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Usability at Microsoft

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1. INTRODUCTION

This paper outlines the work of usability engineers at Microsoft. It gives an overview of our organization, our goals, our usability work, and some of the challenges faced in software usability work.

2. USABILITY ORGANIZATION

There are five product usability groups at Microsoft, and one central group. At its inception in 1988, usability work at Microsoft was centralized in one group. However, by 1995 the group had significantly increased in size, and it was recognized that a closer relationship between usability and product development was necessary to better support the teams. Today there are 76 usability engineers, and 22 support staff working at Microsoft.

The usability groups support products within particular divisions. Each major product has a dedicated usability engineer, and we also support some of our minor products. The engineer reports to a usability manager but is also a member of the product team and is located with the team. Thus, the engineer has support both from a usability group and the advantage of being tightly integrated into a product team.

In addition to understanding HCI (human computer interaction) and test methodologies, usability engineers at Microsoft need excellent team skills. By working consistently with product teams, we can educate them in understanding what user issues need to be addressed and when in the product cycle. By getting the teams to ask the right questions maximizes the impact of our usability work.

The central usability group supports several smaller product teams and addresses cross-product issues in addition to supporting all the usability groups. On average our test coordinators schedule 70 tests a month, requiring around 650 participants.

3. OUR MISSION AND GOALS

Our mission is to provide empirical data about users to support the product design process. We want to develop good product designs as well as good design process, so product teams get the information they need about users at the right time. We also try to provide measures of how successful product designs are to make sure teams know how well users can work with their products. We constantly look for ways to integrate usability into the product cycle.

4. THE PRODUCTS WE SUPPORT

Microsoft produces a wide variety of software (business systems, networking, multimedia, platforms, hardware, financial, educational, games, children's products, etc.) and the usability groups attempt to support them all. Such a variety of products lead to engineers adopting slightly different strategies in evaluation methods and usability goals for their

Human–Computer Interaction: INTERACT'97 S. Howard, J. Hammond & G. Lindgaard (editors)
Published by Chapman & Hall

particular product. For example, the product goals, customers, and evaluation methods for setting up a network server are different from playing a golf game. Nonetheless, there are some general similarities that we describe below.

5. THE PRODUCT CYCLE

The first thing to understand is Microsoft creates generic software as opposed to software to support a specific business process. At the beginning of a cycle we use techniques such as contextual inquiry (Holtzblatz & Beyer, 1993) to understand what activities people are doing, field studies to focus on the use of a particular product, and remote data collection studies if a version of the product has been released. The remote data collection involves having users work with instrumented versions from which we can analyze the usage from the data collected. We can apply heuristics to early product specifications to assess potential usability problems. In addition, teams get data from market research, and for existing products, from our Product Support Services (help lines).

Because we are integrated into the product team, it is much easier to track the product schedule and better determine when a certain type of usability activity should be used, or what features are going to require extra usability attention. We strongly advocate low level testing with paper and Visual Basic prototypes before testing more fully developed code. Developers create daily builds of a product, the purpose of which is to test new code, but they are very useful for us to monitor the changes in the design.

We continue with rapid iterative lab testing until the code complete stage, after which time very few user interface changes are made. During the beta stages of a product more field studies, often longitudinal, may be conducted. Occasionally a usability 'show-stopper' occurs at beta, at which point more testing will take place, but generally by the beta stage we are starting to work with team members on the next version of the product.

After shipping a product we conduct benchmark tests to measure changes between product versions and competing products, and to allow us to set usability goals for the next version.

Occasionally we need to look at issues from a broader perspective, something more akin to HCI research. In addition we may conduct supportability usability tests for product support services. Here the goal is to discover how best to handle support calls.

6. TOOLS AND FACILITIES

At Microsoft we have 18 usability labs and two focus group rooms. Each room is divided by a one-way mirror creating a participant side, and a soundproof observer's side. There is plenty of room for team members to observe tests.

A number of tools have been developed in-house to support usability testing (Cordes et al, 1993). One tool allows us to track user actions and take notes which are time synchronized with the video of the session. Another tool is to quickly review videos. Usability issues are tracked in databases that are shared with product teams and assist in monitoring issues (Sullivan, 1996). Data from tests are shared more widely from our internal web site where all our usability reports are available.

We have completed a number of tests in Europe, and more recently in Japan. In 1996 a usability facility was established at Microsoft's Tokyo office (Aykin et al, 1996).

7. CHALLENGES

Products teams are much more aware today of the need to create easy to use products, they are receptive to usability activities. However the issue of time for usability work in the product cycle is constantly pressing. Our challenges include streamlining usability processes to integrate into the fast dynamic software product cycle. We are constantly trying to find ways to improve our efficiency of delivering usability findings and training product teams to understand user behavior.

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