Spoken expository discourse of children and adolescents: Retelling versus generation

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Abstract

This cross-sectional study investigated the spoken expository discourse skills of children and adolescents elicited in generation and retelling conditions. There were three groups of participants: young school-age children (M = 7;0; n = 64); intermediate-school-age children (M = 11;3; n = 18), and high-school-age students (M = 17;6; n = 18). Participants were asked to generate expository discourse using the favourite game or sport (FGS) task and to retell an expository passage about the game of curling. All samples were transcribed and analysed on measures of verbal productivity (number of utterances), syntactic complexity (mean length of utterance in T-units [MLU] and clausal density), and verbal fluency (percent maze words). Results indicated that although all age groups produced longer samples in the generation condition, MLU was significantly longer in the retelling condition. The results suggest that the expository retelling task may be a clinically useful addition to a language assessment battery for children and adolescents.

Introduction

Assessment of language production across childhood and adolescence typically encompasses a variety of methodologies including standardized assessments, observation, and language samples. Language samples are a particularly important component of assessment as they provide a detailed, ecologically valid overview of the child's strengths and weaknesses in spoken language performance derived in a naturalistic setting (Miller, 1996; Nippold, 2010). However, not all language samples are created equal. A number of factors can influence an individual's performance on a language sample task. Such factors include: the genre of the language sample (i.e., conversational vs. narrative vs. expository vs. persuasive), familiarity of the topic, task elicitation methods, and age of the child (e.g., Merritt & Liles, 1989; Nippold, Hesketh, Duthie, & Mansfield, 2005; Westerveld, Gillon, & Miller, 2004). The aim of this study is to examine the expository language performance of children and adolescents aged 7 to 17 years using different elicitation methods: retelling and generation.

Expository discourse

Expository discourse can be defined as a monologue used to convey information and may involve providing factual descriptions or explanations of events. The inclusion of spoken expository discourse language samples in child and adolescent assessment is important for several reasons. First, expository discourse has high ecological validity for school-aged children. The ability to use expository language during the school-age and adolescent years is crucial to successful classroom participation and academic success (Nippold, Mansfield, Billow, & Tomblin, 2008). Examples of activities children are expected to engage in from an early school-age are sharing of news events, explaining procedures (such as recipes), and giving short oral explanations about areas of interest. As children move through their primary school years and into high school, more demanding expository discourse is required. For example, children may be expected to explain how mobile technologies are influencing

language use, participate in debates, and create informative texts that raise issues (Australian Curriculum Assessment and Reporting Authority [ACARA], 2012; Culatta, Hall-Kenyon, & Black, 2010).

The second important reason to include expository discourse samples as part of a comprehensive language assessment is that expository discourse may be more sensitive to the subtle developmental language changes that occur across older school-aged children. Studies of developmental changes in expository discourse production across age levels in typically developing, children, and adolescents revealed that measurable changes in complex syntax and utterance length were evident (Nippold, 2007; Nippold, Hesketh, et al., 2005; Nippold, Moran, Mansfield, & Gillon, 2005). Despite the complexity of expository language samples compared with other genres (e.g., Nippold, Hesketh at al., 2005), even young school-aged children have been shown to engage in expository discourse tasks. For instance, Nippold, Hesketh et al. (2005) evaluated expository discourse production in children as young as 8 years of age. Therefore, given the importance of expository discourse and its inherent cognitive and linguistic complexity (Nippold & Scott, 2010), expository discourse may be particularly informative in describing children's progress in advanced language skills during the school-age and adolescent years (Nippold, Hesketh, et al., 2005; Westerveld & Moran, 2011).

Task elicitation:Generation versus retelling

Expository discourse sampling tasks generally fall within two categories of elicitation: generation tasks and retelling tasks. Generation tasks are those that require the child or adolescent to generate their own facts and information. Generation samples can be elicited through a question or prompt, such as, "How do you make a sandwich?" (Cannito, Hayashi, & Ulatowska, 1988) or "Tell me all the steps involved in withdrawing money from a bank account" (Snow, Douglas, & Ponsford, 1997). In retelling tasks, the child or adolescent

listens to an expository passage and retells the information that was presented. A retelling task may involve hearing information and restating it (e.g., Hay & Moran, 2005), or listening to information in conjunction with a visual support (Moran, Nippold, Mansfield, & Gillon, 2005; Ward-Lonergan, Liles, & Anderson, 1999).

Research into the expository language ability of children has generally focused on children's ability to *generate* expository discourse (Berman & Verhoeven, 2002; Nippold, Hesketh, et al., 2005). One frequently used task is the "Favorite Game or Sport Task" (FGS) in which the child is asked: a) to explain the rules of their favourite game or sport; and b) what key strategies a good player should know in order to win the game/sport (Nippold, Hesketh, et al., 2005). A different procedure was used by Berman and Verhoeven (2002) who showed their participants (children, adolescents, and adults) a silent video about interpersonal conflicts, before asking them to discuss the topic of "problems between people" (p.7) and provide their opinion. Scott and Windsor (2000) used a protocol in which the participants (8;5 to 11;5 years old) were asked to provide an expository summary after viewing a 15-minute video on the topic of the desert.

Although limited research has been conducted into expository *retelling* performance, e.g., providing the child with a linguistic model of a procedure or game and asking the child to retelling this procedure, there is evidence that expository retelling tasks are sensitive to differences in clinical populations. For example Hay and Moran (2005) noted differences between typically developing children and adolescents and those with acquired brain injury on measures of verbal productivity and syntactic complexity. While the literature suggests both generation and retelling of expository tasks to be useful clinically, to the authors' knowledge there have been no studies that have compared the expository discourse resulting from these two different elicitation methods. However, existing research into *narrative* retelling versus generation performance (Merritt & Liles, 1989) suggests that retelling may

provide a useful alternative to a generation task. Merritt and Liles (1989) asked 20 children, aged 9;0 – 11;4, to produce stories using story stems and to retell stories after viewing oral presentations of the stories on video. Their results indicated that children not only produced longer stories in the retelling condition, but also that these stories were more coherent and thus easier to score at a macrostructure (overall quality) level. This study, however, did not evaluate linguistic complexity across elicitation conditions.

