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The effect of event repetition on the production of story-grammar in
children's event narratives

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Abstract

Objective: This study examined the effect of event repetition on the amount and nature of story grammar produced by children when recalling the event.

Method: Children aged 4 years ($N = 50$) and 7 years ($N = 56$) participated in either one or six occurrences of a highly similar event where details varied across the occurrences. Half the children in each age and event group recalled the last/single occurrence 5-6 days later and the other half recalling the last/single occurrence after 5-6 weeks (the final and single occurrence was the same). Children's free recall responses were classified according to the number and proportion of story grammar elements (Stein & Glenn, 1979 - setting, initiating event, internal response, plan, attempt, direct consequence and resolution) as well as the prevalence of causal links between the individual story-grammar elements.

Results: More story grammar detail and more links between individual story grammar elements were reported about the final compared to single occurrence. The amount of story grammar increased with age and decreased over time. Further, an interaction was revealed such that the effect of retention interval on the production of story grammar was negligible for older children who experienced the repeated event.

Conclusions: Event repetition has a beneficial effect on the production of children's story grammar content in situations where event details varied from occasion to occasion.

Practical Implications: This study highlights the importance of eliciting free recall when conducting evidential interviews with child witnesses about repeated events.

The effect of event repetition on the production of story-grammar in
children's event narratives

The current study is concerned with the effect of event repetition on child witness' ability to provide narrative accounts of events. Children infrequently appear as eyewitness bystanders in criminal prosecutions or civil cases (e.g., car accidents). However their testimony is commonly used when they fall victim to crimes with little corroborating evidence, such as intra-familial sexual abuse (McGough, 1994). To convict a person of abuse, the victim's statement needs to contain sufficient detail about *individual* acts or occurrences: details that are specific to the time and place (see *S vs. R.*, 1989). One tremendous challenge faced by child witnesses of repeated abuse is the task of distinguishing one occurrence of the abuse from other similar occurrences. Details that are the focus of examination in court are often those that varied across the occurrences (e.g., what clothing was worn by the child, where caregivers were). Difficulties arising from the task of distinguishing between occurrences lead children to provide less accurate, consistent and confident responses to questions about variable details compared to children who experienced a single occurrence of the event only (see Roberts & Powell, 2001 for review). This in turn reduces the likelihood of successful prosecution of these cases.

Another challenge that witnesses face, and one where the effect of event repetition is not yet clear, is the ability to provide an account that is *meaningful* to those who are naïve about the events. While the ability to portray a meaningful narrative is facilitated by many elements (e.g., clarity of speech, vocabulary, use of linguistic markers), an ideal account in the context of this paper is that which adheres to a structure or 'template' known as story-grammar framework (Paul, 2001). The importance of eliciting the child's *story* has been highlighted by legal professionals when reflecting on the elements of witness statements that facilitate successful prosecution (Guadagno, Powell & Wright, 2006);

You know from stories yourself, you like to hear the beginning, the middle and the end.... You don't like people constantly butting in and saying, "yeah but what about the...what about the...." (Judge)

I think what we really want to do is facilitate the voice of the child in a way that enables them to describe as accurately as they can their experiences. This is the best way of understanding the nature of the *criminality* alleged...We can become too overly focussed and lost in the minutiae...You've got to look at the child's experience as a whole...If the headset of the interviewer is 'I need to know X, Y and Z' well then they may not realise they've already got what they need in the narrative. (Prosecutor)

The role of story telling (as opposed to reporting disconnected event details in response to focused questions) is also supported by its association with witness credibility, which influences decisions to prosecute cases of child abuse (Davis, Hoyano, Keenan, Maitland, and Morgan, 1999). Credibility is determined in part by the degree to which the account is meaningful (Raskin & Esplin, 1991); objective measures of narrative completeness using the story grammar framework have been found to predict quality ratings of meaningfulness. For example, Newman and McGregor (2006) showed that higher listener quality ratings about the meaning of children's narratives were associated with higher number of story grammar elements reported.

