Incidental Learning on the London Tube: Evidence from Hypermedia

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Incidental learning addresses learning that is unintentional and often occurs automatically while engaging in another, intentional task (Baylor, 2001; Frensch & Rünger; 2003). While not necessarily implicit learning, incidental learning is potentially important in a hypermedia environment where learners are exposed to a great deal of information that is peripheral to the target information.

We investigated whether information that was presented in two formats, text based and image based, would affect performance on an incidental learning task.

Method

Participants were introductory psychology students receiving credit for their participation in a two-part study. In the initial test session, participants were tested on a 43-page hypertext document on the topic of historical events on the London Tube. Each hypermedia page (webpage) contained a short text section and a picture to help users differentiate between pages. The *image only* group received webpages with a textual description of historical events and an accompanying image. The *text and image* group received webpages that contained the same picture and textual description of historical events plus an additional phrase of text that described the target object in the accompanying image, thus providing the target information in both modes.

Students were asked to find the answers to fifteen questions by navigating through the website. They were not explicitly instructed to study or remember the material, in order to induce incidental learning.

In the second test session, students were given a multiple-choice test that contained 15 "text" questions (material from the text on the pages where the search answers were found) and 15 "image" questions (material from the images on the pages where the search answers were found). We were interested in whether images alone or images enhanced with text affected incidental learning.

Results

One hundred and thirty-four participants were tested, 67 in each condition. Due to equipment failure we were unable to use the data for 19 participants in the image only condition. A two-by-two ANOVA (question type x condition) was computed on number of correct responses on the multiple-choice questions. There was a main effect for question type, $F(1, 113) = 40.50$, $p < .01$ ($M = 6.98$ for image questions and 5.51 for text questions; $SD = 2.41$ and 2.14, respectively). There was also a main effect for condition, $F(1, 113) = 5.22$, $p < .05$ ($M = 6.59$ for text and image group and 5.77 for the image only group; $SD = 2.42$ and 1.99, respectively). There was no interaction effect.

Discussion

In general, regardless of condition, students performed above chance, indicating that incidental learning occurred. In hypermedia environments, image-based information seems to be more conducive to incidental learning than text-based information. However, additional text that supports the image information does enhance incidental learning of image-based material.

Acknowledgments

References

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