

Competent Information Search in the World Wide Web – Development and Evaluation of a Training for Pupils –

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Introduction

Autonomous Utilization of Information Sources

Starting point: Existing gap between

- an increasing need for using various information sources (especially new media) autonomously on the one hand
- and increasing control requirements (e.g., information selection) that have to be satisfied by an information user on the other hand

Aim of the research project: Reducing this gap in the context of the information source WWW by facilitating the ability for competent autonomous information searches on pupils' side

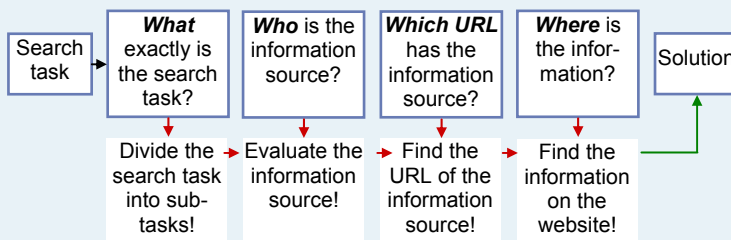
Task Analysis

Question: What does 'competent' mean?

Relevant Knowledge Components (Marchionini, 1995)

1. **System expertise:** Experts dispose of a comprehensive knowledge base about search systems in the WWW (Weber & Groner, 1999)
2. **Information-seeking expertise:** Experts show top-down planning and adaptivity, i.e., a flexible strategy selection that takes the search task as well as the search process into account (e.g., Hsieh-Yee, 1998; Navarro-Prieto, Scaife, & Rogers, 1999; Weber & Groner, 1999)
3. **Domain knowledge**

Processing Model of Search Tasks



Performance Analysis (Study 1)

Question: How do pupils perform information searches in the WWW?

Participants

28 pupils: average age ~ 12 years; computer and internet experienced

Design

1. **Simple training:** *Free browsing* vs. *conventional*, i.e., *technically oriented training* → interindividual variation
2. **Complexity of search tasks:** 4 different stages (see processing model) → intraindividual variation

Measures

Performance when solving search tasks

Procedure

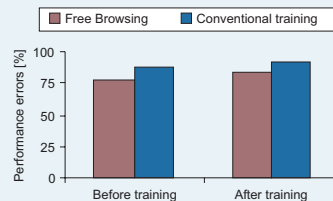
	Pretest	Search tasks	Simple training	Search tasks	Posttest
A	X	Complexity 1-4	Free browsing	Complexity 1-4	X
B	X	Complexity 1-4	Conventional training	Complexity 1-4	X

Results

Overall: 85 % performance errors when solving search tasks

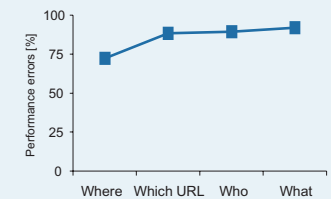
Simple training:

No effect



Complexity of search tasks:

No effect (high overall error rate)



Qualitative error analysis (Examples)

- Complexity 1 (Where?): Selection of irrelevant information
- Complexity 2 (Which URL?): Interrogations as search queries
- Complexity 3 (Who?): No evaluation of information sources
- Complexity 4 (What?): Incomplete answers

Training Design

Question: How can pupils be trained?

Conception

Aim: Improving the performance when solving search tasks

Methods: Realization as in-class training

- Whole class-lessons: Learning abstract concepts
- Pairs of pupils-lessons: Learning with multimedia modules that are
 - constructed case-based, i.e., a question-answer-dialogue is simulated by using concrete examples
 - combined with working sheets that include problem-solving tasks

Structure

- Module 1. Search environment: Internet, WWW, search systems
- Module 2. Search tasks: Processing model of search tasks
- Module 3. Find the information on the website! Help functions and search strategies
- Module 4. Find the URL of the information source! Syntax of URLs and handling of search systems
- Module 5. Evaluate the information source! Identification and evaluation of information sources with regard to credibility and actuality
- Module 6. Divide the search task into subtasks! Identification and processing of subtasks

Effectivity Analysis (Study 2)

Question: Is the training effective?

Design

1. Training: No vs. partly vs. completed → intraindividual variation
2. Complexity of search tasks: 4 stages → intraindividual variation

Measures

System expertise as well as performance when solving search tasks
→ Realization of this study in 2 school classes within the next weeks