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The development and use of cohesive devices in L2 writing and their relations to judgments of essay quality



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ABSTRACT

An important topic in writing research has been the use of cohesive features. Much of this research has focused on local and text cohesion. The few studies that have studied global cohesion have been restricted to first language writing. This study investigates the development of local, global, and text cohesion in the writing of 57 s language (L2) university students and examines the effects of these cohesion types on judgments of L2 writing quality. Growth is observed in the use of a number of local, global, and text cohesive features across a semester-long upper-level English for Academic Purposes (EAP) course. Local, global, and text features also predicted whether an essay was written at the beginning or the end of the semester with an accuracy of 71%. In addition, the use of local, global, and text cohesive features explains 36% of the variance in human judgments of text cohesion and 42% of the variance in overall judgments of writing quality. This study has important implications for second language acquisition, writing development, and writing pedagogy.

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1. Introduction

The use and effects of cohesive devices in student writing has been of interest for some time (McCutchen & Perfetti, 1982; Witte & Faigley, 1981), but their impact on essay quality is unclear. For instance, the presence of local cohesive devices (i.e., devices related to sentence level cohesion such as connectives or word overlap between sentences) in writing produced by adult first language (L1) writers is often associated with judgments of lower writing quality (Crossley & McNamara, 2010, 2011; Evola, Mamer, & Lentz, 1980; McCulley, 1985). In contrast to L1 writing studies, a number of studies examining adult second language (L2) writing report positive correlations between the presence of local cohesive devices and writing quality (Jafarpur, 1991; Yang & Sun, 2012). There are several unexplored explanations for these differential findings.

One such explanation rests on differences in links between writing quality and the production of local cohesive devices, global cohesive devices (i.e., devices related to cohesion between larger chunks of texts such as word overlap between paragraphs in a text), and text cohesive devices (i.e., devices related to cohesion across an entire text such as the ratio of pronouns to nouns [givenness] and word repetition [lexical diversity] in the text). Recent computational studies have reported differences between local and global cohesive devices and their relation to writing quality for L1 writers, with local cohesion negatively related to writing quality and global cohesion positively related to writing quality (Crossley & McNamara, 2011; Crossley, Roscoe, McNamara, & Graesser, 2011). No studies, to our knowledge, however, have explicitly

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examined differences between local, global, and text cohesive devices in L2 writing. Understanding differences between these types of cohesive devices in L2 writing may help to better explain L2 writing proficiency and differing expectations for L2 writers on the part of expert raters.

Beyond examining the relations between cohesive devices and writing quality, there has also been an interest in investigating the longitudinal development of cohesive devices for both L1 learners (Bereiter & Scardamalia, 1987; Berninger, Fuller, & Whitaker, 1996; Hayes & Flower, 1980; Myhill, 2008) and L2 learners (Crossley, Salsbury, & McNamara, 2010a; Crossley, Salsbury, McNamara, & Jarvis, 2010; Yang & Sun, 2012). However, more research concerning the development of cohesive devices has been conducted for L1 writers than L2 writers resulting in a paucity of available information about cohesion development in L2 learners. To our knowledge, studies examining the development of local, global, and text cohesive devices in L2 learners are infrequent, and none of these links the development of these cohesive devices with judgments of writing quality.

This study addresses these gaps by examining the development of local, global, and text cohesive devices in L2 learners in conjunction with examining the relations such developments have on human judgments of writing quality (both judgments of overall writing proficiency and more fine-grained judgments of text coherence). Such an approach affords the opportunity to examine not only growth in the use of cohesive devices by L2 learners, but also links between such growth and expert judgments of essay quality. To do so, we use computational indices of local, global, and text cohesive devices to examine how the production of cohesive devices change over time in L2 writers (i.e., longitudinal growth¹) and how the use of cohesive devices are related to human ratings of L2 writing. The use of computational tools affords us the opportunity to investigate large corpora of texts for a greater number of cohesion indices, something that was not possible in past research.

1.1. Cohesion and coherence

An important distinction in cohesion studies is the difference between cohesion and coherence. Cohesion generally refers to the presence or absence of linguistic cues in the text that allow the reader to make connections between the ideas in the text. Generally these cues are local in nature, but they can also be based on global or text cohesion. Examples of local cohesion cues include overlapping words and concepts between sentences and explicit connectives such as *because*, *therefore*, and *consequently* (Halliday & Hasan, 1976). Examples of global cohesion cues include semantic and lexical overlap between paragraphs in a text (Foltz, 2007) such that words or ideas in one paragraph are repeated in subsequent paragraphs. In addition, cohesion can be measured at the text level (i.e., throughout an entire text). One example of this is *givenness* in which cohesion is measured across the text based on the number of words that are new (e.g., an initial noun referent) or given (noun referents that can be referred to pronominally). In general, global and text cohesion cues are more implicit than local cohesion cues. In contrast to cohesion, coherence refers to the understanding that the reader derives from the text (i.e., the coherence of the text in the mind of the reader). This coherence depends on a number of factors including cohesion cues and nonlinguistic factors such as prior knowledge and reading skill (McNamara, Kintsch, Songer, & Kintsch, 1996; O'Reilly & McNamara, 2007).

A number of studies have shown that cohesive devices are important indicators of text comprehensibility such that an increase in text cohesion generally leads to greater comprehension of a text (Crossley, Yang, & McNamara, 2014b; Gernsbacher, 1990; Crossley & McNamara, 2011). However, the facilitative effects for cohesive device are stronger for low-knowledge readers than high-knowledge readers (McNamara et al., 1996). In terms of the relation between cohesive devices and human judgments of coherence, the results are more nuanced. At least three studies have indicated that local and text cohesion are either not related or negatively related to human ratings of text coherence in both L1 and L2 writing (Bestgen, Lories, & Thewissen, 2010; Crossley & McNamara, 2010; Crossley & McNamara, 2011). In contrast, Crossley and McNamara (2011) reported that markers of global cohesion in L1 writing were positively related to expert judgments of text coherence. This finding is supported by L1 longitudinal studies that indicate that developing writers show advancements in their use of global cohesion by developing greater links between paragraphs (Bereiter & Scardamalia, 1987; Hayes & Flower, 1980).

1.2. Development in the use of cohesive devices: L1 and L2 learners

A number of studies have investigated the development of cohesive devices in L1 writers, but fewer have focused on L2 learners. For L1 writers, most studies have supported the notion that the use of cohesive devices increases as writers develop, especially in elementary and middle school. In general, as L1 writers develop, there is an increase in the use of cohesive devices to manipulate text level structures (Bereiter & Scardamalia, 1987). However, there are strong grade level effects for cohesion indicating that students at various levels use cohesive devices differently (Crowhurst, 1987; Fitzgerald & Spiegel, 1986; Yde & Spoelers, 1985). For instance, studies have shown that as early as the second grade, writers begin developing more cohesive writing through the use of local cohesion devices such as referential pronouns and connectives (King & Rentel, 1979). In addition, Rentel, King, Pettegrew, and Pappas (1983) reported an increase in lexical repetition across grades 1–4. These studies along with others demonstrate that for young writers, the distance between the ties used to create cohesion

¹ The notion of growth should be considered relative because, in many cases, growth is actually related to decreasing linguistic features. For instance, a decrease in frequent words over time would still indicate positive lexical development.

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