According to Stein and Glenn (1979), a linguistically complete narrative account comprises seven logically sequenced story grammar elements. These elements include: the *setting* which refers to the physical and/or temporal location where events took place, the *initiating event*, the protagonist's *internal response* (i.e., affective state), the *plan* which refers to a set of intentions formed in the mind of the person affected by the initiating event, the *attempt* (i.e., what the person did in his/her effort to execute the plan), the *direct consequences* or outcomes of this attempt, and the *resolution* or outcome of the story. Adherence to the story-grammar elements commences around 4 years of age, and by 6 years children can typically provide appropriate setting information, initiating actions, characters' goals, and they may attempt to develop a plot (Paul, 2001). However, given that it is difficult for children younger than 8 years to *infer* other people's plans and internal responses, children's narratives are more likely to contain details describing what actually

happened in the story (attempt/action element) as well as initiating and consequence details rather than the emotional reactions of the characters (internal responses) or the motivations for others' actions referred to as plans (Liles & Duffy, 1995).

To our knowledge, no prior research has used a story-grammar framework to examine children's ability to remember an occurrence of a repeated event. The story-grammar literature has focused on using standardised tests of story grammar to compare the performance of various participant groups as opposed to examining the factors that affect story grammar production. Research on the effect of event repetition on autobiographical (narrative) reports has focused on children's sequencing of details (which improves with event repetition and age), and the degree of specificity of the event details (Fivush, 1984; Hudson, 1990; Hudson & Nelson, 1986). Regardless of age, children typically recall few discriminating features about an occurrence of a repeated event during free narrative irrespective of the nature of the event being reported (Hudson & Nelson, 1986, Powell & Thomson, 1996). Although the effect of repetition has been examined using Criterion-Based Content Analysis (CBCA), of which two measures (internal response and plan) equate to Stein and Glenn's (1979) story grammar elements, these elements have only been examined in combination with other CBCA criteria that are unrelated to the current investigation (see Blandon-Gitlin, Pezdek, Rogers & Brodie, 2005; Pezdek et al. 2004; Stromwall, Bengtsson, Leander & Granhag, 2004).

Despite the paucity of prior literature in this area, research regarding the impact of repeated experience on memory provides a clear framework for predicting that event repetition *should* have a beneficial effect on the production of story grammar content. Within an eyewitness memory paradigm, individual story grammar elements are merely event details or acts that collectively form a story, and we know from prior research that the more times an event detail or act occurs, the more likely its production will be observed and remembered over time (Baddeley, 1990). Further, script or schema theories propose

that with repeated experience of an event, the human memory system organises occurrences of an event into a coherent *aggregate* of information, providing a single unified representation of the person's entire experience of the event (Nelson & Gruendel, 1981; Schank & Abelson, 1977). Of all the information in a given occurrence or message, only ideas that are important or relevant to the schema are likely to be selected for storage in the schema, as the abstraction process favours the economic storage of meaning rather than information about how or when the details within the schema were acquired (Bobrow & Norman, 1975; Hudson, 1986; Maki, 1990). Story grammar is in essence a *framework* for organising event details. It is scored independently of the accuracy of details, thus it should be facilitated by event repetition. Indeed, although the task of recalling one occurrence as distinct from other similar occurrences is more challenging than remembering an event that occurred one time, event repetition does not affect the volume of information recalled. This is provided the event has a discernible structure, and witnesses have the freedom (via open-ended questions) to use their own mental representations and linguistic skills to provide a verbal account of the event (Roberts & Powell, 2001).

Prior research suggests, however, that event repetition may interact with child age as well as the time interval between the interview and to-be-recalled occurrence as the impact of these factors is attenuated with repeated experience of the event. Older children are better at retrieving event frameworks (Fivush & Slackman, 1986; Nelson & Gruendel, 1986) and producing story grammar (Snow, Powell & Murfett, 2009; Westcott & Kynan, 2004), and memory of all types of event details decline over time (Brainerd, Reyna, Howe & Kingma, 1990). However, if the establishment of a framework facilitates recall of repeated experiences, this should minimise any differences between younger and older age groups and short and long retention intervals (Powell & Thomson, 1996).