From a clinical perspective, it is important to know what type of language sample will elicit the most comprehensive, informative performance possible. For instance, longer samples provide a better opportunity to describe children's strengths and weaknesses in linguistic performance (Heilmann, Nockerts, & Miller, 2010; Miller, 1996). Likewise, samples that elicit advanced linguistic structures may be highly sensitive to the more subtle syntactic difficulties displayed by adolescents with language impairment (Nippold, 2010). Furthermore, children are confronted with expository discourse tasks on a daily basis in school and are expected to show competency in expository discourse from grade 3 (ACARA, 2012).

Summary

The current study aims to extend our previous research into the expository discourse abilities of school-age children (Westerveld & Moran, 2011). First we investigate the effectiveness of a novel expository retelling task in eliciting text-level discourse in children and adolescents aged between 7 and 17 years of age and analyse the task's sensitivity to age on measures of verbal productivity, syntactic ability, semantic diversity, and verbal fluency. Second, we aim to establish if the performance of the group of 7-year-old children may be used for normative purposes (Miller, Andriacchi, Nockerts, Westerveld, & Gillon, 2012). Third, the study compares the age-related changes in expository discourse performance in two conditions: retelling and generation. Specifically, the following questions are addressed:

1. Is the expository retelling task effective in eliciting extended text-level discourse in children and adolescents, aged 7 to 17 years.
2. Is performance on an expository retelling task sensitive to age level on a range of language production measures?
3. What level of performance can be expected from the 7-year-old children in response to the expository retelling task?
4. Is children/adolescents' expository discourse performance sensitive to the elicitation condition?
5. Are there differences in linguistic performance in the expository generation and expository retelling conditions?

It was hypothesised that the expository retelling task would be effective in eliciting language samples across the age groups. It was expected that all groups of participants would provide longer samples in the generation condition and that children's performance on both tasks would improve with age on measures of verbal productivity, syntactic complexity, and verbal fluency.

Method

Participants

A total of 100 individuals participated in the study: one group of young school-age children (n = 64, mean age = 7;0, range 6;1 – 7;11), one group of intermediate school-age children (n = 18, mean age = 11;3, range 10;11 – 11;11), and one group of high-school-age adolescents (n = 18, mean age 17;6, range 17;0 – 17;11). In New Zealand, children typically start their formal education on their fifth birthday. Children generally attend 6 years of primary school education, followed by two years at intermediate level, before going to high school for a

maximum of 5 years. The youngest group of participants were recruited from three primary schools located in suburban Auckland, New Zealand (NZ). All children spoke English as a first language and were considered by their teacher to be progressing normally at school and to have no known history of a hearing disorder, a neurological disorder, or speech-language intervention. To measure the children's receptive vocabulary skills, all children were assessed with the *Peabody Picture Vocabulary Test – Third Edition* (PPVT-III; Dunn & Dunn, 1997): mean standard score 106, range 80-126. A total of 64 children participated, comprised of 37 girls and 27 boys from NZ European (75%), Maori (12.5%), Pasifika (7.8%), and 'other' (4.7%) ethnic backgrounds.

The students in the two older age groups were originally recruited as part of a larger study comparing expository discourse to conversation across ages and cultures (Nippold, Hesketh, et al., 2005). All participants spoke English as a first language. The 11-year old participants (8 girls, 10 boys) were recruited from schools in suburban Christchurch, NZ and had PPVT-III scores (Dunn & Dunn, 1997) within the low average to above average range (M: 102, range 85 - 122). The 17-year-old participants were recruited from high schools in suburban Christchurch, NZ, and demonstrated PPVT-III scores within the average to above-average range (M: 106, range 95 – 130). There were 8 girls and 10 boys.

Procedure

For the youngest age group, three undergraduate speech-language therapy students conducted the assessments under the supervision of the first author. All children were seen individually in a quiet room in their school environment. The sessions were taped using a digital voice recorder. The children were seen on three separate occasions. During the first session the child was asked if they were happy to participate, rapport was established, and the PPVT-III was administered as well as a story retelling task; the second session consisted of a personal

narrative and a story retelling task. The two procedural expository discourse tasks, which are the focus of the current study, were administered during the third and final session.

Materials

During this third session, the children were first exposed to the expository retelling task. Children were asked to listen to an explanation of the game of curling (CURL) while looking at three pictures. The script is included in Appendix A. Afterwards the child was asked to retell the game of curling to the examiner, using the pictures as support. Second, the Favourite Game or Sport (FGS) task was used (Nippold, Hesketh, et al., 2005). In this task, the child is asked what his or her favourite game or sport is and why. The examiner then asks the child to explain the game or sports by stating "I am not too familiar with the game of [..]" to encourage the child to provide a complete explanation. Finally, the child is asked what a player should do to win a game of [..]. The child was allowed as much time as necessary to finish the explanation. The examiner made sure to show an interest in each participant's explanation and only used neutral responses as needed to encourage the child to continue.

For the two older age groups, similar procedures were used. All participants were interviewed individually by a speech-language therapy student under the supervision of the second author. The participants engaged in a 5-minute conversational sample with the examiner, followed by the CURL and FGS tasks as described above.

Transcription and analysis

All language samples were transcribed and coded using the *Systematic Analysis of Language Transcripts, New Zealand Version* conventions (SALT-NZ; Miller, Gillon, & Westerveld, 2010). The samples from the younger age group were transcribed by three undergraduate speech-language therapy students who were trained by the first author. The samples of the older age groups were transcribed by the speech-language therapy students who elicited the

samples as part of their coursework. Utterance segmentation was based on T-units, defined as one main clause with all its associated subordinate clauses (Hunt, 1970). Only complete and intelligible (C&I) utterances were used for analysis. Following SALT conventions, all reformulations, repetitions, and dysfluencies were placed in brackets and considered mazes. The first author checked all transcripts for utterance segmentation errors or coding errors and coded each transcript for dependent clause use. The second author assisted with the dependent clause coding when needed. For this study both finite and non-finite subordinate clauses were identified and included in the analysis of clausal density (Miller, 2008). Although there is some controversy whether non-finite phrases (including infinitive and gerund phrases) should be counted as clauses, as Miller explained, these types of phrases "express propositions and, like finite clauses consist of a verb plus complements and adjuncts" (p. 97). Appendix B provides an overview of the types of subordinate clauses that were coded.

