June 22, 2008

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WRIT 599G-01

Topics in Technical Communication: User Research and Usability

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Case Study Summary

Case 10: Two Contrasting Case Studies in Integrating Business Analysis with Usability Requirements Analysis and User Interface Design

Elizabeth's first project had no preexisting business analysis, but her second project had an extensive preexisting business analysis

This case study contrasts two other case studies. In the first case study, Elizabeth, the usability engineer, was faced with building a user interface for a software application that had no business analysis information completed prior to her involvement. In the second case study, Elizabeth took a project that already had years of business analysis conducted prior to her involvement. The business analysis is a major component that Elizabeth needed to determine the requirements of the interface design she would create.

When Elizabeth entered the project, she discovered that the goals were not very well outlined. Her team members were confident that they could figure out the details as the project progressed.

Broad-scope problems identified early:

- Lack of business analysis (big picture view)
- Lack of functional requirements documentation
- Lack of organized plan

The project was to create a software interface with the purpose of automating tasks performed by publicity managers at The Thompson Institute (TTI). Elizabeth's immediate resources included, Pamela, the fairly technologically-knowledgeable project leader and three subject matter experts (SMEs), who were all very knowledgeable of important aspects of the project.

As Elizabeth began sorting out how she would gather her data, she also discovered the following challenges.

Usability testing challenges identified early:

- The number of users available to test was very small (about 35 people)
- The users were too spread out geographically to test face-to-face
- Budget constraints limited ability to travel
- Off-site participants do not follow directions as well as face-to-face meetings

Elizabeth overcame these challenges by using the SME's to gather as much of the business analysis and functional requirements as possible. She arranged meetings with the off-site users remotely, using special software on the shared web site. She gathered information on usability requirements from the off-site participants.

Elizabeth used the data she gathered from the remote users to do card sorting, which is a way to understand how people categorize information related to the various tasks. She used this as the basis for determining the structure of the interface (what goes where, i.e. the information architecture).

Elizabeth normally began with a top-level information architecture design (in other words, she designed the interface first). Normally, she used the functional requirements documentation to begin this process. Lacking this, she chose to use paper prototyping to flesh out the interface. She used the SME's to help test the paper prototyping.

As the interface was designed, Elizabeth concentrated on keeping interface appearance and use similar from screen to screen, reducing the need to recall procedures from memory. The software developers quickly realized that this was also going to reduce their coding effort, allowing them to reuse code in many areas of the interface. The repeated familiarity of the menu screens also made training easier to conduct.

Case Two: Interface Design for the City Police Department

In case two of scenario ten, Elizabeth takes a project with the City Police Department (CPD) to design an interface for an inventory system to track confiscated items and evidence across eight difference city warehouse locations. It was an enormous project with a multi-million dollar budget. Considerable planning and logistics work was compiled prior to her involvement (nearly five-years worth of planning).

The functionality and interface architecture was already well documented. The requirements were spread over 12 large documents. The CPD has already invested two years to create these 12 documents and had spent a lot of money to create the documentation.

This automated system was to replace a system that used paper reports and physical files to document the location and contents of the item warehoused. The paper-process was error prone and extremely time consuming for the staff.

The officer who involved Elizabeth in the project was very supportive of her. He realized that usability was key to success. He believed this because he felt that most users of the system would not be very computer literate. If success with the system depended on their understanding of Microsoft Windows interface, he felt that they CDP system would fail. It had to be very easy to use to succeed.

Early challenges identified:

- There was so much information developed for the architecture design that digesting it all was going to be very time consuming
- The existing information was not developed by usability experts and might conflict with her design goals
- People already on the project were already invested in approaches and expectations that might differ from Elizabeth's expertise
- She knew that some people who were already on the project would be hostile to her involvement
- Her attempt to gather information correctly might be offensive to team members who had already gathered related information
- Testing processes would be challenging because of the variety of processes that occurred (different processes for different types of items to be warehoused)

Elizabeth began by creating a user-profile questionnaire. From there she developed a requirements analysis document for the interface. She next had high-fidelity interface prototypes built and tested from laptops. She continued to re-design and tweak the interface after each prototype test.

Her progress was eventually stopped when the software developer went over budget, and the entire project was canceled.

Evaluation

The value of these two contrasting case studies is to show the strengths and weaknesses of having too little or too much data for your project. If you have no data, the project stale until the data is available. The lack of data may also force the usability engineer to gather the data, potentially taking time from interface design.

Having too much data has its own challenges. Obviously, the time required to sort through the data is demanding. However, the biggest challenge to a usability engineer is that it sets a course of action before the usability engineer can guide its path.

In the first scenario, Elizabeth had to gather her own data. However, this gave her the opportunity to fine tune the information gathered. She was able to shape the usability from inception to architecture design.

In my opinion, if the expert has a choice between many people gathering information but less control in the content, the expert is much better off being involved in the information gathering process. As the saying goes, "Too many cooks in the kitchen spoils the broth."

The more people involved in a usability project, the more diluted the usability engineering can potentially become. This case study shows that a middle scenario would offer the best of both. For example, the following would represent a scenario in between these two:

- A business analysis is conducted prior to the functionality documentation
- The business analysis takes into account goals of the usability engineer
- The usability engineer oversees the data gathering for the functionality documentation
- The user base can be reproduced locally for usability testing
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