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Property content guides children's memory for social learning episodes

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ABSTRACT

How do children's interpretations of the generality of learning episodes affect what they encode? In the present studies, we investigated the hypothesis that children encode distinct aspects of learning episodes containing generalizable and non-generalizable properties. Two studies with preschool ($N = 50$) and young school-aged children ($N = 49$) reveal that their encoding is contingent on the generalizability of the property they are learning. Children remembered generalizable properties (e.g., morphological or normative properties) more than non-generalizable properties (e.g., historical events or preferences). Conversely, they remembered category exemplars associated with non-generalizable properties more than category exemplars associated with generalizable properties. The findings highlight the utility of remembering distinct aspects of social learning episodes for children's future generalization.

1. Introduction

How does an observation about a single individual generalize to other members of a social category? This basic question in social psychology has often been addressed in terms of the special inductive richness of certain categories (e.g., race and gender) or attributes (e.g., traits and abilities). The current research builds on prior literature by exploring a possible mechanism of social generalization, specifically, that categories and attributes cue different memory and encoding processes that may support or inhibit future generalization. Imagine observing your neighbor walk to school wearing a plaid skirt. There are many ways to encode this event. Some are very general: "Plaid is the school uniform." Some are more specific: "This girl likes plaid." How generally an event is encoded could affect how likely information about the event is to be retrieved and used to generate predictions about other encounters with students and clothing. But how do children know if they are learning a piece of category-relevant information or a fact specific to a single individual? There are likely a variety of cues to guide the generality of encoding. This research investigates how one cue to the generality of the learning episode, the nature of the property being learned, affects children's encoding of learning episodes.

2. Memory for general and specific learning episodes

The present research focuses on how cues to the generality or specificity of a learning episode affect which aspects of the episode children encode. General learning episodes are those that contain information pertaining to a category, whereas specific learning episodes are those that contain information about a single individual. We propose that for general learning episodes, children encode less detail of individual category members (i.e., targets) and more about the properties present in the learning

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episode, relative to specific learning episodes. Conversely, for specific episodes, children encode more detail of targets and less detail of the properties associated with targets as compared to general learning episodes.

The proposal that children encode distinct aspects of general and specific learning episodes is supported by prior research on children's target and property memory. Several studies have suggested that children form weaker representations of targets when their category membership is highlighted (e.g., Heit & Hayes, 2005; Taylor, Fiske, Etcoff, & Ruderman, 1978; Wilburn & Feeney, 2008; but see Sloutsky & Fisher, 2004). For example, using an induction-then-recognition paradigm, Hayes, McKinnon, and Sweller (2008) found that 5 year-olds made more recognition errors for targets after completing a category-based induction task than after making evaluative judgments of targets (e.g., young or old?). These results suggest that when category membership is salient, children remember less about the individuating features of any specific category member. Conversely, children exhibit superior memory for targets when the learning episode is specific (Riggs, Kalish, & Alibali, in press; Sabbagh & Shafman, 2009). For instance, Riggs et al. (in press) examined children's memory for individuals in generic and non-generic learning episodes and found that children showed better recall for targets when they were presented non-generically (i.e., with names and personal pronouns) than generically (i.e., with category labels). Together these findings support the existence of category-level and individual-level encoding patterns for targets: when the task highlights a target's category, children encode the target with less detail than when the task emphasizes the target's individual features.

In addition to differential memory for targets, children also differentially encode properties depending on whether they apply generally to a category or specifically to an individual. Recent studies have found that children are better at recalling properties predicated of categories than properties predicated of a single individual (Cimpian & Erickson, 2012; Riggs et al., in press). For example, Cimpian and Erickson (2012) found that children remembered the generic property "Girls are really good at making a puzzle called wug" more often than the non-generic property "She is really good at making a puzzle called wug." This result suggests that children encode generic properties at the category level and specific properties at the individual level because they remember the former more often than the latter. Similarly, research on selective encoding has found that young children encode more detail about high-value information, which is important to remember in the future, than low-value information, which is not important to remember in the future (Castel et al., 2011). Properties that are general to a category may have high value for children because they apply to a wider set of instances and are more likely to be retrieved in the future than properties that are specific to an individual.

Sabbagh and Shafman (2009) propose a mechanism for children's category-level and individual-level encoding of targets and properties. They argue that when children learn category-level (i.e., generalizable) information, they activate an "episodic blocking mechanism" that prevents them from retaining contextual details of the learning episode (e.g., details about the target). By forgetting the details of the target, children are able to consolidate and retain the generalizable information for future use when the target is absent. Conversely, when learning individual-level (i.e., non-generalizable) information, children encode a detailed representation of the target, which interferes with their consolidation of the non-generalizable information. In Sabbagh and Shafman's study, children were better at remembering targets who supplied an idiosyncratic rather than a conventional word label, but showed superior recall for the conventional label compared to the idiosyncratic label. Thus, on this account, children form strong representations of generalizable information when they forget the episodic components of the learning event, namely the target or speaker. However, when the episodic details are relevant (e.g., when the child is learning something specific to a particular person), those details are retained, but memory for non-generalizable information (e.g., the idiosyncratic label) is more transient. Koenig and Woodward (2010) report similar findings in 24-month-old infants learning from accurate and inaccurate speakers.

3. Cues that guide category-level vs. individual-level encoding

Up to this point, we have discussed general and specific learning episodes as if it is obvious which is which. How do children know whether what they are learning is generalizable to a group or specific to an individual? Luckily, the environment is replete with cues to assist in this process, including the prevalence of labels. Generic labels, which are frequently used in mothers' speech to their children (Gelman, Taylor, & Nguyen, 2004), are particularly good cues to the generality of the learning episode, and they are utilized by young children to guide how generally they encode new information (Cimpian & Erickson, 2012; Riggs et al., in press). Another cue to the generality of a learning episode is the nature of the property being learned. Some types of properties generalize across category members whereas others are restricted to a particular individual (Goodman, 1955). Gelman (1988) has shown that children constrain the types of properties they generalize. For example, children do not generalize that other spiders will be "a year old", after observing that one is, but they do generalize that other spiders will catch "besitolas" after observing that one does. Whereas the former statement pertains to a single spider at a particular point in time, the latter is informative of the kind "spiders" because it relates to their food source. Generalizable properties are thus those that are safe to generalize across category members, and non-generalizable properties are those that should not be generalized across category members by virtue of their category membership alone (e.g., other spiders may be 1 year old, but they are not 1 year old *because* they are a spider). If children can distinguish generalizable from non-generalizable properties, the generalizability of the property can be used as a cue to the appropriate level at which a learning episode should be encoded.