



# The relationship between oral and written narratives: A three-year longitudinal study of narrative cohesion, coherence, and structure

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**Background.** The relationship between oral language and the writing process at early acquisition stages and the ways the former can enhance or limit the latter has not been researched extensively.

**Aims.** The predictive relationship between kindergarten oral narrative competence and the first- and second-grade written narrative competence was explored in a 3-year longitudinal study. Among the first and second graders, the relationship between orthographic competence and narrative competence in written productions was also analysed.

**Sample.** One hundred and nine Italian children participated in this study.

**Measures.** Kindergarteners produced an oral narrative, whereas the first and second graders produced a written narrative. The oral and written narratives were analysed in terms of cohesion, coherence, and structure. The first-grade orthographic competence was assessed via a dictation task.

**Results.** Multiple linear regression and mediational analyses were performed. Kindergarten oral narrative competence affected the first- and second-grade written narrative competence via a mediational effect of orthographic competence.

**Conclusion.** The results suggest the importance of practicing oral narrative competence in kindergarten and first grade and the value of composition quality independent of orthographic text accuracy.

The relationship between oral and written narratives, especially at early acquisition stages, and the ways the former affects the latter is an extremely important topic (Dockrell & Connelly, 2009) because narrative competencies are crucial in preventing future literacy problems (Dockrell & Connelly, 2009; Ketelaars, Jansonius, Cuperus, & Verhoeven, 2012; Landerl *et al.*, 2013). Despite this fact, research exploring writing and writing acquisition predictors has been limited (Dunsmuir & Blatchford, 2004; Hooper, Roberts, Nelson, Zeisel, & Kasambira Fannin, 2010; Pinto, Bigozzi, Gamannossi, & Vezzani, 2012) and has been conducted in a fragmented way such that a few researchers have focused on the development of oral narrative competencies (Makinen, Loukusa, Nieminen, Leinonen, & Kunnari, 2013), while others have focused on written narrative competencies in later grades (Hertz-Lazarowitz, 2004). As a result, a clear picture of the relationship between these competencies in children is lacking (Fang, 2001).

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Studying early writing skills and their predictors is particularly interesting if performed longitudinally, as has been done with reading acquisition and oral narrative development (Puranik & Alotaiba, 2012; Watanabe & Hall-kenyon, 2011). The longitudinal study presented in this paper explored the relationship between oral and written narrative competences in Italian children. It did so by examining the relationship between kindergarten oral competencies and the first- and second-grade written competencies while analysing the relationship between narratives and orthographic competence in writing. Narrative competence was examined in terms of cohesion, coherence, and structure, which are indicators that have been considered explanatory in prior studies and are common to both modalities (Fang, 2001; Makinen *et al.*, 2013). Orthographic competence, often defined as spelling, was assessed through spelling correctness.

### **Narrative competence**

Research in oral and written narratives from a discourse analysis perspective suggests three primary types of relationships, or standards of narrative competence: Cohesion, coherence, and structure (Cain, 2003; Halliday & Hasan, 1976; Taboada, 2004). Cohesion refers to how the words in a sentence are mutually connected, whereas coherence refers to how concepts and relations underlying the surface text are mutually accessible and relevant, and structure refers to high-level complex knowledge structures (scripts or schemata) that help the organization and interpretation of the narrative (Beaugrande & Dressler, 1981). Generally, cohesion involves smaller units of the text, coherence involves the overall interrelatedness in the text, and structure involves the activation of knowledge structures (Louwse & Graesser, 2005). These three components will now be described in greater detail.

#### *Cohesion*

Cohesion in a narrative is achieved through linguistic devices (i.e., interclausal connectives) that express the relationships between sentences and clauses that create a narrative (Cain, 2003; Halliday & Hasan, 1976). Through cohesion, a narrative is tied together on a local level as connectives are used to express whether two events are causally or temporally related (Cain, 2003). Cohesion creates connectivity and clarity both within and between sentences. In particular, the use of nouns and pronouns, anaphora, and ellipses (i.e., referential cohesion) has been explored, and it plays a fundamental role in introducing and maintaining references to characters, places, and events (Schneider, Dubé, & Hayward, 2005). Cohesion is more than a measure of linguistic structure in that it ties together and organizes structure so that messages and meaning are communicated effectively (Horton-Ikard, 2009; Manhardt & Rescorla, 2002) and it requires the speaker/writer to understand the context and the listener/reader's needs (Hickmann, 2004; Makinen *et al.*, 2013). Cohesion is necessary, although not sufficient to create a coherent text, because it facilitates the comprehension of underlying semantic relations (Louwse & Graesser, 2005).

#### *Coherence*

Coherence is defined at the narrative macro-level and represents how events are related to one another (Cain, 2003). A coherent text is unified and gives the impression of 'hanging

together' (Halliday & Hasan, 1976). To produce a coherent text, writers use a scheme to organize content that helps the reader understand characters, problem(s), problem resolution, and the ending. This is achieved by including a formalized introduction, a background and a setting (Hudson & Shapiro, 1991; Mäki, Voeten, Vauras, & Poskiparta, 2001; Shapiro & Hudson, 1991). In this study, we adopted the definition of coherence used by Hudson and Shapiro (1991), who argued that coherence represents how various parts of a narrative are interrelated in a meaningful way such that events are sequenced using temporal or causal connectives. For a narrative to be coherent, it is crucial that the teller/writer uses these connectives with consistency and without incongruence because not doing so impairs comprehension.

