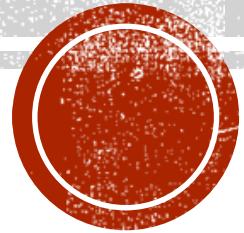
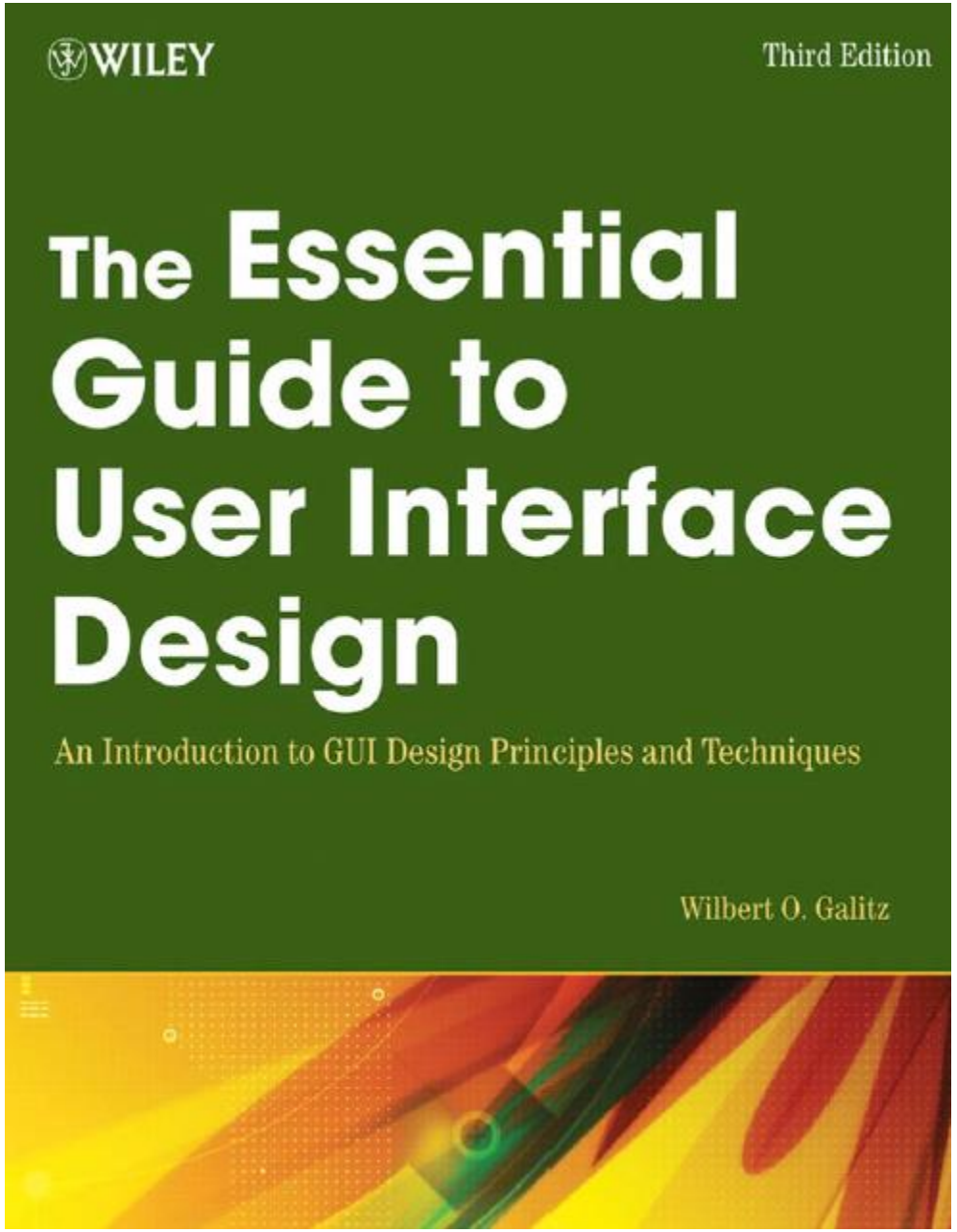
Module-2



User Interface Design Process – Obstacles –Usability – Human Characteristics In Design – Human Interaction Speed –Business Functions –Requirement Analysis – Direct – Indirect Methods – Basic Business Functions – Design Standards – General Design Principles – Conceptual Model Design – Conceptual Model Mock-Ups

Contents



1.1.User Interface Design Process

- Obstacles and Pitfalls in Development Path:
- Gould (1988) Observations about design:

Obstacles	Pitfalls
Nobody ever gets it right the first time.	No early analysis and understanding of the user's needs and expectations.
Development is chock-full of surprises.	A focus on using design features or components that are "neat" or "glitzy."
Good design requires living in a sea of changes.	Little or no creation of design element prototypes. o No usability testing.
Making contracts to ignore change will never eliminate the need for change.	No common design team vision of user interface design goals.
Even if you have made the best system humanly possible, people will still make mistakes when using it.	Poor communication between members of the development team.
You must have behavioral design goals like performance design goals.	