In sum, we tested the hypothesis that child witness narratives about an occurrence of a repeated event will contain more story grammar content than child witness narratives about a single event. We also predicted that all story grammar elements (except for plan and internal response details which tend to be omitted from children's accounts) would be more prevalent at a shorter compared to longer delay and for older than younger children. Further, we expected that the effects of age and delay would be greater for those who experienced a single (as opposed to repeated) event.

Method

Design

The study comprised a 2 (Age: 4-5 years vs. 6-8 years) x 2 (Repetition: 1 vs. 6 occurrences) x 2 (Retention interval: 5-6 days vs. 5-6 weeks) with all factors being manipulated between-subjects, as outlined in Table 1. The children who experienced six occurrences of the event were required to recall the last occurrence in the series, which was the same as the single event.

Participants

The analyses were based on a set of interviews (free recall component only) utilised by Powell and Thomson (1996). The children included 50 kindergarten children (M age = 4 years, 11 months; SD in months = 5.23, age range = 3 years, 9 months to 5 years, 10 months) and 56 school children (M age = 7 years, 5 months; SD in months = 7.23, age range = 6 years, 5 months to 8 years, 10 months).

Event and procedure

The event that the children were later asked to recall consisted of three major activities; listening to a story, doing a puzzle, and conducting a relaxation exercise where specific details varied from occasion to occasion. The structure of the event was consistent across occurrences and there was logical connection between the various acts or activities. For example, prior to doing the relaxation

exercise, the children had to lie on mats and close their eyes as the teacher set up a cassette player and found her relaxation guide (initiating events). The relaxation activity involved imagining scenes, responding to progressive relaxation instructions, and listening to music (attempt). To determine whether the exercise had made them restful, the teacher touched each child on the part of the body the children were resting to check if it was 'warm and restful'. As a consequence of getting sleepy, the children woke themselves up by getting refreshed (e.g., using a baby wipe or getting a cool drink). The structure of the event was facilitated by a commentary given by the teacher while administrating the event. Table 2 contains an overview of the event details and their association with Stein and Glenn's (1979) story grammar framework.

The children were interviewed about the event (final or single occurrence) either 5-6 days or 5-6 weeks after completion. In addition, 29 children who experienced the event repeatedly were also interviewed about the event two years later (these interviews have not been utilised in prior research to date). Irrespective of the interview timing or order, the interview procedure was similar. First, children were told by the interviewer that she needed to find out how much they could remember about the time they wore the badge in the event (this badge was unique to the final [or only] occurrence and was included to facilitate the children's identification of the to-be-recalled occurrence). The interviewer utilised a variety of broad open-ended recall probes such as ..."what happened first on the badge day?...what happened then?... what else happened on the badge day?". Broad open-ended questions are defined as those that encourage an elaborate response without assuming prior information that had not been raised by the interviewee or without dictating what specific information is required (Powell & Snow, 2007). These prompts ceased when two consecutive questions were unsuccessful in eliciting further detail.

Coding protocol

The interviews were videotaped and transcribed verbatim for coding. Children's narratives were coded for story grammar (as per Stein & Glenn's 1979 definitions), context / background information, "don't know" responses or unrelated speech.

Context/background information included material that was related, but not central to, the story being narrated (e.g., "The mat looked like one I have at home"). *Don't know* responses included either a verbal response, or a non-verbal action such as shoulder shrugging. *Unrelated speech* (i.e., details that referred to the task management of the interview itself and the child asking the interviewer a question) were not coded.

Each story was coded for the number of individual story-grammar elements (see Table 1). Further, for three of the story grammar elements (initiating event, direct consequence and resolution) it was also noted whether the child explicitly related these to the activities/actions of the event (e.g., "we had to sit down on the mat *so that* she could start", "we had to lay down and close our eyes *before* we could do the relaxing"). The number of linked details was then divided by the total number of these story grammar elements, providing an indication of the degree to which children explicitly linked story grammar within their story.

