The influence of genre on adolescent discourse skills: Do narratives tell the whole story?

1. Dr Elizabeth Hill[1]
Tel: +61 8 9266 4142
Email: elizabeth.j.hill@postgrad.curtin.edu.au

2. Associate Professor Anne Whitworth[1]
Tel: +61 8 9266 3498
Email: anne.whitworth@curtin.edu.au

3.Dr Mark Boyes[2]
Tel: +61 8 9266 7025
Email: mark.boyes@curtin.edu.au

4. Monique Ziegelaar [1]
Email: monique.ziegelaar@student.curtin.edu.au

5. Dr Mary Claessen[1]
Tel: +61 8 9266 3472
Email: m.claessen@curtin.edu.au

[1] School of Occupational Therapy,
Social Work and Speech Pathology
Curtin University
Perth, Western Australia

[2] School of Psychology
Curtin University
Perth Western Australia

Abstract

Purpose: Narrative is the dominant focus of traditional standardised discourse assessment, yet the complex discourse needs of adolescence has led to increased interest in profiling skills in other monologic genres for this age group. This interest is not commensurate with a robust understanding of the influence of genre on adolescent discourse across word to whole-text language features. This knowledge is important to inform context(s) for assessment to profile strengths and weaknesses in discourse-level language.

Method: 160 adolescents between 12-15 years (M = 13;1, SD=1;1, 55% female, 45% male) completed the Curtin University Discourse Protocol – Adolescent. Samples of recount, narrative, expository, and persuasive discourse were coded using a multi-level analysis procedure.

Result: Genre had a significant influence on language variables regardless of age. Narrative tasks citied the longest, most lexically diverse, cohesive, coherent and well-structured output. Results were consistent with the oral to literate continuum and the order in which genres are introduced in the academic curriculum.

Conclusion: Structure, content, and domain-specific knowledge likely influenced the genre-related differences seen in this study. It would be advantageous to sample a range of

monologic genres when assessing adolescent discourse. Declarative knowledge may be an important consideration in topic selection.

Introduction

Adolescents are required to communicate effectively across many social and academic contexts. The use of discourse-level language is particularly vital for successful participation in the classroom, to form and maintain friendships, and for emotional development (Turkstra, 2000). Discourse skills refer to an individual's use of language to communicate for a particular purpose whilst integrating the contextual and pragmatic demands of different contexts (Sullivan & Riccio, 2010). Academically, adolescents are expected to construct a range of texts such as procedural, expository, or persuasive discourse within scientific discussions, debates, and other classroom interactions (School Curriculum and Standards Authority [SCSA], 2016). Socially, adolescents require competent skills in monologic tasks to form and maintain meaningful relationships (Turkstra, 2000). Discourse-level language skills across a range of genres are therefore a critical consideration for speech pathologists (Dipper & Pritchard, 2017).

Discourse Genres in Adolescence

Four everyday monologic genres that are frequently required by the social and academic contexts of adolescence are recount, narrative, expository, and persuasive discourse (Nippold, 2007). Recounts involve the description of one or a series of events, often personally-experienced, to a listener and are essential for social communication and building social relationships (Turkstra, 2000). Narrative refers to a typically fictional text where a character encounters a problem and works to resolve it through a series of events. Recount and narrative discourse are both generally organised according to chronological, temporal, logical and/or causal relationships using a typical organisational structure, or story grammar

2

(Stein & Glenn, 1979).While not frequently encountered in the later school years, academic content can also be presented in a narrative format, and students are expected to demonstrate skills in the construction of cohesive fictional narratives in their academic work (Australian Curriculum Assessment and Reporting Authority ([ACARA], 2015). Socially, older children and adolescents are expected to adequately recount past events and personal experiences in social settings, with the ability to produce well-formed narratives remaining central to psychosocial and emotional development (Reed & Spicer, 2003).

As students enter secondary school, greater emphasis is placed on the production of expository and persuasive discourse (Turkstra, 2000). Expository discourse refers to the use of language to convey information (Nippold, 2007). Adolescents are regularly exposed to expository discourse in the academic context across a range of subjects, contributing to its reputation as the "language of the curriculum" (Ward-Lonergan & Duthie, 2013, p. 44), and the ability to construct coherent expositions is integral to academic success (Ward-Lonergan & Duthie, 2013). Persuasive discourse refers to "the use of argumentation to convince another person to perform an act or accept the point of view desired by the persuader" (Nippold, 2007, p.305) and is considered the most complex discourse form (Heilman, Malone, & Westerveld, 2020). By year 8, Australian students are expected to draw on abstract reasoning, logical thinking, and theory of mind to create "persuasive texts that raise issues, report events, and advance opinions" (ACARA, 2015, p. 22). By year 12, they are expected to demonstrate advanced oral communication skills "through discussion, debate and argument, in a range of formal and informal situations" (SCSA, 2017, p. 1). Expository and persuasive genres also play a notable social purpose in navigating interpersonal relationships (Turkstra, 2000).

The Influence of Genre on Adolescent Discourse

Previous investigations of adolescent discourse have documented differences in word and sentence-level language features between different monologic genres. Brimo and Hall-Mills (2019) compared syntactic complexity and clausal density in persuasive and expository samples in 64 adolescents without language impairment. More complex syntax was observed in persuasive relative to expository discourse, and was attributed to a link between syntactic structure, reasoning, and abstract thought (Brimo & Hall-Mills, 2019). Lundine et al. (2018) extended the work of Scott and Windsor (2000) and examined differences in features of summaries of narrative versus expository texts produced by 50 adolescents between the ages of 13 to 18 years. Samples were assessed on measures of productivity and morphosyntactic complexity as well as 'summary quality', which was sensitive to the structure, amount, accuracy, and relevance of content, use of conjunctions, and sentence structure. Expository summaries were shorter, less complex, and of poorer quality than the narratives samples. Beyond these studies we have restricted knowledge of the degree to which adolescents' discourse-level language skills vary amongst types of monologic discourse (Lundine et al., 2018).

Existing studies have predominantly examined traditional word to sentence-level features. Nippold (1998) argues that any analysis of adolescent discourse should adopt measures sensitive to "sophisticated linguistic phenomena" (p. 3), as language becomes more complex into adulthood (e.g. Channell, McDuffie, Bullard, & Abbeduto, 2015). There is currently debate, however, about which measures are most suitable measures to analyse discourse output (Spencer, Bryant, & Colyvas, 2020). Adult discourse literature includes an array of measures that assess word to whole-text level language features. Coelho (2007) describes four categories of measurement: micro-linguistic, micro-structural, macro-structural, and super-structural, that originate in the cognitive-communication literature and delineate a series of word to whole-text measures. Micro-linguistic measures refer to the

traditional word and sentence-level indices that have been used in studies of paediatric discourse such as total words, MLU, lexical diversity and syntactic complexity (Coelho, 2007). Micro-structural indices capture the use of cohesive ties to link characters or concepts between and within sentences. Macro-structural measures are sensitive to the coherence and thematic unity of discourse, and super-structural measures (often referred to as macro-structure in discourse literature), refer to whole-text level structural organisation of discourse (Coelho, 2007). As adolescent discourse represents a shift to more complex discourse content and structures, a multi-level approach to analysis is proposed to be a useful way to examine variability in adolescent discourse that exists between genres.

