When Categorization Is Ambiguous: Factors That Facilitate and Inhibit the Use of a Multiple (Versus Single) Category Inference Strategy

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Prior research has established that categorization plays a central role in new product learning (Sujan, 1985). Very little is known, however, about the operation of this commonly studied category-based learning process under conditions of categorization ambiguity. Categorization ambiguity exists when information about a new product makes it difficult or impossible to place the novel offering in a single, existing category. Many of the new technological innovations hitting the market today fit this profile, as they often combine the features and functionality of existing products to create a single hybrid product. For example, there are personal digital assistants (PDAs) with cell phone functions and cell phones with PDA functions. The categorization of these products is highly ambiguous because, in both cases, the hybrid could logically be considered either a PDA or a cell phone.

It is currently unclear how consumers use existing category knowledge when faced with ambiguity of this nature. Of particular interest is whether and under what circumstances consumers employ a multiple (versus single) category strategy to generate inferences about ambiguous products. When faced with a PDA-cell phone, for instance, the question is whether consumers will base their expectations about the product on knowledge associated with multiple categories (both the PDA category and the cell phone category) or a single category (the PDA category or the cell phone category). Existing consumer research is all but mute on this issue. The focus of prior studies has been almost exclusively on inference generation from a single category (for a notable exception, see Moreau, Markman, and Lehmann 2001), leaving all but the most basic questions pertaining to multiple category use unanswered. Addressing this void, the purpose of this paper is to examine the factors that determine whether consumers will rely primarily on a multiple or single category inference strategy under conditions of categorization ambiguity.

Generating Inferences When Categorization Is Ambiguous

Existing research suggests that individuals are able to use information from multiple categories to draw inferences about ambiguous stimuli, but that they are typically unwilling to do so unless significant contextual support is provided. These findings are valuable for establishing that individuals can employ a multiple category strategy, but they give us little insight into the general factors that facilitate and hinder the use of a multiple (versus single) category strategy. In addition, it is difficult to predict which category consumers would select as the source of inferences in the event that a single category strategy is implemented. Absent this information, it is difficult to make specific predictions about consumers’ use of existing category knowledge to generate inferences about ambiguous products.

With this in mind, in the next section, we identify two factors—category familiarity and the nature of the category cue—that we believe are responsible for regulating the incidence of multiple (versus single) category inference processes.

Category Familiarity

In order to generate inferences via a multiple category strategy, it is often necessary to change or update at least one of the categories involved in making the prediction. To see why, consider the case of the PDA-cell phone mentioned earlier. When consumers confront an ambiguous product like the PDA-cell phone, and attempt to use both the PDA and cell phone categories to make predictions, they are likely to generate inferences that entail discrepant attribute values. As an example, if consumers are asked if the PDA-cell phone will be good at scheduling, their PDA category will indicate a positive response, while their cell phone category will indicate a negative or “not applicable” response. In contrast, if consumers are asked if the new product will be good at making phone calls, their PDA category will indicate a negative or “not applicable” response, while their cell phone category will indicate a positive response. In general, thinking about an ambiguous product as an instance of one category will lead to the generation of very different expectations than thinking about the product as an instance of a second distinct category.

This suggests that a category updating process is likely to be initiated as a result of multiple category inferencing. That is, consumers are likely to either (a) update the PDA category to accommodate the new value for making phone calls or (b) update the cell phone category to accommodate the new value for scheduling.

The Nature of the Category Cue

Category membership information can be delivered either perceptually, via visual depiction of a category member, or conceptually, via a category label. Research on the relative diagnosticity of conceptual versus perceptual information in the inference generation process has yielded mixed results. In one study, subjects were presented with pictures of exemplars that were physically similar to members of one category, but possessed the label of another category, and were asked to predict a missing feature. The results suggested that subjects placed significantly more weight on the (conceptual) category label information than the (perceptual) category similarity information when generating their inferences (Yamauchi & Markman, 2000). Other research has reported just the opposite. Pitting category label information against category similarity, Florian (1994) found strong evidence that subjects based their attribute inferences entirely on similarity.

This divergence in findings may be explained, at least in part, by variance in the relative diagnosticity of perceptual versus conceptual information across stimuli and situations (Feldman & Lynch, 1988). Supporting this interpretation, Yamauchi and Markman (2000) found that not all category labels were equal in their ability to override category similarity in the inference process. Specifically, category labels designed to convey class inclusion information (e.g., labels indicating two types of bug) had more power to sway inferences than those lacking this highly diagnostic information (e.g., labels indicating two shapes of wing).

Hypotheses

H1: When an ambiguous product is represented perceptually by a high familiarity category and conceptually by a low familiarity category, a single category inference strategy will be used where inferences will be based on the high familiarity category.
H2: When an ambiguous product is represented perceptually by a low familiarity category and conceptually by a high familiarity category, a multiple category inference strategy will be used where inferences will be based on both the conceptually and the perceptually cued categories.

Results and Implications

While it has been possible in prior research to prompt individuals to draw on multiple categories to generate inferences about an ambiguous item, rather extreme measures were required to achieve this outcome. Indeed, this body of work leaves one with the impression that people are unlikely to rely on a multiple category inference strategy unless they are placed in highly contrived conditions. The results of our studies suggest otherwise. Respondents in study 1 employed a multiple category inference strategy in response to an ad that represented an ambiguous product perceptually as a member of a low familiarity category (PDA) and conceptually as a member of a high familiarity category (cell phone). Attempts to focus respondents’ attention on a single category in study 2 by strengthening the activation of the low familiarity perceptually cued category failed to dissuade them from relying on multiple categories to generate inferences. Likewise, attempts to weaken the conceptual cue in study 3 by replacing it with a low (versus high) familiarity category failed to derail the use of multiple categories.

References