Importantly, the assignment of details to Stein and Glenn's (1979) story grammar framework was conducted in consultation with another narrative expert (one who specialised in children's story-grammar development). The scoring template was further validated by having an independent researcher (who was not privy to earlier discussions) assign the event details in Table 1 to the framework using the script that was utilised by the teachers to administer the event and a definition of each of Stein and Glenn's story grammar elements. The only discrepancy relating to the classification of event details was in relation to the warm-up activity (item 7) which was resolved by further consultation of the script. Our template was also confirmed by the fact that no child linked individual story-grammar elements in a way that was not consistent with the classification system.

All transcripts were coded by one researcher and 20% were also coded by a second researcher who was not otherwise involved in the study. Inter-rater reliability, calculated as agreements/ (agreements + disagreements) was at least 95% for each of the categories listed above.

Results

Prevalence of story grammar details

The mean number of story-grammar details provided by the children is shown in Table 3. A 2 (repetition; 1 vs. 6 occurrences) x 2 (retention interval; 1 week vs. 6 weeks delay) x 2 (age; 4-5 years vs. 6-8 years) Analysis of Variance (ANOVA) was conducted on the mean number of story grammar details collapsed across the individual elements. Main effects of repetition $F(1,98) = 5.63, p < .05$, retention interval $F(1,98) = 11.57, p < .01$ and age $F(1,98) = 4.51, p < .05$ were revealed. Children provided more story grammar following repeated ($M = 5.80, SD = 2.24$) rather than a single experience ($M = 4.86, SD = 2.33$) of the event. The mean number of story-grammar details declined for all children over time (M one week = 5.98, $SD = 2.05$; M six weeks = 4.53, $SD = 2.40$) and improved with age (M older children = 5.75, $SD = 2.48$; M younger children = 4.74, $SD = 2.05$).

A significant three-way interaction was also revealed, $F(1, 98) = 5.31, p < .05$. To examine this interaction further, a 2 (retention interval) x 2 (age) ANOVA was conducted separately for each level of repetition. For those children who experienced only one occurrence of the event, a main effect of retention interval was revealed, $F(1, 56) = 5.83, p < .05$. Specifically, children reported more story-grammar details following shorter ($M = 5.54, SD = 1.89$) than longer ($M = 4.14, SD = 2.57$) retention intervals. With regard to those children who experienced the event repeatedly, however, a significant interaction occurred between retention interval and age, $F(1,42) = 4.24, p < .05$. Younger children reported more story grammar details following shorter ($M = 6.66, SD = 2.44$) than longer ($M = 4.00, SD = 1.47$) retention intervals, however, older children reported an equivalent number of

story grammar details across time (M one week = 6.50, SD = 2.02; M six weeks = 6.18, SD = 2.18). The results were similar irrespective of whether the dependent measure was the number or proportion of story grammar elements recalled (contextual details and irrelevant responses included).

Importantly, the effect of repetition cannot be attributed to differences in the length of the narratives. A 2 (repetition) x 2 (retention interval) x 2 (age) ANOVA conducted on the total number of words revealed no effects or interactions, $ps > .05$. Further, it cannot be ruled out that event repetition and age did not increase children's awareness of the link between story-grammar elements. In order to examine the link between age and increased mastery of the link between story grammar elements, the analyses were repeated, but only on details that were explicitly connected (via causal relations) to other story grammar elements (e.g, by the identification of linguistic markers such as "because"). The main effects of repetition, $F(1,98) = 4.40$, $p < .05$, and age, $F(1,98) = 14.89$, $p < .001$, were still evident. The proportion of details that were causally linked within the narrative increased with repetition (M single event = .10, SD = .27; M repeated event = .22, SD = .33) and improved with age (M younger children = .03, SD = .10; M older children = .26, SD = .38), however, there was no main effect of retention interval and no interaction between any of the variables.

