



# The Complexities of Learning Categories Through Comparisons<sup>a</sup>

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## Abstract

Comparisons have been suggested as central to category learning, yet we are only beginning to understand how different types of comparisons affect what people learn. Prior research has established that different ways of learning affect what information learners acquire, suggesting that different types of comparisons may also affect learning in different ways. An important comparison-type distinction in category learning is between-category versus within-category comparisons. The results of prior studies looking at these types of comparisons are mixed, so it remains unclear how each type of comparison affects category learning. This chapter lays out a framework based on the idea that the benefits of comparisons depend on both the type of comparison being made as well as what information needs to be learned. Specifically, between-category comparisons highlight distinguishing information between categories while within-category comparisons highlight commonalities and the relational structure of items.



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## 1. INTRODUCTION

When a math teacher goes through an example math problem on the board, she expects her students to learn more than just how to solve that specific problem. When a child learning to speak uses a new word like “dog,” part of what she needs to learn is what to apply that new word to (small dogs, big dogs) and what not to apply it to (lions and bears, for instance). Knowing what category an item belongs to is powerful because it enables the use of a large body of knowledge about that class of items, which can be drawn upon for a variety of tasks such as making decisions, solving problems, making predictions and constructing explanations. Given that categories underlie many cognitive tasks, it is critical to understand how they are learned. Learning about a category often occurs as a function of using it, so in developing an understanding of how categories are learned, it is important to consider how different kinds of active processing lead to differences in what is learned. Recent work has demonstrated that different types of learning tasks affect what category information is eventually

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