Genre-related Differences and Processing Requirements

Observed variability in language features across genres has been linked to differences in the content, structure, and processing requirements of various discourse forms. Existing models of discourse processing posit that utterance and word-level syntactic, morphological, and phonological encoding is facilitated by the activation and retrieval of the appropriate schematic framework and general world knowledge (Frederiksen & Stemmer, 1993; Levelt, 1989). This interaction was used by Berman and Nir-Sagiv (2007) to interpret genre-related differences in adolescents' written narrative and expository discourse and the variable processing requirements of 'event-based' versus 'topic-based' genres. Tasks that require an account of events, such as recount and narrative discourse, are proposed to draw on mechanisms of bottom-up processing (Berman & Nir-Sagiv, 2007). Here, the retrieval and sequencing of language content draws on, and is facilitated by, familiarity with the structural requirements of event-based story grammar. In contrast, tasks that involve fact-based and more abstract content, such as persuasive or expository discourse, rely more heavily on top-down processing mechanisms. Here, the content of discourse is largely guided by the extent of general knowledge of the discourse topic and exposure to fact-based texts (Berman & Nir-

Sagiv, 2007). For this reason, persuasive and expository texts are considered, empirically, more cognitively and linguistically challenging, and therefore later developing, forms of discourse (Nippold, 2007). This is consistent with the notion that "complex thought drives the development of complex language" (Nippold, Hesketh, Duthie, & Mansfield, 2005, p. 1058), and supports the use of a range of word to whole-text-level language measures in discourse analysis, particularly in an adolescent population.

Genres in Discourse Assessment

Clinicians assess narrative skills more frequently than those in any other genre; using both self-generated protocols and standardised batteries (Westerveld & Claessen, 2014). While narratives provide valuable insight into discourse skills, and are deemed the "canary in the coalmine" (Snow & Powell, 2008, p.17) of language difficulties in childhood, evidence suggests they may not adequately capture the complexities of adolescent language (Lundine et al., 2018). Some tools developed for clinicians working with adolescents to address this issue include the protocols for expository (Heilman & Malone, 2014; Nippold et al., 2005) and persuasive discourse (Heilman et al., 2020), with normative data for adolescents aged 10 to 18 years available through the Systematic Analysis of Language Transcripts (SALT; Miller & Iglesias, 2019). Clinicians also have access to the Curtin University Discourse Protocol – Adolescent version (CUDP-A; Hill et al., 2020), which provides an elicitation and scoring protocol for recount, narrative, expository, and persuasive discourse skills and adolescent reference data on micro-linguistic to super-structural variables. Despite the availability of these tools, we have a limited understanding of whether certain genres are more informative than others in characterising adolescent discourse and guiding intervention planning.

The current study

The current study examined differences in adolescent discourse skills across four monologic genres using a range of word to whole-text level outcome measures (Coelho,

6

2007).This study drew on the CUDP-A reference data published in Hill et al. (2020) to examine differences between recount, narrative, persuasive and expository samples in adolescents between 12 to 15 years of age across micro-linguistic to super-structural language features.

<div align="center">**Method**</div>

Participants

Participants included 160 adolescents (male = 72; female = 88) recruited as the reference sample of the CUDP-A (Hill et al., 2020). Participants were aged between 12;0 to 15;11 years of age (M= 13;1, SD= 1;1). The primary inclusion criteria, as reported by Hill et al. (2020), were attendance at mainstream school and no diagnosis of language disorder or delay, as indicated by a Clinical Evaluation of Language Fundamentals – Fourth Edition (Semel, Wiig, & Secord, 2003) Core Language Score greater than 80 (M=117.7, SD = 10.4, $range$ = 85 to 140; see Hill et al., 2020). Participants spoke English as their first and primary language (other languages spoken in addition to English were Azari, Japanese, Spanish, and Farsi; each n=1). Exclusion criteria for the study included a diagnosed intellectual disability, neurological disorder, and/or Autism Spectrum Disorder.

Oral Discourse Assessment

The CUDP-A (Hill et al., 2020) required each participant to produce 11 discourse samples across four genres: recount (n= 3), narrative (n=2), expository (n= 3), and persuasive (n= 3). All tasks were elicited using verbal prompts. The narrative tasks required participants generate two narratives using age appropriate picture stimuli. CUDP-A topics and prompts are provided in supplementary materials (Table S1).

Transcription and coding.

Discourse samples were audio-recorded and then entered into Systematic Analysis of Language Transcripts (SALT) software (Miller & Inglesias, 2018). Transcripts were segmented into Communication Units (c-unit), (Loban, 1976). C-units were coded using standard SALT conventions and study-specific measures across micro-linguistic to super-structural levels of analysis.

Micro-linguistic features.

Micro-linguistic features included productivity, dysfluency, lexical diversity and morpho-syntactic complexity. Productivity was assessed in total c-units (Loban, 1976). Dysfluency was assessed using total maze words and percent maze words (Westerveld & Vidler, 2016). Lexical diversity was assessed using the number of different words per 50 words of discourse (NDW). Morpho-syntactic complexity was indexed using mean length of utterance in words (MLUw) as well as a measure of clausal density, calculated using total clauses as a proportion of total c-units.

Micro-structural measures.

Micro-structural features included cohesive frequency and cohesive adequacy. Cohesive frequency was measured as the total number of demonstrative ties, personal and possessive pronouns and determiners (termed 'referential ties) in each sample (Liles, 1985). This was converted to the referential ties per 50 words of discourse to control for sample length. Lile's (1985) procedure was used to judge each reverential tie as complete, incomplete, or erroneous. Ties were judged as 'complete' when the referent was easily located in preceding utterances, as 'incomplete' when the referent was not provided or was not evident from context, and as 'erroneous', if the referent was incorrect or ambiguous. Cohesive adequacy was indexed as the proportion of complete ties of total referential ties.

Macro-structural measures.

Macro-structural features included coherence, relevance, and efficiency. Measures of Local and Global Coherence were calculated using Glosser and Deser's (1990) rating scales. Local coherence refers to the degree to which the current utterance relates to the meaning or content of the preceding utterance, while global coherence refers to the degree to which the content of each utterance relates to the overall topic (Glosser & Deser, 1990). Each c-unit received an individual rating along a five-point rating scale. A high local coherence score (5) was provided when the topic of the preceding utterance is continued in the current utterance. A low local coherence score (1) was provided when the current utterance does not relate to the subject or content of the preceding utterance (Glosser & Deser, 1990).

