Unit overview

Julie Fisher
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The teaching team:

UNIT LEADER
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Teaching

- Delivery
  - Face-to-face
  - Online
- Attendance
  - Nothing is compulsory at University, but it is highly advisable to attend all scheduled face-to-face lectures and tutorials
- Technicalities

Learning

- Lectures
  - Pre-reading and activities to be completed prior to given date/time
- Tutorials
  - Each topic has a number of activities, some individual, others group
  - Active and constructive participation in lectures and tutorials is required
  - Tutorial space will be on campus (“Studio”)

Assessment

- Plagiarism
- School 40% rule
  - Must attain 40%+ in each component (supervised and non supervised assessment to pass). Means if you pass assignments but get < 40% for the exam you will fail
- Non supervised assessment - 50%
- Supervised assessment - 50%
Supervised assessment – 50%

- Critical analysis practice task undertaken in tutorial time (5%)
- Critical analysis task 1 undertaken in tutorial time (10%)
- Critical analysis task 2 undertaken in tutorial time (15%)
- Presentation of final assignment presented as a report to management (10%)
- Active and constructive participation in tutorials, including reading tasks (10%)

Non supervised assessment – 50%

Assignment 1. (25%) – Design methods - individual assignment. Due date: 5pm Friday April 7th, 2006.
Assignment 2. Theory into practice. (25%) This is a group assignment of no less than three members per group and no more than four.

Content

- Themes
  - Background and underpinning theories
  - Design processes and practice
  - System evaluation and usability techniques
  - Interface styles
  - Design issues
  - Visualisation

Resources

- Others readings and resources will be listed in the lecture and tutorials.

Plagiarism

- Plagiarism is cheating. Attempting to gain unfair advantage using the work of others and not acknowledging it is the work of others.
- Plagiarism is leaving the reader to believe this is your work, your words when in fact they are someone else’s words/ideas
- Plagiarism is theft of other people’s intellectual property.
- Most serious offence in the academic world.

It is not acceptable

- ‘I meant to use the quotation marks but forgot’
- Is no different to
- ‘I meant to pay I just forgot’
Example

The Web represents a relatively easy and extremely inexpensive way to advertise, lowering the barriers to entry for small businesses. Small business in particular should therefore be exploiting the value the internet can bring to their business yet many have yet to realise any benefits.

What can you do?

1. Quote the source in full: Dholakia and Rego (1998) argue that “the Web represents a relatively easy and extremely inexpensive way to advertise, lowering the barriers to entry for small businesses.” (pg 724). Small business in particular should therefore be exploiting ….

Quoted text should always be clearly identified either by indenting the paragraph or using inverted commas. Page reference should be provided with the other details, author, date etc.

Paraphrasing

Paraphrasing means rephrasing the original authors ideas, conclusions in your own words and then acknowledging the source: Many researchers have found that the Web provides a host of opportunities in particular it is an inexpensive advertising medium, reducing the barriers for small businesses. (Dholakia and Rego 1998). Small business in particular should therefore be exploiting ….

How do we know something is plagiarised?

• Search the web for key phrases
• When the language used to write part of the assignment is dramatically different from other parts of the assignment.
• We have seen the quote or the material before, that is we are already familiar with the source

Donald Norman
The psychology/design of everyday things (1990.)

“Why do we put up with the frustrations of everyday objects, with objects that we can’t figure out how to use, with those neat plastic wrap packages that seem impossible to open, with doors that trap people, with washing machines and driers that have become too confusing to use, with audio-stereo-television video-cassette recorders the claim in their advertisements to do everything but that make it impossible to do anything?” (1-2)
History

- HCI/human factors engineering have single goal of achieving high usability for users of computer-based systems.
- Broader than just the user interface
- Relates to interaction between users and computers.

Evolution (Preece pg 16)

Cross disciplinary field

- Draws on fields such as:
  - Cognitive psychology
  - Ergonomics/human factors
  - Behavioural psychology and psychometrics (e.g. roots of user performance metrics)
  - Social and organisational psychology
  - Systems engineering
  - Computer science

Definition: human factors and HCI

“Human Computer Interaction or Human Factors studies in MIS are concerned with the ways humans interact with information, technologies, and tasks, especially in business, managerial, organisational, and cultural contexts. It is hoped that HCI studies can provide the evolution of the human centred technology development that enhances our work/job, various needs, how organisations, our societies, and ourselves.” (Zhang et al 2002, 334)