The following language measures that have been shown to be sensitive to age and language competence were used for analysis:

- Verbal productivity: Total length of the sample in number of T-units (Total T-Units).
- Semantic diversity in number of different words (NDW).
- Grammatical ability: Syntactic complexity was measured as: 1) Mean length of utterance in words/T-Unit (MLU), and 2) Clausal density (CD; total number of clauses divided by the total number of T-Units).
- Verbal fluency: Percentage of maze words (PCMZ).

Reliability

The reliability of the transcription and the coding for the expository generation samples (7-year-old and 11-year-old groups only) was reported in Westerveld and Moran (2011). For the

remainder of the samples (all expository retelling samples as well as the expository generation samples of the 17-year-olds), the following procedure was used. First, all transcripts were checked for spelling, coding, and/or utterance segmentation errors and corrected when needed by the first author. Second, an independent examiner (a doctoral student experienced in linguistic analysis) checked all T-units and instances of finite dependent clauses. There were no instances of disagreement in utterance segmentation. For dependent clause use, the percentage of agreement between the two examiners was 94.8% (877 instances of agreement out of 925 dependent clauses). There were no disagreements in coding of mazes.

Results

The results were analysed using statistical software (SPSS, Version 18) (PASW, 2008). To answer the first research question, which posed whether the retelling task would be successful in eliciting extended discourse in all age groups, the performance of the three age groups on the expository retelling task was calculated. It was found that the task elicited discourse in all three age groups (see Table 1). Samples were generally short, however, with the 7-year-old children producing an average of five utterances (range 1 – 17). As shown in Table 1, verbal productivity increased with age, with the intermediate school-age children producing an average of 9 utterances, increasing to 14.9 utterances for the high school students.

Insert Table 1 about here

Next, we examined the correlations between the language measures to investigate the strength of the associations (see Table 2). Although the Total number of T-units and the number of different words (NDW) were highly correlated, they were retained in subsequent analyses as they represent conceptually different language skills. As expected, mean length of utterance (MLU) and clausal density (CD) were significantly correlated.

Insert Table 2 about here

Effects of age on expository discourse production in the retelling condition

To answer research question number 2, the effects of age on children's expository discourse performance using a retelling task, univariate analyses of variance were performed for each measure. As an estimate of effect size, eta squared (η^2) values were calculated for each of the analyses. This documents the amount of explained variance in a variable as a function of presentation condition. Interpretation of the effect size of η^2 is as follows: small effect size: $\eta^2 < .06$, medium effect size: $\eta^2 = .06 - .15$, and large effect size: $\eta^2 > .15$ (Cohen, 1988).

For total number of T-units (Total T-Units), there was a significant main effect for age, $F(2,97) = 57.685$, $p < .001$, $\eta^2 = .543$. Post-hoc analysis (Tukey) showed that the 17-year-old participants significantly outperformed the 11-year-old children ($p < .001$) as well as the 7-year-old children ($p < .001$). The 11-year-old children produced significantly more utterances than the 7-year-old children ($p < .001$).

For NDW, there was a significant main effect for age, $F(2,97) = 79.609$, $p < .001$, $\eta^2 = .621$. Post-hoc analysis (Tukey) showed that the 17-year-old participants produced significantly more different words than the 11-year-old children ($p < .001$) and the 7-year-old children ($p < .001$). The 11-year-old children significantly outperformed the 7-year-old children ($p < .001$).

For MLU, the main effect for age was not significant, $F(2,97) = 2.66$, $p = .075$, $\eta^2 = .052$. Planned post-hoc analyses (Tukey) showed no statistically significant differences in performance between any of the age groups (p's ranging from .107 to .896).

For Clausal Density (CD), the main effect for age was not significant $F(2,97) = 3.72$, $p = .691$, $\eta^2 = .008$. There were no differences between the age groups on this measure.

Finally, for verbal fluency (PCMZ), the main effect for age was not significant $F(2,97) = 1.16$, $p = .891$, $\eta^2 = .002$. There were no differences in performance between the age groups.

Distribution statistics for the 7-year-old group on the expository retelling task.

To examine the potential for using the language sample data for normative purposes, the following procedures were used. First, median scores were calculated and compared to the mean scores. Next, percentile scores and skewness and kurtosis statistics were obtained. As shown in Table 3, both Total T-Units and NDW showed off-centre distributions (mean higher than median), and significant levels of skewness (scores clustering towards the low end of the graph), and kurtosis (peaked distributions). In contrast, symmetrical and normally shaped distributions were found for MLU, CD, and PCMZ.

Insert table 3 about here

Expository retelling versus generation performance.

To answer the next research question, we conducted repeated measures analyses of variance (RM-ANOVAs) for each measure. The results derived in the expository generation condition are shown in Table 4. The results from both elicitation conditions are graphically displayed in Figure 1.

There was an overall significant effect for Total T-Units, $F(1,99) = 136.70$, $p < .001$, $\eta^2 = .580$, with the generation condition yielding significantly more utterances. Follow-up RM-ANOVAs for each group showed that all groups produced more utterances in the generation condition: 7-year-olds $F(1,63) = 106.841$, $p < .001$, $\eta^2 = .629$; 11-year-olds $F(1,17) = 43.236$, $p < .001$, $\eta^2 = .718$; and 17-year-olds $F(1,17) = 56.181$, $p < .001$, $\eta^2 = .768$.

For NDW, there was an overall significant effect for elicitation condition, F(1,99) = 202.089, p <.001, η^2 = .671, with the generation condition yielding a significantly higher number of different words. Follow-up RM-ANOVAs for each group showed similar results; all groups produced significantly more different words in the generation condition: 7-year-olds F(1,63) = 148.019, p <.001, η^2 = .701; 11-year-olds F(1,17) = 66.550, p <.001, η^2 = .797; and 17-year-olds F(1,17) = 99.540, p <.001, η^2 = .854.