Prevalence of individual story grammar elements

Narratives of children in all sub-groups included a range of individual story grammar elements, and there was little effect of repetition when considering the nature of the story grammar elements reported. For instance, a 2 (repetition) x 2 (retention interval) x 2 (age) ANOVA conducted on the number of story grammar categories (where at least one event detail from the category was reported) revealed no effects, $ps > .05$. Further, a series of 2 (repetition) x 2 (retention interval) x 2 (age) ANOVAs conducted on the proportions of each individual story grammar element reported (out of all story grammar elements)

revealed no effects ($ps > .05$). Finally, a one-way ANOVA with story-grammar element as the independent variable was conducted for each participant sub-group. Irrespective of the group, a consistent pattern was revealed which is illustrated in Figure 1. The types of story grammar elements most commonly elicited were ‘attempt’ details, followed by ‘initiating event’ details and then ‘direct consequence’ details. ‘Plan’ and ‘internal response’ elements were rarely reported; their incidence was lower than any other story grammar element.

In sum, story grammar elements were more prevalent in the children’s narratives after repeated experience of the event and for the older age group. They were also more prevalent at the shorter delay except for the older children in the repeated event condition where the prevalence of story grammar content was maintained well over time.

Children’s memory of the repeated event at the 2-year delay

For the repeated-event children who participated in a 2-year delay interview ($N = 29$), a series of 2 (retention interval; initial interview vs. 2-year follow up) x 2 (age) ANOVAs were conducted on the dependent measures reported in the previous sections of this paper. The only significant findings were as follows: First, children reported more story-grammar elements in their initial interview ($M = .82$, $SD = .16$) than in their follow up interview ($M = .44$, $SD = .23$), $F(1, 54) = 38.12$, $p < .001$. Second, for the specific story grammar elements ‘attempt’, $F(1, 54) = 11.18$, $p < .01$ and ‘direct consequence’, $F(1, 54) = 7.24$, $p < .05$, main effects were revealed such that these elements declined over time. Third, the initial interviews contained a greater range of story grammar elements ($M = 2.90$, $SD = 1.12$) than the follow up interview ($M = 1.55$, $SD = 1.89$), $F(1, 54) = 10.95$, $p < .01$.

Finally, a one-way ANOVA with story grammar element as the independent variable was conducted on children’s responses at the 2-year delay interview. This revealed a significant main effect, $F(1, 28) = 17.93$, $p < .001$. Post-hoc comparisons (using the Bonferroni adjustment for multiple comparisons) revealed that attempt details were reported more often than all other details apart from initiating event details, ($ps < .05$).

Initiating event details were more commonly reported than internal response and plan details ($ps < .05$). All other story grammar elements at the 2-year delay were equally prevalent ($ps > .05$). The distribution of elements at the 2-year delay is represented in Figure 1. In sum, although the volume and range of story grammar elements declined over the 2-year interval, the emphasis on ‘attempt’, ‘direct consequence’ and ‘initiating event’ elements (relative to the other elements) was still clearly evident.

Discussion

The unique contribution of this study is that it demonstrated a distinct benefit of event repetition in terms of the production of story-grammar content in children’s narrative accounts of events. Prior research has tended to focus on the nature, accuracy and sequencing of event details as opposed to the meaningfulness of the narrative as a whole. Irrespective of whether our measure was absolute or proportional, the children who experienced multiple occurrences of the event provided more complex reports than those who experienced the event only one time. More specifically, repeated experience resulted in narratives that included more story grammar elements and more causal links between individual story grammar elements. While story grammar tended to improve with age and decline with increased retention interval, repeated experience eliminated any detrimental effect of retention interval for the older children (aged 6 to 8 years).

