Defining and measuring L2 Fluency

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Abstract

The term fluency has been used interchangeably amongst English language teachers as well as researchers, and as a result, various definitions have been put forward along with varying measures to assess it. This paper reviews research to define fluency in terms of speaking English as a foreign language. It also looks at how fluency can be measured in order for teachers to be able to accurately assess L2 oral performance and proficiency, and what potential issues this may cause for L2 oral testing.

Key words: fluency, pausing, multifaceted, online processing

1. Introduction

The term fluency is often used by English language teachers and researchers as an indicator of how well learners can speak English as a foreign language. Fluency is an aspect of L2 speech that has been measured extensively in English language tests and within second language acquisition (SLA) research as a means to assess L2 oral performance, proficiency and acquisition (Housen et al., 2012). But what do we really mean by the term, as an aspect of L2 speech? Housen et al. (2012) report that many studies which have tested L2 fluency define the term in a vague and general manner. This has resulted in numerous definitions being put forward to describe the construct and is one of the reasons why there have been inconsistent results with fluency measures in terms of SLA research. Consequently, fluency can result in different interpretations amongst English language teachers that could result in uneven evaluations regarding students' L2 oral proficiency and performance in English tests.

This paper therefore begins by reviewing and critiquing various definitions that concern fluency before outlining a definition that could be used at the tertiary level in Japan. This is followed by a review of the measures related to fluency and concludes by showing how fluency can be accurately measured for the purpose of assessing L2 oral performance and proficiency.

2. Defining Fluency

Due to its multifaceted nature, fluency is a difficult and problematic term to define. Various definitions have been used to describe the construct. One of the earliest studies to investigate fluency was Fillmore (1979) who outlined four ways in which a person could be considered fluent:

1. Talking without using many pauses
2. Talking in a coherent manner
3. The ability to talk on a wide range of topics
4. The ability to use language in a creative manner

Although the above points attempt to describe the multidimensional nature of fluency, for example the ability to speak without pausing or having the ability to speak about different topics, it is unclear which of them relates more towards L2 fluency, that is, the ability to speak in a foreign or second language. Is talking with fewer pauses a more accurate indication of L2 fluency compared to being able to talk coherently? Furthermore, the above points are vague and open to interpretation. 'Talking coherently' for example, could either relate to the content of speech that is considered logical or how the interlocutor is speaking in terms of pronunciation and articulation, or both content and articulation. Talking without using many pauses is also problematic as it can be perfectly natural to pause a lot in certain contexts, for example, during a group discussion. In addition, a person could pause a lot to think of what to say but still produce short bursts of speech that would be considered fluent.

Ellis & Barkhuizen (2005) provide a narrower definition of fluency as 'the production of language in real time without undue pausing or hesitation' (p. 139). Thus, fluency can be seen as the ability to speak in the L2 under natural speaking conditions, which for L2 learners, generally relates to the ability to speak spontaneously without relying on time to plan what they want to say. Ellis & Barkhuizen's (2005) definition also involves being able to speak without undue pausing. As discussed, for native speakers, it could be perfectly natural to pause when speaking, but for L2 speakers too many pauses or hesitations could imply difficulty using the L2 and hence show a lack of fluency. On the other hand, it might not, for example, what constitutes an undue pause? How can we distinguish undue pauses and hesitations with L2 fluency from other personal and social factors that cause pausing but are not related to L2 proficiency? For example, a learner may have a fluent command of the L2 but may pause a lot during a performance because he/she might be feeling tired or shy. Krashen and Terrell's (1983) affective filter theory claims that language learning is most successful when learners have low affective filters and are emotionally stable. Fluent performance may therefore occur best when learners have low levels of anxiety as fluency can be disrupted by stress which could mask a learner's proficiency of the L2.

Tavakoli & Skehan (2005) suggest that undue pausing can be assessed by using breakdown fluency measures that involve the number and length of pauses. 'There is, though, some disagreement regarding the minimum length for a pause to be counted as a pause, with proposals as low as .25 of a second' (p. 254). Other studies such as Freed (2000) (cited in Tavakoli & Skehan, 2005) measured fluency using unfilled pauses that were classified as disfluent if they lasted 0.4 seconds or longer. It seems disagreements would always exist regarding what constitutes the

minimum length of a pause depending on the context.

According to Skehan & Foster (1999), fluency is 'the capacity to use language in real time, to emphasize meanings, possibly drawing on more lexicalized systems' (p. 96). This is a similar definition to Ellis & Barkuizen (2005) in that fluency relates to the ability to produce language spontaneously but with an emphasis on expressing meaning. However, it could be argued that a fluent L2 speaker has the capacity to emphasize meaning as well as form, for example, expressing an opinion without making a mistake. This leads us to Lennon's (2000) definition of fluency which represents 'the rapid, smooth, accurate, lucid, and efficient translation of thought or communicative intention into language under the temporal constraints of on-line processing' (p. 26). This definition goes beyond the ability to speak under natural time constraints to also include accuracy as an indicator of fluency. Lennon (2000) adds that fluency is not only restricted to the productive skill of speaking but it also applies to writing as well as the receptive skills of listening and reading. Consequently, those who cannot understand speech could be interpreted as not having fluent receptive skills.

