MEASURING LANGUAGE PERFORMANCE: COMPLEXITY, ACCURACY AND FLUENCY MEASURES

Laurence Craven
American University of Sharjah

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There have been demands for ways to gauge second language development, apart from using standardized proficiency tests, from many stakeholders over the past fifty years. The measures that have become common in the literature are; complexity, accuracy and fluency (CAF) measures. CAF represent three dimensions of L2 production and performance and have been a thriving area of research in second language acquisition and applied linguistics since the 1990s. CAF do not constitute a theory or a research program in themselves (Pallotti, 2009); however, CAF research is of value to L2 language teachers as they can use the research findings to improve their practice and their students' language performance. CAF measures, however, are a controversial topic. The definitions of CAF are still varied and many questions remain, including how CAF should be defined and measured. CAF are extremely useful ways of measuring language performance, but due to the controversies regarding CAF research, it has been argued that CAF is still a relatively new discipline that needs further work. This descriptive presentation will explore the history of CAF, review key studies and most importantly point out the issues and problems relating to CAF that make it a very lively and interesting area of second language acquisition research. The presentation will conclude with some possible suggestions for ways of improving future CAF research.

Complexity, accuracy, and fluency (CAF) have become major research variables in second language acquisition research. CAF are used as performance descriptors for oral and written assessments of language and have also been used for measuring progress in language learning for the past few decades as an alternative to using standardized proficiency tests (Housen and Kuiken, 2009).

History of CAF Research

A review of the literature shows that the research on CAF started in the 1980s when a distinction was made between fluent and accurate language use. Complexity began to appear in the literature in the 1990s. Skehan (1988) proposed a model that included CAF as the three principal proficiency dimensions. Over the past decade, CAF have become common place in the literature and are a flourishing research area. CAF usually appear in the literature as dependent variables and there are numerous studies that look at the effects of corrective feedback, task complexity or planning time on CAF.

Definitions

The definitions of CAF are still controversial and many questions remain, including how CAF should be defined as constructs and the overall issue of construct validity. Moreover, various definitions and interpretations coexist and deciding which one to use proves to be problematic for researchers.

Accuracy is usually regarded as the simplest construct of CAF and refers to the degree of conformity to certain language usage norms, primarily in the areas of lexicon and grammar. Wolfe-Quintero et al. (1998) define accuracy as 'the conformity of second language knowledge to target language norms' (p. 4). Housen and Kuiken. defined accuracy as 'the extent to which an L2 performance deviates from a norm' (2009, p.4).

Fluency refers to a person's general language proficiency. Lennon (1990) defined fluency as language proficiency that is particularly characterized by perceptions of ease and smoothness of speech or writing. According to Tavakoli and Skehan (2005), fluency can be further broken down into the following: speed fluency, breakdown fluency and repair fluency. It has also been defined by Skehan (2009) as 'the capacity to produce speech at normal rate and without interruption' (p.511). And as 'the production of language in real time without undue pausing or hesitation' by Ellis and Barkhuizen (2005, p.139).

Complexity is usually viewed as being the most controversial of the three proficiency measures. Complexity has been generally defined as the use of more challenging and difficult language. Ellis & Barkhuizen (2005) define complexity "as the extent to which learners produce elaborated language "(p.139). Wolfe‐Quintero, Inagaki, & Kim (1998) define complexity as "a wide variety of both basic and sophisticated structures and words are available to the learner" (p.69). Skehan (2009) defines complexity as 'challenging language' and Ellis (2008) defines complexity as 'the capacity to use more advanced language'.

Issues

The major issue relating to CAF are the varying definitions of the three CAF constructs. Many studies that investigate CAF do not explicitly define what they mean by the terms 'complexity, accuracy and fluency. Since CAF can be measured in various ways, a definition and explanation of the way they were measured is of paramount importance when explaining the methodology of a study; however, there are studies where this is not done. As CAF measurements are often measured differently across studies, Housen & Kuiken (2009) argue that this limits the interpretation and comparability of CAF findings and suggest that this could be a reason for inconsistent findings in CAF studies.

As well as issues regarding construct validity and definition, researchers have also pointed out that CAF also have another problem; the way they have been measured across studies. Wolfe-Quintero et al. (1998) concluded that for fluency, the best measures appear to be T-unit (minimally terminable unit) length, error-free T-unit length, and clause length. Other ways accuracy has been measured by researchers are; the number of error-free T-units, error-free T-units per T-unit, and errors per T-unit. Syntactic complexity has been measured as clauses per T-unit, number of dependent clauses per total clauses, or number of dependent clauses per T-unit. Other researchers, however, use different measures when conducting research on CAF. Even today, CAF still lack suitable measures that are used by all researchers. Ellis (2008) also pointed out that that in many CAF studies, there is a clear lack of consistency in terms of how complexity, accuracy and fluency have been operationalised and assessed in empirical studies. Wolfe‐Quintero et al. in 1998 had already pointed out that procedures for evaluating CAF covered a wide spectrum of methods in applied linguistics. Norris & Ortega (2009) note that another important issue is whether general or more specific measures of CAF are more appropriate and that there have recently been renewed calls by some for finer‐grained analyses of CAF. Norris and Ortega (2009) also comment on the interdependence of CAF and how they exist in an organic relationship, they thus argue that it is problematic to measure fluency solely through length measures.

Conclusion

CAF are extremely useful ways of measuring language performance, but due to the controversies regarding CAF research it can be seen that CAF is still a relatively new discipline. Larsen-Freedman (2010) thus proposes looking at CAF research from a dynamic or complex systems or chaos/complexity theory. Moreover, Pallotti (2009) recommends that adequacy should be added to CAF. Most researchers agree that using different definitions and ways of measuring CAF are an area that researchers need to tackle. Coming up with standardized definitions and ways to measure CAF is a possible move forward. In order to apply them though, it is first necessary to clearly define underlying constructs, so that each measure or group of measures refer to a well-identifiable construct (Pallotti, 2009). By doing this, the results of CAF research will be more generalizable and practitioners will be more likely to be able to apply the research findings to their practice to improve their students' language performance.

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