

Priming

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The term “priming” refers to a cognitive repetition phenomenon in which prior exposure to specific language forms or meaning facilitates speakers’ subsequent language processing. For example, if a speaker hears a particular word spoken by her interlocutor, she is likely to comprehend and produce this word faster and more accurately when it is used again in the same conversation. Similarly, if a speaker uses a specific grammatical structure, later in the conversation his interlocutor is likely to produce that same structure rather than a different one. In essence, priming shows that prior experience with language shapes a speaker’s subsequent language use, which suggests that priming may underlie interactive, communicative uses of language. Because priming usually occurs with little awareness and without much explicit, conscious effort on the part of a language user, researchers often interpret priming as a form of implicit learning.

Priming encompasses a variety of related phenomena, including auditory, phonetic, phonological, morphological, syntactic, semantic, associative, and orthographic priming. Despite differences in the aspect of language that is affected (namely, which meanings or forms), all types of priming explore the influence of prior language use on subsequent performance. Because a comprehensive review of all priming types is beyond the scope of this entry, we briefly outline two types of priming (auditory and syntactic) in more detail and highlight their applications to second language (L2) acquisition and teaching. More detailed information about priming, including additional references to priming research, are available in recent reviews of the priming literature by McNamara (2005), McDonough and Trofimovich (2008), and Pickering and Ferreira (2008).

Auditory and syntactic priming

Auditory priming describes the tendency for people to process a spoken word more quickly and more

accurately when they have had previous exposure to that word, compared to a word that was not previously heard. For instance, if speakers hear a word like “hypothesis” in their interlocutor’s speech, they will be more likely to understand this word and respond to it more quickly and accurately, compared to a word that their interlocutor did not use. Several studies have shown that L2 learners rely on auditory priming in learning how to pronounce L2 vocabulary (Bird and Williams, 2002; Trofimovich and Gatbonton, 2006). Thus, learners can learn something from their previous experiences with language, and can draw upon this knowledge when they subsequently perceive and produce these words.

Syntactic priming refers to the tendency for speakers to produce a syntactic structure that appeared in the recent discourse, as opposed to an alternative. For instance, if a speaker uses a passive structure (*the votes were tallied*), later in the conversation her interlocutor is likely to produce a new utterance with the passive (*the results were announced*) rather than an alternative structure, such as an active construction (*the officials announced the results*). Several L2 studies have demonstrated that syntactic priming occurs in L2 speech production (Gries, 2005; Schoonbaert, Hartsuiker, and Pickering, 2007) and that it may facilitate the subsequent use of targetlike structures as opposed to simple or erroneous structures (McDonough and Mackey, 2008).

Because both auditory and syntactic priming describe how prior exposure to specific aspects of language influence subsequent language use, they are often described as *repetition* phenomena. In the case of auditory priming, repetition involves the phonological form of words (e.g., the sound sequence and stress pattern of the word “hypothesis”). In syntactic priming, repetition involves the syntactic frame of an utterance (e.g., the word order and verbs in the passive structures). For both types of priming, the benefits of repetition tend to be implicit and represent a form of implicit learning, or learning without much conscious effort and awareness.

Priming and L2 acquisition

As implicit learning phenomena, both auditory and syntactic priming have enormous potential to help researchers understand the processes by which L2 learners acquire vocabulary, pronunciation, and grammar. At the theoretical level, priming can help researchers test claims about the processes involved in L2 learning. For example, one established theoretical view of L2 learning—the Interaction Hypothesis—holds that communication between learners (or between learners and more proficient speakers) facilitates L2 learning in part by engaging cognitive learning mechanisms (Long, 1996). By exploring the relationship between collaborative priming activities and learners' subsequent performance, researchers can test whether priming is one of the cognitive learning mechanisms that may help learners benefit from interaction.

Priming may also be used to test theoretical claims associated with usage-based approaches to acquisition (Bybee, 2008; Goldberg and Casenhiser, 2008), which hold that the learning of language form (sounds, words, and structures) unfolds as learners detect patterns in the input. The complexity of those patterns evolves over time and is influenced in part by the frequency features associated with individual words or structures. With respect to L2 pronunciation, the logic is that certain aspects of speech (e.g., specific sounds, stress patterns) are easier to learn when they occur within and across recurrent familiar words. The more frequently learners experience a given pronunciation pattern in the input, especially across a range of words, the more accurately they will perceive and produce this pattern (Bybee, 2008; Pierrehumbert, 2003). In turn, for L2 grammar, learners initially learn a structure, such as the passive in English, by associating it with a handful of verbs in high-frequency utterances (such as “bear”, as in “I was born in ...”). Eventually, through exposure to passive sentences with more diverse verbs, learners develop more extensive and abstract knowledge of the passive structure (Goldberg and Casenhiser, 2008). By devising priming activities that manipulate the type and token frequencies of the target structures, researchers can test claims about the acquisition of constructions.

Researchers working within knowledge-based approaches to acquisition can use priming as a tool to explore the acquisition of a complex skill. As summarized by DeKeyser (2007) in his Skill Acquisition Theory, learning of any complex skill proceeds from initial knowledge representation to changes in behavior, and eventually results in fluent, effortless, and highly skilled (proceduralized, automatized) performance. As an implicit phenomenon, priming can contribute to the development of fluent, effortless, and highly skilled L2 comprehension (through repeated exposure to forms and meanings in input) and L2 production (through the elicitation of repeated forms and meanings in output). In sum, researchers who investigate the development of automaticity can use priming as a way to explore the process by which linguistic knowledge becomes proceduralized.

