

User Interface Design -- An Experimental Study

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The Internet is becoming an increasingly vital medium in our information society. More Americans are going online to conduct such day-to-day activities as business transactions, personal correspondence, research and information gathering, and shopping. Now that a large number of Americans regularly use the Internet to conduct many daily activities, it is no longer good enough to rely on generalized visual library and hypermedia principles to support all these activities as if they were the same. Further, the pace of development of e-commerce website designs and of online decision support tools have dictated that companies put them out there before the competition does. There has been little time to study these designs and how they impact consumers (e.g., is the linear, visually flashy process of a Gucci website worse than the non-linear visually functional site of a Sears Roebuck? It is vital to develop a better understanding of how web designs facilitate consumer needs (or not), and to assess the role of individual differences and whether designs that reflect such differences provide improved service.

There are many consumer-oriented websites, yet the science of website design is relatively immature. There are few scientific principles upon which to base such designs, although many designs are used in practice. In this research, buyer behavior theory was examined to see if it could be used to enhance the DSS functionality of e-commerce websites. Specifically, other models of consumer cognition and affect that might lead to improved website designs, increased online traffic, and greater consumer loyalty were investigated.

A number of different approaches to user interface design improvements were considered. Of the various possible approaches to human computer interface (HCI) design, the most common practice in the past, and to a great extent today, is to assume one uniform user group with similar characteristics, needs, and preferences. This approach usually requires an iterative design procedure to minimize the differences between users and the system. Another design approach is to assume different user groups with different characteristics, needs, and performances who will be using the system. This approach requires a careful examination of the population in order to identify such groups, as well as different interface modules for the same service/product.

The approach taken in this study was to assume a null hypothesis that there are no differences among the users (although our belief is the opposite) and to try to disprove that theory. For this purpose, the following research tasks were embarked on:

- * Development of a model to study HCI (this entailed creating a structured model of the intended user),
- * Development of instruments for measurement,
- * Validation of the instruments,
- * Application of instruments to test the model,
- * Analysis of the results obtained through the application of the model, and
- * Development of recommendations for the use of the model.

The study thus far has rejected the null hypothesis that there are no differences among the users and has shown that individuals can be classified and separated based on Need for Cognition and Personality (Utilitarian vs. Lifestyle). This results in a 2 x 2 classification, or the sorting of consumers into one of four types. The method of classification used in this study was a survey or questionnaire. Self-selection was also exercised, but it was shown that individuals are not perfect when it comes to classifying themselves.