Protection of Prior Learning in Complex Consumer Learning Environments

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Firms often attempt to introduce new benefits that existing product features can provide (i.e., new uses for a product). Associative-learning theories disagree about the extent to which new learning will lead to the updating of associations between product features and product benefits. An efficient-learning hypothesis proposes that consumers will use features that have been relevant before to predict new benefits. A protected-learning hypothesis proposes that consumers will protect learning about features that have been relevant before and will not use these features to predict new benefits. Three experiments support the efficient-learning hypothesis.

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EXTENDED ABSTRACT

A large number of hypotheses have been advanced to describe the adaptive learning process. The current research investigates consumer learning environments in which cue-outcome relationships evolve overtime, starting with very simple relationships (e.g., French cuisine ? high quality food) and ending with more complex ones (e.g., French cuisine, poor location ? high quality food, poor ambiance). Of particular interest is the influence of prior learning about one benefit (e.g., cuisine ? quality) on predictive learning about a second benefit (e.g., cuisine ? ambiance) when additional predictive cues (e.g., location, price point) are available, as is the case in many product categories (e.g., restaurants, wine, hotels).

Associative-learning theories disagree about the extent to which new learning will lead to the updating of associations between product features and product benefits. An efficient-learning hypothesis, based on the work of Mackintosh (1975), proposes that consumers will use cues (i.e., features) that have been relevant before to predict new outcomes (i.e., benefits). A protected-learning hypothesis (Kruschke 1996; Kruschke and Blair 2000; Kruschke et al. 2005) proposes that consumers will protect learning about cues that have been relevant before and will not use these cues to predict new outcomes. A series of experiments favors the protected-learning hypothesis.

Experiment 1 investigated the role of previous feature relevance in subsequent learning about this feature in a task involving learning about restaurants. A total of 194 respondents learned that feature A predicted outcome 1 (A → O1) and that feature B predicted outcome 2 (B → O2). The learning procedure in stage 2 taught that features A and C predicted outcome 3 (AC → O3), features A and D predicted outcome 3 (AD → O3), and that features E and F predicted outcome 4 (EF → O4). In the test phase, respondents decided whether AE, AF, CE, CF, DE, and DF predicted O3 or O4. If people learn as predicted by the protected-learning hypothesis, a respondent who has learned that feature A predicts O1 in learning stage 1 should be resistant to learning about feature A in the AC and AD in stage 2 trials and feature A should be a weak predictor of O3. Features C and D should become strong predictors of O3. While test compounds AE and AF should predict O4, compounds CE, CF, DE, and DF should predict O3. In line with the protected-learning hypothesis, respondents expected restaurants having the AE and AF features to have benefit O4 (π_{O4}=.345, π_{O4}=.655; z=4.53, p<.05) and the CE, CF, DE, and DF features to have benefit O3 (π_{O3}=.575, π_{O3}=.425; z=2.11, p<.05). Once people learned that feature A predicted O1 in learning stage 1, they became less likely to learn that feature A predicted O3 in learning stage 2, provided that feature A was also paired with feature C or D. People pay less attention to a feature that they have learned about in the past when novel competing features are available.

Experiment 2 investigated how cue irrelevance resulting from previous blocking of this cue influences subsequent learning. Traditional blocking evidence has shown that learning a relationship between one cue and an outcome blocks subsequent learning about a second, co-occurring, cue and the same outcome. The protected-learning hypothesis predicts that learning the irrelevance of a cue for predicting one outcome attenuates subsequent learning about this cue and a different outcome. This attenuated learning is not predicted by the efficient-learning hypothesis. Learning stages 1 and 2 consisted of a standard blocking procedure. In learning stage 1, respondents learned A → O1 and B → O2. In stage 2, they learned AC → O1 and HI → O5. We then asked respondents to select either O1 or O5 as the outcome for features CH and CI. If blocking was successful, CH and CI should predict O5. In learning stage 3, respondents learned A → O1, B → O2, CD → O3, CE → O3, FG → O4. We then asked respondents whether CF, CG, DF, DG, EF, and EG predicted O3 or O4. Within-subject tests of responses by 61 participants showed that, as predicted by the efficient-learning hypothesis, they expected restaurants having features CF and CG to have benefit O4 (π_{O4}=.312, π_{O4}=.688; z=3.18, p<.05) and restaurants having features DF, DG, EF, and EG to have benefit O3 (π_{O3}=.633, π_{O3}=.367; z=2.27, p<.05). An additional analysis confirmed that the stage 1 and stage 2 learning resulted in blocking.

In experiment 3, respondents learned that a feature was relevant to predict a benefit and a second feature was irrelevant (irrelevance was learned in a blocking procedure as in experiment 2). These two features were subsequently paired to predict a new benefit, and none of the features acquired predictive strength of the new benefit, as indicated in the test phase with a similar procedure as the one in experiments 1 and 2.

Our research also suggests opportunities for applied research. In most mature product categories, consumers have lay theories regarding attribute-performance relationships based on prior experiences and/or learned information from advertising campaigns. One strategy marketers use to deal with decreasing sales in mature markets is to identify new uses and benefits for current products. Our findings indicate that when people have learned a given brand is associated with a benefit, they may be resistant to accepting the introduction of a new benefit for the current set of features.

References


