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DIFFERENCES IN USER-CENTEREDNESS IN A LARGE R&D ORGANIZATION

Kenneth R. Allendoerfer

kra25@drexel.edu

The  School at Drexel
College of Information Science and Technology

Project Rationale

Many organizations employ formal methodologies for developing IT systems and software. Formal methodologies help ensure that systems meet requirements, increase the predictability of outcomes, help manage complexity, and reduce risk. Expertise and certification in prominent methods can also serve promotional purposes for the organization. Despite these benefits, there appears to be less methodological standardization in how organizations engage in user-centered design and evaluation (UCD&E) activities, such as user interface design and usability testing. This study examines this issue in one large research and development organization that emphasizes formal methodology in its software development.

Research Questions

- What factors influence decisions about the inclusion and scope of UCD&E activities on a project?
- How do usability professionals and their counterparts in engineering think differently about user-centered activities?
 - Do they have the same reasons for including (or not including) UCD&E?
 - Do they perceive the costs and benefits of UCD&E differently?

Method

- We interviewed 3 lead engineers and 3 human factors/usability specialists within one large R&D organization
 - Some had worked on the same projects with different roles and responsibilities
- Discussed 4 recent or current IT or communication systems under development by the organization for use by the organization

Who was responsible?

- Specialist on project as either direct report or consultant
- System or component vendor when buying off the shelf
 - However, project will have to live with many of their design decisions
 - Vendor may not have UCD&E specialists or program
- Independent test organization
- User representatives or union

What types of activities did they do?

- **Naturalistic Observation** – analysts observe and interact with users while they do their job activities
- **User Team/Focus Group** – a group of users representing stakeholders serve as a design advisory team (long-term focus group)
- **Iterative Prototyping** – different levels of fidelity; fast turnarounds preferred; usually in conjunction with an evaluation method
- **Usability Inspections** – analysts examine system to identify usability problems according to heuristics, guidelines, best practices
- **User Testing** – users complete tasks using system, performance and satisfaction data are collected
- **Product Selection** – testing or inspections conducted on existing products before purchase

UCD&E Requirements

- Typically user interface requirements, conform to established standards and guidelines
- Typically **NOT** human performance requirements
- Often written before UCD&E specialists become involved with the project
- Obtained or validated through focus groups, user representatives
- Some UCD&E input to RFP
- Projects sometimes require “mounds of data” before a new requirement can be added; heavy bias toward existing designs and requirements

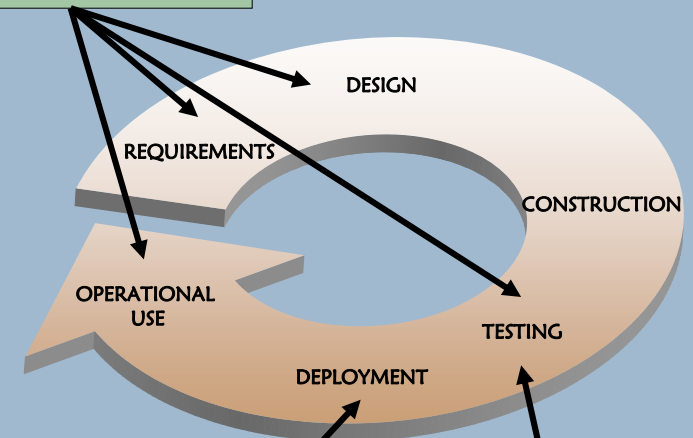
Was it worth it?

- Most said that UCD&E was critical to program success,
- However, did not collect any information to support this
 - No in-service assessments; No measurement of impact of UCD&E efforts on bottom-line
 - Limited measurement of whether system achieved user performance goals
- Planned to continue or expand UCD&E efforts on future projects

Other Readings

- Anderson, J., Fleek, F., Garrity, K., & Drake, F. (2001). Integrating usability techniques into software development. *IEEE Software*, 18(1), 46-53.
- Earthy, J. (1998). *Usability maturity model: Human centeredness scale* (Rep. No. D5.1.4s). London: Information Engineering Usability Support Centres.
- Radle, K., & Young, S. (2001). Partnering usability with development: How three organizations succeeded. *IEEE Software*, 18(1), 38-45.

UCD&E wants to be here; believes it adds value here



UCD&E considered to be a risk-reduction activity to identify “show stoppers” & protect against problems that could delay deployment

Projects mainly focused UCD&E efforts here

Reasons For Including UCD&E

- Union contracts required user involvement in system design and deployment decisions
- Previous versions of the system had bad reputations for usability
- Project managers had previous good experiences with UCD&E
- Organization had explicit human performance goals or requirements
- Systems were safety-critical
- Believed that redesigns would be more costly in the long run

Reasons For Excluding or Limiting UCD&E

- Project schedule already tight, no time to conduct UCD&E activities
- No budget for UCD&E efforts
- When you’re buying the system rather than building it, you cannot redesign user interface even if you find problems
- Evaluations may reveal usability problems that require resources to fix that you don’t have (i.e., don’t ask the question if you can’t live with the answer)