
Ethno-Design Research: Making a Space for the User in the Future of Media Devices

Ron Goldin

Microsoft Corporation
1065 La Avenida Ave.
Mountain View, CA 94043
rgoldin@microsoft.com

Nancy Bell

Microsoft Corporation
1065 La Avenida Ave.
Mountain View, CA 94043
nancyb@microsoft.com

Abstract

With the proliferation of smart and connected devices, the world of ubiquitous connectivity and communication is no longer a far-off dream and TV becomes an exciting playground for innovation and new user experiences. As we began to explore the concept of “home” in this context, it soon became clear that our investigation need to include a multiplicity of devices, products and services that are deeply integrated into all aspects of daily life. Consequently, we found ourselves looking for product ideas that would provide solutions that could extend technology beyond the desktop and living room to allow people to communicate, play games, access pertinent information, watch TV and video anyplace, any time and anywhere. To accomplish this goal, we developed the ethno-design method, which consists of a multi-stage process in which both user and design research methodologies are fused into an integrated and comprehensive approach. The outcomes of the application of this multi-faceted research method to the design of future vision projects assisted product planning by defining strategic opportunities for TV and mobile devices with unprecedented input from our customers.

Keywords

Interactive TV, design research, ethnography, research methodology, blogging, media, mobile devices

ACM Classification Keywords

H5.2 User-centered design, H5.2 User Interfaces: Theory and methods, H.5.1 Multi-media Information Systems: Interactive TV.

Introduction

We have entered the digital decade when advances in technology have become deeply interwoven into personal life and the home context [1, 2]. Looking at television, we have seen this media platform evolve from an essentially passive entertainment to a truly interactive device. When we first started working on interactive TV products at Microsoft (e.g., WebTV, WebTV Plus, Ultimate TV), our initial focus was primarily on the TV and the living room space, concentrating on the TV as an interactive internet device and its relationship to the PC. With the proliferation of smart and connected devices such as mobile phones and game-players, it soon became apparent that our area of study needed to address the world of ubiquitous connectivity and communication. As we expanded the concept of “home” to include devices, products and services that are deeply integrated into all aspects of daily life, we found ourselves looking for product ideas that would provide solutions that would extend technology beyond the desktop and living room to allow people to communicate, play games, access pertinent information, watch TV and videos, etc. anyplace, any time and anywhere. Our goal is now to create products that provide highly integrated, personalized, consistent and immersive user experiences across devices.

Research Perspective

How do you make the future real? How can we develop our vision for future iTV and consumer products and features that will support and enhance existing practices and develop new technologies and interaction models? It is essential for any design project to be user centered and user-driven [3]. In this way, we can ensure that products are ground in the users’ reality and product planning and development are based on users’ actual practices, habits, needs and desires. Future vision projects also require a deep understanding of industry trends and emerging technologies. Consequently we need to conduct research that inspires products that are in sync with user behaviors as well as their socio-cultural and technological contexts. Research must also anticipate the evolution of these behaviors and technologies so that products can be seamlessly integrated into user lifestyles. This goal lead us to elaborate what we refer to as the *ethno-design method*, a multi-stage process in which both user and design research methodologies are fused into an integrated and comprehensive approach.

We consider the ethno-design method a three-tiered collaborative endeavor:

- *Ethnography-Design collaboration*: Collaboration between research domains is essential in that we see design research and ethnography as intricately integrated research processes in which both disciplines mutually construct each other [4]. Traditionally, user research and design research often have worked independently or sequentially on research projects (e.g., ethnographers “hand off” field study findings to designers). Our approach is to work in tandem, taking

full advantage of the strengths of the two disciplines to move forward with a unified, organic research endeavor comprised of several overlapping and parallel layers at each stage of the research process.

- *Collaboration with our users:* Our user-centered approach to product development means that the voice of our current and potential users is always included the design process. For ethno-design research, this means making our customers our research partners by giving them the opportunity to show us their visions for the future, i.e., how they would like to use media and communications, and let us learn from their habits and practices.
- *Collaboration with stakeholders:* In a corporate context, collaboration also implies involvement of product stakeholders (e.g., product planning, business development, engineering) throughout the research process with the aim of obtaining their input and buy-in.

Research Process

For this workshop, we have chosen as an example of our research process a recent visionary ethno-design project whose purpose was to generate user-defined scenarios, design principles and future product ideas and requirements for media, entertainment and communications in the home context. Given its breath, the study was conducted in six stages over a 3 month time period in order to fully understand the technological and behavioral domain, investigate users' future designs visions and turn those visions into viable user scenarios and product ideas.

STAGE I: RECONNAISSANCE

The purpose of the reconnaissance stage was to collate and analyze existing research and data on industry trends and user research to gain an overview before undertaking primary research. Initially, design research set out to define our targeted industry domain by undertaking a *market trend analysis* and *high-level product breakdown*. This process consists of piecing together a landscape of products and trends, investigating both the history of their development and their popular usage patterns, and visualizing the results. For this particular study, the results consisted of an overview of web-based services related to TV as well as PC, mobile and other devices, with a focus on sharing, with special attention to blogging, media, and communications.

