Language Learning & Technology
http://llt.msu.edu/issues/june2016/sotillo.pdf

June 2016, Volume 20, Number 2
pp. 166–171

AN UPDATE ON DISCOURSE FUNCTIONS AND SYNTACTIC COMPLEXITY IN SYNCHRONOUS AND ASYNCHRONOUS COMMUNICATION

Susana M. Sotillo, Montclair State University

The following commentary presents an overview of earlier studies of discourse functions and syntactic complexity as well as recent investigations that focus on interaction and measures of syntactic and lexical complexity in learners' output in traditional classrooms and computer-mediated environments. Recent studies emphasize the need for better measures that capture lexical and syntactic complexity as these relate to learners' development of academic writing, conversational competence, and pragmatic competence in digitally-mediated environments.

Language(s) Learned in this study: English

Keywords: Computer-mediated Communication, Writing, Vocabulary, Research Methods

APA Citation: Sotillo, S. M. (2016). An update on discourse functions and syntactic complexity in synchronous and asynchronous communication. *Language Learning & Technology*, *20*(2), 166–171. Retrieved from http://llt.msu.edu/issues/june2016/sotillo.pdf

Received: June 1, 2015; **Accepted:** October 30, 2015; **Published:** June 1, 2016

MOTIVATION AND STATE OF CALL TECHNOLOGY

The article I authored in 2000 was motivated by the innovative work of various scholars—among them Richard Kern (1995), Rafael Salaberry (1999), and Mark Warschauer (1996, 1997)—who were investigating the impact of a rapidly evolving Internet technology on the language learning process and oral and written production of English as a second language (ESL) and foreign language (FL) students. Also, the findings of interactionist second language acquisition (SLA) researchers investigating topics related to discourse functions in instructor–learner and learner–learner interaction in traditional ESL and FL classrooms informed this earlier study.

In the early part of the 21st century, the state of computer-assisted language learning (CALL) technology was limited to few choices in terms of platforms or software. For example, while designing and implementing the research project that focused on specific discourse functions and syntactic complexity in ESL learner output, we used Internet Relay Chat for the synchronous sessions and networked computers in a teaching laboratory for the asynchronous sessions (Sotillo, 2000). Students were assigned specific computer-mediated activities or tasks that encouraged oral and written learner output in the second language (L2). Saving and retrieving chat data in both synchronous and asynchronous modes was possible, but the chatware used at that time lacked the features included in current software for synchronous discussions via Skype or FaceTime using both iPhones and iPads. Sophisticated conferencing software in learning management systems (LMSs) such as Blackboard or Canvas was not available at that time in many institutions of higher education. Since 2010, most ESL and FL instructors and researchers in American higher education settings have been using LMSs such as Blackboard, Moodle, or Canvas. My institution recently adopted Canvas as their primary LMS, which I use extensively to teach online and hybrid courses to students majoring in linguistics.

In order to measure syntactic complexity, I used the methodology and tools that had been embraced by SLA and FL researchers in the early 1970s and throughout the 1990s (e.g., Chun, 1994; Larsen-Freeman & Strom, 1977; O'Donnell, 1976; Polio, 1997). As a measure of grammatical and syntactic complexity,

SLA researchers had adopted the *minimal terminable unit* or *T-unit* used in first language acquisition studies that had been defined as a main clause and all associated dependent clauses (Hunt, 1965). The T-unit, mean length of T-units, and clauses per T-unit were measures adopted by SLA researchers investigating the development of L2 writing skills and learners' overall proficiency in the target language. Despite criticism of the use of the T-unit and clauses in assessing syntactic complexity, these were used in the 2000 study because they were easily identifiable by team members analyzing learner samples and constituted low-level inference categories. The general assumption at the time was that longer units and more subordination reflected greater complexity. These and related measures continued to be used as syntactic complexity measures to gauge their relationship to L2 proficiency by scholars in extensive surveys of L2 writing research (Wolfe-Quintero, Inagaki, & Kim, 1998), meta-analyses of empirical research on grammatical complexity (Ortega, 2003), and corpus-based analyses measuring college-level ESL writers' language development (Lu, 2011).

The assumptions concerning T-units and clausal subordination were challenged by Biber, Gray, and Poonpon (2011) who conducted corpus-based analyses of 28 grammatical features in academic research articles contrasted with face-to-face conversations. Their findings showed that measures of clausal subordination describe only one kind of complexity and that the T-unit is primarily a measure designed to capture the extent to which an L1 or L2 writer uses dependent clauses. Empirical evidence is presented for the claim that clausal subordination is more common in conversation than in academic writing, and that non-clausal features embedded in noun phrases represent "the most important kinds of complexity devices in academic writing" (p.32).