There was an overall significant effect for elicitation condition for MLU, F(1,99) = 20.759, p <.001, η^2 = .173, with the retelling condition yielding significantly longer utterances. Follow-up RM-ANOVAs for each group showed similar results; all groups produced significantly longer utterances in the retelling condition: 7-year-olds F(1,63) = 6.759, p = .012, η^2 = .097; 11-year-olds F(1,17) = 11.130, p =.004, η^2 = .396; 17-year-olds F(1,17) = 9.412, p =.007, η^2 = .356.

For clausal density, there was an overall significant effect for condition, F(1,99) = 20.332, p < .001, η^2 = .170. Follow-up RM-ANOVAs for each group showed similar results; the retelling condition yielded a higher clausal density in all age groups: 7-year-olds F(1,63) = 8.036, p = .006, η^2 = .113; 11-year-olds F(1,17) = 10.781, p =.004, η^2 = .388; 17-year-olds F(1,17) = 12.895, p =.002, η^2 = .431.

There was no significant effect for verbal fluency (PCMZ), yielding F(1,99) = 0.719, p =.398, η^2 = .007.

Insert Figure 1 about here

Development in expository retelling versus generation conditions

To investigate if there were differences in development on measures of verbal productivity, syntax, and semantic diversity between the two expository discourse conditions, RM-

ANOVAs were performed for all language measures and inspected for interaction effects (Age Group x Condition). The interaction between condition and age group was significant for Total T-Units, $F(2,97) = 24.001$, $p < .001$, $\eta^2 = .331$, and NDW, $F(2,97) = 28.954$, $p < .001$, $\eta^2 = .374$, with the generation condition showing a steeper increase with age on these measures. The interaction effect was not significant for MLU, $F(2,97) = 1.171$, $p = .314$, $\eta^2 = .024$, nor for Clausal Density, $F(2,97) = .162$, $p = .851$, $\eta^2 = .003$, or Percent maze words, $F(2,97) = 1.941$, $p = .149$, $\eta^2 = .038$.

Considering the fact that there were no developmental differences in syntactic performance across the two conditions, we were interested to find out if the participants' performance on the expository retelling task was related to their performance on the expository generation task. This would yield important information on whether the participants' expository discourse performance in a retelling condition reflected performance in a generation condition. As shown in Table 5, all measures were significantly correlated, indicating the tasks tapped a similar construct.

Insert Table 5 about here

Discussion

This study investigated procedural expository discourse performance in children and adolescents, aged between 7 and 17 years of age across two elicitation conditions: 1) generation using the Favorite Game or Sport Task (FGS: Nippold, Hesketh, et al., 2005); and 2) retelling, using a novel task developed by the second author in which the children listened to an explanation of the game 'Curling' (CURL) and were asked to retell the procedure afterwards.

The first question posed whether the Curling task would be successful in eliciting extended discourse in primary school-age and high school-age participants. The results

confirmed our hypothesis and indicated that children as young as 7 years were able to produce discourse in this elicitation condition. Variability was large, however, with the number of utterances ranging from 1 to 17; 75% of the children produced 4 or more utterances. These results indicate that, despite the complexity of the linguistic model (novel vocabulary and long sentences; see Appendix), most children were familiar enough with the concept of a 'game' to attempt an explanation. Consistent with our expectations, verbal productivity improved with age (year of schooling). As children move through their primary school years, there is increased attention to different expository types of discourse, both in spoken and in written modalities (Snyder & Caccamise, 2010). Although the retelling samples were relatively short, even for the high school-age students (average 14.9 T-units), this may simply reflect the length of the model explanation which was comprised of 14 T-units.

The second research question investigated whether performance on the Curling task was sensitive to age. As expected, there were significant age group differences on measures of verbal productivity and semantic diversity (number of different words, NDW), with the older age group/s outperforming the younger age group/s on both measures. Different results were found for the syntactic measures, however. Although there was a slow increase of MLU with age (confirmed by a medium effect size), there were no significant differences between any of the age groups on MLU. These results are in line with previous research indicating a slow but steady increase in MLU with age in conversation, narration, and expository discourse (Nippold, Hesketh, et al., 2005; Westerveld et al., 2004). Surprisingly, performance for clausal density was similar for all three groups in both conditions, indicating that syntactic performance (as measured by clausal density) in expository discourse is reasonably stable from 7 to 17 years of age, despite years of daily exposure to expository materials as part of the school curriculum. These results confirm findings by Nippold, Hesketh, et al. (2005) into

the syntactic development of children, adolescents, and adults for conversational and expository discourse. Although these researchers only included finite independent and subordinate clauses when calculating clausal density, results showed no significant increase in clausal density in either discourse context from 8 to 17 years of age.

When inspecting the distribution statistics for the 7-year-old children on the expository retelling task, two main findings emerged. First, normal distributions were found for measures of syntax (MLU and CD) and mazing behaviour, indicating these measures may be useful for identifying impaired language performance. In contrast, it was found that measures of verbal productivity and semantic diversity were not normally distributed, with scores clustering on the low end of the scale, implying that the task is relatively difficult for this age-group. Future research should investigate the performance of children with language impairment on the Curling task to determine the sensitivity of the task for language status. Until that time, comparing individual children's performance to the percentile data displayed in Table 3 may provide the clinician with an overview of the child's relative performance compared to his or her peers.

Next, we investigated if the children's performance was sensitive to elicitation condition. It was interesting to note that although the generation condition yielded significantly longer samples (containing higher NDW), the retelling condition elicited significantly longer utterances, containing a higher clausal density for all three age groups. There were no differences on the measure of mazing behaviour. The most likely explanation pertains to the linguistic complexity of the model, i.e., the explanation of the Curling game. As shown in Appendix A, the MLU was 16.7. Previous research has shown an effect of the complexity of the linguistic model on young children's spoken language performance (Holloway, 1986). Results from Holloway's study revealed that children's spoken language output in response to simple readers (i.e., reading materials typically used for the lower

primary grades) was less complex than their spontaneous language elicited in conversation. The results from the current study contribute to these findings by showing that the use of a linguistically complex model results in more complex language use (as measured by MLU and CD) in children and adolescents aged 7 – 17, compared to their spontaneously generated expository language.