### *Structure*

For a sequence of clauses to be considered a narrative, they must be structured conventionally (McCabe & Peterson, 1991). It should include not just clauses describing main events but also contextualizing clauses (McCabe & Peterson, 1991). Narrative grammar structure is defined as the presence of main narrative components, that is an opening, characters, a setting, narrative development, problem resolution, and an ending (Genereux & McKeough, 2007). This type of analysis stems from research in narrative grammar, a concept that evolved from anthropologists' analyses of folktales in the 1900s ('Story grammar approach', Dimino, Gersten, Carnine, & Blake, 1990); regardless of age or culture, individuals retell stories they have heard or read that follow a specific pattern. Several scholars interested in narrative competence have researched children's ability to provide their narratives with structure (McCabe & Peterson, 1991). As children progress through school, narrative abilities develop substantially via narrative grammar structure (Manhardt & Rescorla, 2002), and structure has been often considered to be an important component in both reading comprehension and written production (Gersten & Baker, 2001; Stein & Glenn, 1982).

Narrative competence in written texts in school has been studied in a fragmented way. Two variables play a fundamental role in the development of children's competence in writing fictional stories: Children's oral narrative competence, which develops at early stages before formal schooling, and spelling skills, which become important in the early grades, when children formally learn to read and write (Pinto, Bigozzi, Tarchi, Accorti Gamannossi, & Canneti, 2015).

### **Oral narrative competence**

In addition to spelling, several scholars argue that oral narratives in kindergarten are foundational for written narrative competence (Babayigit & Stainthorp, 2011; Dockrell & Connelly, 2009; Mäki *et al.*, 2001). For example, Babayigit and Stainthorp (2011) concluded that oral narrative skills contribute greatly to text generation and that they generally predict writing quality. Few have analysed the relationship between spelling and writing by taking into account emergent narrative competence such as the ability to provide structure, cohesion, and coherence to a narrative in children's oral products. Written language acquisition is not a process that 'suddenly' appears when teachers start to formally teach it but rather is part of a developmental environment beginning with the child's first life experiences (Ravid & Tolchinsky, 2002).

### **Orthographic competence**

Orthographic competence is expected to play an important role in early narrative writing (Puranik & Alotaiba, 2012), but the association between the two is still controversial (Berninger *et al.*, 1992; Graham, Berninger, Abbott, Abbott, & Whitaker, 1997). Contradictory findings suggest two possible explanations for this controversy. First, orthographic competence varies across languages such that orthographically transparent languages, for example Italian and Finnish, with almost perfect phoneme–grapheme correspondence, do not require the same spelling skills as orthographically opaque languages, such as English and French. Research in orthographic competence has been conducted mostly in the English language. In contrast, there has been less research involving other languages, particularly orthographically transparent ones (Joshi & Aaron, 2006). Second, when and how spelling is taught in school systems affects the development of orthographic competence. Orthographic transparency can therefore be seen as being able to influence the acquisition of the writing system and, consequently, the number of errors made on a spelling task.

Most of the studies in English, an orthographically opaque language, report the presence of an association, direct or indirect, between orthographic competence and narrative competence. For example, Juel (1988) reported that orthographic competence in the first grade was able to explain 29% of the variance in written product quality, and Berninger *et al.* (1992) reported moderate correlations between orthographic competence and text-generation writing components. Related research by Puranik and Alotaiba (2012) indicated that orthographic competence affected narrative competence in early writing acquisition, even when oral language was controlled for. In contrast, Graham *et al.* (1997) reported that orthographic competence does not predict production quality at any developmental level and interpreted this contrasting result by hypothesizing a mediating role of orthographic competence in production quality.

In contrast to previous findings from studies involving the English language (Berninger *et al.*, 1992), Babayiğit and Stainthorp (2010) and Mäki *et al.* (2001) did not find a significant relationship between orthographic competence and writing quality in the transparent orthographies of Finnish and Turkish. Mäki *et al.* (2001) examined writing skill development in Finnish in a 3-year longitudinal study that followed 154 children from preschool to third grade. The results of multigroup structural equation modelling indicated an association between orthographic competence and writing quality as students advance from first to second grade, but not from second to third. This indicated that as children's mastery of spelling progresses, spelling interferes less with their narrative competence. Babayiğit and Stainthorp (2010) followed 57 Turkish-speaking children from first to second grade and tested the predictive impact of transcription, text generation, and verbal memory on early narrative writing skills. The results demonstrated that the mechanics of writing (spelling accuracy and fluency) were not related to composition quality. Similar results emerged from another study conducted by the same authors, in which two cohorts of children in the second and fourth grades were followed into third and fifth grades (Babayiğit & Stainthorp, 2011).