A higher global coherence rating (5) indicated that the content of the current utterance provides substantiative information directly relates to discourse topic. A low global coherence score (1) was provided to utterances that are incoherent, and are not related to the discourse topic. An average local and global coherence rating was calculated for each sample.

Relevance and efficiency were indexed using Nicholas and Brookshire's (1993) Correct Information Unit (CIU) analysis. A CIU was defined as any word that is intelligible in context, accurate, and relevant to the topic of discourse, stimulus, or prompt (Nicholas & Brookshire, 1993). Relevance was measured as the percentage of CIUs of the total words (%CIU). Efficiency was measured as the number of CIUs produced per minute of discourse (CIUpm).

Super-structural measures.

Super-structural measures assessed participants' adherence to the predefined discourse framework for each genre previously outlined in Hill et al. 2020. The variables used in this study included total Schema Deviations (the number of missing schema components), total Order Deviations (components are produced out of order to the pre-

defined structure), and total Genre Shifts (a substantial shift to a different schematic structure).

Reliability of transcription and coding.

As reported in Hill et al (2020), transcription reliability for 10% of samples was conducted with 98-99% agreement reached between the raters. Two experienced speech pathologists re-coded 10% of samples and intra-class correlation coefficients and percent agreement revealed good to excellent reliability for micro-linguistic (.96 to .98), micro-structural (.95 to .99), macro-structural (.76 to. 99), and super-structural measures (.90) (Koo & Mae, 2016).

Statistical Analysis

Descriptive statistics were calculated to summarise language variables across each genre (topics were collapsed to obtain overall genre scores). Multivariate analyses of variance (MANOVAs) were conducted to examine the effect of genre on discourse variables. Data were also categorised into four age groups 12;0-12;11, 13;0-13;11, 14;0-14;11, and 15;0-15;11 to investigate whether age contributed to genre-related differences. The results of follow-up univariate comparisons are also reported. Normality was not observed for each level of the independent variable due to extreme scores, but MANOVAs are robust to non-normal distributions when sample sizes $N \geq 30$ (Tabachnik & Fidell, 2007). Bonferroni correction was applied to all analyses ($p = 0.0125$). Effect sizes are reported in partial eta-squared (η_p^2), and interpreted according to Cohen's (1998) conventions where small = .02, moderate = .13, and large = .26.

Results

Genre Effects

Descriptive statistics for each variable across genres are reported in supplementary materials (see Tables S2 to S5). Additional descriptive statistics across age groups are reported in Tables S6 to S9. The results of pairwise comparisons across genres are reported in Tables S10 to S13. To assist in interpretation of the results, bar graphs with confidence intervals are provided to illustrate differences across genres for micro-linguistic to macro-structural variables.

Micro-linguistic features.

Productivity.

Results revealed small, significant, effect of genre on total words, $F(3, 624) = 7.904$, $p<.001$, $\eta_p^2 = .037$. On average, narratives and recounts were comparable in length as the longest samples and expository samples were the shortest (Figure 1). Participants produced significantly fewer words in expositions than narrative ($p<.001$, see Table S10), recount ($p<.001$), and persuasive samples ($p=.010$). No significant differences in length were observed between narrative, recount, and persuasive samples. Genre had a moderate effect on the number of c-units, $F(2.17, 338,73) = 22.851$, $p < .001$, $\eta_p^2 = .128$. Numerically, participants produced the most utterances in recounts and the fewest in expositions (Figure 2). Participants' narratives were significantly longer than both expositions ($p < .001$) and persuasive samples ($p = .017$), but were not different to recounts ($p=.270$). Recounts were also significantly longer than expositions and persuasive samples (both $p < .001$). Expositions were also shorter than persuasive samples ($p<.001$).
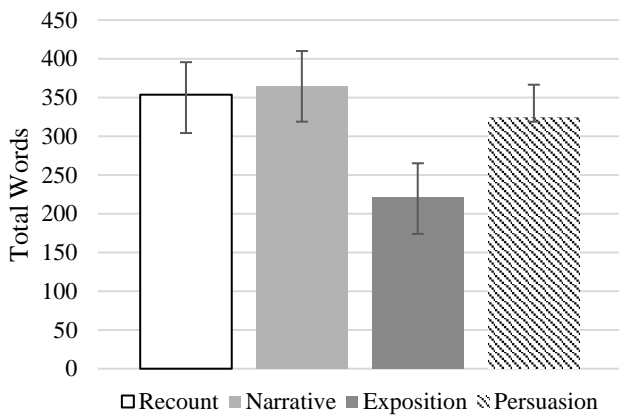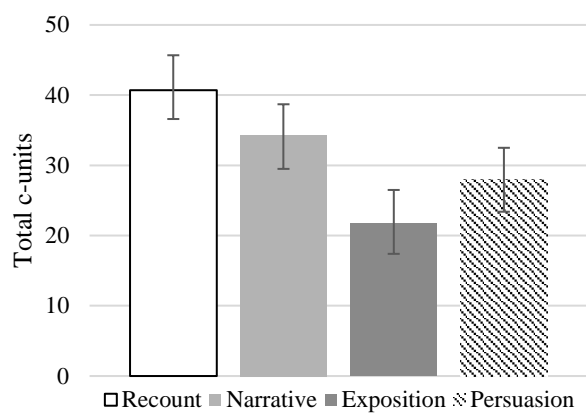
Figure 2. Total words (M) across genres

Figure 1. Total c-units (M) across genres

Lexical diversity.

A moderate effect of genre on NDW was also observed, $F(3, 624) = 18.114$, $p<.001$, $\eta_p^2 = .080$. On average, narrative samples contained the widest range of vocabulary while expositions yielded the least lexical diversity (Figure 3). Analysis revealed no difference in NDW between expositions and recount samples ($p=.099$). Expositions contained significantly fewer NDW than persuasive ($p=.002$) and narrative samples ($p<.001$). Narratives also demonstrated significantly greater lexical diversity than recounts ($p<.001$) and persuasive samples, ($p=.003$). No difference between recount and persuasive samples was observed ($p=.099$).

Dysfluency.