In the sense that story grammar can be conceived as a general framework or way of organising the event, the current findings are entirely consistent with script or schema theories. These theories state that the establishment of the general representation is facilitated by repeated experience, and that this framework (which is more easily extracted by older children and is maintained well over time, Powell, Roberts, Ceci & Hembrooke, 1999) facilitates recall of event details. However, the effect of repetition in the current study was manifested purely in relation to the quantity (as opposed to type) of story grammar details reported. In other words, the relative weight given to individual story

grammar elements was similar across all sub-groups, with attempt, initiating event and direct consequence details being most prevalent (see Figure 1). Thus it cannot be ruled out that the benefit of event repetition was due to the story grammar details being perceived a greater number of times, which in turn increased the likelihood that they were encoded and subsequently retrieved during the interview (Baddeley, 1990). Similar to research conclusions involving other characteristics of children's narratives (e.g., prevalence of generic detail, Hudson & Nelson, 1986), event repetition appears to have little impact on the structure of the narrative per se.

From an applied eyewitness perspective, the current findings are important for highlighting that event repetition has both positive and negative effects on the usefulness of children's evidence. In cases where an alleged offender is charged and convicted in relation to a repeated offence, at least one specific occurrence must be identified with reasonable precision with reference to place and time (*S v. R.* 1989). Prior research focusing on children's ability to isolate which event details were included in an occurrence of the event has demonstrated a profound *detrimental* effect of event repetition (Powell et al. 1999; Roberts & Powell, 2001; Roberts & Powell, 2007). The current study demonstrates that when we adopt a holistic linguistic indicator (story grammar which is also an important evidential feature, Guadagno, Powell & Wright, 2006), event repetition has a beneficial effect. Although our study utilised mainstream (i.e., non-abused) children, we expect that the findings would generalise to situations where child witnesses recall abusive events. Children who allege abuse are more likely to have cognitive deficits compared to mainstream children (Veltman & Browne, 2001) and may be more reluctant to share their experiences compared to an innocuous event (Orbach, Shiloach & Lamb, 2007). These cognitive or motivational factors would likely reduce the *amount* of story grammar detail, however, there is no basis to expect that underlying processes with regard to the effect of

event repetition on narrative *structure* would change (see Murfett, Powell & Snow, 2008; Snow & Powell, 2008).

In an absolute sense, the mean scores for number of story grammar elements were generally low irrespective of the condition (more extensive open-ended questioning may have increased this). Nonetheless even small improvements in the production of story grammar content could be beneficial when prosecuting a case of repeated abuse (Newman & McGregor, 2006). Greater comprehension on the part of the listener (e.g., juror) potentially increases the likelihood that a statement would be judged as plausible or credible. Greater account credibility, in turn, could impact (albeit in part) decisions to convict (Bottoms & Goodman, 1994).

It needs to be acknowledged that credibility is determined by a complex array of factors, some of which are not strengthened after event repetition. Indeed, of the four prior studies that have examined the effect of event repetition on standard measures of credibility, not all have revealed a detrimental impact. Specifically, three studies (Blandon-Gitlin et al. 2005; Pezdek et al. 2004; Stromwall et al. 2004) found a positive relationship between event repetition and children's credibility as measured via CBCA criteria (e.g., logical structure of the narrative, child's ability to specifically describe the actors and their actions). These researchers examined children's free recall responses about an occurrence of a repeated event where the details to be remembered were held constant across all of the experiences of the event. In contrast, when the child was required to remember one occurrence of a *variable* event and credibility was measured as a function of the number of responses to specific questions that contradicted free-recall responses, repeated experience was found to have a detrimental impact on children's credibility (Connolly, Price, Lavoie & Gordon, 2008). Until now, it has not been clear whether discrepancies between prior findings regarding the effect of event repetition on credibility were due to the different measures used (temporal source discrimination versus narrative quality) or differences in

event structure. The results of the current study (which used a similar event structure to that of Connolly et al. but not the other studies) shows that credibility effects might vary depending on whether detail discrimination or narrative quality is highlighted.

Given the importance of credibility ratings on police officers' and jurors' decision making (Powell, Murfett & Thomson, in press), further investigation of the effect of event repetition on narrative detail is warranted. In particular, research is needed to isolate the relative weight of different measures of narrative quality on professionals' perceptions of child abuse statements, and to examine language production of maltreated children. From a practical perspective, the current findings highlight the importance of eliciting free narrative accounts from child witnesses about an occurrence of a repeated event. Eliciting narrative detail not only minimises error in children's discrimination of similar events (Roberts & Powell, 2001), it enhances the meaningfulness of the account, especially for those children who experienced a repeated event.