These studies collectively indicate that the transparent orthography of Turkish and Finnish does not affect narrative competence even during the early acquisition of writing. It is clear that future research is needed to better clarify the relationship between orthographic competence and narrative competence in written production. In this sense, Italian represents a good candidate. Italian is orthographically transparent, yet its sign-to-sound correspondence includes a few ambiguities. Spelling accuracy shows a rapid increase in the first 2 years of schooling (Notarnicola, Angelelli, Judica, & Zoccolotti,

2012), and it is during this time period that spelling difficulties might impair narrative competence. Italian offers, therefore, the possibility to explore the relationship between orthographic and narrative competence in a short span of time because spelling is acquired and mastered rapidly.

### **Rationale and hypotheses**

Narrative competence was studied in a 3-year longitudinal study with a cohort of children from the last year of kindergarten (approximately 5 years of age) through first and second grades. Narrative competence was explored by asking children to produce fictional stories, which have cohesive, coherent, and structural elements that differ from those of other subgenres, for example the retelling of real experiences – Or personal stories (Hudson & Shapiro, 1991; Shapiro & Hudson, 1991). Very few studies have analysed writing predictors (Dunsmuir & Blatchford, 2004; Hooper *et al.*, 2010; Pinto *et al.*, 2012). In the present research, the predictive relationship between oral and written narrative competencies among kindergarteners and first and second graders was analysed in terms of the three main components of narrative competence, that is cohesion, coherence, and structure, which develop continually from kindergarten through the early school years (Cain, 2003).

In the Italian educational system, kindergarten is attended by children aged 3 through 5, and children begin attending primary school at approximately the age of 6. Children are exposed to formal literacy as soon as primary school begins as they learn to write words. Children advance quickly to writing sentences, and by the end of the first grade, children are able to write a short text, thereby allowing us to explore the shift from oral to written narratives. In Italy, the first-grade teachers focus primarily on the spelling component of writing, whereas the second-grade teachers direct their attention to the textual properties of writing because the second graders are expected to master the basic mechanics of writing. This shift in teaching focus allowed us to explore the role played by orthographic competence in progressing from oral narratives generated in kindergarten to written narratives in the later grades.

The hypotheses were as follows:

*H1:* Kindergarten oral narrative performance will predict the first- and second-grade written narrative competence.

*H2:* Orthographic competence will play a mediating role in the relationship of narrative competences across grades, consistent with research findings demonstrating that spelling is predictive of composition quality.

*H3:* Because Italian is orthographically transparent, orthographic competence and narrative competence will not share a direct predictive relationship.

## **Methods**

### **Participants**

The participants were followed for 3 years and were tested three times: At the end of kindergarten ( $N = 109$ ;  $M_{\text{age}} = 5.29 \pm 0.29$  years; 51 females, 58 males), first grade (90 subjects;  $M_{\text{age}} = 6.71 \pm 0.82$ ; 41 females, 49 males), and second grade (80 subjects;  $M_{\text{age}} = 7.76 \pm 0.35$ ; 37 females, 43 males). Thus, from the sample of 109 children in

kindergarten, 80 participated in the last stage of the study, corresponding to a dropout rate of 26%.

The participants were derived from a larger cohort study of the relationship between emergent and formal literacy and were representative of the Italian population with regard to gender, socio-economic status, and education. Principals, teachers, and parents gave written informed consent for the children's participation in the study. The children were followed from kindergarten to primary school. In Italy, most children (approximately 99%) are enrolled in public schools, which thus provides a representative cross section of the Italian population among kindergartners and primary school students. We worked with a natural cohort in that we included all the children enrolled in the public schools in a certain district. From this cohort, we excluded all students with a learning and/or developmental disorder (as diagnosed by the national health system), foreigners who had been living in Italy for <5 years, and foreigners with reading difficulties. The schools were comparable in terms of the availability, visibility, and accessibility of meaningful written material. The emergent skills of all study participants were assessed in kindergarten. Then, in primary school, each classroom was randomly assigned to three conditions to analyse three different sets of formal skills and was longitudinally followed in the first and second grades. This study focused on the development of writing, that is spelling and composition.

### **Research design**

The study consisted of three steps.

1. Oral production was assessed at the end of the last year of kindergarten in terms of narrative competence (cohesion, coherence, and structure);
2. Written production was assessed at the end of the first grade in terms of narrative competence (cohesion, coherence, and structure) and orthographic competence (spelling);
3. Written production was assessed at the end of the second grade in terms of narrative competence (cohesion, coherence, and structure).

### **Materials and measures**

#### *First step, assessment of oral production (kindergarten)*

Responses were coded by two independent evaluators. Initial agreement between the evaluators ranged between 89% and 95%, and disagreements were resolved through discussion. The reliability score was good, that is  $\alpha$  coefficient = .88.

*Oral narrative competence.* Narrative competence was assessed via a narrative production task (Pinto, Bigozzi, Accorti Gamannossi, & Vezzani, 2009; Spinillo & Pinto, 1994) in which children were asked to tell a narrative. In Italian kindergarten and primary schools, students receive instruction in the production of fictional stories, which is a common school practice. In the assessment, the participants received the same instructions as they typically receive in school. As a result, all the participants understood the instructions well and produced fictional stories. From this task, three measures were derived.

*Cohesion:* To assess the cohesion in the children's stories, the following linguistic connectives, for example *before*, and discourse markers, for example *1 day*, were counted:

*Causal:* So, then, thus, consequently, because of it, keeping this in mind, because, therefore, it follows that, it comes out that, to this aim, in that case, it turns out that, as things stand, as things do not stand, for this reason (e.g., 'The mouse ran away *because* it saw a cat').

