Usability and Eye Tracking

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Agenda

• Introduction
  – Usability
  – User experience

• Eye tracking

• Usability lab

• Usability and Eye tracking examples

• Questions
Usability
What is usability?

- Usability means making products and systems easier to use, and matching them more closely to user needs and requirements.

- ISO9241: Usability is the effectiveness, efficiency, and satisfaction with which specified users achieve specified goals in particular environments.
What is user experience?

• User Experience:
  – User's feelings
  – Motivations
  – Values
  – Given as much, if not more, attention than efficiency, effectiveness and basic subjective satisfaction

• Important to combine the interests of different stakeholders:
  – Marketing
  – Branding
  – Visual design
  – Usability
What is usability?

- **Effectiveness**
  - Can users achieve what they need by using the product?

- **Ease of learning**
  - How fast can a user who has never seen the interface learn to use it?

- **Efficiency of use**
  - How fast can users complete the task?

- **Memorability**
  - Can users remember enough to reuse the interface effectively?

- **Error prevention**
  - Can users complete tasks without making errors?

- **Satisfaction**
  - How much does the user like using the system?
  - User’s feelings, motivations, values
  - Trust
What is usability testing?

• Usability testing involves
  – measuring the performance of users on tasks with regard to
    • the ease of use,
    • the task time, and
    • the user’s perception of the experience
    • of the product, software application, website or system

  – Based on Performance

  – Purpose: Feedback
Eye tracking
Eye tracking

• A technique to determine eye movement and eye fixation patterns of a person

• The human eye moves by alternating between
  • Saccades
    • Quick movement of the eye
    • Move focus from one area to the next
  • Fixation
    • Time spent looking at the newly found area
Eye tracking

• Used in
  – Psychology and Neuroscience
  • Reading
  – Disabled users – control
  – Marketing research
  – Advertising
  – User experience and usability testing

(Figures removed for publishing)
Usability lab
Usability lab

• A usability laboratory is a state-of-the-art facility designed to support the observation of Human Computer Interaction (HCI)

• Users are brought into a controlled environment, in which they are asked to do specific tasks within specific timeframes

• Evaluators
  – observe the problem(s) the participant might have
  – videotape the participant
  – analyse the data
Nelson Mandela Metropolitan University
UNISA
University of Leuven (Belgium)
Usability and eye tracking examples
Learning Management System

• Participant Profile
  – Full-time UNISA students who have to submit assignments online
  – 10 participants
  – 5 male, 5 female
  – 7 different languages
  – 5 expert, 5 non-expert Web users
Task example: Submit a PDF file

- Task completion: 70%
- Assistance needed: 40%
- Errors made: 100%
- Median task completion time: 115.60 seconds
- Play video: (PDF)
Learning Management System

• All participants made errors
  – Did not select appropriate file format
  – Error message:
    • “ERROR: The type of file does NOT match the selected file type. (PDF!=DOC)”
  – Error message not comprehended

• Difference between PDF and Word not understood
Proxy Tool

Submission of Written Assignment for Student: 36445971

For every assignment, please check the Course-specific instructions for written assignments.

Step 1 of 3: Load assignment file from your PC to myUnisa

Read the FAQs first to prevent delay in marking your assignment. Please supply the following information:

File Name: C:\Documents and Settings\comp2\Desktop\Assignment
File Format: MS Word document (up to ver. 2003)

Notes:
- To prevent delays in marking your assignment, read the FAQs for correct formatting guidelines.
- File size should be limited to 1 MB (1.024kB).
- Larger files must be zipped - only ONE file.

Be patient! The uploading of your assignment can take time depending on your internet connection. This will take about the same time as downloading a file of the same size.

FAQs  Back
Proxy Tool

Assignments for student number: 35706155

Your current e-mail address: fmyburgh@unisa.ac.za

Notes:
1. Assignments may not be e-mailed or faxed.
2. To update your e-mail address, go to Biographical Details, Update Contact Details.
3. If a description or an explanation on any coloured item in the table, move your cursor onto it.
4. Click on the submit link next to the assignment number to start the submission process.

Assignment to be submitted not listed below? Complete and submit this form.

Need help? View the step-by-step instructions (which includes resubmission guidelines).

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<th>Year/sem</th>
<th>No.</th>
<th>Action</th>
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Resubmission of Written Assignment for Student: 3525564

For every assignment, please check the Course specific instructions for written assignments.

Step 1 of 3: Load assignment file from your PC to myUnisa

What does resubmission mean?

1. If your assignment is marked as "Not Evaluated" use this function if you made a mistake uploading the wrong document/file.
2. If assignments placed in assignment boxes or mailed to Unisa, DO NOT qualify for online resubmission.
3. You will only be allowed to resubmit an online assignment if that assignment has not been processed for marking.
4. A resubmission automatically cancels your previous submission; you cannot choose which file must be used for marking or revert back to an old file.

5. The last file uploaded and the last MCQ completed before the due date or the start of marking is the final submission.

