Knowledge acquisition, navigation and eye movements from text and hypertext

Anja Naumann[1]*, Jacqueline Waniek & Josef F. Krems*

Studies comparing text and hypertext concerning knowledge acquisition and information retrieval report varying results. However, in relation to knowledge acquisition, linear text tends to be as good as hypertext or even better. Problems associated with hypertext are mainly orientation, navigation and the difficulty of building an overview of the whole material.

Therefore, our objective is to devolope a hypertext design which supports the reader in orientation and enables him to build an equal knowledge structure.

In a first experiment hypertexts were compared with electronic linear texts concerning knowledge acquisition, navigation, and eye movements. In the first part of the experiment 28 subjects read one linear text and one hypertext with different content. In the second part, an additional 28 subjects answered questions using a hypertext and a linear text.

As expected, when reading the hypertext version, subjects acquired less knowledge and reported more orientational and navigational problems than reading the linear version. The eye movements also indicated that the navigation process took some attention away from the actual text. In the second part of the experiment, concerning information retrieval, both versions did not differ in correct answers, answering time and knowledge acquisition, while for the linear text version more orientational and navigational problems were reported.

The results show a clear need for a better hypertext design. Furthermore, hypertext seems to show better results for information retrieval than for reading a text with scant previous knowledge, whereas linear text seems to be more suitable for reading through.

Keywords: hypertext, knowledge acquisition, navigation, eye movements

[1] TU Chemnitz, Philosophische Fakultät, Allgemeine Psychologie I und Arbeitspsychologie, 09107 Chemnitz, Tel. 0371-531-6338

anja.naumann@phil.tu-chemnitz.de, http://www.tu-chemnitz.de/~anjna/