*Temporal:* Then, after, afterwards, subsequently, right at that moment, before that, in the end, in origin, at the beginning, beforehand, in conclusion, at the end, suddenly, soon, the day/time/year/month after, in the meantime, until, at this moment, in the first place, until now, from now on, to synthesize (e.g., '*One day* a rabbit was going').

Based on the number of connectives per total number of words, we assigned the narratives to four categories of cohesion: Absent, low (the ratio of connectives/words was below the 33rd percentile), medium (the ratio of connectives/words was between the 33rd and 66th percentiles), and high (the ratio of connectives/words was above the 66th percentile). *Absent* was assigned a score of 0, *low* a score of 1, *medium* a score of 2, and *high* a score of 3.

*Coherence:* To analyse coherence in the narratives, the number of incoherencies were calculated; for example, a sentence was introduced by an adversative even though it did not contradict the previous sentence. An example of incoherence was 'the monsters wanted to make peace, but the monsters wanted to attack'. Based on the number of incoherencies per total number of propositions, we assigned the narratives to four categories of coherence: Absent, low (the ratio of incoherencies/propositions was below the 33rd percentile), medium (the ratio of incoherencies/propositions was between the 33rd and 66th percentiles), and high (the ratio of incoherencies/propositions was above the 66th percentile). *Absent* was assigned a score of 0, *low* a score of 1, *medium* a score of 2, and *high* a score of 3.

*Structure:* The narrative structure was coded with regard to five levels of increasing structural complexity based on the presence of eight elements: (1) title, (2) conventionalized narrative opening, (3) characters, (4) setting, (5) problem, (6) central event, (7) resolution, and (8) conventionalized narrative closing. These five levels were

1st level (no narrative): Simple description or list of events, objects, or facts;

2nd level (sketch narrative): Opening, setting, character(s), conclusion or opening, sketch of the problem, and resolution;

3rd level (incomplete narrative): Opening, character(s), problem, and resolution;

4th level (essential narrative): Opening, character(s), problem, central event, and resolution;

5th level (complete narrative): Title, opening, character(s), setting, problem, central event, resolution, and narrative closing.

Appendix A includes a table with examples of each level.

### *Second step, assessment of written productions (first grade)*

*Written narrative competence.* Narrative competence was assessed via a narrative production test (Pinto *et al.*, 2009; Spinillo & Pinto, 1994). The children were instructed to write a narrative of their choice and were allowed a maximum of 60 min; all the children

completed the task within 30–50 min. We derived the same three measures of narrative competence, that is cohesion, coherence, and structure, as in the oral narrative assessment (see above for details; see Appendix A for examples). The responses were coded by two independent evaluators. Initial agreement between the evaluators ranged between 88% and 96%, and disagreements were resolved through discussion. The reliability score was good, that is  $\alpha$  coefficient = .91.

*Orthographic competence.* Orthographic competence was assessed using a standardized test (Tressoldi & Cornoldi, 1991). The children performed a 59-word dictation titled *Dad's Bicycle*. This text has a Gulpease<sup>1</sup> index of 71, meaning that the text is difficult (Lucisano & Piemontese, 1988). Orthographic competence was calculated based on the number of errors (phonological and non-phonological) per total number of written words. There was 98% initial agreement between the evaluators, and disagreements were resolved through discussion.

#### *Third step, assessment of written production (second grade)*

*Written narrative competence.* Narrative competence among the second graders was assessed and coded using the same methods as in the second step (see Appendix A for examples). The responses were coded by two independent evaluators. Agreement between the evaluators ranged between 88% and 95%, and disagreements were resolved through discussion. The reliability score was good, that is  $\alpha$  coefficient = .90.

### **Data analysis**

The principal descriptive statistics (mean, standard deviation, skewness, and kurtosis) were analysed. Monotonic increasing transformations were applied to all non-normally distributed variables (Fox, 2008).

Multiple regression analysis was used to test the study's hypotheses. This type of analysis was selected for two primary reasons: (1) the sample size did not allow for more complex statistical analyses, and (2) this type of procedure is used to test for mediational effects (Preacher & Hayes, 2008). For economy of presentation and because previous research has shown that children's performance in terms of cohesion, coherence, and structure is interrelated (Cain, 2003) and is affected by a latent construct, defined as narrative competence (Pinto *et al.*, 2009), three composite narrative competence scores (kindergarten, first grade, and second grade) were created by adding the scores obtained in the three components of cohesion, coherence, and structure.

To test whether the participants' performance in kindergarten (oral narratives) is predictive of their performances in the first and second grades (written narrative competence), we performed two stepwise multiple regression analyses. The composite oral narrative competence score in kindergarten was the independent variable, and the composite written narrative competence scores in the first and second grades were the dependent variables. We also ran a third multiple regression analysis to test whether

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<sup>1</sup> The Gulpease index was developed by the GULP (Gruppo universitario linguistico pedagogico, Eng. tr. University linguistic and pedagogic group, University of Rome 'La Sapienza'). The formula for calculating the index is  $89 - (\text{letters} * 100 / \text{total words}) / 10 + (\text{sentences} * 100 / \text{total words}) * 3$ .



the composite written narrative competence score in the first grade (independent variable) could be used to predict the composite written narrative competence score in the second grade (dependent variable).

