

## Why Easy is So Difficult - a short note on Usability Engineering

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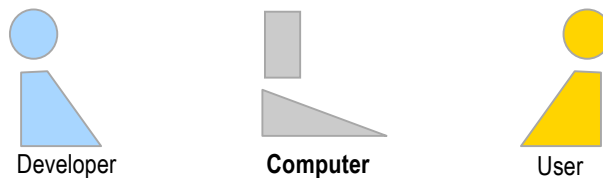
The time has come when we hear the words usability and 'usable design' a lot. Everyone wants usable designs today. It is now being recognized as a significant metric in the success of a product. It is even being recognized as having a direct impact on the bottom line as well as providing a competitive edge.

So why are there so many 'unusable' designs today? Why are there many more of them than usable designs doing the rounds of our lives? Do designers deliberately create unusable designs? They surely do not. Nobody intends to make a design complicated and difficult to use. Then why and how do 'unusable' designs come about?

They come about because in the process of creation of a product it is assumed that ease of use will be an automatic by-product.

Ease-of-use however does not automatically happen. In fact if left to the natural course of development events, the design will be unusable. This is so because through the course of conception, maturation and the entire pre-release phase, the software development process does not include getting the design 'humanized'.

When you create a design from just one side of the screen that will then suddenly get unleashed unsuspectingly onto the other side, it suffers a 'usability culture' shock. A disconnect occurs between the human mind and the 'computer mind'.



**Figure1. Designing from Both Sides of the Screen** (also a Book Title by Isaacs, Walendowski)

The human and the computer speak two different languages and have two different goals with respect to the product. The developers' goal is to make the design work and hence they need to speak the language of the computer. As a result, the user perspective and language often does not get transcribed in a traditional (non user centered) approach.

Contrary to expectations in typical development environments, designing a user interface is not a mere creative undertaking like making a movie, without any way of predicting whether it will be a hit or a flop. Industry today cannot afford this. A movie has a limited short term shelf life. The user interface of a product however, must have a short and long term shelf life.

Usability of a product or service CAN be planned, designed, measured and predicted upfront if a systematic approach is undertaken. An approach that designs not just based on opinions of developers and stakeholders but includes a structured analysis along with design involving end users in a systematic user centered process.

Some common myths about usability are: it takes too long, costs too much, is subjective and cannot be predicted or measured. And some not so common realities are: usability reduces costs by reducing rework, development time, training time, support costs among others. It maximizes usage and productivity and hence increases profitability and enhances the product and company reputation.

Usability Engineering however encompasses much more than web design or graphic design or UI development or just prettying up screens. It is a multidisciplinary perspective. And expertise in usability engineering takes years to acquire.

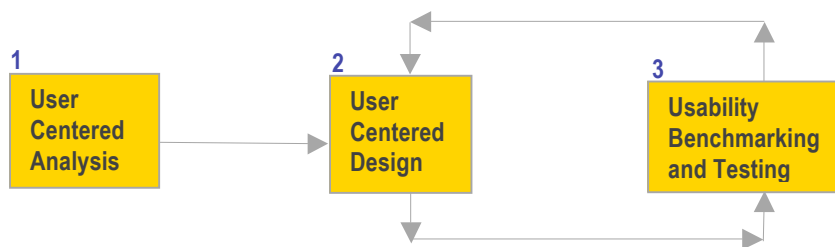
It will help to understand the criticality of being user centered if we examine the implications of one seemingly trivial and superficial lapse that frequently happens in the creation of products, the 'terminology'. Like usability in general, terminology which is one of the components of usability, usually happens as a by product and is a seemingly insignificant part of the design. Let us look at it in context:

- Corporations routinely lose business as a result of users 'abandoning' a site because they could not accomplish their task
- Users come to a site with a particular goal in mind, they come to accomplish a task, e.g. to pay a bill, find the lowest fare, issue a book, buy a mobile phone etc.
- Users cannot find the information they were looking for or got lost/confused, went drifting along an incorrect path and then left
- The incorrect terminology led them to the wrong place

How does such fallout happen? Because there is a limit to the time that humans will tolerate to accomplish a task. The total time, which includes the 'wandering' time is not just a function of the 'click' time and the machine response time. A big part of it is the decision time that people spend, wondering and wandering and then losing tolerance.

The terminology was just one such factor. The user interface structure, the navigation, flow all need to reflect the user's mental model in order to avert this. What is the user's mental model? Users expect a system to behave in a certain way, based on their own internal cognitive (thought) processes. If the system design can match this, then the product will be easy to use. And the first step of the usability engineering process is studying and extracting the user's mental model.

The broad 3 step user centered process (Figure 2) first analyses to get the user (not stakeholder) requirements right upfront, then creates a design that works from the user's side of the screen (see Figure 1) and then tests with actual users to make sure it works before unleashing it. Benchmarks are set based on acceptable human tolerance levels of task times, errors etc.. This methodology is easily integrated into traditional SDLCs to ensure ease of use of the end result.



**Figure2. The Usability Engineering Methodology**

Today lip service to usability often happens by prettying up the screens, as the product is going out the door and then quickly applying band aids before release. This results in pretty screens. It does not result in usability. This is because by this time, the basic structure of the product, which has the greatest impact on the ease of use has already been set, from the machine perspective and is either not changeable or the reworking costs become prohibitive.

But even addressing these types of tweaks on consistency, terminology, etc. have been known to double usability.

Bigger redesign of the user interface structure, navigation and task flows matching user tasks and other such holistic and planned approaches typically reflect improvements in usability between 300% and 1000% (Nielsen).

Looking from the perspective of a real life example, a simple measure of usability can be how long it takes you on a travel site to book an airline ticket from Pune to Bangalore. Or how many errors a lab technician makes in handling cancer tissue specimens in a lab.

The Usability Engineering Center of Excellence at Persistent has the expertise, setup and repute for successful execution and delivery of usability engineering. It's capabilities in applying an optimized methodology to any product or system is guaranteed to set apart Persistent customers' products from that of its competition as well as provide significant ROI.

Once we recognize the fact that design from both sides of the screen makes business sense, we can alert our customers to our capability of executing holistic product design and development that includes both, the technology AND the user needs. Usability Engineering has proven itself with many success stories to date. As developers and designers of products, it is our duty to ensure that we do not casually and unknowingly unleash our convoluted designs on hapless victims. Easy is not really that difficult!