follows a wh word (who, what, etc.) and includes a mental state verb
[wnfc]	Wh nonfinite clause; includes a mental state verb, wh word (who, what, etc.), and an infinitive verb phrase
[bu]	Broken utterance; utterance that starts with "and" or "but"
[pc]	Participle clause; includes a past participle or present progressive word, modifies a noun
[fpc]	Full prepositional compliment; clause that begins with "that", "whether", or "if" and a mental state verb

Table II: Error Codes

Error Code	Meaning
[ew]	Error at the morpheme level; missing word or word part, incorrect word or word part
[eu]	Error at the utterance level; utterance with multiple grammatical errors or utterance with incorrect word order

Results

Syntactic complexity

Syntactic complexity was measured in two ways: clausal density, referring to the average number of clauses per utterance, and percent complexity, which is the number of complex utterances divided by the total number of utterances. A repeated measures T-test was used because the same participants completed both the written and spoken tasks. There was no significant difference in the clausal density in written samples (M = 2.55, SD = 0.58) and spoken samples (M = 2.58, SD = 0.55), $t(67) = -0.427$, $p = 0.67$. There was a significant difference in the percent complexity. On average, there was a higher percentage of complexity in the written persuasive samples (M = 9.35, SD = 4.14) than in the spoken persuasive samples (M = 7.80, SD = 3.55), $t(67) = 2.63$, $p = 0.01$.

Errors

No significant difference can be reported in the number of errors at the morpheme level in written samples (M = 0.26, SD = 0.61) and spoken samples (M = 0.18, SD = 0.49), $t(67) = 1.18$, p = 0.24. More errors at the utterance level were found in the written persuasive samples (M = 0.91, SD = 1.34) than in the spoken persuasive samples (M = 0.47, SD = 0.82), $t(67) = 2.66$, p= .01.

Academic Achievement

There is a significant small to moderate relationship between the number of omitted between the number of omitted morphemes in the written persuasive language samples and students' scores on state writing tests (-0.24, p= 0.05). This means that as the students' state writing scores increased, the number of omitted morphemes in their written persuasive language samples decreased. No other significant correlations were found.

Discussion

There is no significant difference in the number of clauses per c-unit in the written and spoken persuasive language samples. This is parallel to previous research, as other studies also show no significant difference in clausal density across modality. However, there was a higher percent complexity in the written persuasive language samples than in the spoken language samples. These results are important for speech pathologists when considering the way they collect language samples. This finding shows that the written modality may be a good form for eliciting complex syntax, especially for students who have language delays but don't produce errors in spoken language. These results are not consistent with the results of other genres. Gillam et al. (1998) report that nine- to twelve-year-old children produced longer sentences in spoken narratives than in written narratives. Similarly, Windsor et al. (2000) found that in expository language samples, children produced more complex syntax in the spoken modality than in the written modality. This could be due to the fact that the students had more time to preplan their thoughts and revise their written responses than they did in the spoken task, allowing for more complex syntax.

There is no significant difference in the number of word-level errors in the written and spoken language samples. However, more errors at the utterance level occurred in the written persuasive samples. This could possibly be due the constraints of written language. In spoken language, the speaker has more flexibility when communicating with the listener. Written language, however, does not provide an immediate listener who presents immediate feedback. This finding is important because it suggests that speech-language pathologists and educators should look to identify grammatical errors in written persuasive language.

I found a significant negative relationship between errors at the word level and scores on writing tests. This means that the higher the student's writing score was, the lower number of word-level errors that student made in the written persuasive task. This finding suggests that SLPs and educators should look to identify grammatical errors in written persuasive language and work to correct them because persuasive language may be correlated with academic success and writing abilities. Future research should further explore this academic correlation.

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