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## Limits on the generalizability of the relationship between state anxiety and categorization: Moderation by feature salience<sup>☆</sup>

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### Abstract

We investigated the impact of state anxiety on categorization using adapted stimuli from two conflicting previous lines of research. Based on the available literature, we hypothesized that the relationship between categorical width and anxiety would be stimuli-specific. A measure of categorical change was also included in which participants re-categorized stimuli on a repeated trial. State anxiety was quasi-experimentally varied by sampling students in various classroom situations ( $N = 160$ ) and dental patients awaiting various dental procedures ( $N = 69$ ). Our results ran counter to hypotheses but nonetheless suggested that the relationship between categorization and state anxiety can vary depending on the stimuli used. State anxiety was associated with more categorical change when using stimuli with salient categorical features, while it was

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associated with less categorical change when using stimuli with less salient features. Similarly, irrespective of anxiety, participants consistently made more changes to their initial categorizations when using the salient than the non-salient stimuli. Our results failed to corroborate findings of anxiety-induced alterations in categorical width previously reported. The data add to the literature which places limits on the generalizability of category formation across situations and suggests that the relationship between state anxiety and categorization can be moderated by the obviousness of features available for categorical placement.

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*Keywords:* State anxiety; Categorization; Categorical change; Feature salience; Moderation; Interaction; Generalizability

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## 0. Introduction

Only a handful of articles have investigated the relationship between state anxiety (or “situational stress”) and basic cognitive categorization processes. Moreover, existing research examining the formation of cognitive categories under anxiety-provoking conditions has produced inconsistent results. Additional investigation is needed to determine if generalizable conclusions can be drawn regarding the relationship between state anxiety and categorization, and/or if specific conditions can be identified that limit generalizability.

Categorization is the process of dividing concepts or entities into separable groups, or categories, in which intra-category items are viewed to be similar in some fashion, while appearing dissimilar from different category items. Several theories have been leveled to elucidate the process by which categories are formed through similarity and dissimilarity comparisons (e.g., prototype theory, Rosch, 1975). However, research suggests that the context in which categorization occurs can have a dramatic impact on the categories formed. For example, the stimulus features (respects) used by individuals to evaluate similarity for categorization can vary widely as a function of the context in which the items are embedded. When placing names of countries into categories, changes in stimulus context have been shown to change the tendency of participants to group countries by political affiliation or geographic location (Tversky, 1977). Such context-dependent changes in similarity judgments have been noted in both conceptual and sensory (e.g., visual similarity) domains (Smith & Samuelson, 1997). Category placements also have been experimentally shown to differ through manipulations of the types of experiences individuals have had with the stimuli (Wisniewski & Medin, 1994) and the information processing strategies used during initial stimulus exposures (Whittlesea, 1997). In fact, Medin (1989) has argued that the manner in which stimuli can be considered similar and dissimilar is infinite and is limited only by the imagination of the rater. These findings suggest that categorization must be considered within the context of the judgment to be fully understood, and place doubts on the possibility of finding universal category placements which will hold in all people and all situations (possibly with the exception of certain biologically constrained sensory categories; e.g., see Berlin, 1978).

## 1. State anxiety and categorization

In a serial investigation by Mikulincer and colleagues (Part 1 – Mikulincer, Kedem, & Paz, 1990a; Part 2 – Mikulincer, Paz, & Kedem, 1990), the effect of trait and state anxiety were assessed

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