Our final question considered if there were differences in linguistic development between the two elicitation conditions. Results from this cross-sectional study clearly showed a more marked increase in verbal productivity (and semantic diversity) with age in the expository generation condition. Interestingly, no developmental differences were found on measures of syntactic ability. MLU showed an improvement with age in both conditions, with the retelling condition consistently yielding a significantly higher MLU. In contrast, CD remained stable over time in both conditions. Taken together, these findings indicate the usefulness of the expository retelling task in obtaining relatively short, but syntactically complex samples in children and adolescents aged 7 – 17 years.

Limitations

One limitation of the study is that the samples were obtained for different studies by different groups of researchers, in which slightly different procedures were used. The youngest group of children was seen on three separate occasions; the expository language sampling data reported in the current study were obtained in the third assessment session. In contrast, the children in the older age groups only participated in one assessment session.

The current study focused on procedural expository discourse. It is not known if the results from this study would generalize to other expository discourse types, such as descriptions or cause-and-effect explanations.

Summary and clinical implications

This study investigated expository retelling versus generation performance in children and adolescents aged 7 – 17 years. The results not only confirm previous research into the usefulness of the Favourite Game or Sport Task (FGS) in eliciting expository generation samples in these age groups (Nippold, Hesketh, et al., 2005), they extend our knowledge base by demonstrating the effectiveness of an expository retelling task in eliciting spontaneous language samples in children as young as 7 years of age. The retelling samples were relatively short (average 5, 11, and 14 T-units for the three age groups, respectively), but they contained syntactically complex utterances as evidenced by the high MLU and CD. Furthermore, there were high correlations between the main language measures across the two conditions, indicating the potential usefulness of the retelling task as a quick measure of oral language competence in an expository discourse context. Future research should not only study the sensitivity of this task for language status; it should also investigate the possibility of using it as a screening tool for language impairment. Until that time, the percentile data presented in the current study may be used to describe the performance of our young school-age clients with (suspected) language impairment.

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Appendix A

Expository retelling task (Curling) protocol (Moran, 2005)

Instructions to Students: "I am going to show a game to you. I would like you to listen carefully as I will ask you to tell the information back to me. The game is Curling. Have you ever heard of Curling? I will tell you all about it:

Curling is a team sport with four people in a team.
It is played on a specially marked piece of ice, roughly 40 metres long and 3 metres wide.
At either end of the sheet of ice is a bulls-eye-type target called the house (Point to picture #1)**.**

The object of the game is to slide a stone, which weighs about 20 kilograms, down the ice and stop it in the house. (Point to picture #2)

Then, as if that wasn't difficult enough, the opposing team throws a stone and tries to knock yours out while keeping theirs in.
The teams take turns until each team has thrown eight stones. (Point to picture #3)
When both teams have thrown all their stones, that is called an "End".
There are about ten "Ends" in a game.

After all the stones are thrown in an end, the score is determined.
A team scores a point for every stone of theirs that is closest to the centre of the target.
For instance, here the yellow team scores three points (Point to picture #4)**.**
So, the aim of the game is to get your stones as close as possible to the centre of the house.

During the game, the skip, the person who is captain of the team, stands in the target and tells their teammates where to throw the stone.
Those players who are not throwing, have to sweep the ice in front of the stone to help it reach the target." (Point to picture #5)

1. Now, I would like you to tell me how to play the game of "Curling". Tell me everything you can remember about the game including how many people play the game, what the rules are and what the goal of the game is.
2. What would a team need to do in order to win a game of curling do you think? What strategies would a good player know?

Number of Communication Units: 14
Number of words: 233
Number of different words: 119
MLU: 16.7
CD: 22/14 = 1.57

The protocol and pictures may be downloaded from:
http://www.griffith.edu.au/health/school-rehabilitation-sciences/staff/dr-marleen-westerveld/language-sampling-and-other-resources.

Appendix B

Subordinate clause coding

The following finite clauses were identified and coded (with examples in *italics*):

- Relative clauses: And I like annoying my partner *that you have*.
- Adverbial clauses: *If you don't pass it in three seconds,* it's handover to the other team.
- Nominal clauses: And so that means *that fourteen people can play at a time*.

Following Miller's (2008) overview, the following types of non-finite clauses were also coded as subordinate clauses (with examples in italics):

- Infinitive non-finite clauses: I wanted *to play cricket.*
- Gerund non-finite clauses: I like *playing basketball.*
- Reduced adverbial non-finite clauses: *When going to primary school*, I played hockey.
- Reduced relative non-finite clauses: The person *standing in the goal* is the goalie.
- Bare-verb non-finite clauses: What he did was *pass the ball*.
- With non-finite clauses: *With the ball held in your hand*, you can step two steps.

Table 1. Performance on the expository retelling task by age group

	7-year-olds		**11-year-olds**		**17-year-olds**	
	n = 64		**n = 18**		**n = 18**	
Measure	**M (SD)**	**Range**	**M (SD)**	**Range**	**M (SD)**	**Range**
Total T-unit	5.5 (3.2)	1 - 17	9.4 (4.2)	5 – 20	14.9 (3.2)	10 – 23
NDW	31.2 (16.0)	3 – 89	58.8 (19.7)	28 – 92	88.1 (19.2)	61 – 118
MLU	10.1 (2.8)	3.0 – 15.5	11.1 (2.4)	6.2 – 15.0	11.5 (2.1)	8.6 – 16.3
CD	2.00 (0.52)	1.0 – 3.38	1.91 (0.37)	1.2 – 2.4	1.94 (0.26)	1.5 – 2.5
PCMZ	12.14 (8.2)	0 – 35.0	12.8 (8.4)	1.0 – 30.0	11.6 (3.8)	6.0 – 17.0

Note. MLU: Mean length of utterance in T-units; NDW: Number of different words; CD: Clausal Density (total number of clauses divided by the number of T-units); PCMZ: % maze words.

