DEPARTMENT OF COMPUTER SCIENCE
UNIVERSITY OF TORONTO

CSC318S

THE DESIGN OF INTERACTIVE COMPUTATIONAL MEDIA

Lecture 2 — 7 January 1998

DESIGN AND THE DESIGN PROJECT; BRAINSTORMING AND CREATIVITY

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2.1 History of the Apple Design Competition

Begun in 1992 by Joy Mountford, Manager, Human Interface Group, Apple Computer

Roughly 10 universities participated each year — Toronto most regular participant through 1995, along with CMU

2.2 The 1992 Apple Design Competition

The problem — Design a family of at least 3 scalable computers with a consistent look-and-feel that are useful in some application domain

The winning Toronto entry — The design Series for Landscape Architects

4 principles

Understanding the user and user needs

Integrated family of computers
- The SID (hand-held device)
- The Dock
- The Digipad (drafting table size)
- The Minder

Attentive interface design

Practicality in a 2-3 year time frame

*** VIDEO DEMONSTRATION

2.3 The 1993 Apple Design Competition

The problem — Design an adaptive interface useful in some application domain

The Toronto entry — GloBall — a ball that responds to the actions of the children who use it — Tom Bellman, Byron Long, one other — an honorable mention

*** VIDEO DEMONSTRATION

2.4 The 1994 Apple Design Competition

The problem — Designing an educational application of “hand-held” computers connected to networks or “information highways”

The Toronto entry — Project Galen

Diba Bot, Darren Nowakowski, Delia Schaeffer, ...

A system for peripatetic nurses, such as the Royal Victorian Nurses, to assist them in home patient care and patient education

Received the Product Concept award

*** VIDEO OF THEIR PRESENTATION AT APPLE

Understanding their users and their needs

“Day in the life” demonstration of the system

User interviews and user testing

2.5 The 1995 Design Competitions

The problem from Interval Research — Interfaces for sound, music, and speech

The problem from Apple Computer — Bridging the gulf between the physical and the electronic worlds

The Toronto entry — Project Footprint — Agnes Rabca (now Ouellette) + others — to be discussed on Friday

2.6 Project Stages

Stage 1 — Brainstorming ideas

Stage 2 — Group formation and brief proposal describing basic idea

Stage 3 — Concept development based on work with users — Full proposal including description of functionality and “Day in the Life” Scenario

Stage 4 — Design and construction of system prototype illustrating its functionality and look-and-feel

Stage 5 — Usefulness and usability evaluation of prototype

Stage 6 — Further iterative design and prototyping of term project — Review and synthesis of entire experience

2.7 Some Thoughts About Design

Design requires brainstorming and insights to be creative

Design is conscious

Design keeps human concerns at the center
    Design involves a conversation with your users

Design involves a conversation with your materials

Design involves the interaction between these two conversations

Design is infinitely improvable, i.e., design must be iterative

Design has social consequences

Design is a social activity and occurs in a context such as that of an organization or a society

Design should involves contributions from many disciplines

    Computer science

    Domain expertise

    Behavioural science — psychology, sociology, anthropology

    Design crafts — graphic design, industrial design, animation, cinematography, video, music

2.8 Brainstorming and Discussion

Method for idea generation to get started

Throw out ideas, play with them, criticize them, modify them, combine them, etc., etc., etc.

2.9 Brainstorming Ideas for our Design Problem

1) Think about interesting opportunities for the elderly, e.g., increased leisure time and opportunities for recreation, reflection, travel, and contact with family.

2) Think about critical problems facing the elderly, e.g., declining health, deteriorating physical capabilities, failing memory, increased need for security, loneliness, lack of meaningful work, and worries about all of the above.

3) Think about typical tasks carried out by the elderly, e.g., grooming, dressing, eating, taking medications, walking, exercising, shopping, conversation, communication, recreation, learning, travel, and financial management.

4) For various needs and tasks, think about relevant technologies and applications, e.g.,
   - health — monitors for specific conditions, treatment advisors & reminders
   - loneliness — email, computer conferencing, video conferencing
   - learning — large-print electronic books.

5) Focus on the spaces within which the elderly typically are found, e.g., homes or apartments, senior citizen's homes or centers, doctor's offices, specially-equipped vehicles, golf courses, and cruise ships.

6) Focus on instruments or aids used by the elderly, e.g., canes, glasses, hearing aids, wheel chairs, and cardiac monitors.

7) Focus on sensory and cognitive modalities, e.g., sight, sound, touch, mobility, memory, and learning.

More about the elderly next Monday

2.10 Effective Group Process

Complementary expertise

Shared goals and values

Clear statements of expectations and commitments

Open and honest communication, especially in times of stress and difficulty

Agreed-upon method(s) for and commitment to timely decision making

More about this next Wednesday