A large effect of genre on %maze words was found, $F(2.519, 393.012) = 88.05$, p < .001, $\eta_p^2 = .361$. Numerically, narrative samples contained the lowest proportion of maze
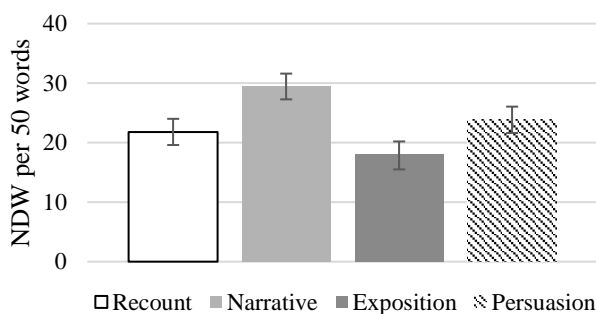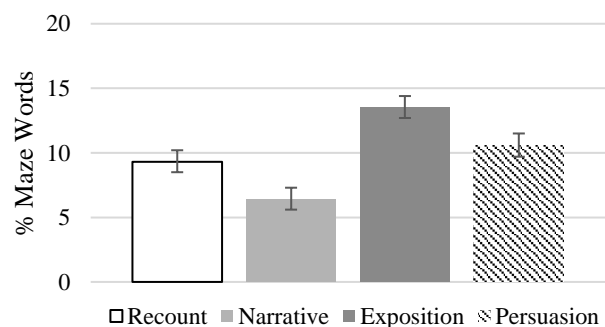

Figure 3. Total NDW (M) across genres

Figure 4. Total %Maze Words (M) across genres

words, and expositions contained the highest (Figure 4). The proportion of maze words in narrative samples was significantly lower than recount, expositions, and persuasive samples (all $p<.001$). Expositions yielded a significantly higher %maze words than all other genres ($p<.001$). Persuasive samples also contained significantly higher number of mazes than recounts ($p=.003$).

Morpho-syntactic complexity.

A large effect of genre on MLUw was found, $F(2.674, 417.139) = 97.244$, p < .001, $\eta_p^2 = .384$. On average, samples of persuasive discourse contained the longest utterances, and recount samples contained the shortest utterances (Figure 5). A significant difference was seen between persuasive and recount samples for MLUw ($p<.001$). Similarly, recounts contained significantly shorter utterances than expositions ($p=.002$) and narratives ($p<.001$). Persuasive and narrative samples did not differ ($p = 1.000$), yet both contained significantly longer utterances than expositions (both $p<.001$). Genre also had a large effect on clausal density, $F(2.418, 377.166) = 85.763$, $p < .001$, $\eta_p^2 = .355$. On average, recounts contained the least complex sentences, and persuasive samples the most (Figure 6). Recounts demonstrated less clausal density than narrative, expository, and persuasive samples (all $p<.001$). Narrative and expository samples did not differ ($p=1.000$), but both genres yielded less complex syntax than persuasive discourse (both $p<.001$).
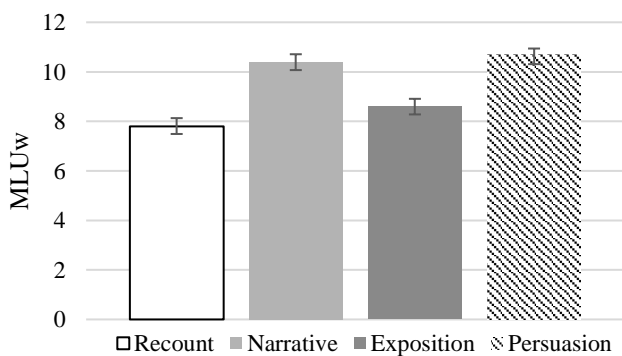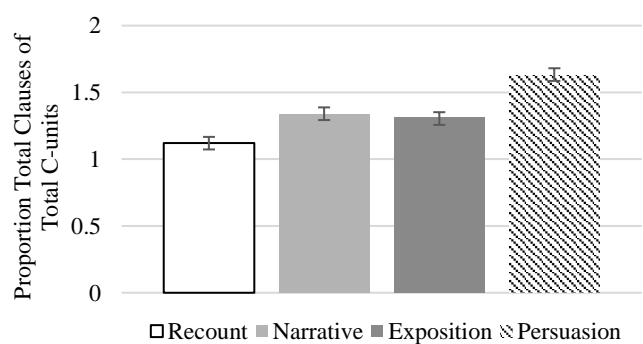

Figure 5. MLU (M) across genres

Figure 6. Clausal density (M) across genres

Micro-structural features.

Cohesive frequency.

Genre had a significant, moderate effect on the number of referential ties per 50 words of discourse, $F(3, 624) = 25.454$, $p<.001$, $\eta_p^2 = .109$. Numerically, narrative samples contained the most referential ties (Figure 7). Narrative samples contained significantly more referential ties than all other genres (all $p<.001$, see Table S11), while no significant differences were observed between expository, persuasive, and recount samples (all $p=1.000$).

Cohesive adequacy.

Genre also had a large effect on cohesive adequacy, $F(2.847, 444.174) = 69.581$, $p < .001$, $\eta_p^2 = .308$. Narratives contained a significantly higher proportion of adequate ties than recount, exposition, and persuasive samples (all $p < .001$). Cohesive adequacy did not differ between recount and persuasive ($p=.035$) or between recount and expository samples ($p=1.000$). Expositions contained significantly more adequate ties than persuasive samples ($p=.009$).
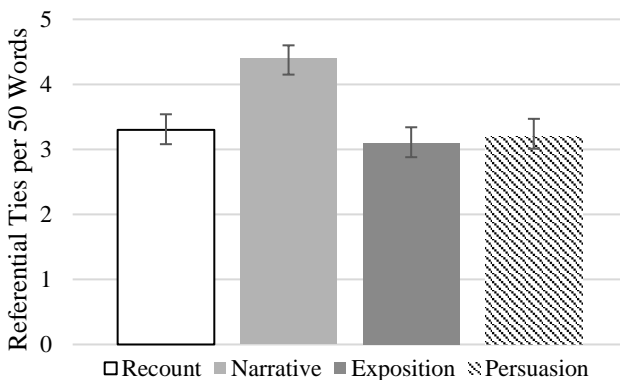

Figure 7. Cohesive frequency (M) across genres

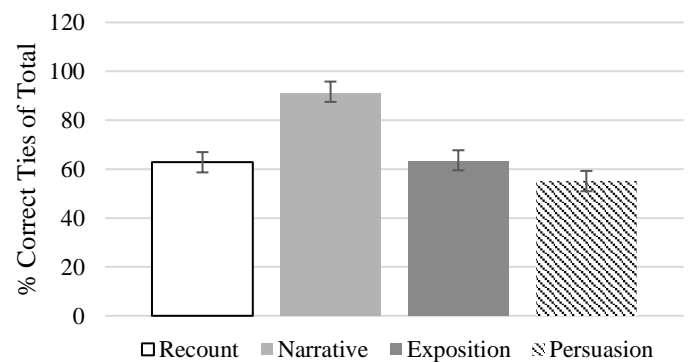*Figure 8. Cohesive adequacy (M) across genres*

Macro-structural features.

Local coherence.

Results revealed a large effect of genre on local coherence, $F(2.360, 368.208) = 43.232$, $p < .001$, $\eta_p^2 = .217$. On average, narrative samples yielded the highest local coherence ratings and expositions the lowest, see Figure 9. Local coherence ratings were significantly higher in narrative samples than all other genres (all $p<.001$, see Table S12). Expositions also had significantly lower local coherence than recount ($p<.001$) and persuasive samples ($p=.003$). No difference between recount and persuasive samples was observed ($p=.505$).

Global coherence.