This challenge to established measurements of syntactic complexity has only recently been addressed by some SLA researchers such as Parkinson & Musgrave (2014), who used phrasal complexity measures to investigate the writing of advanced learners (undergraduate and graduate university students). Phrasal complexity as an additional means of assessing advanced L2 proficiency was first introduced by Norris and Ortega (2009). More recently, following an intensive four-week program, Mazgutova and Kormos (2015) reported changes in syntactic structure, conditionals, and relative clauses in the writing of two groups of learners with different degrees of proficiency. However, growth in phrasal elaboration measures which include modification of nouns via adjective and prepositional phrases, complex nominals in subject position, and multiple modifiers of a noun were found primarily among lower-proficiency L2 writers. Following this new strand of research, Kreyer and Schaub (2015) undertook an empirical, corpus-based study of the acquisition of phrasal complexity in intermediate learner language based on the Marburg corpus of intermediate learner English, a longitudinal corpus of written exam texts produced by German learners of English from grades 9 through 12. The findings obtained were mixed as lexical sophistication varied considerably among students. The findings also showed that task description has an effect on performance. Since Biber et al. (2011) used expert academic writers' samples, the model put forth may be simplistic in Kreyer and Schaub's view in that it leaves out aspects that go beyond grammar such as students' ability to synthesize information and produce coherent and cohesive academic texts. Also, since the model by Biber et al. is based on the output of expert writers, it is a level of writing competence seldom achieved by many native and nonnative speakers of a target language. Many proficient speaker-writers of an L2 produce error-free essays and reports required in most work environments, but rarely adopt the writing model of expert academic writers.

CONTRIBUTION AND IMPACT

With respect to the intellectual and practical contributions of my 2000 article, studies by young scholars pursuing a similar type of research in the United States and abroad were informed by my research design and findings. This motivated them to include new measures or approaches that would capture syntactic complexity and the value of computer-mediated interaction among L2 or FL learners (e.g., Evnitskaya, 2008). As of this writing, my 2000 *Language Learning & Technology* article has been cited 516 times.

The contributions to CALL theory have been modestly significant in that SLA and FL researchers utilizing the newest technologies continue to be interested in investigating the multifaceted syntactic complexity construct and the impact of computer-mediated communication (CMC) on overall L2 language development. Numerous CALL researchers have shown that the newest technologies used in ESL and FL classrooms along with theoretically motivated learning tasks encourage learners to experiment with new linguistic structures and discourse features that facilitate the process of language acquisition and restructuring.

STUDY LIMITATIONS

The small number of students participating in my 2000 study, the intact nature of these classes, the lack of randomness in group assignment, the different teacher personalities, and the different manners of intervention limited the generalizability of findings to other ESL student populations. At that time, I was unaware of the growing field of corpus linguistics in Europe and the United States. Researchers in linguistics and language teaching were creating large databases of learner corpora such as the Louvain Corpus of Native English Essays (Granger, 1996). Guidelines were established by prominent corpus linguists for the creation of learner corpora that ensured the systematic collection and representativeness of such texts as well as the random selection of texts for data analysis (e.g., Biber, Conrad, & Reppen, 1998; Granger, 1996, 2002; McEnery, Xiao, & Tono, 2006). In 2003, my colleagues Eileen Fitzpatrick and Steve Seegmiller took on the task of creating a multilevel learner corpus that included learners from five different language groups. This is an ongoing project.

My interests in corpus linguistics and corpus compilation for linguistic analysis have given me a new perspective with respect to the analysis of syntactic complexity and discourse functions in L2 learner samples obtained from CMC learning environments. The consensus among scholars seems to be that in order to investigate syntactic complexity, it is necessary to look at key developmental measures of fluency, accuracy, and complexity at various proficiency levels. Researchers also need to be aware that the final stage in mature academic writing identified by Biber et al. (2011) requires dense use of non-clausal or phrasal dependent structures or constituents in noun phrases.

