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Assessing the Development of Linguistic Complexity in ESL Speech: A Consideration of Length, Subordination, and Structural Measures

Second-language (L2) researchers have often used length measures (e.g., words per sentence) to calculate linguistic complexity in language performance. Utterances of equal length, however, may be structurally very different. Linguistic complexity and language development may require “a wide range of different structures” (Ellis & Barkhuizen, 2005: 139). L1 researchers have used developmental orders, but such measures have not yet been widely employed in L2 research despite the call for “developmentally sensitive and interlanguage-based measures that tap complexity defined as structural variety, sophistication, and acquisitional timing” (Norris & Ortega, 2009: 574).

To compare the usefulness of various compositional and structural complexity measures, this paper examines the development of linguistic complexity in topic-based speeches of 66 L2 learners of English (L1s: Arabic, Chinese, Korean) over three academic semesters in an intensive English program. The two-minute speeches ($n = 294$) were coded for three oft-recommended measures of compositional complexity (clause length, AS-unit length, and subordination-finite clauses/AS-unit) and three innovative measures of structural complexity (syntactic variety, weighted complexity, and frequency of nonfinite clauses). Syntactic variety was calculated as percentage of different clause types in the speech. Weighted complexity was coded considering structural relations and L2 oral production order. Non-finite clauses, a developmentally-significant clause type (Vercellotti & Packer, 2016), which is complementary to the subordination ratio, was included as a potential proxy measure for structural complexity. All measures were analyzed using hierarchical linear modeling to capture growth over time and to identify variation in the data.

The results revealed that each measure, each capturing distinct aspects of complexity, showed growth over time. These findings support a ‘connected’ and ‘supportive’ rather than competitive theory of development (Spoelman & Verspoor, 2010) and supports the view of language as a complex system interrelated system where development does not necessarily hinder growth in another (de Bot, 2008), even closely related subsystems within the construct of complexity as was examined in this study. As would be expected with language learning performance, there was substantial variation. The findings revealed remaining variation in different parts of the models for different measures, suggesting that the measures capture separate aspects of this multifaceted construct. Specifically, the subordination measure captured growth and initial variation in these data without any remaining statistically significant variation. Given that L2 researchers likely want to use practical measures that capture the variation between individuals and across development, this subordination measure might perform well as a broad measure of complexity in general language performance studies; yet, as measure of a specific type of complexity, this subordination measure may be limited to instructed learners or to longitudinal studies with larger changes in proficiency. Further, both the subordination measure (finite clauses/AS-units) and frequency of nonfinite clause increased with increasing proficiency; there was no trade-off effects across development between these types of clausal complexification.

Overall, this paper advances our understanding of this most complex construct of language performance, and informs research methodology with a comparison of six syntactic complexity measures, assessing both productive and structural complexity, with longitudinal oral L2 data.

References

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