Genre had a large effect on global coherence across samples, $F(2.745, 428.250) = 70.668$, $p < .001$, $\eta_p^2 = .312$. Narrative samples received the highest global coherence ratings on average and expositions the lowest, see Figure 10. Expositions obtained significantly lower ratings than narrative ($p<.001$) and persuasive samples ($p=.007$). Global coherence did not differ between recounts and expository ($p=.234$) or persuasive samples ($p=1.000$). Both recount and persuasive samples yielded significantly lower global coherence ratings than narrative discourse (both $p<.001$).
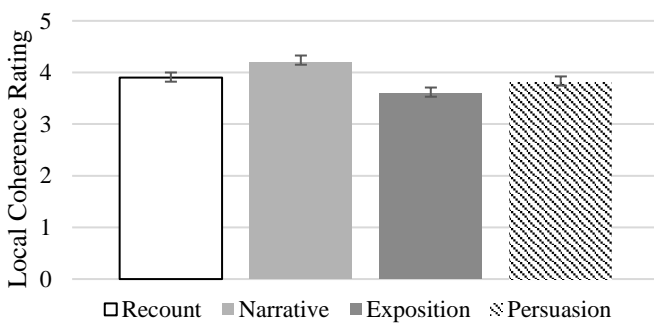

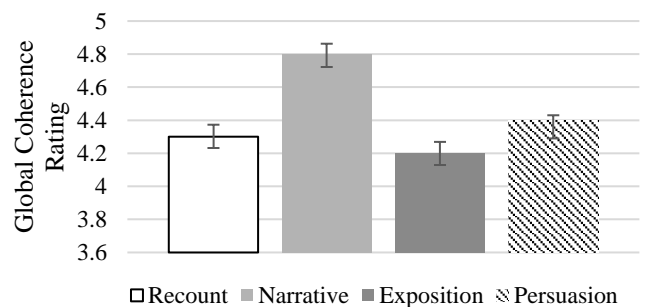Figure 9. Local coherence (M) across genres

Figure 10. Global coherence (M) across genres

Relevance.

There was a large effect of genre on %CIU, $F(2.832, 441.863)= 47.001$, $p < .001$, $\eta_p^2 = .232$. Numerically, narrative samples contained the highest %CIU, while recount and expository samples shared the lowest %CIU, see Figure 11. Narrative samples contained a significantly higher %CIU than recount, explanatory exposition, and persuasive discourse

samples (all $p<.001$). While recount and expository samples did not differ ($p=.980$), persuasive samples contained a significantly higher proportion of CIUs than both genres (both $p<.001$).

Efficiency.

Genre also had a large effect on CIUpm, $F(2.753, 429.424) = 61.197$, $p < .001$, $\eta_p^2 = .282$. On average, participants were most efficient in narrative discourse and least efficient in expositions, see Figure 12. Narratives did not differ in CIUpm from persuasive samples ($p=1.000$), but both genres yielded significantly more CIUs per minute than expositions ($p<.001$) and recounts ($p<.001$). Participants also produced fewer CIUs per minute in expositions compared to recount samples ($p<.001$).
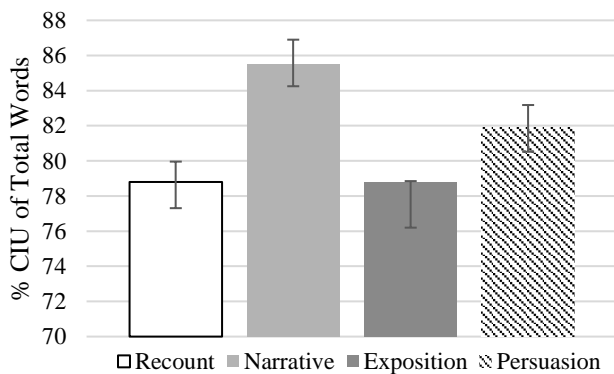

Figure 11. %CIU (M) across genres
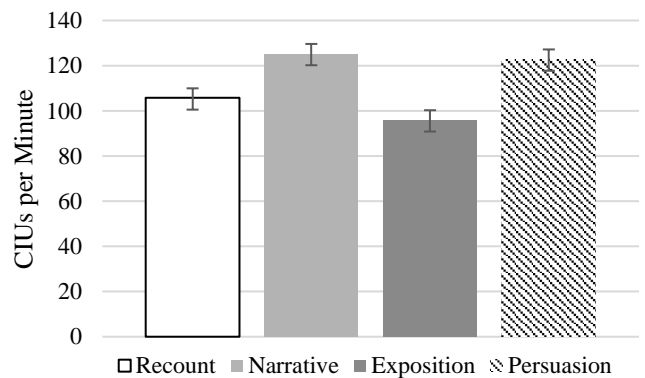
Figure 12. CIUpm (M) across genres

Super-structural features.

Schema deviations.

Genre had a large effect on participants' adherence to pre-defined schemata, $F(2.761, 430.676)= 47.229$, $p < .001$, $\eta_p^2 = .232$. On average, participants deviated from pre-defined schema most frequently in expositions, and least in narrative. Narratives contained significantly fewer deviations than recount, expositions, and persuasive samples (all $p<.001$, see Table S13 in supplementary materials). Participants deviated significantly more

frequently in expositions than all other genres (all $p<.001$). No difference was observed between recount and persuasive samples ($p=.047$).

Order deviations.

Genre had a small, significant effect on order deviations, $F(2.344, 365.725)= 47.229$, $p < .001$, $\eta_p^2 = .058$. No difference between narrative and recount samples ($p=.232$, see Table S4 in supplementary materials) was observed. Narratives contained significantly fewer order deviations than expositions ($p<.001$) and persuasive samples ($p=.001$). Expositions and persuasive samples did not differ ($p=.624$). Expositions contained more deviations than counts ($p=.007$). No difference between recount and persuasive samples was found ($p=.624$).

Genre shifts.

Genre had a small to moderate effect on the number of Genre Shifts in discourse, $F(1.101, 171.757) = 18.318$, $p < .001$, $\eta_p^2 = .105$. Expositions contained a significantly greater number of shifts than all other genres (all $p<.001$). No differences between recount, narrative and persuasive samples were observed (all p = 1.000).

Interaction between Genre and Age

No age*genre interaction effect was observed for micro-linguistic, $F(45, 3120) = .433$, $p=1.000$, $\eta_p^2 = .006$)=.416, $p = 1.000$, $\eta_p = .006$; micro-structural, $F(18, 936) = .666$, $p = .846$, $\eta_p^2 = .013$; macro-structural, $F(36, 1872) = 1.047$, $p = .393$, $\eta_p^2 = .020$; or super-structural variables, $F(36, 1872) = .807$, $p = .787$, $\eta_p^2 = .015$.