To test whether orthographic competence in the first grade mediates the relationships between narrative competence across grades, three simple mediational analyses were performed using PROCESS, an SPSS Macro created by Hayes (2012). The direct and indirect effects were derived from two linear models (Hayes, 2012). One model,

$$M = i_M + a_1X + e_M, \quad (1)$$

was used to estimate  $M$  from  $X$ , and the second one was used to estimate  $Y$  from both  $X$  and  $M$ :

$$Y = i_Y + c'_1X + b_1M + e_Y. \quad (2)$$

Three paths were explored and quantified using non-standardized regression coefficients: Path  $a$  represents the effect of  $X$  on  $M$ , and path  $b$  represents the effect of  $M$  on  $Y$  after controlling for the effect of  $X$ . The product of  $a$  and  $b$ , that is  $ab$ , represents the indirect effect of  $X$  on  $Y$  through  $M$  (estimated based on the product of  $a_1$  in equation 1 and  $b_1$  in equation 2), and  $c'_1$  in equation 2 represents the direct effect of  $X$  on  $Y$ . Finally, the total effect of  $X$  on  $Y$  is represented by the sum of the direct and indirect effects:

$$c_1 = c'_1 + a_1b_1 \quad (3)$$

As suggested by Preacher and Hayes (2008), we performed bootstrapping to test the mediation hypothesis because this is the most powerful method of obtaining confidence limits for specific indirect effects under most conditions. In the bootstrapping technique, the original data set is resampled  $k$  times (in our case, 5,000 times), and each given case can be part of the bootstrap sample once, twice, multiple times, or not at all.

To control for the same three predictive patterns tested in the regression analyses and with orthographic competence included as a mediator, two mediational analyses were performed. First, the composite written narrative competence scores in the first and second grades were regressed on the composite oral narrative competence scores in kindergarten. Next, the composite written narrative competence score in the second grade was regressed on the composite written narrative competence score in the first grade, with orthographic competence in the first grade inserted as a mediator in all three mediational analyses.

## Results

### **Descriptive analysis**

Descriptive statistics (mean, standard deviation) and correlations among narrative competence levels in kindergarten, first grade, and second grade and orthographic competence in the first grade are shown below (Tables 1 and 2). See Appendix B for narrative examples produced by a single selected participant at three points in time.

The cohesion score did not increase across grades and instead remained stable around the value of 1, which designates low cohesion (ratio of connectives/words below the 33rd percentile). The coherence score was low in kindergarten (ratio of incoherencies/propositions below the 33rd percentile) but increased one level in the first grade and

**Table 1.** Descriptive analysis of all measures (means and standard deviations)

Variable	Kindergarten	First grade	Second grade
Narrative competence – Composite	5.09 ± 1.86	6.19 ± 1.47	6.82 ± 1.54
Cohesion	1.19 ± 0.58	1.04 ± 0.60	0.94 ± 0.35
Coherence	1.38 ± 0.79	2.21 ± 0.89	2.01 ± 0.82
Structure	2.52 ± 1.07	2.93 ± 1.13	3.87 ± 1.01
Orthographic competence		47.45 ± 7.48	

remained stable in the second grade (medium coherence: Ratio of incoherencies/propositions between the 33rd and 66th percentiles). Structure was at the second level in kindergarten, suggesting that children were just able to sketch stories, which included an opening, character(s), a sketch of the problem, and a resolution. The results demonstrated an increase in structure performance during the first grade but still at the second level, and the score increased another level during second grade such that the students were able to narrate incomplete stories, including an opening, character(s), a problem, and a resolution.

### **Multiple regression analysis**

Multiple regression analyses were conducted to test predictive relationships between components of narrative competence in kindergarten and first and second grades and between components of narrative competence in the first and second grades (Table 3). The composite narrative competence score in the last year of kindergarten explained 4% of the variance in the corresponding score in the first grade, Adjusted  $R^2 = .04$ ,  $F(1, 87) = 5.07$ ,  $p < .01$ , and 14% of the variance in the second grade, Adjusted  $R^2 = .14$ ,  $F(1, 87) = 14.84$ ,  $p < .01$ . The composite narrative competence score in the first grade explained 6% of the variance in the corresponding score in the second grade, Adjusted  $R^2 = .06$ ,  $F(1, 87) = 6.12$ ,  $p < .05$ .

### **Mediational analysis**

Between kindergarten and primary school, children change their narrative modality from oral to written production. To account for this change, we re-analysed the predictive impact of narrative competence across grades using a mediational analysis, with orthographic competence in the first grade inserted as a mediator. Using simple mediator models, the percentage of variance explained in the dependent variables increased several percentage points.

The composite narrative competence score in kindergarten predicted 15% of the variance in the composite narrative competence score of the first graders when orthographic competence was inserted as a mediator, Adjusted  $R^2 = .15$ ,  $F(2, 86) = 8.91$ ,  $p < .01$ . Thus, this model explained 11% more of the variance in the dependant variable than did the previous regressions analysis, without inclusion of the effect of orthographic competence. The total effect of the independent variable was statistically significant, but the direct effect was not (Figure 1).