1.2 Usability

- Bennett (1979) was the first to use the term usability to describe the effectiveness of human performance.
- Definition: "The capability to be used by humans easily and effectively, where
  - Easily = to a specified level of subjective assessment
  - Effectively = to a specified level of human performance
- Mandel (1994) Common Usability Problems (by IBM specialists):

1. Ambiguous menus and icons.
2. Languages that permit only single-direction movement through a system
3. Input and direct manipulation limits.
4. Highlighting and selection limitations.
5. Unclear step sequences.
6. More steps to manage the interface than to perform tasks.
7. Complex linkage between and within applications.
8. Inadequate feedback and confirmation.
9. Lack of system anticipation and intelligence.
10. Inadequate error messages, help, tutorials, and documentation.

1.3 Human Characteristics In Design

- Knowledge Experience
- Psychological Characteristics
- Job/Task/Need
- Physical Characteristics

Age	Young, middle aged, or elderly.
Gender	Male or female.
Handedness	Left, right, or ambidextrous.
Disabilities	Blind, defective vision, deafness, motor handicap.

Computer Literacy	Highly technical or experienced, moderate computer experience, or none.
System Experience	High, moderate, or low knowledge of a particular system and its methods of interaction.
Application Experience	High, moderate, or low knowledge of similar systems.
Task Experience	Level of knowledge of job and job tasks.
Other Systems	Use Frequent or infrequent use of other systems in doing job.
Education	High school, college, or advanced degree.
Reading Level	Less than 5th grade, 5th–12th, more than 12th grade.
Typing Skill	Expert (135 WPM), skilled (90 WPM), good (55 WPM), average (40 WPM), or "hunt and peck" (10 WPM).
Native Language or Culture	English, another, or several.

Attitude	Positive, neutral, or negative feeling toward job or system.
Motivation	Low, moderate, or high due to interest or fear.
Patience	Patience or impatience expected in accomplishing goal.
Expectations	Kinds and reasonableness.
Stress Level	High, some, or no stress generally resulting from task performance.
Cognitive Style	Verbal or spatial, analytic or intuitive, concrete or abstract.

Type of System	Use Mandatory or discretionary use of the system.
Frequency of Use	Continual, frequent, occasional, or once-in-a-lifetime use of system.
Task or Need Importance	High, moderate, or low importance of the task being performed.
Task Structure	Repetitiveness or predictability of tasks being automated, high,moderate, or low.
Social Interactions	Verbal communication with another person required or not required.
Primary Training	Extensive or formal training, self-training through manuals, or no training.
Turnover Rate	High, moderate, or low turnover rate for jobholders.
Job Category	Executive, manager, professional, secretary, clerk.
Lifestyle	For Web e-commerce systems, includes hobbies, recreational pursuits, and economic status.

1.4 Business Function & Requirement Analysis (Direct & Indirect Method)

DIRECT METHODS
Individual Face-to-Face Interview • A one-on-one visit with the user to obtain inform somewhat open-ended.
Telephone Interview or Survey • A structured interview conducted via telephone.
Traditional Focus Group • A small group of users and a moderator brought requirements.
Facilitated Team Workshop • A facilitated, structured workshop held with user information. Similar to the Traditional Focus Grou
Observational Field Study • Users are observed and monitored for an extend
Requirements Prototyping • A demo, or very early prototype, is presented to u functionality.
User-Interface Prototyping • A demo, or early prototype, is presented to users and problems.
Usability Laboratory Testing • Users at work are observed, evaluated, and meas laboratory.
Card Sorting for Web Sites • A technique to establish groupings of informatio

INDIRECT METHODS
MIS Intermediary • A company representative defines the user's goals a developers.
Paper Survey or Questionnaire • A survey or questionnaire is administered to a sampl methods to obtain their needs.
Electronic Survey or Questionnaire • A survey or questionnaire is administered to a sampl Web to obtain their needs.
Electronic Focus Group • A small group of users and a moderator discuss the workstations.
Marketing and Sales • Company representatives who regularly meet custo needs, current and potential.
Support Line • Information collected by the unit that helps custome analyzed (Customer Support, Technical Support, Hel
E-Mail or Bulletin Board • Problems, questions, and suggestions from users po through e-mail are analyzed.
User Group • Improvements are suggested by customer groups wh discuss software usage.
Competitor Analyses • A review of competitor's products or Web sites is use design requirements and identify tasks.
Trade Show • Customers at a trade show are presented a mock-up

1.5 Design Standards

- ISO
- ANSI
- Human Factors and Ergonomics Society
- www
- …

1.6 Conceptual Model Design