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## Individual differences in grade 4 children's written compositions: The role of online planning and revising, oral storytelling, and reading for pleasure\*



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#### ABSTRACT

The study documented sources of individual differences in written composition. The stories written and told by 103 grade 4 children were analyzed according to a proposed model that separated dimensions of narrative quality (i.e., coherence, cohesion, and adherence to writing conventions) from linguistic productivity (i.e., the number of independent clauses, words, and different words). The results confirmed that different skills predicted each dimension after controlling for vocabulary, word reading, spelling, and reading comprehension. First, observed planning and revising behaviors were associated with texts that were more cohesive and linguistically productive. Second, children who reported reading more tended to write stories that were more coherent and adhered more to writing conventions. Third, oral storytelling dimensions each explained unique variance in the corresponding written narrative skill. In conclusion, considering written composition as multi-dimensional allowed for a greater understanding of the differential role of writing process factors, oral storytelling skills, and experiential factors.

#### 1. Introduction

Children differ in the ease with which they can convey information in writing, and for many children, writing compositions is difficult (Berninger & Abbott, 2010). Consider that 20% of students in grade 6 do not meet curricular writing expectations (Education Quality and Accountability Office, 2014), and that 20% of students in grades 8 do not exceed basic levels in their written narratives (National Center for Education Statistics, 2012). Understanding the nature of the writing process as well as the sources of individual differences are fundamental questions that need to be addressed to optimize instruction.

When writing texts, children describe related events or facts in a manner that can vary in coherence, cohesion, as well as the clarity afforded by the proper use of spelling and punctuation. In the present paper, we proposed a model of narrative production and we tested whether the dimensions of the model were related differentially to three types of factors, namely, children's use of planning and revising, their oral storytelling, and their exposure to written texts.

#### 1.1. Dimensions of written compositions

Examination of the extant research revealed two approaches to the study of individual differences in children's written texts. A

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first approach is holistic because the different dimensions of written compositions are combined into a single composite dimension (e.g., Kim, Otaiba, Puranik, Folsom, Greulich, & Wagner, 2011; Pinto, Tarchi, & Bigozzi, 2015). In their review of the literature, Huot and Neal (2006) noted that this approach was the most widely used. A second approach, relying on factor analysis, has confirmed that written narratives components consist of at least three separate dimensions, namely, narrative structure, productivity, and adherence to writing conventions (Abbott & Berninger, 1993; Graham, Berninger, Abbott, Abbott, & Whitaker, 1997; Kim & Schatschneider, 2017; Puranik, Lombardino, & Altman, 2008; Wagner, Puranik, Foorman, Foster, Wilson, Tschinkel, & Kantor, 2011). The present research builds on this second approach for two reasons. First, a modular approach allows for the investigation of relative strengths and weaknesses because children may excel in one dimension (e.g., organizing ideas), but have weaknesses in others (e.g., presenting ideas cohesively). Second, different component skills might facilitate different narrative dimensions (e.g., Berninger, Cartwright, Yates, Swanson, & Abbott, 1994; Berninger, Yates, Cartwright, Rutberg, Remy, & Abbott, 1992; Whitaker, Berninger, Johnston, & Swanson, 1994). The present research adds to the literature by proposing a theoretical model of text quality.

#### 1.1.1. Proposed model of written narrative

In the proposed model, quality dimensions reflect the writer's communicative intent, that is, the intent to write a story that is comprehensible to the reader. This narrow definition of written narrative quality includes elements along three distinct dimensions, namely story coherence, cohesion, and adherence to writing conventions. In this view, story length and linguistic diversity are not measures of story quality per se, but rather measures of linguistic output in general. Of course, linguistic productivity should be closely related to story cohesion and coherence because the latter assesses the functional meaning carried by the former. In accord with Scott and Windsor (2000) we posit that text quality is theoretically distinct from text productivity. Support for this assumption was found in recent research showing that quality is dissociable from productivity (Kim, Al Otaiba, Wanzek, & Gatlin, 2015; Kim, Al Otaiba, Folsom, Greulich, & Puranik, 2014; Puranik et al., 2008; Wagner et al., 2011). Although the proposed model is similar to other generic models of written composition (i.e., fictional and expository texts) in which text quality is defined as the development and organization of ideas (Bereiter & Scardamalia, 1987; Juel, Griffith, & Gough, 1986), the proposed model is specific in its operationalization of text development and organization as text coherence and cohesion, respectively. The proposed model is also different from other models in its definition of text quality that includes adherence to writing conventions (cf., Kim et al., 2015).

The three dimensions of narrative quality: The proposed model includes three distinct dimensions of quality, namely, coherence, cohesion, and adherence to writing conventions. In order to tell or write a coherent narrative, children and adults rely on their acquired representations of the key story elements. These representations, called story schemas or grammars, include elements of action such as initiating events, attempts to solve problems, and outcomes, as well as elements of mental processes such as character intentions and internal responses (Olinghouse & Graham, 2009; for a comprehensive review, see Hickmann, 2004). Story schemas, therefore, allow the writer (or storyteller) to sequence story elements according to culturally-acquired expectations (e.g., John-Steiner & Panofsky, 1992). Although learned during the preschool years, the precision of the representations continues to develop into adulthood (Mandler, Scribner, Cole, & DeForest, 1980). Additionally, narratives structured coherently require that the various story elements be linked together as a cohesive whole. To do so, the storyteller relies on different linguistic devices as the use of anaphora (i.e., easily identifiable use of pronouns), connectives (e.g., then, because, if), and dependent clauses to create a smooth flow of causally related events (Hudson & Shapiro, 1991). In accord with Hickmann, we contend that the sequential coherence afforded by story schemas and the causal cohesion afforded by the use of specific linguistic devices increase the ability of others to understand the story produced.

The research on children's written story composition has not always included or separated coherence and cohesion. For instance, Pinto et al. (2015) included coherence and cohesion in an overall narrative quality score. In the present research, we posit that story coherence reflects the cognitive representation of story sequence whereas cohesion is the mapping of language onto story schemas. Consequently, the knowledge and activation of structural story elements, as well as the distancing necessary to render that structure comprehensible to others, should be viewed as two theoretically distinct sources of individual differences in children. Some story-tellers might have well-defined story schemas but are deficient in linguistic tools, or vice versa. Yet for others, it is both dimensions that are deficient. For theoretical and practical reasons, researchers should examine whether it is the same component skills and experiences that account for variability in each dimension.

Proper spelling, punctuation, and capitalization allow for continuous reading without the need to stop and interpret mistakes, thereby reducing confusion and misinterpretation. As such, adherence to writing conventions can facilitate understanding, and therefore contribute to story quality. For instance, Olinghouse and Leaird (2009) reported, in a sample of grade 4 writers, a correlation of 0.38 between story quality and spelling accuracy, and Wagner et al. (2011) reported a correlation of -0.52 between story organization and a composite of spelling and punctuation errors. In the present paper, we argue that a well-written narrative should be one that is coherent, cohesive, and that adheres sufficiently to writing conventions to allow comprehension.

The productivity dimension: In addition to the three dimensions of quality, researchers have focused on elements of length and linguistic diversity. Research that included measures of length (e.g., number of words) and diversity (number of different words) showed that these variables are highly correlated (e.g., r = 0.94 and 0.78 in Wagner et al., 2011 and Olinghouse & Graham, 2009, respectively). In accord with the findings of Puranik et al. (2008), we included an additional measure of length, namely, the number of independent clauses in our assessment of productivity.

#### 1.2. Understanding individual differences in written narratives

Individual differences in written narratives are the result of a variety of factors. The most studied component skills related to

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