The composite narrative competence score in kindergarten predicted 24% of first grader variance in this score with orthographic competence inserted as a mediator, Adjusted  $R^2 = .24$ ,  $F(2, 86) = 14.93$ ,  $p < .01$ . Thus, this model explained 10% more of the

**Table 2.** Correlational analysis of all measures

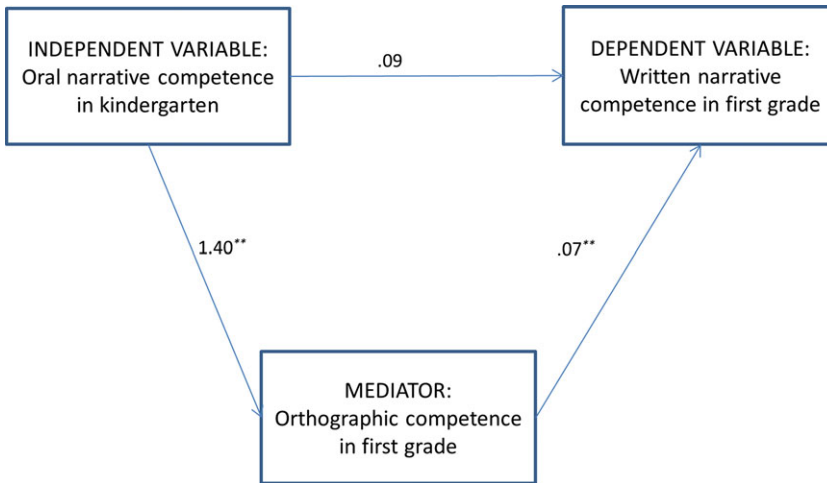
	Narrative competence in kindergarten	Narrative competence in the first grade	Narrative competence in the first grade	Orthographic competence in the first grade
Narrative competence in kindergarten	1			
Narrative competence in the first grade	.24*	1		
Narrative competence in the second grade	.38**	.26*	1	
Orthographic competence in the first grade	.24*	.40**	.45**	1

Note. \*\* $p < .01$ ; \* $p < .05$ .

**Table 3.** Multiple linear regression analysis for predicting the effect of components of narrative competence (in kindergarten and first grade) on composite narrative competence scores (in the first and second grades)

	Adjusted $R^2$	$F$	df	$\beta$	$t$
	Composite narrative competence in the first grade				
Composite narrative competence in kindergarten	.04	5.07*	1, 87	.24	2.25*
	Composite narrative competence in the second grade				
Composite narrative competence in kindergarten	.14	14.84**	1, 87	.38	3.85**
	Composite narrative competence in the second grade				
Composite narrative competence in the first grade	.06	6.12*	1, 87	.26	2.47*

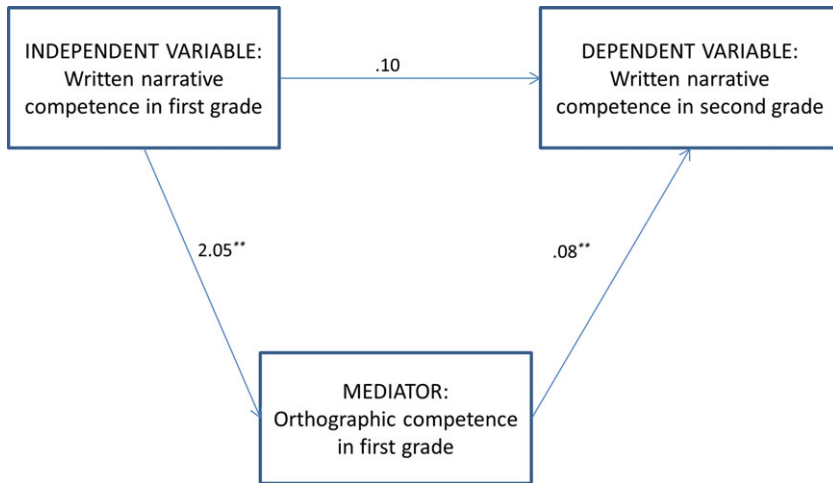
Note. \*\* $p < .01$ ; \* $p < .05$ .



**Figure 1.** Predictiveness of narrative competence in oral products of kindergarteners on narrative competence in written products of the first graders, both direct and indirect, through the mediation of orthographic competence of the first graders. Note. Model summary: Adjusted  $R^2 = .15$ ,  $F(2, 86) = 8.91$ ,  $p = .00$ . Total effect = 0.19\*; Direct effect = 0.09; Indirect effect = 0.17\*\*. \* $p < .05$ ; \*\* $p < .01$ .

variance in the dependent variable than did the previous regressions analysis, without inclusion of the effect of orthographic competence. The total effect of the independent variable was statistically significant. Both the direct and indirect effects were statistically significant, with the former being stronger than the latter (Figure 2).