Table 2. Correlations between the language measures derived in the expository retelling condition

Measures	**TNU**	**NDW**	**MLU**	**CD**	**PCMZ**
Total T-units	1	.942**	.232*	.021	.051
NDW		1	.448**	.170	.041
MLU			1	.795**	.004
CD				1	-.015
PCMZ					1

Note. MLU: Mean length of utterance in T-units; NDW: Number of different words; CD: Clausal Density (total number of clauses divided by the number of T-units); PCMZ: % maze words.
* $p < .05$; ** $p < .001$

Table 3. Performance of the 7-year-old children on the expository retelling task

	Mean (SD)	Median	Percentiles			Kurtosis	Skewness
Measure			**10**	**50**	**90**		
Total T-Unit	5.5 (3.2)	5.0	2.0	5.0	9.0	2.22*	1.25*
NDW	32 (16)	29	13	39	49	2.45*	1.18*
MLU	10.1 (2.8)	10.0	7.0	10.0	14.3	-.096	-.090
CD	2.0 (0.52)	2.0	1.24	2.0	2.67	.295	-.015
PCMZ	12.1 (8.2)	12.5	1.5	12.5	20.5	.071	.516

Note. MLU: Mean length of utterance in T-units; NDW: Number of different words; CD: Clausal Density (total number of clauses divided by the number of T-units); PCMZ: % maze words. * Indicates a significant level of kurtosis/skewness.

Table 4. Performance on the expository generation task by age group

	7-year-olds		**11-year-olds**		**17-year-olds**	
	n = 64		**n = 18**		**n = 18**	
Measure	**M (SD)**	**Range**	**M (SD)**	**Range**	**M (SD)**	**Range**
Total T-unit	15.9 (9.0)	3 - 42	32.4 (15.8)	8 - 59	44.8 (16.9)	25 - 97
NDW	68.1 (31.3)	11 - 162	123.4 (43.3)	37 - 173	180.7 (42.9)	109 - 289
MLU	9.2 (2.0)	4.7 – 14.4	9.3 (1.2)	7.1 – 12.2	10.0 (1.3)	8.3 – 13.2
CD	1.82 (0.40)	1.0 – 2.67	1.66 (0.18)	1.22 – 1.96	1.72 (0.20)	1.35 – 2.06
PCMZ	14.1 (7.2)	0 - 31	10.3 (5.3)	2 - 21	11.5 (5.5)	7 - 31

Note. MLU: Mean length of utterance in T-units; NDW: Number of different words; CD: Clausal Density (total number of clauses divided by the number of T-units); PCMZ: % maze words

Table 5. Correlations between the language measures derived in the expository retelling and the expository generation conditions

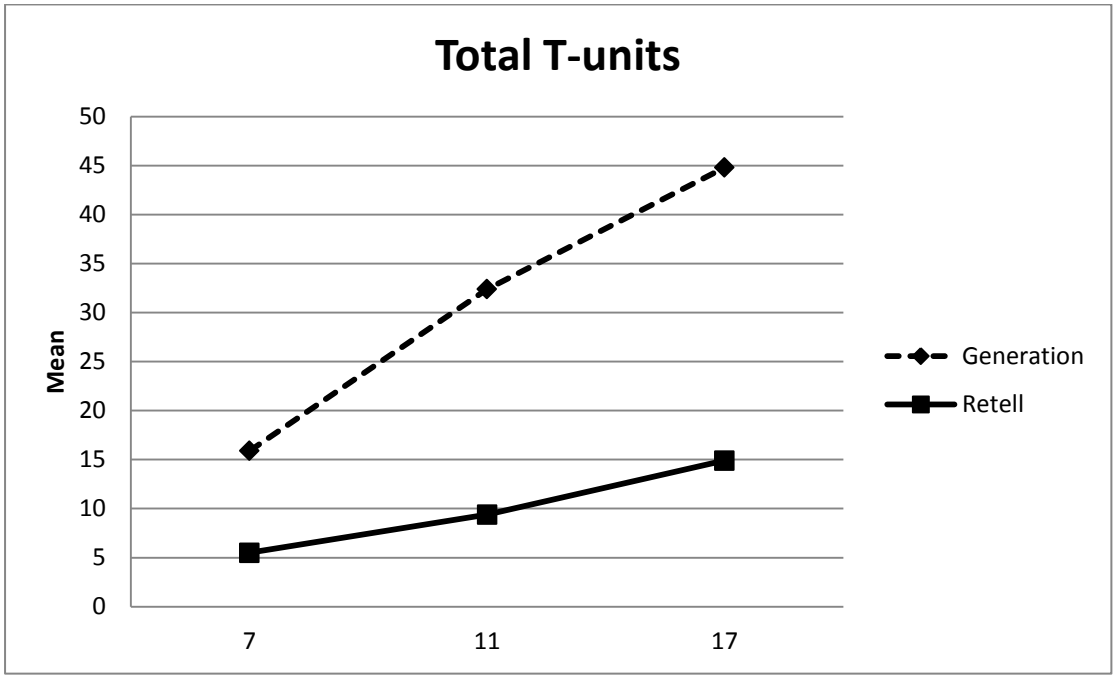
Measures	TNU	NDW	MLU	CD	PCMZ
TNU-G	.443**				
NDW-G		.669**			
MLU-G			.398**		
CD-G				.347**	
PCMZ-G					.239