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Table 1.

Schedule of the event and recall sessions across conditions.

Event Type	Age† Years	N	Week								
			1	2	3	4	9	104			
Single	4	15	...	...	...	...	...	E*	I	...	...
	7	16	...	...	...	...	...	E*	I	...	...
	4	14	...	...	...	...	...	E*	...	I	...
	7	15	...	...	...	...	...	E*	...	I	...
Repeated	4	9	E1	E2	E3	E4	E5	E*	I	...	I^
	7	14	E1	E2	E3	E4	E5	E*	I	...	I^
	4	12	E1	E2	E3	E4	E5	E*	...	I	I^
	7	11	E1	E2	E3	E4	E5	E*	...	I	I^

Note: E1 – E5 = occurrences 1 – 5 of the event, E* = occurrence to be recalled (same occurrence across groups), I = Interview. † Age in months was matched across the event type x retention interval subgroups. ^ Twenty-nine children who experienced the event repeatedly were also interviewed about the event 2 years after its completion.

Table 2.

Event structure and corresponding story grammar elements

Event Component	Story Grammar*
1. Teacher takes children to the designated classroom	S
2. Teacher puts up poster with label of activity	IE
3. Teacher secures badge to children's clothing	IE
4. Children spread out sheet/mat to represent their position during in the event	IE
5. Teacher and children find their spots (on mat or chair)	IE
6. Teacher puts on blue/red cloak to mark her role as leader of the activity	IE
7. Children do warm up activity to the count of 10	IE
8. Teacher introduces the story's topic and where she got it from	IE
9. Teacher checks children's readiness for story (closed mouths and sitting still)	IE
10. Teacher reads story or story is played on a tape to children	A
11. Teacher shows pictures (from the book or as cut outs on sticks)	A
12. Children concentrate on remembering story (to facilitate answering of questions)	A
13. Children answer questions about the story to indicate they heard it	DC
14. Children admire each others' badges	A
15. Teacher retrieves envelope with puzzle(s) and introduces theme of this activity	IE
16. Puzzle is pieced together (individually or as full group)	A
17. Teacher provides instruction (not always correct) about how to complete puzzle	A
18. A visitor is brought to the room to admire the completed puzzles	DC
19. Children segregate puzzle pieces and put them back in their envelopes	DC
20. Children move with their mats to find a place for relaxing	IE
21. Children lie down on their backs and close their eyes to begin the relaxing	IE
22. Teacher tells children to breathe deeply and let their muscles relax	A
23. Teacher plays a tape of sounds to guide relaxation	A
24. Teacher guides children through relaxation exercise	A
25. Children lie still and focus on the teacher's voice	A
26. Children imagine scenes described by the teacher	A
27. Teacher touches children to see if they are relaxed	DC
28. Teacher counts to three and children open eyes	DC
29. Teacher asks children if they are still a bit sleepy.	DC
30. Children get refreshed to 'wake up' after the event	DC
31. Children are given a surprise to reward their participation in the event	DC
32. Children help to pack up the event materials	R
33. Children return to class in order to commence the next scheduled activity	R

Note: * = these letters represent Stein and Glenn's (1979) story grammar elements. S = setting, IE = initiating event, A = attempt, DC = direct consequence and R = resolution.

Table 3.

Mean number of story grammar details reported across conditions.