A unique *market topography* (mapping and analysis) revealed the way in which different products operate independently, where there is functional overlap and synergy, and where there were missing pieces, broken links, and failed opportunities. We identified several clear opportunities for combining services on the TV platform that were innovative to the market, especially in combination with mobile technology. The sample shown here illustrates a breakdown of key themes surrounding the activity of blogging. The *core* entries are the most widely associated with blogs, while the *expansions* are relative newcomers to the landscape. As a result of this analysis, strategic scenarios were identified which could be used as jump-off points for designs for these scenarios (**Figure 1**).

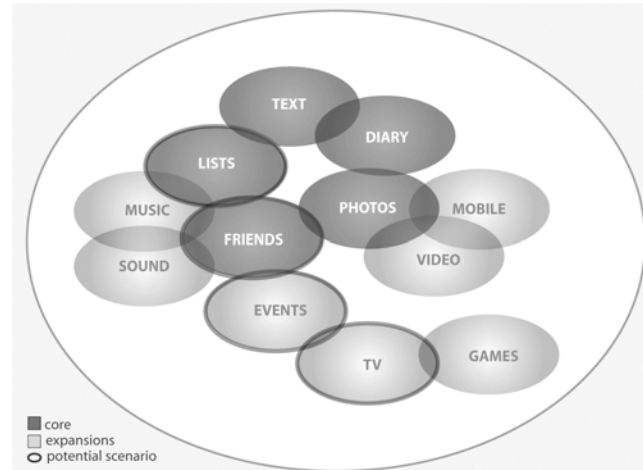


Figure 1. A market topography shows a breakdown of key themes surrounding the activity of blogging.

Focusing on the user experience, analysis of ethnographic research was undertaken to complement and extend market trend analysis in order to provide a holistic understanding of the living room space from a user perspective. To do this, existing user research findings were synthesized and key insights were extracted to provide a foundation for the elaboration of the participatory design study.

STAGE II: VERB/ADJECTIVE SYNTHESIS

To prepare for subsequent scenario elaboration (stage V), design research further developed the high-level product breakdown undertaken in Stage I with a *verb/adjective synthesis*. The goal of this strategy is to “reverse engineer” the products identified in the earlier product analyses and boil them down to their key values from a user’s perspective at a high level: what

the product does, why someone would use it, and how they expect it to behave, as well as how they expect to feel when using it.

For the verb/adjective synthesis for this study, the main communication activities related to online social spaces (e.g., blogging, content sharing) were broken down to conceptual chunks so that the TV and mobile scenarios that were to be designed later could be compared to these and measured for value. In one example, the question “What makes a blog?” seeded the synthesis, attempting to define the user desires and expectations of blogging as a social activity.

Features of current blogging products were identified for a common set of widely recognized user tools, such as *RSS*, *trackbacks*, and *bookmarking* (the nouns, or “what”). Features were further broken down to identify the goals behind the tools users know and love, such as *syndicate*, *invite*, and *proclaim* (the verbs, or “why”). Lastly, users’ moods, attitudes, and expectations while performing these actions were identified, such as *egalitarian*, *interwoven*, and *chronological* (the adjectives, or “how”) (**Figure 2**). These results were shared with key stakeholders from the product teams, to ensure that the user experience dimension was included in their early thinking as well as offer some early direction for product planning and product teams. The results would also be used to inform a design framework for creating testable prototypes and defining user requirements and recommendations for upcoming product cycles.

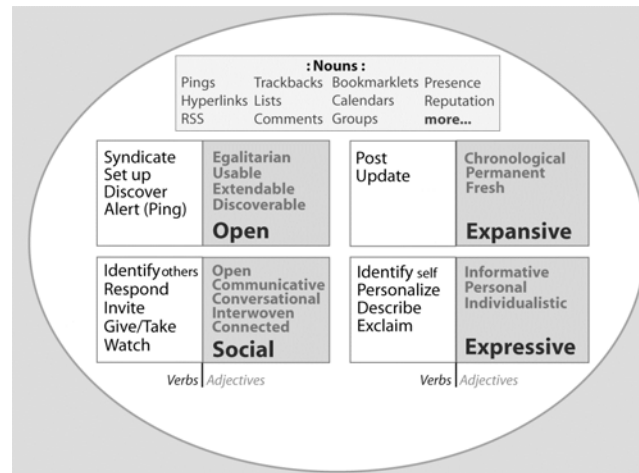


Figure 2. A verb/adjective synthesis chart “reverse engineers” common features and activities involved with blogging, to help articulate and understand user expectations and assumptions.

STAGE III: ETHNOGRAPHIC PARTICIPATORY DESIGN

Having established a knowledge base of market trends and existing user research, it was time to listen to our users. This was accomplished by using an ethnographic participatory design methodology that allowed us to explore users’ future visions of entertainment and media use in the context of their current practices. Thus we were able to gain a better understanding of users’ perceptions and expectations of ITV communications. As we were interested in people’s dreams and visions for interactive TV and entertainment, participants were asked to imagine and design their ideal TV experience by thinking about how they would like to use TV and what they like to do on TV.