As we can see, fluency is a multidimensional construct (Housen et al., 2012), and as a result, it is difficult to define. After reviewing various definitions and discussing the limitations of them, it is perhaps best to synthesize the above terms into a working definition. Although Kormos & Denes (2004) note that in terms of L2 oral fluency, Lennon's (2000) definition successfully combines the strengths of previous ones. Consequently, this paper argues that Lennon's (2000) definition can be used as a reliable and accurate term as, 'the rapid, smooth, accurate, lucid, and efficient translation of thought or communicative intention into language under the temporal constraints of on-line processing' (p. 26). As this definition combines several aspects of fluency, each one will now be summarized:

1. 'rapid' concerns the speed of L2 delivery i.e. the ability produce speech in real-time speaking conditions that do not involve conscious planning time, as outlined earlier in Ellis & Barkhuizen (2005).

2. 'smooth' could relate to the use of formulaic language which enables the learner to produce 'chunks' of language such as communicative functions (for example, *'Good afternoon'* which are easy and fast to produce for L2 learners (Kormos, 2011).

3. 'lucid' relates to the ability to produce L2 speech which is understandable to others. Lucid speech can relate to pronunciation and intonation. Other factors that could relate to lucid speech may include grammatical accuracy.

4. 'efficient translation of thought or communicative intention into language' refers to the process of L2 speech production. Kormos (2011) points out that learners usually do not have automatized L2 knowledge, in other words, it may take time for L2 learners to produce what they want to say. However, fluency is the ability to process thoughts efficiently in order to produce L2 speech without time delays.

5. 'temporal constraints of on-line processing' refers to the ability to produce language under the natural time constraints of everyday speech, which typically does not involve planning time. Thus, fluent L2 learners can produce speech 'online' which as mentioned in point 4 requires efficient processing of communicative messages.

Although this definition may still be limited in terms additional aspects of oral fluency that may not be accounted for, it does appear to cover all the main areas that have been discussed, and which can be measured. The following section discusses fluency measures in more detail before outlining measures that could be used for assessing L2 oral performance at the tertiary level in Japan, and that reflect Lennon's (2000) definition.

3. Measuring Fluency

Due to the problematic nature of defining fluency, operationalising the construct is also a complex matter. Not surprisingly then, fluency has been measured in different ways. Tavakoli & Skehan (2005) outline three main types of measures: temporal or speech rate measures, for example, number of syllables per minute. There are also fluency breakdown measures discussed earlier such as number of pauses. Finally, measures relating to repair fluency, for example, number of false starts, or repetitions. Table 1 provides an illustration of the measures used in SLA research to date.

Table 1

Measures for assessing fluency (adapted from Ellis, 2005, p. 32)

Type of Measure		Description	Study
Fluency	Speech rate	The number of syllables produced per minute of speech	Kawauchi (2005), Sanguran (2005), Yuan & Ellis (2003), Mochizuki & Ortega (2008), Mehnert (1998)
	Breakdown fluency	The ratio between number of words reformulated and total words produced	Yuan & Ellis (2003), Skehan & Foster (1999)
		Total silence	Skehan & Foster (1999)
		Number of pauses greater than 1 second	Tavokoli & Skehan (2005)
		Number of filled pauses	Mehnert (1998)
	Repair fluency	Number of repetitions	Kawauchi (2005)

As with defining fluency, measures relating to the construct also appear to have weaknesses. For example, speech rate measures such as 'syllables per minute' could prove problematic as an

indication of L2 proficiency because syllables could include L1 use. Furthermore, a learner could repeatedly use the same words again thus sounding incoherent yet would appear to be fluent due to the amount of syllables produced. In addition, breakdown fluency measures that were discussed earlier have weaknesses as pausing for more than one second may not reflect disfluency, for example narrating a story often requires pausing as a means to signal a change of topic. As a result of these issues, as well as considering Lennon's (2000) definition, the following measure from Levkina & Gilabert (2010) is recommended as 'pruned speech rate' which relates to 'the average number of syllables produced per minute of pruned speech, i.e. speech from which repetitions, false starts and other performance features have been excluded' (p. 182). This pruned speech rate measure is considered to be a suitable reflection of Lennon's (2000) definition of fluency for the following reasons:

1. Syllables per minute is a speech rate measure which 'deals with the speed with which language is produced' (Tavakoli & Skehan, 2005, p. 254). As a result, it represents the 'rapid' aspect of Lennon's (2000) fluency definition from point 1 above as we can measure how fast learners produce L2 speech. This measure could also calculate the 'smooth' use of formulaic language from point 2 above by counting the syllables of 'chunked language' produced per minute.

2. Excluding 'repetitions, false starts and other performance features' (Levkina & Gilabert, 2010, p. 182) helps to ensure that the language measured represents the definition from point 4 'efficient translation of thought or communicative intention into language' (Lennon, 2000, p. 26) as we are only interested in analysing L2 language intended by the speaker. Thus, 'other performance features' could relate to irrelevant language such as L1 use, self-corrections and incomprehensible language. In doing so, the elimination of these features would reflect 'lucid' language from point 3 of Lennon's (2000) definition that is understandable.