Early foci of Human Factors research


Current Human Factors studies

- The behavioral, cognitive, motivational, and affective aspects of human technology interaction
- Human factors and ergonomics
- Digital document design and human-centered design behavior
- User interface design and evaluation for EDA, CAD, DCD, interface design, maintenance, usability, and performance, and management; group collaboration, negotiation, and action, in enterprise systems, Internet, and extranets
- User interface design and evaluation, and standards for design, and development of interactive devices and systems
- Design of computer interfaces for applications over traditional (or support) including design of standard computer interfaces, as well as design for complex-concept mobile services and pervasive computing
- Development and applications of multidimensional interaction and interaction visualization
- Usability engineering, to find, design, and implement effective user-friendly interfaces and communication, and their use in the Internet era
- Information technology acceptance and diffusion issues from cognitive, motivational, cultural, and user interface design perspectives
- The impact of information technology on attitudes, behavior, performance, productivity, and job satisfaction
- Issues in software training and development including conceptual, cognitive, and motivational aspects (behaviors)
- Gender and technology
- Issues related to the elderly, the young, and special needs, populations, and
- Issues in testing HCI research

From Zhang et al (2002, 340)
Why human factors are important

- Adopting human factors principles can result in many benefits often intangible and unquantifiable.

**Motivations** (Shneiderman 17)
- Enormous interest comes from the recognition of how poorly interfaces are designed and the benefits of effective interfaces for users, specifically:
  - Life critical systems, industrial and commercial systems, office home entertainment applications, creative applications and collaborative interfaces and sociotechnical systems.

Donald Norman

- “There is a big difference between the expertise required to be a designer and that required to be a user. In their work, designers often become expert with the device they are designing. Users are often expert at the task they are trying to perform with the device.” (Norman 1990, 156)

Donald Norman

- “Even when designers become users, the deep understanding and close contact with the device that are designing means that they operate it almost entirely from knowledge in the head. The user, especially the first time or infrequent user, must rely almost entirely on knowledge in the world.” (Norman, 157)

Need for standards

- Standards in design and development of software and hardware common.
- The application of software user interface standards and guidelines and increase productivity, reduce stress on users, reduce training costs and generally improve product quality and aesthetics.
- Numerous books have been published describing how to design user interfaces there are also ISO published standards.

Standards

- Only relatively recently have standards being developed for software design and user interfaces (1980s).
- Since mid-1980s a number events occurred that led to more formalised standards being developed.
  - GUI interface arrived
  - Other hardware standards developed but not software
  - Increasing concern over health and safety issues

Standards for Usability – ISO

Standards categorised as related to:
2. The user interface and interaction.
3. Process used to develop the product.
4. The capability of an organisation to apply user centred design.” (Bevan 2001, 534)
To achieve this requires a user centred design process which requires an organisational capability that supports user centred design.

Shniederman’s view

Shniederman adds to these standards:
- Time to learn
- Speed of performance
- Rate of errors by users
- Retention overtime
- Subjective satisfaction (16)

Goals for the Human Factors/HCI profession

- Shniederman (pp 29 – 43) suggests 3 goals for the profession:
  - Influencing research – increase rigour in the research to better understand principles.
  - Many suggested direction for research including:
    - Computer anxiety and usage
    - Interactive design
    - Direct manipulation
    - Input devices
    - Online help
    - Information exploration

Software interface and interaction

Standards used to support a user interface development:
1. Specify details of appearance and behaviour of user interfaces
2. Provide detailed guidance on user interface design
3. Provide criteria for evaluation of user interfaces.

US military standard for human engineering design criteria:
- “Achieve required performance by operator, control, and maintenance personnel
- Minimise skill and personal requirements and training time
- Achieve required reliability of personnel – equipment combinations
- Foster design standardisation within and among systems.” (Shneiderman, 12)

- Provide tools, techniques for developers – increased demand for knowledge about software tools, design guidelines and testing techniques amongst commercial developers. Greater recognition that competitive advantage gained when systems are better designed
- Raise consumer consciousness – greater demand by consumers for better design systems
Summary

• For the practitioner:
  – Be aware of the standards and guidelines that apply to effective design
  – Be mindful of the diversity of users and aim for universal usability

• For the organisation:
  – Understand good design has its own rewards.
  – Be aware of the standards and guidelines and ensure attention to these are written into the plans.
  – Look at new systems with the diversity of users who may use them, in mind.

References – Lecture 1

• Shneiderman and Plasiant (2005) ch 1, 2