Discussion

By examining the influence of genre on discourse-level language features, this study builds on our previous work that established preliminary reference data for adolescent discourse (see Hill et al., 2020). We anticipated that comparing adolescents' language skills across a range of monologic tasks may identify genres that were more informative than

others, potentially enhancing the feasibility of discourse assessment in clinic and, importantly, to guide intervention planning. Consistent with past studies, narrative tasks elicited the longest, most fluent, cohesive, and coherent discourse while expository tasks elicited the shortest, most error prone, and least cohesive and coherent output. With respect to current discourse models, our results support the notion that bottom-up processing mechanisms in event-based tasks support language performance via a well-consolidated knowledge of story grammar, while tasks that draw on top-down mechanisms to retrieve and plan abstract, fact-based information elicit more variable discourse skills (Berman & Nir-Sagiv, 2007). The results of this study suggest an influence of genre on adolescent discourse skills which may be explained via an association between declarative knowledge, structure, and content.

Genre-related Differences in Adolescent Discourse Skills

Our observation of more optimal language output in narrative samples may be attributed to familiarity and early exposure to narrative story grammar (Lundine et al., 2018). Participants demonstrated a consolidated knowledge of story grammar, evidenced in observations of infrequent deviations from the pre-defined narrative schemata. These results may indicate that participants' stored knowledge of story grammar may reduce cognitive-linguistic demands, which were then allocated to such processes as topic maintenance and ensuring the logical and efficient flow of accurate information within, and between, utterances (Makinen et al., 2014). Narrative tasks may then provide an optimal context for adolescents to demonstrate proficiency across a range of word to whole-text level language features. From a theoretical perspective, a well-consolidated stored representation of narrative structure is proposed to directly inform word and sentence-level language encoding via bottom-up processing mechanisms (Berman & Nir-Sagiv, 2007).

Less optimal discourse output in recount tasks compared to narrative samples was unexpected as recounts contain personally relevant information, and occur earlier along the oral to literate continuum and in the academic curriculum (Bliss & McCabe, 2012).The observation of variable super-structural profiles between recount and narrative was surprising as they share similar features such as the requirement of orientating contextual information and an event-based structure. Our results do, however, support earlier research with younger children where the structure of personal recount samples has not mapped onto prototypical narrative story grammar (Aksu-Koc & Aktan Erciyes, 2018). Although both event-based tasks, the flexibility in structure of recount versus narrative discourse may reflect the more formal, literature nature of fictional narratives (Bliss & McCabe, 2012). Adolescents may also have less concrete representation of recount structure stored in memory as this genre is rarely directly taught or assessed in middle to high school years. An interpretation based on models of discourse processing would suggest that variability in super-structural profiles accounts for differences between narrative and recount tasks at micro-linguistic to macro-structural measures.

The finding of low cohesive adequacy in recounts compared to narrative texts was particularly interesting. Narratives elicited the greatest cohesive adequacy, which reflects participants' adherence to story grammar as well-formed stories necessitate the use of pronouns and determiners to introduce and maintain characters, settings, events, and the temporal, causal, and adversative links between them (Fichman & Altman, 2019). Recounts are regarded, however, as requiring the same use of pronouns and determiners to introduce, and relate, key people, locations, and events as narrative discourse (Hickmann, 2003). It is possible that participants' subversion of story grammar in recounts may influence the need to provide adequate referential ties. The referential ambiguity observed in recount may relate to the content of the CUDP-A prompts where participants carried over specific first mentions

provided by the assessor. Interestingly, this may also have occurred in expository and

persuasive tasks. The use of inadequate referential ties may also relate to the informality of

oral discourse assessment where adolescents used non-specific pronouns in lieu of specific

mentions to maintain a quasi-natural flow of interaction in an informal discourse task

(Lindgren & Vogels, 2018). In contrast, narrative being a more literate, formal genre may

retain the requirement for specific first mention in oral tasks (Westby, 2014). Another

possible interpretation relates to egocentricity in adolescent development where participants

may have selected referential based on their own perspective and inaccurate judgments of

necessary information (Gundel & Johnson, 2013). Given Lile's (1985) procedure for

assessing cohesion in discourse originated from the study of narrative genres, it is possible

that findings of low cohesive adequacy in recount, persuasive, and expository samples signal

the need to adapt analysis of cohesion for different genres.

Similarities between recount and persuasive discourse was an unexpected finding as,

theoretically, recount and persuasive discourse lie on opposite ends of the oral to literate

continuum (Westby, 2014). Persuasive samples did, however, yield the greatest

morphosyntactic complexity across samples, which is consistent with the notion that

persuasion involves expression of complex thoughts through sophisticated language

structures (Nippold, 2007). It was interesting to observe that many participants used personal

recounts along with, or often in place of, fact-based information to support their opinion. This

may account for similarities between persuasive and recount samples across micro-linguistic

to macro-structural variables and supports the assertion of Berman and Nir-Sagiv (2007) that

adolescents tend to subvert generic structures by "transplanting elements of one genre into

another" (p. 104). The oral persuasive genre therefore allowed participants to produce more

egocentric, personally familiar and relevant content as adolescents are able to refer directly to

themselves and their own opinion. Persuasive discourse is a complex task that would require

top-down processing, so participants may have reduced cognitive-linguistic demands by drawing more heavily on bottom-up processing and switching to event-based structures or more familiar content (Berman & Nir-Sagiv, 2007).

This strategy may be less appropriate in expository discourse, causing expositions to yield less optimal language profiles than persuasive tasks for this sample. For instance, adolescents' expositions demonstrated the least stringent adherence to pre-defined schemata. This is consistent with the notion that fact-based tasks place greater demands on global text organisation due to a reliance on declarative knowledge. In their study of adolescents' written discourse, Berman and Nir-Sagiv (2007) attributed poorer global organisation of expository texts to the extent of general knowledge and exposure to schematic structure, highlighting that "parents read storybooks, not compositions or encyclopaedias to their infants, and school children watch movies, not documentaries, on television" (Berman & Nir-Sagiv, 2007, p. 107). Limited knowledge related to the topic of discourse would account for the difficulties in global text structure as well as reductions in coherence and cohesion, length, fluency, and lexical diversity observed in this study (Frederiksen & Stemmer, 1993). It may have been difficult for participants to retrieve and encode micro-linguistic to macro-structural discourse features in order to communicate information effectively if they could not access adequate domain-specific knowledge in real time (Berman & Nir-Sagiv, 2007). Interestingly, comparable clausal density in expository and narrative tasks contradicts the results of studies in younger school-age children (e.g. Scott & Windsor, 2000) and of adolescents' written discourse (Brimo & Hall-Mills, 2019). Limited declarative knowledge may also restrict the use of complex syntax to express complex ideas in expositions. The results may also support an interaction between genre and modality (Brimo & Hall-Mills, 2019), or a transition to more sophisticated adult-like across both genres.

Results indicated a significant influence of genre on micro-linguistic to super-structural features irrespective of age. This supports previous evidence of a consolidation of the ability to plan and produce distinguishable discourse genres at an early age (Berman & Nir-Sagiv, 2007). This has important implications for clinical and academic assessment of discourse skills across middle to upper school years, where clinicians and educators may assume competence, or otherwise, in oral discourse on the basis of a limited range of genre in the academic curriculum.