Finally, in order to measure fluency in terms of point 5 of Lennon's (2000) definition: 'under the temporal constraints of on-line processing' (p.26) requires a measurement of assessment as opposed to a measurement of speech production. In other words, in order to assess learners' fluency under the constraints of on-line processing would require conditions that do not allow for planning time. For example, asking a learner to narrate a story without having the opportunity to plan what to say would require the learner to produce speech spontaneously. Consequently, in order to accurately assess learners' L2 fluency according to Lennon's (2000) definition would necessitate English oral tests to not include planning time. Learners should not be permitted to have prior knowledge of test content in order to test their fluency under the constraints of on-line processing.

4. Conclusion and implications

The purpose of this paper was to review and clarify a suitable definition of L2 fluency and identify measures that could be used to assess learners' L2 speech performance at the university

level in Japan. Lennon's (2000) definition does appear to offer a clear interpretation of the term whilst Levkina & Gilabert's (2010) measure of fluency appears to provide an accurate way of assessing learners' L2 oral performance and/or proficiency. However, the implications for L2 oral testing would need to involve careful test planning as well as sufficient time needed to analyse learners' L2 speech. In order to accurately assess L2 fluency, it appears learners must have no knowledge of test content prior to performance. Learners' test performance would also need to be recorded and later analysed in order to count syllables produced whilst discounting irrelevant features such as L1 use. This process could take a considerable amount of time with large class sizes, and highlights the issue of being able to accurately assess the complex nature of L2 fluency.

References

Ellis, R. (2005). Planning and task-based performance: Theory and research. In R. Ellis (Eds.), *Planning and Task Performance in a Second Language*. (pp. 3-37). Amsterdam: John Benjamins.

Ellis, R., & Barkhuizen, G. (2005). *Analysing Learner Language*. Oxford: Oxford University Press.

Fillmore, C. (1979). On fluency. In C. Fillmore, D. Kempler, & W. Wang (Eds.), *Individual differences in language ability and language behavior* (pp. 85-102). New York, New York: Academic Press.

Freed, B. (2000). Is fluency, like beauty, in the eyes (and ears) of the beholder? In H.Riggenbach (Eds.), *Perspectives on Fluency* (pp. 243-265). Ann Arbor: University of Michigan Press.

Housen, A., Kuiken, F., & Vedder, I. (2012), Complexity, accuracy and fluency: Definitions, measurement and research. In A. Housen, F. Kuiken, & I. Vedder (Eds.), *Dimensions of L2 Performance and Proficiency* (pp. 1-21). Amsterdam: John Benjamins.

Kawauchi, C. (2005). The effects of strategic planning on the oral narratives of learners with low and high intermediate L2 proficiency. In R. Ellis (Eds.), *Planning and Task Performance in a Second Language* (pp. 143-165). Amsterdam: John Benjamins.

Kormos, J. (2011). Speech production and the Cognition Hypothesis. In P. Robinson (Eds.), *Second language task complexity: Researching the Cognition Hypothesis of language learning and performance* (pp. 39-61). Amsterdam: John Benjamins.

Kormos, J., & Denes, M. (2004). Exploring measures and perceptions of fluency in the speech of second language learners. *System*, 32, 145-164.

Krashen, S., & Terrell, T. (1983). *The Natural Approach: Language Acquisition in the Classroom*. Oxford: Pergamon.

Lennon, P. (2000). The Lexical Element in Spoken Second Language Fluency. In H.Riggenbach (Eds.), *Perspectives on Fluency* (pp. 25-42). Ann Arbor: University of Michigan Press.

Levkina, M., & Gilabert, R. (2012). The effects of cognitive task complexity on L2 oral production. In A. Housen, F. Kuiken, & I. Vedder (Eds.), *Dimensions of L2 performance and proficiency* (pp. 171-199). Amsterdam: John Benjamins.

Mehnert, U. (1998). The effects of different lengths of time for planning on second language performance. *Studies in Second Language Acquisition*, 20, 83-108.

Mochizuki, N., & Ortega, L. (2008). Balancing communication and grammar in beginning level foreign classrooms. *Language Teaching Research*, 12, 11, 11-37.

Sangarun, J. (2005). The effects of focusing on meaning and form in strategic planning. In R. Ellis (Eds.), *Planning and Task Performance in a Second Language* (pp. 111-143). Amsterdam: John Benjamins.

Skehan, P., & Foster, P. (1999). The influence of task structure and processing conditions on narrative retellings. *Language Learning*, 49, 1, 93-120.

Tavakoli, P., & Skehan, P. (2005). Strategic planning, task structure, and performance testing. In R. Ellis (Eds.), *Planning and Task Performance in a Second Language* (pp. 239-277). Amsterdam: John Benjamins.

Yuan, F., & Ellis. R. (2003). The Effects of Pre-Task Planning and On-Line Planning on Fluency, Complexity and Accuracy in L2 Monologic Oral Production. *Applied Linguistics*, 24, 1, 1-27.