As designs and future visioning are manifestations and expressions of current practices and needs as well as underlying assumptions and values, the first half of the session was designed to establish an understanding of participants’ home context and current behaviors. Using “household units” (e.g., couples, parents and children, roommates), participants were taken through a series of exercises including a personal device inventory in which participants were asked to bring in photos of their favorite electronic device and compilation of their device “wish list”. Socio-technological mapping was also obtained by asking participants to draw their technological house plan that indicated the spatial organization of the household technology usage. The data elicited in the first half of the session thereby provided the interpretative context for participants’ designs and feature ideas.

The second half of the study focused on participants’ visualizations of ideal technologies, devices and scenarios through the creation of diagrams, drawings and constructions. This was accomplished by first asking participants to brainstorm the TV of the future by eliciting ideas, concepts, actions and features in response to the questions such as “What do you want TV to do for you?” or “How would you like to use media and video?”. All ideas were written down on post-it notes and displayed for the session participants to view. Participants were then asked to visualize and design feature ideations mentioned in the brainstorming session with the assistance of a designer facilitator.

STAGE IV: PARTICIPATORY DESIGN ANALYSIS

Upon completion of stage III, the numerous designs of future ITV devices and features created by participants

were then analyzed using the ethnographic data collected in the first part of the study as a framework for interpretation. The analysis of the data provided insight into users' desires, priorities and underlying themes of future visions of ITV technology. We were also able to identify users' key design principles that emerged from the participants' designs, which indicated that users value simple action based UIs with limited choices and logical steps. This process allowed us to discover and foreground important user themes of which product planning and business development had previously been unaware. For example, we observed that many participants spontaneously included use of mobile devices in their scenarios for their TVs of the future, reflecting the trend toward a blurring of devices and contexts. In effect, the living room was perceived by our users as just part of the home media and communications story. Media and communications were seen as accessed and consumed on multiple devices that were enmeshed in complex social practices and organized to permit social affordances.

At the end of this stage, key stakeholders were again included in the presentation and discussion of key design themes and their feedback and input was solicited for the elaboration of scenarios in the subsequent stage.

STAGE V: SCENARIO ELABORATION

Having given our users the opportunity to speak about their dreams, desires, wishes and precautions, we now had many insights about both user behavior and design principles in addition to the design research investigations. After collaborative analysis with user and design research, the findings from the participatory design sessions were considered in light of the earlier

market trend analysis, product breakdown, and verb/adjective analysis.

A list of design themes was compiled that covered the key user experiences on TV, many of which showed strong relationships with mobile and other devices. After prioritizing these themes in regards to strategic design, business and user experience opportunities, scenarios could be written to illustrate these emerging themes.

The strategic position of TV and mobile scenarios as revealed by the earlier investigations were now informed by user-driven narratives and user data which could provide us with insightful answers to fundamental design strategy questions, such as "How does the proposal map to user needs?" and "What are the anticipated user behaviors?" before diving too deeply into the prototyping stage.

Low fidelity prototypes were then produced of both TV and mobile applications, which illustrated the rich and innovative narratives and principles that were derived from user data. Rather than designing for either TV or mobile, the scenarios (as opposed to the technology) drove the narrative and resulting functionality, and the flow of these designs often illustrated potential value on multiple platforms.

STAGE VI: SCENARIO TESTING

Our designs could now be tested in front of another group of users to ascertain their perceptions and evaluations. Focusing this time on online spaces and sharing on TV and mobile platforms, a second ethno-design study was elaborated to ascertain if the spaces scenarios accurately mapped to user needs and desires.

By analyzing user feedback and reactions to the spaces scenarios in the context of their current socio-technological practices and habits we were able to identify potential practical, behavioral and conceptual barriers to spaces scenario appropriation and also examine the applicability of the spaces scenarios in the context of participants' multi-device use.

STAGE VII: PRODUCT DIRECTIONS

At this point in the research process, findings and key insights from the scenario testing were presented to key stakeholders and directions for future products as well as possible feature developments for current products were discussed.

By giving voice to the user, keeping a keen eye on existing and emerging technologies, and involving key stakeholders of ongoing product developments within the company, the ethno-design process inspired product managers, developers, and designers early on in the product cycle to push designs and spec requirements towards user-centric goals and objectives. The culmination of these multi-faceted research strategies assisted product planning by defining strategic opportunities for spaces and sharing on TV and mobile with unprecedented input from our customers.

Because of the uniquely iterative and catalytic methodology, future research concepts surfaced such as voice and video communications on TV and geospatial location-based services, which at first glance would seem unrelated to the initial inquiry. These became the object of subsequent studies, which were informed by many of the findings from our earlier work and added richer detail to the holistic view of a

technology that answers to our everyday needs—not as a disparate set of experiences, features, and platforms, but as a unified language that evolves with the behavior of people.

Citations

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