Clinical Implications

The CUDP-A (Hill et al., 2020) was found to be a useful tool to elicit distinguishable discourse samples across four monologic genres. A significant effect of genre was found on every language feature measured across micro-linguistic to super-structural levels of analysis, with moderate to large effects observed across the majority of CUDP-A measures. No single genre is likely to elicit a full range of strengths and weaknesses in discourse. Assessment of a range of discourse genres that reflect the everyday communication contexts of adolescence is needed, particularly given clinicians report a preference for narrative assessment over other discourse forms (Westerveld & Moran, 2011). In summary, the results support the assertion of Liles et al. (1989) that tasks which draw on abstract or less familiar information challenge language skills. Narrative tasks may be valuable to profile strengths in discourse, yet basing interpretation solely from narratives may overestimate competence in other genres. Persuasive tasks provides a context in which to sample adolescents' use of complex syntax. Expository tasks appeared to pose the greatest challenge for participants in this study, yet it is not possible to conclude whether this is due to linguistic demands or variable domain-specific knowledge. Declarative knowledge is a critical consideration when assessing fact-based genres, particularly given it is largely determined by social, cultural, and economic factors

(Berman & Nir-Sagiv, 2007). Clinicians may wish to make additional efforts, where possible, to select salient and relevant topics when assessing discourse skills.

Limitations and Future Directions

Conclusions would be further strengthened by recruiting a larger sample, with a wider age range and higher cultural and linguistic diversity, to ensure even greater representation of the mainstream cohort. While the four monologic genres assessed using the CUDP-A were chosen based on their relevance to social pursuits and presence in the curriculum, dialogic conversational discourse and other monologic genres such as procedures, descriptions, narrative retell, and other forms of expository discourse would be valuable areas for further investigation. Exploration of differences between monologic and dialogic discourse would further enhance understanding of the pragmatic, cultural and linguistic factors associated with discourse skills (Nippold, Frantz-Kaspar, Cramond, Kirk, Haywood-Mayhew & MacKinnon, 2014). Finally, it is important to highlight that the CUDP-A scoring protocol defines schematic structures on the basis of Australian curriculum resources and theory relating to literature and written discourse. Our results may reflect differences in the structural and content requirements of informal oral and formal written discourse. Brimo and Hall-Mills' (2019) work may assist in examining the interaction of genre and modality on adolescent discourse across a range of word to whole-text features.

Conclusions

This study has addressed an important gap in our understanding of the influence of genre on adolescent discourse. Genre had a significant influence over adolescents' discourse, regardless of age, which is likely related to a link between declarative knowledge, structure, and content. A well-consolidated knowledge of narrative structure may support adolescents to demonstrate optimal language proficiency across word to whole-text level language measures. Fact-based tasks, particularly expository discourse, may place additional demands

on declarative knowledge and bias adolescents to demonstrate less competent language skills in discourse assessment. This has implications for assessment and intervention planning in clinical populations as the majority of available standardised language assessments narrowly focus on word and sentence-level tasks or narrative discourse alone. These findings suggest that clinicians obtain a profile of strengths and weaknesses in discourse by sampling a range of genres that involve top-down and bottom-up discourse processing, explicitly considering the influence of declarative knowledge on assessment performance. In promoting a more comprehensive identification of discourse impairments, the selection of appropriate goals and targets for intervention are likely to follow.

References

Aksu-Koc, A., & Erciyes, A. (2018). Narrative discourse: Developmental perspectives. In A. Bar-On & D. Ravid (Eds.), *Handbook of communication disorders: Theoretical, empirical, and applied linguistic perspectives* (pp. 329–356). Berlin, BS: De Gruyter Mouton.

[ACARA] Australian Curriculum Assessment and Reporting Authority. (2015). *The Australian F-10 curriculum*. Retrieved from www.australiancurriculum.edu.au/f-10-curriculum

Berman, R., & Nir-Sagiv, B. (2007). Comparing narrative and expository text construction across adolescence: A developmental paradox. *Discourse Processes*, 43, 79–120. doi:10.1207/s15326950dp4302_1

Bliss, L.S., & McCabe, A. (2012). Personal narratives: Assessment and intervention. P*erspectives on Language Learning and Education*, 19, 130–138. doi:10.1044/lle19.4. 130

Brimo, D., & Hall-Mills, S. (2019). Adolescents' production of complex syntax in spoken and written expository and persuasive genres. *Clinical Linguistics and Phonetic*s, 33, 237–255. doi:10.1080/02699206.2018.1504987

Channell, M., McDuffie, A., Bullard, L., & Abbeduto, L. (2015). Narrative language competence in children and adolescents with Down Syndrome. *Frontiers in Behavioural Neuroscience*, 9, 283 doi:10.3389/fnbeh.2015.00283

Coelho, C. (2007). Management of discourse deficits following traumatic brain injury: Progress caveats, and needs. *Seminars in Speech and Language*, 28, 122–135. doi:10.1055/s-2007 970570

Cohen, J. (1988). *Statistical power analysis for the behavioural sciences* (2nd ed.). Hillsdale, NJ: Lawrence Erlbaum Associates.

Dipper, L.T., & Pritchard, M. (2017). Discourse: Assessment and therapy. *Advances in Speech-language Pathology*. IntechOpen. doi:10.5772/intechopen.6989

Fichman, S., & Altman, C. (2019). Referential cohesion in the narratives of bilingual and monolingual children with typically developing language and with specific language impairment. *Journal of Speech, Language, and Hearing Research*, 62, 1–20. doi:10.1044/2018_JSLHR-L-18-0054

Frederiksen, C., & Stemmer, B. (1993). Conceptual processing of discourse by a right hemisphere brain-damaged patient. In H. Brownell & Y. Joanette (Eds.), N*arrative discourse in neurologically impaired and normal aging adults* (pp. 239–278). San Diego, CA: Singular Publishing Group.

Glosser, G., & Deser, T. (1991). Patterns of discourse production among neurological patients with fluent language disorders. *Brain and Language*, 40, 67–88. doi:10.1016/0093- 934X(91)90117-J

Gundel, J., & Johnson, K. (2013). Children's use of referring expressions in spontaneous discourse: Implications for theory of mind development. *Journal of Pragmatics,* 56, 43–57. doi: 10.1016/j.pragma.2013.04.003

Heilmann, J., & Malone, T.O. (2014). The rules of the game: Properties of a database of expository language samples. *Language, Speech, and Hearing Services in Schools*, 45, 277–290. doi:10.1044/2014_LSHSS-13-0050

Heilmann, J., Malone, T.O., & Westerveld, M.F. (2020). Properties of spoken persuasive language samples from typically developing adolescents. *Language, Speech, and Hearing Services in Schools*, 51, 441–456. doi:10.1044/2019_LSHSS- 19-00078

Hickmann, M. (2003). *Children's discourse: Person, space and time across languages* (Vol. 98). Cambridge, UK: Cambridge University Press.