The composite narrative competence score in the first grade predicted 19% of the variance in the composite narrative competence score in the second grade when orthographic competence was inserted as a mediator, Adjusted  $R^2 = .19$ ,  $F(2, 86) = 11.20$ ,  $p < .01$ . Thus, this model explained 13% more of the variance in the dependent variable than did the previous regressions analysis, without inclusion of the effect of orthographic competence. The total effect of the independent variable was



**Figure 2.** Predictiveness of narrative competence in oral products of kindergarteners on narrative competence in written products of the second graders, both direct and indirect, through the mediation of orthographic competence of the first graders. *Note.* Model summary: Adjusted  $R^2 = .19$ ,  $F(2, 86) = 11.20$ ,  $p = .00$ . Total effect =  $0.27^*$ ; Direct effect =  $0.10$ ; Indirect effect =  $0.17^{**}$ .  $^*p < .05$ ;  $^{**}p < .01$ .

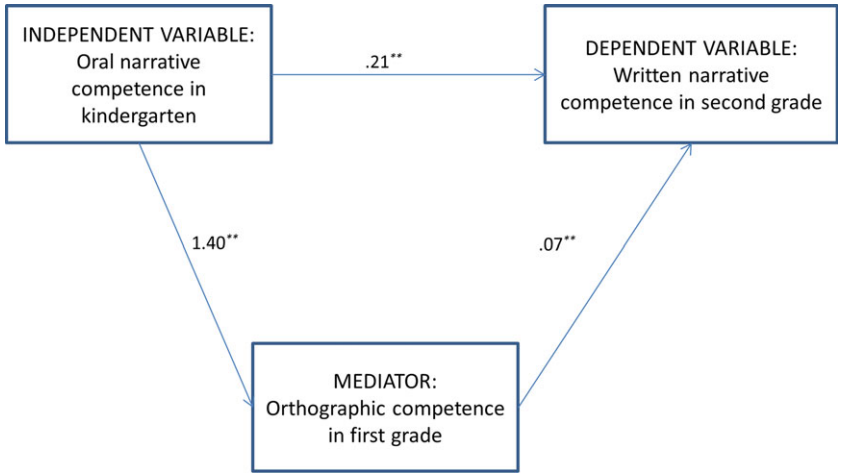
statistically significant, whereas the direct effect was not. Thus, the composite narrative competence score in the first grade exerted its predictive weight on the composite narrative competence score in the second grade only indirectly via the mediation of orthographic competence in the first grade (Figure 3).

## Discussion

This 3-year longitudinal study explored the predictive relationships in narrative competence in three school grades: The last year of kindergarten (oral narratives) and first and second grades (written narratives). It also analysed the role played by orthographic competence, as assessed in the first grade. Overall, this study demonstrated that oral narrative competence in kindergarten predicted written narrative competence in the first and second grades, with orthographic competence playing a relevant mediating role. Consistent with the first hypothesis, kindergartners' oral narrative competence predicts written competence in the early stages of narrative writing in the first and second grades.

Several scholars have argued that oral narrative competence forms the basis for future written narrative competence (Babayigit & Stainthorp, 2011; Dockrell & Connelly, 2009; Mäki *et al.*, 2001). Multiple regression analyses confirmed these previous findings, as shown by the strong relationship between kindergartener and second grader performance. However, the first-grade performance stands out as a particular developmental stage of writing acquisition in that only a small portion of the variance in the first graders' narrative competence was predicted by the emergent narrative competence. Similarly, children's narrative competence in the first grade predicted only a small portion of the variance in narrative competence a year later, in the second grade.

To better define children's writing skills in the first grade, the role of orthographic competence was explored. Graham *et al.* (1997) argued that orthographic competence



**Figure 3.** Predictiveness of narrative competence in written products of the first graders on narrative competence in written products of the second graders, both direct and indirect, through the mediation of orthographic competence of the first graders. *Note.* Model summary: Adjusted  $R^2 = .24$ ,  $F(2, 86) = 14.93$ ,  $p = .00$ . Total effect =  $0.32^*$ ; Direct effect =  $0.21^{**}$ ; Indirect effect =  $0.10^*$ .  $*p < .05$ ;  $**p < .01$ .

affects writing production, but we did not find orthographic competence to be predictive of narrative competence. The results from the three mediational analyses confirmed the second hypothesis, that is that orthographic competence plays a mediating role in the relationships involving narrative competence across grades. This mediating role explains the difference between our findings and those of Graham *et al.* and could be the solution to resolving the discrepancy between studies that demonstrate that orthographic competence impacts written narrative competence (Berninger *et al.*, 1992; Juel, 1988) and the findings of the present study.

When orthographic competence was inserted as a mediator, kindergarten oral narrative competence predicted a larger portion of the variance in the first-grade written narrative competence. The only statistically significant effect was the indirect path, confirming the third hypothesis that orthographic competence does not directly affect narrative competence. This last finding suggests that children are able to use their narrative competence only if they have adequately mastered the orthographic component of writing. This finding confirms that orthographic competence (Graham *et al.*, 1997; Stainthorp & Rauf, 2009) and oral narrative competence (Babayigit & Stainthorp, 2011; Dockrell & Connelly, 2009; Mäki *et al.*, 2001) are important for the first graders to produce good cohesive written narratives that display good coherence and structure.