In a recent study using Multidimensional Analysis, Biber, Gray & Staples (2014) conclude that more reliable and informative results are obtained based on dimensions of co-occurring lexico-grammatical features. Thus, taking into consideration key developmental measures and the final stage of academic writing, it is necessary that researchers investigating syntactic complexity have access to very large learner corpora of different L1 backgrounds and multiple levels of proficiency. Learner corpora of different writing genres and spoken texts are now available to researchers at Université Catholique de Louvain. Had I been aware of the existence of systematically compiled learner corpora, I would have used randomly selected texts from advanced learners who were instructed in computer-mediated environments and who also possessed similar demographic characteristics to those of the ESL population that formed part of my study. I would also have used tools from corpus linguistics (software and algorithms) to analyze learner written output at the lexical, morphological, syntactic, pragmatic, and discourse levels. It is possible that such analyses would have revealed that complexity is not a single unified construct and that holistic complexity measures are needed to investigate the development of advanced levels of L2 writing proficiency.

Given all these tools at our disposal, it seems reasonable to expect SLA and FL researchers to undertake longitudinal studies of written texts produced by ESL, EFL, and FL students. This should be part of any new research agenda that focuses on proficiency levels, learners' first language, and their relationship to language learners' writing development.

NEW DEVELOPMENTS

In the last ten years, significant advances in syntactic complexity have been made by scholars investigating the relationship between various syntactic or lexical complexity measures and the language development of learners, and between syntactic complexity and the development of conversational and pragmatic competence in computer-mediated environments (e.g., Kreyer & Schaub, 2015; Lazarte & Barry, 2008; Lu, 2011, 2012; Mazgutova & Kormos, 2015; Parkinson & Musgrave, 2014; Sherratt, 2007; Vyatkina, 2012). From a CALL and CMC perspective, a computational method used to analyze L2 learner writing corpora as proposed by Lu (2011) opens the door for a large-scale investigation into particularized language learner groups and lengthy CMC discourse analysis, whether synchronous or asynchronous. Also, a recent study by Lu and Ai (2015) demonstrates that, in addition to proficiency levels, the L1 background of college-level L2 writers must be taken into consideration in the design of syntactic complexity measures.

FUTURE NEEDS

Given the challenge posed by Biber et al. (2011) for better measures that capture the complexities found in professional academic writing for the empirical study of complexity in student writing development, and the role of task types and proficiency levels (Biber et al., 2014), we need investigations that use both qualitative and quantitative methods of analysis that would help us visualize what factors account for successful writing development in ESL and FL traditional and computer-mediated environments. As Ortega (2015) points out in a recent review of syntactic complexity in L2 writing, the use of learner corpora, more complex designs, carefully stipulated parameters, and powerful statistics will yield a more refined understanding of how to measure syntactic complexity.

After years of teaching native and nonnative undergraduate and graduate students, I have observed that one of the most important skills successful native and nonnative academic writers gradually acquire is the ability to synthesize vast amounts of information and present coherent and cohesive arguments to persuade their reader audience. This needs to be addressed in future studies of syntactic and lexical complexity that aim to measure development in writing and speaking in academic settings. Likewise, studies of discourse functions that account for successful interaction in a variety of institutional settings—the workplace, government offices, hospitals, classrooms—are needed in this and related fields such as intercultural communication.

Pursuing this new line of research will lead to a more nuanced view of syntactic and lexical complexity in the gradual development of L2 and FL writing skills. Instruction and interaction affect learners' progress since these take place in a variety of settings—the traditional classroom that requires face-to-face interaction and computer-mediated environments where interaction among students and between teacher and students is strongly encouraged. All these factors would need to be included in future studies of L2 learners' language development.

ABOUT THE AUTHOR

Susana M. Sotillo teaches undergraduate and graduate courses in linguistics, mobile language communication, and language and culture at Montclair State University. She has taught online and hybrid courses and is currently investigating code-switching in digitally-mediated discourse and as a learning strategy in the foreign language classroom. Her interests also encompass the fields of corpus linguistics and SLA.

E-mail: sotillos@mail.montclair.edu

REFERENCES

Biber, D., Conrad, S., & Reppen, R. (1998). *Corpus linguistics: Investigating language structure and use*. Cambridge, UK: Cambridge University Press.

Biber, D., Gray, B., & Poonpon, K. (2011). Should we use characteristics of conversation to measure grammatical complexity in L2 writing development? *TESOL Quarterly*, *45*(1), 48–59.

Biber, D., Gray, B., & Staples, S. (2014). Predicting patterns of grammatical complexity across language exam task types and proficiency levels. *Applied Linguistics* Advance online publication. doi: 10.1093/applin/amu059

Chun. D. (1994). Using computer networking to facilitate the acquisition of interactive competence. *System*, *22*, 17–31.

Evnitskaya, N. (2008). *Analyzing complexity in foreign language monologic oral production in a CLIL context.* (Unpublished master's thesis). Universitat Autònoma de Barcelona, Barcelona, Spain.

