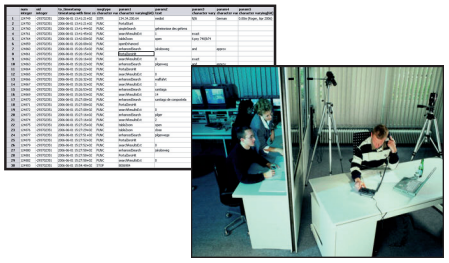
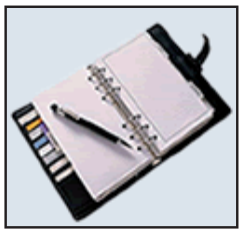
eLmuse

establishing Longitudinal research methods in the usability evaluation toolbox

In the field of Human-Computer Interaction and Information Visualization, the majority of the evaluation methods applied collect data at a single point in time, e.g. in controlled experiments. Although such experiments discover valuable findings, certain drawbacks of the research method have been discovered. For example it is questionable whether an appropriate amount of training can be given to control learning effects or whether usability flaws might disappear over time, since users adjust their strategies.





We apply and combine different data gathering techniques, such as field observations, interaction logs, lab studies, and diaries.

Research Activities

Longitudinal research methods, collecting data at several points in time, try to accommodate for these drawbacks, but have rarely been applied in human-computer studies although they are commonly used in other partially related fields such as social sciences and psychology. This project aims at building up a research framework for such longitudinal research methods by defining research questions, measurements and data analysis methods. Therefore certain studies will be carried out in different domains such as input devices, interaction techniques and information visualizations. Such a comprehensive longitudinal research framework should serve as a decision help for researchers and practitioners to choose the appropriate and tailor-made methods and procedures when dealing with a specific research question. In the long-term we aim to establish longitudinal research methods as a common practice in the usability evaluation toolbox.

Current studies

Within eLmuse we apply a diverse set of research designs, methods and data gathering techniques to different application domains. Our studies range from input devices and visual seeking systems to rich internet applications.

Input devices

Novel input devices often require users to learn new motor skills. Therefore we are interested to investigate how much time users need to learn and whether these skills can be acquired in a lab situation.

Visual Information Seeking

Most users are not aware of the possibilities visual information seeking tools can provide, e.g. through the use of interactive visualization techniques. We use a combined approach of lab and field study to examine how such tools are used for visual information seeking. Thereby we combine different techniques like interviews and observations in the lab and diaries and interaction logs in the field.

Rich internet applications

One common practice in the development of today's (rich) internet applications is continous change. The "beta Web" is nowadays an accepted standard for the deployment of new tools and websites to the user community. We explore whether longitudinal evaluation methods are better suited to accompany such a dynamic development process than traditional cross-sectional user studies. To be specific we explore methods and data gathering techniques that are capable to monitor change in user behaviour when new features are introduced. We are currently applying these methods on a novel news portal.

Combining logging with qualitative data

On a more generic level we are interested in ways to combine quantitative interaction log analysis with qualitative data derived e.g. from interviews or diaries. We expect benefits in terms of an increased validity due to the cross-checking of these data.

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