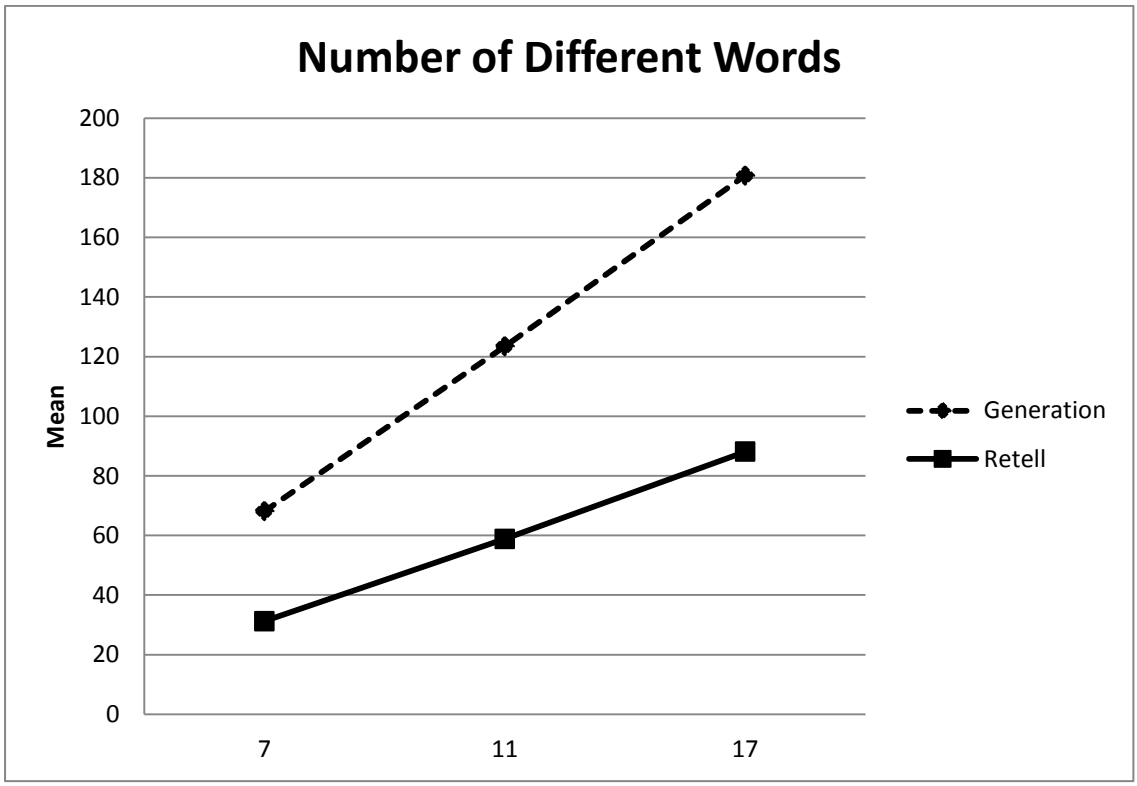
Note: G – denotes generation condition. MLU: Mean length of utterance in T-units; NDW: Number of different words; CD: Clausal Density (total number of clauses divided by the number of T-units); PCMZ: % maze words.