	4 years		7 years	
	1 wk	6 wks	1 wk	6 wks
Single	4.86 (1.64)	4.00 (1.96)	6.18 (1.93)	4.26 (3.10)
Repeated	6.66 (2.44)	4.00 (1.47)	6.50 (2.02)	6.18 (2.18)

Note: Standard deviations are in parentheses. N = 106

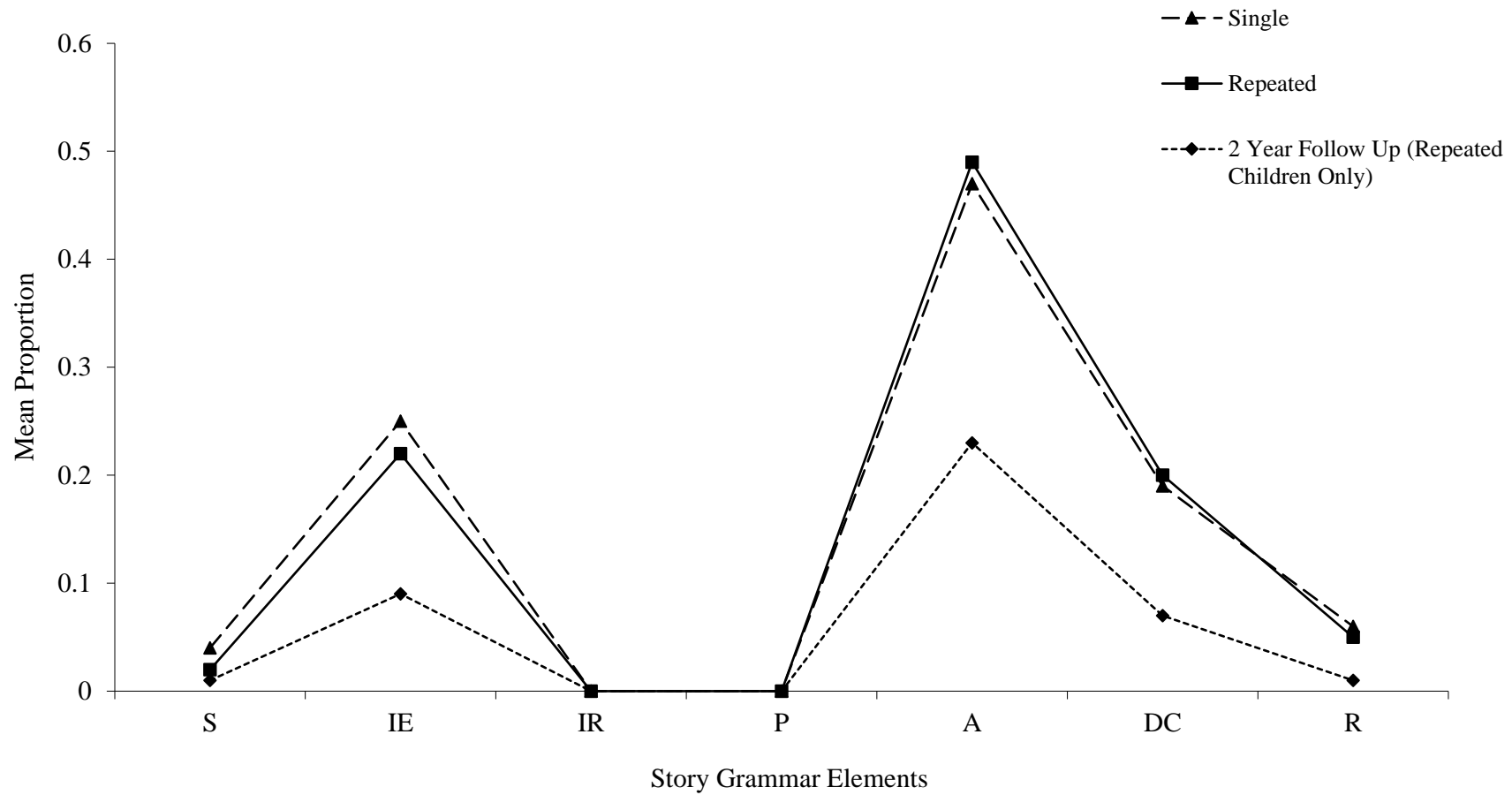


Figure 1. Mean proportion of each story grammar element shown across single and repeated events and the two-year follow up interview conditions. Note: S = setting, IE = initiating event, IR = internal response, P = plan, A = attempt, DC = direct consequence and R = resolution.