Assessing Writing 37 (2018) 39–56

Contents lists available at ScienceDirect

Assessing Writing

journal homepage: www.elsevier.com/locate/asw

Modeling second language writing quality: A structural equation investigation of lexical, syntactic, and cohesive features in source-based and independent writing

Minkyung Kim*, Scott A. Crossley

Department of Applied Linguistics and ESL, Georgia State University, Atlanta, GA 30302, USA

ARTICLE INFO

Keywords:
Second language writing
Structural equation modeling
Lexical sophistication
Syntactic complexity
Cohesion
Writing quality

ABSTRACT

This study develops a model of second language (L2) writing quality in the context of a standardized writing test (TOEFL iBT) using a structural equation modeling (SEM) approach. A corpus of 480 test-takers' responses to source-based and independent writing tasks was the basis for the model. Four latent variables were constructed: an L2 writing quality variable informed by scores of source-based and independent writing tasks, and lexical sophistication, syntactic complexity, and cohesion variables informed by lexical, syntactic, and cohesive features within the essays. The SEM analysis showed that an L2 writing quality model had a good fit, and was generalizable across writing prompts (with the exception of lexical features), gender, and learning contexts. The structural regression analysis indicated that 81.7% of the variance in L2 writing quality was explained by lexical decision reaction time scores ($\beta = 0.932$), lexical overlap between paragraphs ($\beta = 0.434$), and mean length of clauses via lexical decision reaction time scores ($\beta = 0.607$). These findings indicate that higher-rated essays tend to contain more sophisticated words that elicited longer response times in lexical decision tasks, greater lexical overlap between paragraphs, and longer clauses accompanying more sophisticated words. Implications for evaluating lexical, syntactic, and cohesive features in L2 writing are discussed.

1. Introduction

Writing is a process to creating meaning (Murray, 1980). To participate in writing as a meaning-making process, writers need to develop ideas linguistically and express ideas coherently (Grabe & Kaplan, 1996; Halliday & Hasan, 1976; Hayes, 1996). In second language (L2) writing, the role of language knowledge and how to use this knowledge in a linguistically and discoursally appropriate manner has a long history of research (Leki, Cumming, & Silva, 2008; Schoonen, van Gelderen, Stoel, Hulstijn, & de Glopper, 2011; Silva, 1993). Importantly, L2 writers' linguistic and discoursal production can impact judgments of writing quality (Crossley & McNamara, 2012; Grabe & Kaplan, 1996; Weigle, 2002), such that higher rated L2 essays generally contain more sophisticated lexical items (Kyle & Crossley, 2016), more complex grammar structure (Ortega, 2015), and greater text cohesion (Crossley, Kyle, & McNamara, 2016a).

In addition to language, another factor that is important for understanding and assessing L2 writing quality is task type (i.e., genres or discourse modes such as narration, description, exposition and argumentation). Previous research indicates that task types impact L2 writers' performance including composing processes (e.g., planning, drafting, and revising) and language commands (e.g., use of lexicon and syntax; Grabe & Kaplan, 1996; Leki et al., 2008; Plakans, 2008). For instance, Lu (2011) found that argumentative

* Corresponding author.
E-mail addresses: mkim89@gsu.edu (M. Kim), scrossley@gsu.edu (S.A. Crossley).

https://doi.org/10.1016/j.asw.2018.03.002
Received 18 July 2017; Received in revised form 24 February 2018; Accepted 10 March 2018
1075-2935/ © 2018 Elsevier Inc. All rights reserved.

writing tasks elicit more complex syntactic structures than narrative writing tasks. Furthermore, in academic writing, L2 writers tend to put more effort into online planning during drafting of source-based writing (i.e., writing that requires the integration of source materials), while they tend to put more effort into initial planning (before drafting) but less online planning for independent writing (i.e., writing that requires writers' personal experience and knowledge; Plakans, 2008).

Thus, previous research indicates that both language production and task type are important in investigating L2 writing quality. However, to our knowledge, no study has developed an L2 writing model that simultaneously considers relationships between L2 writing quality, and lexical, syntactic and cohesive features, and writing task types. In addition, many studies often assume that testing measures equally assess the same construct (e.g., writing quality) across different groups (e.g., female vs. male), but without evidence. To address these gaps, the purpose of the current study is two-fold. First, the study will investigate how structural equation modeling (SEM) can be used to develop a latent model of L2 writing quality based on holistic scores from two different writing tasks (i.e., source-based and independent writing tasks) as well as the lexical, syntactic, and cohesive features produced in the writing tasks. Second, the study will examine whether assessment of writing quality and language features can be operationalized equally across gender, learning contexts, and writing prompts. Exploring these questions can shed new light on the relationships between language use, task type, and L2 writing quality, which may inform applications in L2 writing assessment in general and computational L2 writing evaluation in particular.