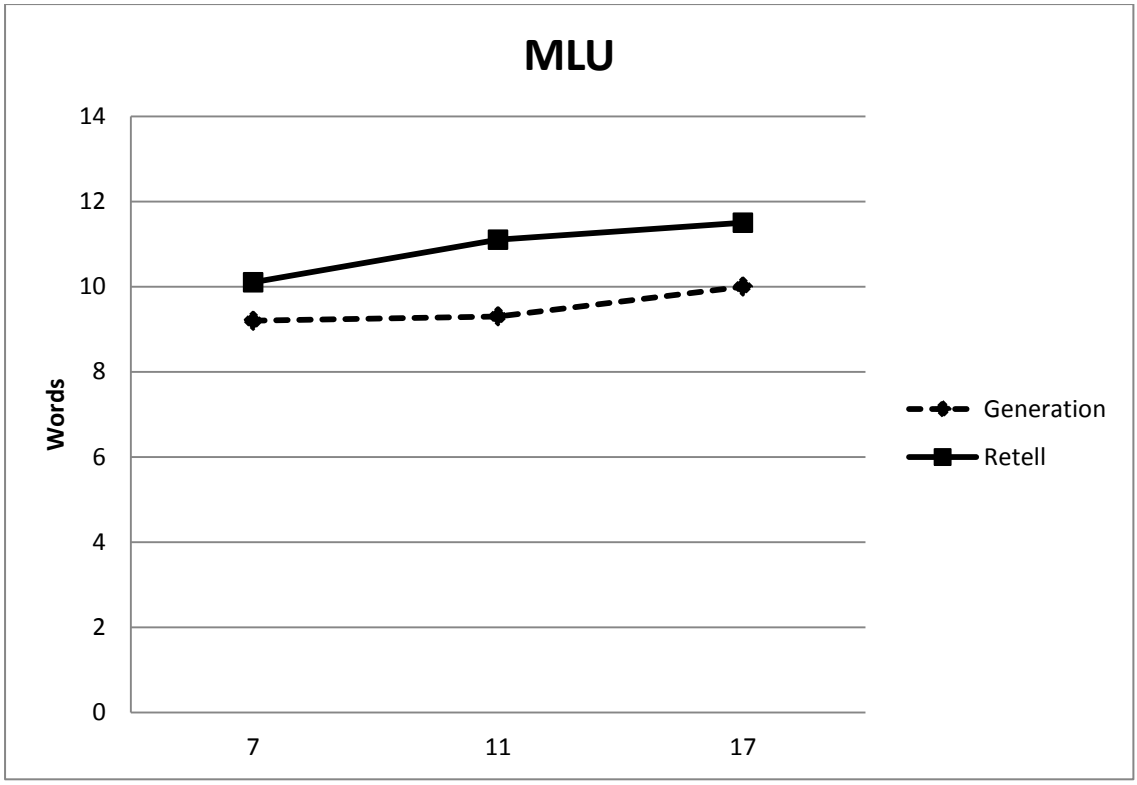
** $p < .001$

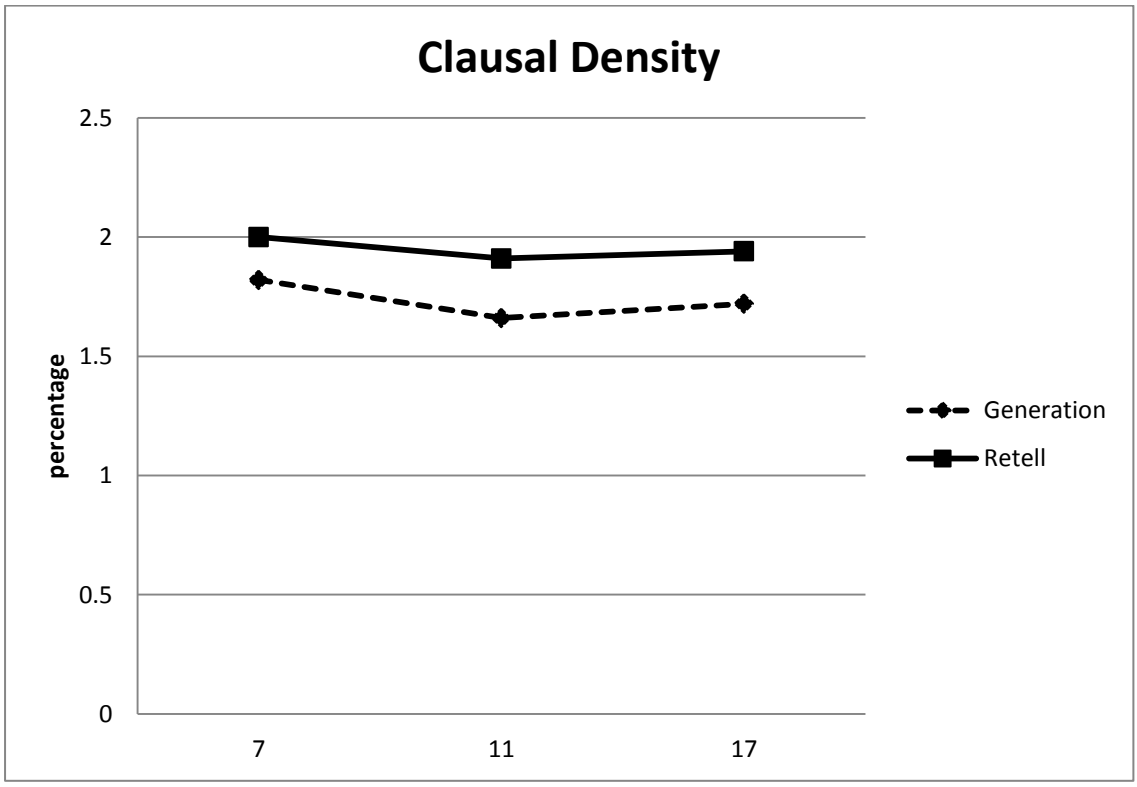
Figure caption

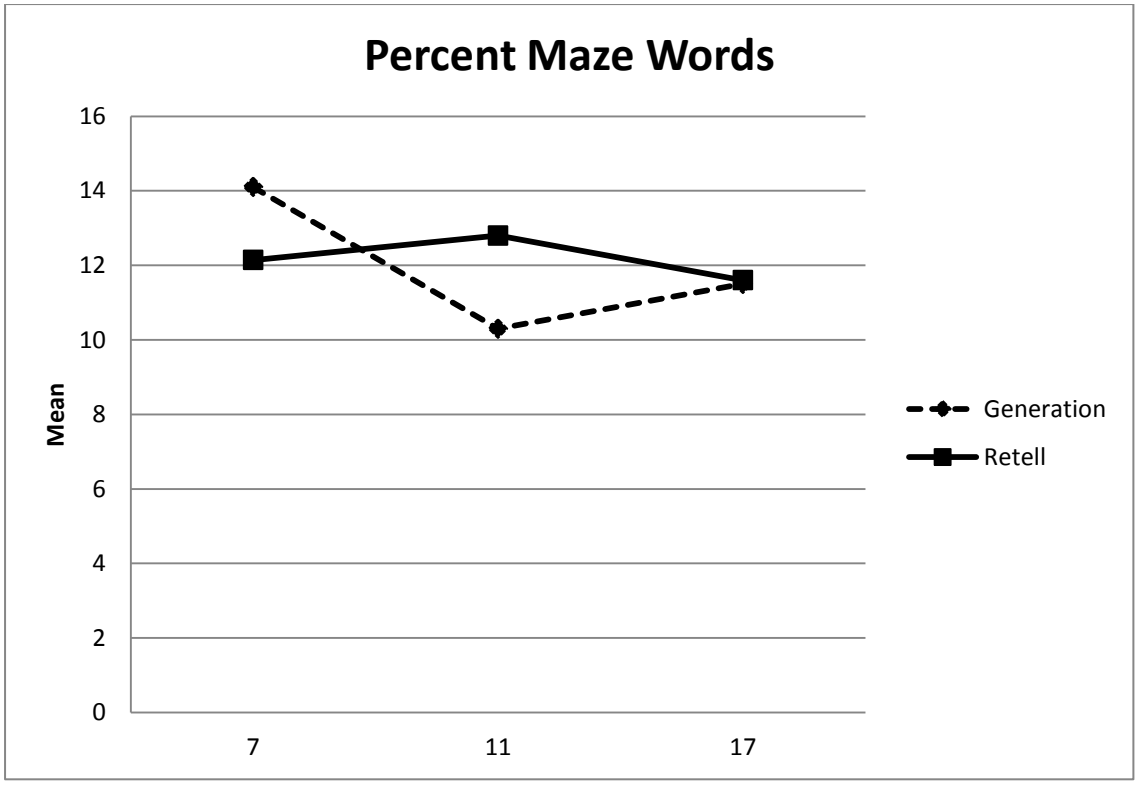
Performance of the three age groups (7-, 11-, and 17-year-olds) in retelling versus generation conditions.






MLU
Words
14
12
10
8
6
4
2
0
7
11
17
Generation
Retell


Clausal Density
percentage
2.5
2
1.5
1
0.5
0
7
11
17
Generation
Retell


Percent Maze Words
Mean
16
14
12
10
8
6
4
2
0
7
11
17
Generation
Retell