

# Pausology and Hesitation Phenomena in Second Language Acquisition

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Speech by one or more interlocutors may be described as continuous, but a moment's reflection will reveal that it is not really continuous at all. Minimally, speakers must break off their speech to breathe. In extreme cases, their speech may become highly discontinuous, with long breaks, extraneous sounds or words, or reformulations that cause delay in message transfer. These kinds of discontinuities have been studied under the name of pausology and hesitation phenomena, (also sometimes called *speech disfluencies*).

Studies of pauses and hesitations have focused on several different types of phenomena, though the most common in speech and the most commonly studied are silent and filled pauses. *Silent pauses* (or *unfilled pauses*) are breaks in speech production of any duration. Very short silent pauses below a certain length (e.g., 0.1 seconds, as used in many studies; cf., Griffiths, 1991) are typically regarded as the product of articulatory processes rather than linguistic processes and excluded from pausological studies. Thereafter, silent pauses may be classified into short and long pauses—or more fine-grained analyses may classify short, medium, and long pauses—based on some standards, though these standards have not been consistent across studies. *Filled pauses* (sometimes called *fillers*) involve the articulation of some sound during the delay. The sound may resemble an actual word (e.g., in Spanish, *este* 'that' or in Japanese, *ano* 'that') or be a non-lexical formation (e.g., in English, *uh* or *um*).

Other hesitation phenomena have been studied somewhat less than pauses, perhaps because they are less frequent. *Lengthenings* (also called *prolongations*) are when the speaker extends the articulation of one or more segments of a word. *Repeats* involve the repetition of one or more words

or word segments in an utterance. A repeat which occurs at the beginning of an utterance is called a *restart*. *Self-corrections* involve a sequence of words which are intended to be understood as a repair of a preceding sequence of words. When this occurs at the beginning of an utterance, it is called a *false start*.

## Production

Since pausological and hesitation phenomena research began in the mid-20<sup>th</sup> century with work by Howard Maclay, Charles Osgood, and Frieda Goldman-Eisler, many researchers have sought to draw an explicit connection between these phenomena and specific linguistic processes such as lexical access, syntactic processing, or discourse planning. Evidence supporting all of these possibilities has been found in different studies. Hence, the current consensus on pauses and hesitations in first language production is that speakers are making processing decisions (brought upon by high cognitive load or by error, for example) leading to a delay. The complexity hypothesis (Clark and Wasow, 1998), for example, holds that the burden of these processing decisions is related to syntactic complexity: The production of more complex constituents leads to greater processing burden and subsequently the likelihood of greater delay.

Perhaps the most sophisticated model of how second language speakers produce hesitations is based on Levelt's (1983) model of monitoring and error repair. Levelt defined a taxonomy of error types and showed how speakers handle these various errors through the use of editing terms (including silent and filled pauses) and repairs (including restarts and repeats) with respect to rules for well-formedness. Research on second-language repairs shows that repairs in second language speech proceed similarly to those in first language speech, though evidence suggests that second language speakers repair error types which are not included in Levelt's original taxonomy (Kormos, 1999) such as message replacement repair—when a speaker completely abandons the original message. For second language learners, processing tasks are much greater and therefore increase the cognitive load, leading to greater chance of error and subsequent repair. Furthermore, limitations in

the learners' second language proficiency causes patterns of error and repair which are different from those of native speakers (Temple, 2000).

Studies of pause and hesitation in second language production have also focused on how the speakers' hesitation patterns influence judgments about the speakers' second language proficiency. Many of these studies have used a common experimental design involving organizing a corpus of speech from second language speakers through a controlled elicitation task, and then gathering scaled judgments from listeners (usually native speakers of the target language) on the second language speech. These studies have yielded quite interesting results in such areas as fluency, accentedness, and comprehensibility.

While there are differing views of what constitutes fluency in a second language, one common theme in all of these views is speed: That is, fluent second language speech is rapid, comparable to native speech. Thus, many researchers have investigated the role that pauses and hesitations play in fluency in second language speech production. Results of these studies have not always been consistent but generally show that the length of silent pauses but not filled pauses correlates with perceptions of fluency (Kang, 2010). This result is highly consistent with many previous studies showing that silent pauses and filled pauses, despite their titular similarity, are quite different phenomena.

Along with fluency, many researchers have also focused on accentedness. The question for these researchers has been to what degree pausological and hesitation phenomena influence or determine perceptions of accentedness. Results here show that duration of silent pauses contribute to perceptions of accentedness: The longer the speaker pauses, the more likely their speech will be judged as accented (Trofimovich and Baker, 2006; Kang, 2010). Interestingly, once again, silent pauses and filled pauses show a different behavior.

Some research has also focused on how speakers' hesitation patterns influence comprehensibility. Fayer and Krasinski (1987) found that participants in a listening task experiment cited hesitation most frequently as the main barrier to their understanding of second language spoken texts. Kang

(2010), however, found that hesitations (specifically, filled pauses) were only marginally correlated with judgments of comprehensibility and were, in fact, less important than other articulation factors (e.g., mean number of words between pauses as well as articulation rate).

One weakness in the studies on perception of fluency, accentedness, and comprehensibility is that the experimental task required native speaker participants to judge the second language speaker's speech directly. This is problematic for two reasons. First, in most of these studies, the judges are not trained judges of these features of speech, and therefore it is not clear what their judgments are based on or even whether their judgments are consistent. The second problem is that the experimental task is not necessarily a task that listeners do in authentic communicative events. For instance, judging the degree to which a speaker is comprehensible is not the same task as actually comprehending the speaker. Work therefore remains to be done to establish the connection between pause and hesitation phenomena and second language speech production.

## **Perception**

First language studies on pause and hesitation show that while listeners are often not aware of the speakers' use of hesitation phenomena, they do make linguistic processing decisions based on them (Reich, 1980; Brennan and Schober, 2001; Arnold, et al., 2004). To date, studies of the perception of pause and hesitation phenomena in second language speech has been somewhat inconsistent. Some studies have shown that pauses and hesitation phenomena provide perceptual barriers for second language listeners, leading to such things as greater transcription errors (Voss, 1979). Other studies have found that pause and hesitation phenomena may actually facilitate comprehension in second language listeners. Blau (1991), for example, observed that listeners comprehended a passage with filled pauses better than if those pauses were converted to silent pauses or deleted entirely. A possible answer to the barrier versus facilitation difference might be found in Watanabe, Hirose, Den, and Minematsu (2008): Results showed that listeners with high second language proficiency used filled pauses as cues to the complexity of upcoming phrases, but listeners with low

proficiency did not show this result. Future research in the area of second language perception of pause and hesitation may need to carefully control for the proficiency level of second language listeners.

## **Proficiency Development**

Based on the many results showing cross-linguistic differences in pausing and hesitation phenomena patterns and possible perceptual difficulties for second language listeners, there have been several calls for greater attention to these phenomena in second language education (Rose, 1998). However, one shortcoming with these proposals is that there has been little discussion, let alone consensus, about the developmental process of second language pausing and hesitation patterns. Under one view, as learners' proficiency in the target language increases, their pausing and hesitation patterns will transfer from their native language and develop naturally in their second language. This view assumes that the cross-linguistic differences that have been observed in these patterns derive from the structure of the language itself. This is certainly possible, but has yet to be shown. An alternate view is that this developmental process can be facilitated by giving learners explicit instruction in target language hesitation patterns. However, at this point, there has been no formal confirmation that such explicit attention is effective.

(1476 words)

*Cross References:* fluency, Levelt's model of speech production and comprehension, proficiency, self repair, speech rate, thinking for speaking

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