To take another example, priming can be helpful for researchers who investigate the role of attention in L2 acquisition (Robinson, 2003). The idea here is that learners need to attend to certain linguistic forms in the input in order to learn them, and that providing opportunities for learners to attend to formal features of language is beneficial for linguistic development. As a repetition phenomenon, priming may serve as a form-focusing device that underlies learning. In other words, through exposure to repeated forms and meanings in comprehension and production, learners may progressively shift their attention from meaning-related properties of the input (as the meaning of each utterance used becomes progressively more familiar with its every repetition) to its form-related properties. Therefore, priming might help researchers understand how linguistic information is detected and acquired during language comprehension and production.

Priming and L2 teaching

At a more practical level, priming tasks may help L2 teachers create learning opportunities during classroom interaction. For example, teachers could design and use auditory priming tasks to promote the encoding of phonological information in the mental lexicon, or to encourage the acquisition of novel words. And teachers could explore whether

the effectiveness of auditory priming activities is influenced by task features, such as the number of times words are spoken or by the use of single or multiple speakers to present novel L2 words. Auditory priming tasks that present forms in larger discourse units (e.g., embedded in phrases or sentences) may be a useful tool for L2 pronunciation training, particularly for forms that are highly variable. Since variation in pitch, accent, and intonation are often context specific, auditory priming tasks that reflect this variation may be an effective way to help learners generalize across multiple, non-identical spoken words.

Similarly, the use of syntactic priming tasks in L2 classrooms has potential to build upon the existing task literature that has compared effectiveness of communicative tasks at eliciting interactional feedback, modified output, and attention to form. Communicative syntactic priming tasks may be useful for L2 learning because they simultaneously model and elicit target structures. By doing so, syntactic priming tasks may help allay concerns that learners will “pick up” interlanguage forms during peer interaction, particularly in large classes where teachers may have more difficulty monitoring and providing feedback. Thus far, few syntactic priming activities have been designed for use in teacher–learner interaction in a whole-class setting or for peer interaction (see McDonough and Chaikitmongkol, 2010, for some examples). These types of tasks might be particularly useful in contexts where peer interaction is difficult to implement, such as in L2 classes with large enrollments.

See also: attention, construction learning, implicit learning, Interaction and the Interaction Hypothesis, L2 phonology, psycholinguistics of SLA

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Further reading

- Bowers, J.S. and Marsolek, C.J. (eds) (2003). *Re-thinking Implicit Memory*. Oxford: Oxford University Press. (A book which brings together various theoretical views on implicit memory, including priming.)
- Kinoshita, S. and Lupker, S.J. (eds) (2003). *Masked Priming: The State of the Art*. New York: Psychology Press. (An edited collection of studies on the use of the masked priming paradigm in language research.)
- Trofimovich, P. and McDonough, K. (eds) (in press). *Applying Priming Methods to L2 Learning, Teaching and Research: Insights from Psycholinguistics*. Amsterdam: John Benjamins. (An edited volume featuring a collection of empirical studies employing priming methods to investigate L2 learning and teaching.)

Private speech

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As distinct from social speech, private speech is speech addressed to oneself, rather than others. It is speech that serves intramental—rather than intermental—cognitive and communicative functions. Usually low in volume (but at times loud enough to be overheard), private speech tends to be elliptical and condensed in form but rich in meaning. Because of its significant role in psycholinguistic activity and development, private speech has become a highly interesting phenomenon in SLA,

particularly within the Vygotskian sociocultural theory approach (Lantolf and Thorne, 2006).

For Vygotsky (1986), private speech—“egocentric speech” in his writings—was a transitional phase between social and inner speech. Characteristic of pre-school children, private speech was for Vygotsky symptomatic of the ongoing process of internalization of external, cultural tools of mediation. In this phase, speech takes on a new, thinking, self-regulatory function, in addition to its former social, communicative one. Eventually, private speech evolves into inner speech as the person is capable of cognitively functioning on the basis of silent verbal thinking. People past the age of childhood, however, continue to resort to overt private speech mediation to regulate themselves, most commonly in situations of cognitive difficulty.

The emergence of private speech has been observed not only among monolingual children but also among bilinguals and learners of additional languages, including children, adolescents, and adults. In other words, there is robust evidence that learners in the process of acquiring an alternate language also self-vocalize in this language. As in monolingual L1 development, it is believed that private speech in the L2 signals the internalization of this language as a tool for individual psychological use.

Researchers (see literature reviews in Guerrero, 2005; Lantolf and Thorne, 2006) have documented several uses of L2 private speech in classroom contexts: responding vicariously to teachers’ questions or prompts, close repetition and transformative imitation of others’ utterances, manipulation of language forms and meanings, rehearsal before speaking publicly, and display of metalinguistic awareness. These forms of private speech appear to have an internalizing role, providing learners the opportunity to play with and appropriate elements of the L2, reinforce existing knowledge, and creatively extend the L2 to possible or imaginary scenarios. In Ohta (2001), for example, a college student of Japanese selects part of a teacher’s utterance to work covertly on verb conjugations:

TEACHER: Ah: ja onaka suite inai n desu ka:
 Onaka? [*Okay isn’t your stomach empty:
 Stomach?*]