Inserting first-grade orthographic competence as a mediator uniquely contributed to the predictive power of kindergarten oral narrative competence on the second-grade written narrative competence and contributed to the predictive power of the first-grade written narrative competence on the second-grade written narrative competence. Both the direct and indirect effects were found to be statistically significant when kindergarten and second-grade competence levels were compared, whereas only the indirect path was statistically significant when the first- and second-grade competence levels were compared, stressing once more the fundamental importance of orthographic competence. This conclusion is consistent with that of Puranik and Alotaiba (2012), who contended that orthographic competence is particularly important for narrative competence in early stages of writing acquisition.

Our interpretation of the orthographic competence findings is consistent with the idea that spelling is a subcomponent of writing that should be automatic. This automaticity prevents attentional and working memory resources from being overloaded, thereby allowing the writer to focus on the resource-demanding text-generation process (Babayiğit & Stainthorp, 2011; Dunsmuir & Blatchford, 2004; Puranik & Alotaiba, 2012).

Previous researchers concluded that orthographic competence was directly linked to narrative competence, but this might be because such research was based on writing tasks in an orthographically opaque language, that is English. The situation might be different when the research involves transparent writing systems (Babayiğit & Stainthorp, 2010; Mäki *et al.*, 2001).

The present study makes several original contributions to the research in early narrative competencies. We have explored the relationship between emergent narrative competencies in kindergarten while highlighting the mediating role of orthographic competence in developing narrative competence. Our conclusion in favour of the indirect mediating effect of orthographic competence suggests that the task of mastering the mechanics of writing disrupts the continuity from production of oral narratives to written narratives. However, in the case of the transparent orthography of Italian, the disruption is brief, and we observe the continuity re-emerge by the second grade. An alternate interpretation is that a grade in writing in the first grade is more a comment on the level of orthographic competence than that of writing, but the use of the same narrative competence measures (cohesion, coherence, and structure) throughout weakens that interpretation. Future researchers should confirm the decreased importance of orthographic competence in a transparent language following the first grade by also assessing orthographic competence in the second grade.

This study has its limitations. Participants were students in the Italian educational system, which, similar to any country's educational system, is context specific, and therefore, these results might not be generalizable to other educational systems and languages. Child development varies across cultures, as does narrative competence (see Hickmann, 2004, for a discussion of this topic). From a cultural–linguistic comparative perspective, it would be interesting to explore how cohesion, coherence, and structure are affected by one's culture and/or language (Serratrice, 2007). We also wonder whether narrative writing performance might depend on the type of prompt that students receive. In the present study, we asked the children to write a narrative, whereas we could have just as well assigned them a topic, shown them a picture, or told them a narrative and asked them to retell it. Future research should untangle the role that the type of narrative might play in assessing narrative competencies.

Narrative competence is an important emergent literacy skill. Teachers and parents know the importance of reading for young children but tend to neglect the importance of emergent literacy skills related to writing (Watanabe & Hall-kenyon, 2011). The present study suggests the importance of practice in delivering oral narratives and the value of written composition independent of orthographic accuracy.

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## Appendix A: Narrative structure coding (from Spinillo & Pinto, 1994)

Level	Example
0	
1	A ball. A girl. Sunshine. A house
2	Once upon a time there was a cat, that met a girl and then it met also a little house and it went inside with the cat and they went to a school. The girl left the cat outside and then went in a gym. That is enough
3	Once upon a time there was a lady who had a frog. One day the frog became a prince and then the prince married her and then they lived happily ever after
4	Once upon a time there was a penguin. He was all on his own. He had no one in the whole world. He didn't have any friends. So he went out to find someone in the neighbourhood to be a friend. He found someone in the end. He found his friend! He went to his house with his friend and they played together all day long. and they lived happily ever after
5	Once upon a time there was a boy and he had a secret that no one could know about. One day he went to his friend's house and told him his secret. The secret was that he came from another planet which was very far from earth. His friends were worried because he did not know what to do. He did not know he they could stay friends after all. Then, he asked his mother and his mother said that it did not matter. So they became friends again and they lived happily ever after

## Appendix B: Examples of narratives of a single participant at the three points in time

### Kindergarten

*Once upon a time there was a child/who did not want to go to school/and then we he went to school/be was the janitor/who was doing something good/and then the child wanted to go to school* [33 words and 6 propositions; Cohesion: 4 connectives, Coherence: 1 incongruence; Structure: Level 2].

### First grade

*Once upon a time there was a very beautiful garden./Its gardener was very happy/but a witch arrived/and ruined his garden./But he replanted it/and put some traps/when the witch arrived/she fell into the mousetrap/and she escaped/and the gardener is happy* [48 words and 10 proposition; Cohesion: 2 connectives, Coherence: 2 incongruencies; Structure: Level 1].

### Second grade

*Once upon a time there was a boy/who had lost his parents./He only had 50 cents/be could not buy any food/so every day he was asking for charity/but no one gave him anything./So he decided to find food in the woods/and started walking/but a snake bite his foot./He did not have any medicine/and said:/I let it go./When he arrived/be saw an apple/and was going to get it/but a voice said/‘this is my apple/go away’./‘I leave’/and he left./After many kilometres he found an apple/but the poison made an effect/and he woke up./And said/‘What do I care about the apple/I have plenty of them in the fridge’.* [103 words and 26 propositions; Cohesion: 6 connectives, Coherence: 4 incongruencies; Structure: Level 4].