

INVESTIGATING DOMAIN INFORMATION
AS DYNAMIC SUPPORT FOR THE LEARNER
DURING SPOKEN CONVERSATIONS

by

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ABSTRACT

This thesis investigates the research question “How can the dynamic provision of domain information assist an adult learner during an audio-only conversation?” Theories of natural conversation and of conversational learning are first examined to identify processes at work within a learning conversation. The potential for supporting these processes by providing the learner with immediately relevant domain information is assessed. From this, requirements are generated for an automated method of assisting the learner. The assistance comprises details of the current conversational area plus semantically related domain information, updated dynamically to follow the spoken conversation.

A computer-based prototype system is built and evaluated. The system has access to a concept network of the learning domain, created in advance. As the conversation progresses, text from speech recognition is analysed to estimate the concept network node under discussion at any given moment. This concept, and semantically related concepts from the network, are presented visually to the learner. The intention is to provide the learner with detail and context pertaining to the specific discussion area at that moment, to use as they see fit.

Main evaluation comprised pairs of participants discussing herbal remedies over a simulated telephone link. The learner was given only domain-related problems and a screen showing the system-generated assistance text, obscured in the control condition. The second participant was given extensive domain details on paper. The evaluation showed that the system was able to offer assistance with the collaborative generation of meaning and the acquisition of concepts and abstractions. Learners with the assistance covered more concepts of relevance and used fewer incorrect concepts in their written answers, as well as taking more control of the conversation.

Suggestions are given for improving the system design. Future work could include evaluation in an authentic learning setting, such as students on a home study course.