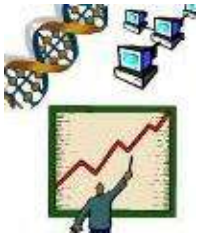
Understanding Usability Evaluation in Expert Domains



Implications from Current Practices

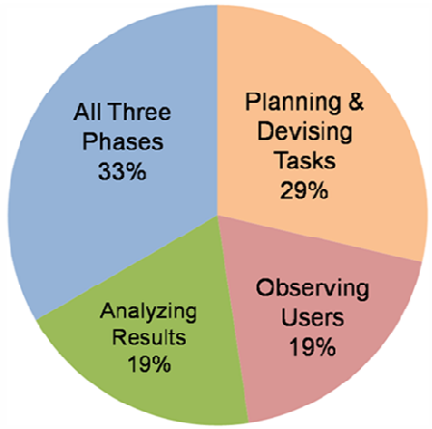
Conventional usability methods pose challenges for practitioners in highly specialized expert domains. Our study establishes an understanding of the nature and extent of these challenges and the workaround strategies currently used in practice.

Examples of Expert Domains

- medical imaging
- software development
- network security
- aviation
- healthcare
- test and measurement instruments
- genomic analysis
- financial derivatives
- statistical analysis
- business-process support

Usability Evaluation Challenges

Three key challenges are: *domain-specific terminology, variability within domain,* and *limited access to domain experts.* In applying a conventional usability test, practitioners had different opinions about what stage is the most challenging, as summarized below:



Even for those who selected all 3 phases as being challenging, planning and devising tasks was still noted as generally being the most difficult.

Implications

- The workaround strategies are highly dependent upon context and resource availability
- More pragmatic methods needed for understanding the work of domain experts that allow practitioners to be effective given the time and resource constraints they face.
- Need for usability practitioners to be proactive about assessing their own needs related to time, resources, training, and access to domain experts.
- More research investigating the value of training domain experts as usability practitioners.
- Need for HCI education to be augmented in view of the challenges practitioners face in expert domains.

The Study

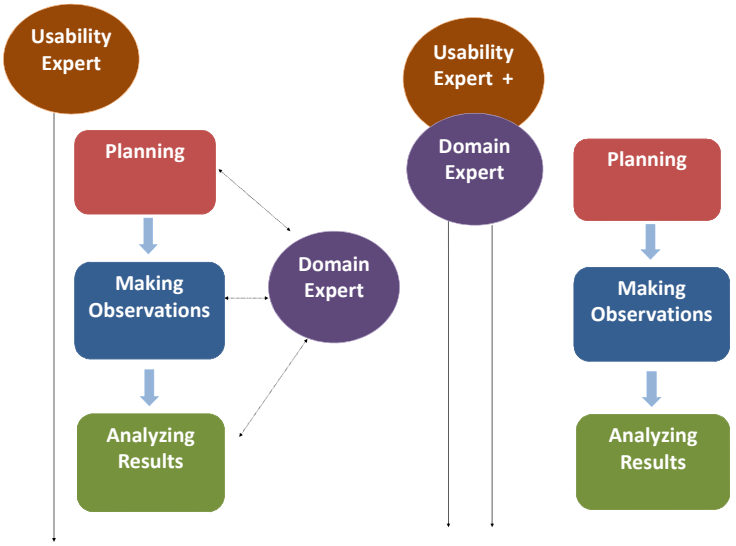
Method: Semi-structured interviews conducted at 5 large corporations, 3 national-level research institutions, and 3 independent consulting companies in North America.

Participants: 21 in-house usability experts and external usability consultants with average 10 years of experience.

Data Analysis: Analysis based on grounded theory. Data organized, coded, and analyzed using the ATLAS.ti software.

Workaround Strategies

Three common workaround strategies emerged: *Iterative Elicitation*, *Partnership with Domain Experts*, and *Upfront Investment*.



Iterative Elicitation (left) involved a continual iterative back-and-forth exchange with domain experts in all stages. *Partnership* (right) involved usability practitioners working hand-in-hand with domain experts in all stages.

Future Work

We plan to conduct a parallel study looking at the challenges and workaround strategies within the context of developing software for the same expert domains studied in this work.

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