

Learning
(Communication)

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Children are impressive learners. For instance, after a few years of exposure, they can utter sentences that resemble mature phonology, morphology, syntax, semantics, and pragmatics. They do so without formal instruction, and they do so seemingly effortlessly. What are the mechanisms by which children can accomplish such a feat? In this entry, we sketch out different perspectives on learning, focusing on language learning as an example.

Understanding the language-learning process is thought to pose an interesting challenge: Linguistic input is assumed to lack a sufficient number of associations for a learner to precisely uncover the meanings of words and sentences. Indeed, the exact referent for a novel word (e.g., cat) can be ambiguous: It could refer to an individual animal, a part of the animal, a species, a location, etc. Because of this so-called *poverty of the stimulus*, associative learning theories are considered incomplete. Alternative explanations generally fall into two categories: accounts that emphasize a child's *domain-specific* preparedness, and accounts that emphasize *domain-general* mechanisms of information processing.

Domain-specific accounts of language learning postulate the presence of language-specific conceptual biases, such as knowledge about the pragmatics of speech. Experiments in support of these accounts seek to manipulate the social context in which a new word is uttered. Consider, for example, a well-known study by Akhtar and colleagues (1996): An adult utters a novel word upon encountering an object that was not there before (e.g., “Look, I see a gazzer!”). The novel object was added to the scene during a previous trial, while the speaker had been absent. Thus, in order to know what ‘gazzer’ refers to, children need to know something about the intent of the speaker (i.e., that the speaker would point out an object that is a new addition to the set). Toddlers were indeed found to attribute ‘gazzer’ to the object that was added to the set during the speaker’s absence—more so than what would be predicted by chance (e.g., when the speaker merely exclaims “Look! Look at that!”).

Domain-specific theoretical accounts—also known as *nativist* accounts—have been applied beyond the domain of language, extending to children’s reasoning in domains such as physics, math, cause-effect relations, social relations, and moral norms. However, despite their popularity, nativist accounts have important shortcomings. For instance, these accounts run into an explanatory dead-end: Claiming that successful learning is the result of an already-knowledgeable child fails to explain how that knowledge could have developed in the first place.

Nativist approaches also face empirical challenges. For example, the argument that language learning is facilitated by an understanding of the speaker’s intent rests on the assumption that young children are able to track other people’s points of view. The ability to represent someone else’s mental states is known as a *theory of mind*—an ability generally

assumed to develop slowly over time. Indeed, children older than those in the ‘gazer’ study typically fail theory-of-mind tasks, unable to keep track of other people’s perspectives. This casts doubt on the idea that early language learning is aided by conceptual biases regarding pragmatics.

Domain-general accounts offer an alternative. These accounts rely on basic attentional mechanisms and the idea that changes in the learning context affect a child’s attention automatically, without the need of specific knowledge structures about what to pay attention to. In the ‘gazer’ study, there were indeed numerous changes in the learning context that could have affected attentional processes. For example, the novel object was added to the set in a context that was markedly different from the context before it was introduced. This change in context might have changed the child’s focus such that the novel object received more attention than the other objects. In turn, this heightened attention to one object might have strengthened the association between the object and the new utterance. Indeed, a mere change in the learning context, without a change in the speaker’s intent, was sufficient to elicit word learning.

The strength of domain-general learning approaches lies in their theoretical simplicity. The idea that novelty draws children’s attention is an uncontroversial and consistent claim. Thus, domain-general approaches can account for language learning with far less theoretical baggage than domain-specific approaches. At the same time, domain-general accounts shift the emphasis away from the nature of children’s task-specific cognitive machinery and onto the nature of the learning context: For learning to be successful, the learning context needs to provide a sufficient amount of structure to guide children’s attention without knowledge-rich machinery.

There is indeed evidence that language learning happens in a richly structured context. Research with naturalistic methods has shown that language learning takes place in a multi-modal context of facial expressions, tones, motor behavior, and emotional experiences. Listeners and speakers also engage in interactional routines that allow for an obvious alignment between utterances and their intended meaning. Under this perspective, children do not have to derive the meaning of a word from a sparse learning context. They merely need to engage in coordinated action. This suggests that it is time to rethink the poverty-of-stimulus argument that fueled language-learning in the first place.

Domain-specific and domain-general approaches to learning can be found in areas outside of language learning: Domain-specific accounts focus on the relevance of existing knowledge, and domain-general accounts focus on the relevance of the learning context. It is plausible that both of these perspectives play an important role in learning. Future work is needed to integrate them to better understand how children's learning can be supported most effectively.

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