2. Literature review

2.1. L2 writing quality

Writing quality has been defined as "the fit of a particular text to its context, which includes such factors as the writer's purpose, the discourse medium, and the audience's knowledge of an interest in the subject" (Witte & Faigley, 1981, p. 199). In assessment contexts, writing quality generally aligns with the fit of test-takers' essays to their assessment context, which is usually reflected by scoring rubrics. Scores are provided by expert raters and they are often numeric and/or quantifiable. For example, scoring rubrics for iBT TOEFL independent writing tests indicate that a higher quality writing sample (scored on 5-point scale) is represented by strong text organization, the appropriate use of explanations, coherence, and proficient language use.

Considerable attention has been drawn to assessing L2 writing quality (Crossley & McNamara, 2012; Crossley et al., 2016a; Guo, Crossley, & McNamara, 2013; Kyle, 2016; Yang, Lu, & Weigle, 2015). In general, higher proficiency L2 writers produce a higher quality writing sample. They are also likely to be higher proficiency L2 language users and have greater writing expertise in their first languages (L1s; Cumming, 1989; Weigle, 2002). L2 knowledge is particularly important in proficient L2 writing because it enables L2 writers to transform propositional ideas into verbal forms in the L2 (Grabe & Kaplan, 1996; Schoonen et al., 2011). According to Bachman and Palmer (1996), language knowledge (as found in both an L1 and an L2) consists of organizational knowledge (about how sentences and texts are organized) and pragmatic knowledge (about how sentences and texts are related to the communicative goals of the language user; pp. 67–70). Organizational knowledge, which is the focus of this study, includes two areas: grammatical knowledge (i.e., knowledge of vocabulary, syntax, and phonology) and textual knowledge (i.e., knowledge of cohesion and knowledge of rhetorical organization; Bachman & Palmer, 1996). Previous studies have reported that L2 writers with more grammatical knowledge (e.g., large vocabulary and mastery of various grammar structures) express their ideas more clearly and accurately (Schoonen et al., 2011), while L2 writers with more textual knowledge are more likely to connect longer stretches of ideas in a coherent manner (Crossley & McNamara, 2012).

To measure language knowledge in L2 writing, some scholars use independent measures of knowledge (e.g., vocabulary tests and phonological awareness tests; Schoonen et al., 2011), while others measure language features produced in written texts (e.g., frequency measures and syntactic complexity measures). While early studies measured language features manually (Wolfe-Quintero, Inagaki, & Kim, 1998), more recently, with the advent of natural language processing (NLP) tools, computational indices of language features can be computed quickly, flexibly, and reliably (Crossley, Kyle, & McNamara, 2016b; Kyle & Crossley, 2015; Lu, 2010). The availability of NLP tools has led to an increase in studies exploring links between L2 writing quality, language features, and measures of writing quality. In the next section, we provide an overview of previous research on the relations of L2 writing quality with the three types of language features commonly measured by NLP tools: lexical, syntactic, and cohesive features.

2.2. Lexical, syntactic, and cohesive features and L2 writing quality

2.2.1. Lexical sophistication and L2 writing quality

Lexical sophistication refers to use of advanced, sophisticated, and difficult words in written or spoken language output (Laufer & Nation, 1995). A traditional measure of lexical sophistication is associated with word frequency based on a large-scale corpus (i.e., reference-corpus frequency of words in a text; Kyle & Crossley, 2015). Low-frequency words (e.g., *consolidation*) are generally considered more advanced and sophisticated than high-frequency words (e.g., *together*). Beyond word frequency, different proxies for measuring 'sophisticated' vocabulary have been proposed: word range, age-of-acquisition (AoA) ratings, and word response times. Word range (i.e., the number of texts in which a word appears across a reference corpus; Kyle & Crossley, 2015) has been proposed because word range can reflect a word's distributional patterns across a reference corpus. AoA ratings (i.e., L1 speakers' mean estimates of the age at which they had learned words; Kuperman, Stadthagen-Gonzalez, & Brysbaert, 2012) have been suggested because word frequency and range are mainly based on materials for adult readers, and thus may not fully reflect the cumulative frequency (i.e., the degree to which people have encountered words through exposure from childhood). Word response times (i.e., the

Download English Version:

https://daneshyari.com/en/article/6831489

Download Persian Version:

https://daneshyari.com/article/6831489

Daneshyari.com