Hill, E., Claessen, M., Whitworth, A., & Boyes, M. (2020). Profiling variability and development of spoken discourse in mainstream adolescents. *Clinical Linguistics & Phonetics*, 1–21. doi:10.1080/02699206.2020.1731607

Levelt, W.J. (1989). *Speaking: From intention to articulation* (Vol. 1). Cambridge, MA: MIT Press.

Koo, T., & Mae, L. (2016). A guideline of selecting and reporting intraclass correlation coefficients for reliability research. *Journal of Chiropractic Medicine*, 15, 155–163. doi:10.1016/j. jcm.2016.02.012

Liles, B. (1985). Cohesion in the narratives of normal and language- disordered children. *Journal of Speech and Hearing Research*, 28, 123–133. doi:10.1044/jshr.2801.123

Liles, B., Coelho, C., Duffy, R., & Zalagens, M. (1989). Effects of elicitation procedures on the narratives of normal and closed head-injured adults. *The Journal of Speech and Hearing Disorders,* 54, 356–366. doi:10.1044/jshd.5403.356

Lindgren, J., & Vogels, J. (2018). Referential cohesion in Swedish preschool children's narratives. *Journal of Pragmatics*, 133, 45–62. doi:10.1016/j.pragma.2018.06.007

Loban, W. (1976). *Language development: Kindergarten through grade twelve*. Urbana, IL: National Council of Teachers of English.

Lundine, J.P., Harnish, S.M., McCauley, R.J., Zezinka, A.B., Blackett, D.S., & Fox, R.A. (2018). Exploring summarization differences for two types of expository discourse in adolescents with traumatic brain injury. *American Journal of Speech-Language Pathology*, 27, 247–257. doi:10.1044/2017_ AJSLP-16-0131

Ma¨kinen, L., Loukusa, S., Nieminen, L., Leinonen, E., & Kunnari, S. (2014). The development of narrative productivity, syntactic complexity, event content, and referential cohesion in four to eight-year-old Finnish children. *First Language*, 34, 24–42. doi:10.1177/0142723713511000

Miller, J., & Iglesias, A. (2019). *Systematic analysis of language transcripts* [SALT], Research version 2019. Middleton, WI: SALT Software, LLC.

Nicholas, L., & Brookshire, R. (1993). A system for quantifying the informativeness and efficiency of the connected speech of adults with aphasia. *Journal of Speech and Hearing Research,* 36, 338–350. doi:10.1044/jshr.3602.338

Nippold, M. (1998). *Later language development: The school-age and adolescent year*s. Austin, TX: PRO-ED.

Nippold, M. (2007). *Later language development: School-age children, adolescents, and young adults* (3rd ed.). Austin, TX: Pro- Ed.

Nippold, M., Frantz-Kaspar, M., Cramond, P., Kirk, C., Hayward-Mayhew, C., & MacKinnon, M. (2014). Conversational and narrative speaking in adolescents: Examining the use of complex syntax. *Journal of Speech, Language, and Hearing Research*, 57, 876–886. doi:10.1044/1092-4388(2013/13-0097)

Nippold, M., Hesketh, L., Duthie, K., & Mansfield, T. (2005). Conversational versus expository discourse: A study of syntactic development in children, adolescents, and adults. *Journal of Speech, Language, and Hearing Research*, 48, 1048–1064. doi:10.1044/1092-4388(2005/073)

Reed, V., & Spicer, L. (2003). The relative importance of selected communication skills for adolescents' interactions with their teachers: High school teachers' opinions. *Language, Speech, and Hearing Services in Schools*, 34, 343–357. doi:10. 1044/0161-1461(2003/028)

School Curriculum and Standards Authority (SCSA). (2016). Science: Scope and sequence – Year P to 10. Retrieved from https:// k10outline.scsa.wa.edu.au/home/teaching/curriculum-browser/ science-v8/overview/Science_P-10_Scope-andSequence_Phase_ 1_March_2016.PDF

SCSA. (2017). English: Year 11 syllabus. Retrieved from https://senior-secondary.scsa.wa.edu.au/__data/assets/pdf_file/0010/576703/English-Year-11-Syllabus-AC-ATAR-GD.pdf

Scott, C., & Windsor, J. (2000). General language performance measures in spoken and written narrative and expository discourse of school-age children with language learning disabilities. *Journal of Speech, Language, and Hearing Research*, 43, 324–339. doi:10.1044/jslhr.4302.324

Semel, E., Wiig, E., & Secord, W. (2003) *Clinical evaluation of language fundamentals* (4th ed). San Antonio, TX: The Psychological Corporation.

Snow, P., & Powell, M. (2007). Oral language competence, social skills and high-risk boys: What are juvenile offenders trying to tell us? *Children & Society*, 22, 16–28. doi:10.1111/j. 10990860.2006.00076.x

Spencer, E., Bryant, L., & Colyvas, K. (2020). Minimizing variability in language sampling analysis: A practical way to calculate text length and time variability and measure reliable change when assessing clients. *Topics in Language Disorders*, 40, 166–181. doi:10.1097/TLD.0000000000000212

Stein, N., & Glenn, C. (1979). An analysis of story comprehension in elementary school children. In R. Freedle (Ed.), N*ew directions in discourse processing* (pp. 53–120). Norwood, NJ: Ablex.

Sullivan, J.R., & Riccio, C.A. (2010). Language functioning and deficits following pediatric traumatic brain injury. *Applied Neuropsychology,* 17, 93–98. doi:10.1080/ 09084281003708852

Tabachnik, B., & Fidell, L. (2007). *Using multivariate statistics*. Boston, MA: Allyn & Bacon/Pearson Education.

Turkstra, L. (2000). Should my shirt be tucked in or left out? The communication context of adolescence. *Aphasiology,* 14, 349–364. doi:10.1080/026870300401405

Ward-Lonergan, J.M., & Duthie, J.K. (2013). Expository discourse intervention for adolescents with language disorders. P*erspectives on Language Learning and Education*, 20, 44–56. doi:10.1044/lle20.2.44

Westby, C. (2014). Continuum of oral discourse skills. *Word of Mout*h, 25, 9–12. doi:10.1177/1048395013509986c

Westerveld, M., & Claessen, M. (2014). Clinician survey of language sampling practices in Australia. *International Journal of Speech-Language Pathology*, 16, 242–249. doi:10.3109/17549507.2013.871336

Westerveld, M., & Moran, C. (2011). Expository language skills of young school-age children. *Language, Speech, and Hearing Services in Schools,* 42, 182–193. doi:10.1044/0161-1461(2010/10-0044)

Westerveld, M., & Vidler, K. (2016). Spoken language samples of Australian children in conversation, narration and exposition. *International Journal of Speech-Language Pathology*, 18, 288–298. doi:10.3109/17549507.2016.1159332