Granger, S. (1996). From CA to CIA and back: An integrated approach to computerized bilingual and learner corpora. In K. Aijmer, B. Altenberg, & M. Johansson (Eds.), *Languages in contrast: Papers from a symposium on text-based cross-linguistic studies, Lund 4-5 March 1994* (pp. 37–51). Lund, Sweden: Lund University Press.

Granger, S. (2002). A bird's eye view of learner corpus research. In S. Granger, J. Hung, & S. Petch-Tyson (Eds.), *Computer learner corpora, second language acquisition and foreign language teaching* (pp. 3–33). Philadelphia, PA: John Benjamins.

Hunt, K. W. (1965). *Grammatical structures written at three grade levels*. Champaign, IL: National Council of Teachers of English.

Kern, R. (1995). Restructuring classroom interaction with networked computers: Effects on quantity and quality of language production. *Modern Language Journal, 79*, 457–476.

Kreyer, R., & Schaub, S. (2015). *Acquisition of phrasal complexity in written intermediate learner language: A case study of NP complexity in German learners of English.* Paper presented at ICAME 36, Trier, Germany.

Larsen-Freeman, D., & Strom, V. (1977). The construction of a second language acquisition index of development. *Language Learning*, *27*(1), 123–134.

Lazarte, A. A., & Barry, S. (2008). Syntactic complexity and L2 academic immersion effects on readers' recall and pausing strategies for English and Spanish texts. *Language Learning*, *58*(4), 785–834.

Lu, X. (2011). A corpus-based evaluation of syntactic complexity measures as indices of college-level ESL writer's language development. *TESOL Quarterly*, *45*, 36–62.

Lu, X. (2012). The relationship of lexical richness to the quality of ESL learners' oral narratives. *Modern Language Journal*, *96*, 290–208.

Lu, X., & Ai, H. (2015). Syntactic complexity in college-level English writing: Differences among writers with diverse L1 backgrounds. *Journal of Second Language Writing*, *29*, 16–27.

Mazgutova, D., & Kormos, J. (2015). Syntactic and lexical development in an intensive English for academic purposes programme. *Journal of Second Language Writing*, *29*, 3–15.

McEnery, T., Xiao, R., & Tono, Y. (2006). *Corpus-based language studies: An advanced resource book*. New York, NY: Routledge.

Norris, J. M., & Ortega, L. (2009). Towards an organic approach to investigating CAF in SLA: The case of complexity. *Applied Linguistics*, *30*, 555–578.

O'Donnell, R. (1976). A critique of some indices of syntactic maturity. *Research in the Teaching of English*, *10*, 31–38.

Ortega, L. (2003). Syntactic complexity measures and their relationship to L2 proficiency: A research synthesis of college-level L2 writing. *Applied Linguistics*, *24*(4), 492–518.

Ortega, L. (2015). Syntactic complexity in L2 writing: Progress and expansion. *Journal of Second Language Writing*, *29*, 82–94.

Parkinson, J., & Musgrave, J. (2014). Development of noun phrase complexity in the writing of English for Academic Purposes students. *Journal of English for Academic Purposes*, *14*(2), 48–59.

Polio, C. G. (1997). Measures of linguistic accuracy in second language writing research. *Language Learning*, *47*(1), 101–143.

Salaberry, M. R. (1999). CALL in the year 2000: Still developing the research agenda. *Language Learning & Technology*, *3*(1), 104–107. Retrieved from http://llt.msu.edu/vol3num1/comment/index.html

Sherratt, S. (2007). Multi-level discourse analysis: A feasible approach. *Aphasiology*, *21*(3/4), 375–393.

Sotillo, S. M. (2000). Discourse functions and syntactic complexity in synchronous and asynchronous communication. *Language Learning & Technology*, *4*(1), 82–119. Retrieved from http://llt.msu.edu/vol4num1/sotillo/default.html

Vyatkina, N. (2012). The Development of Second Language Writing complexity in groups and individuals: A longitudinal learner corpus study. *Modern Language Journal*, *96*(4), 576–598.

Warschauer, M. (1996). Comparing face-to-face and electronic communication in the second language classroom. *CALICO Journal*, *13*, 7–26.

Warschauer, M. (1997). Computer-mediated collaborative learning: Theory and practice. *Modern Language Journal*, *81*(4), 470–481.

Wolfe-Quintero, K., Inagaki, S., & Kim, H.-Y. (1998). *Second language development in writing: Measures of fluency, accuracy, and complexity*. Honolulu, HI: Second Language Teaching & Curriculum Center, University of Hawai'i.