This study examined the interactive relationship between associative and semantic word pair strength in the prediction of item judgments and cued-recall performance. Participants were recruited from Amazon's Mechanical Turk and were given word pairs of varying relatedness to judge for their semantic, thematic, and associative strength. After completing a distractor task, participants then completed a cued recall task. First, we sought to expand previous work on judgments of associative memory (JAM) to include semantic and thematic based judgments, while also replicating bias and sensitivity findings. Next, we tested for an interaction between the two database norms (FSG and COS) when predicting participant judgments while also expanding upon previous work by testing for interactions between these database norms when predicting recall. Significant interactions were found between FSG and COS when predicting judgments and recall. For low semantic overlap, associative overlap was the primary predictor of both judgment strength and recall proportions. However, this trend reversed for high semantic feature overlap, as higher levels of COS decreased the effectiveness of FSG as a predictor. Overall, our findings indicate the degree to which the processing of associative, semantic, and thematic information impacts cognitive processes such as retrieval and item judgments, while also examining the underlying, interactive relationship that exists between the norms used to represent concept information.