Are you sure you want to continue and resubmit your assignment? No

Yes - continue with the rest of this form

Read the FAQs first to prevent delay in resubmitting your assignment. Please carefully read the following information:

File Format: MS Word document (up to ver. 2003)

Notes:
- To prevent delays in marking your assignment, read the FAQs for correct formatting guidelines.
- File size should be limited to 1 MB (1,024 KB).
- Larger files must be split - only ONE file may be included per zip file. See the FAQs for zip instructions.

Be patient! The uploading of your assignment could take several minutes, depending on the size of your file and the speed of your Internet connection. This will take about the same time as downloading a file of the same size.

Continue FAQs Back
• PDF task – Recommendations:
  – File Type
    • Should be picked up automatically
  – Error message
    • Simple language to be used
    • PDF!=DOC is a computer term
  – FAQ and instructions should contain more information about file format and PDF
  – Help Video File to teach new users
College website results

• The usability of a College website on the university’s information portal

• Participant Profile
  – Prospective and current students as well as academic and administrative staff
  – 15 participants
  – 5 prospective, 5 current and 5 staff members
  – 10 male, 5 female
  – 9 different languages
  – 8 proficient; 7 competent
College website results

Task: Find the webpage of the College

- Only 6 participants found page on 1st attempt
  - 5 proficient participants

- Median time to find it
  - Proficient participants 37.1 s
  - Competent participants 62.9 s

- Show video
- Heat maps
Task: Find the webpage of the College

• Heat map shows the fixations of a participant
  – “hot” colours indicate areas most fixated

• Heat map 1 clearly shows proficient participants searched in the correct place

• Heat map 2: competent participants have almost no hotspots here
  – They did not expect to find the information there
• Finding books in your name
  – Video – gaze plot animation
International study with Concept7 (Netherlands)
Consumers’ information needs on e-commerce websites

- Question are there are cultural differences in this respect?
- Can a website simply be copied and translated?

Research took place in 6 different countries
- SA, Germany, UK, Netherlands, France, Colombia

In every country 30 people performed a task on the website Booking.com

Data was collected through eye tracking and a questionnaire

In South Africa they pay much more attention to product specifications than in any other country investigated

In South Africa they pay much more attention to prices and promotions than all other countries except Germany
Hotel International Paris
6 Rue Auguste Barbiere, 11. Bastille - République, 75011 Paris (Show map)

Overview and availability

We are located in a very quiet blind street, very close to the historical centre (5 m from the Cité by metro). Our lovely hotel is recognized for the warmth of our welcoming staff, and offers its 37 comfortable rooms which all include a bathroom with a bathtub or a shower, private toilet amenities.

We will assist you in finding the entertainment high spots of this district much in vogue within walking distance: lively bars and cafés, trendy restaurants, theatres, disco.

Hotel Rooms: 37.

More photos

Can this description be improved? Let us know and help us make Booking.com better.

Flag for improvement

Availability

Available rooms from Thu 06 May 2010, to Sun 09 May 2010, for 3 nights (Change dates)

Most recent booking was yesterday at 17:22 from France

<table>
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<th>Rate for 3 nights (per room)</th>
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<td>€340</td>
<td>€360</td>
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</table>

We work very hard to have the lowest prices. If we're not the lowest please tell us.

Hotel facilities
Usability and eye tracking examples
Mobile eye tracking

- Cell/Mobile phone examples
Usability and eye tracking examples
Shopping example

• Play video
IPad example

- Play video
Safari example

- Play video
E-Government
Cape Gateway website

- [www.capegateway.gov.za](http://www.capegateway.gov.za)

- V1 enhancements

- V2 in process
  - User centered design process
    - Surveys
    - Focus groups
    - Information Architecture
    - Wireframes
    - Design
    - Usability and eye tracking testing
  - Phased roll-out
Back to School

Whether your children are starting or ending school, get the information you need to help them on their way.

- Find a school near you
- Can't pay school fees?
- Get your matric results
- Bursaries and financial assistance for school leavers

EVENTS IN THE WESTERN CAPE

We've teamed up with Events Now to bring you news and information on the major events taking place in the Western Cape.

Go to events

FIND INFORMATION BY:

- Life events and topics
- Government bodies e.g departments
- Directory listing

QUICK LINKS

- Western Cape High Court Roll
- Safety Home Campaign
- RED Door – Small Business Advice Centres
- Liquor Licensing & Permits

PUBLICATIONS

- State of the Nation Address: June 2009
- State of the Province Address: May 2009
- Bпасa Growth and Development Strategy (GDS)
- Provincial Gazettes

PROVINCIAL DEPARTMENTS

- Department of Agriculture
- Department of Community Safety
- Department of Cultural Affairs & Sport
- Department of Economic Development and Tourism
- Department of Environmental Affairs and Development Planning
- Department of Health
- Department of Human Settlements
- Department of Local Government
- Department of Social Development
- Department of Transport and Public Works
- Department of the Premier
- Provincial Treasury
- Western Cape Education Department

Don't understand government jargon or an acronym? Use the GLOSSARY.
Unregistered Daycare Centres

MEC Patricia De Lille declared an amnesty period for unregistered daycare facilities in Cape Town, from 1 February 2011 to 31 July 2011. This gives unregistered daycare centres a chance to register.

- Official press release
- What is the registration process?
- Registration forms

Cape Gateway is a single point of access to Government information and services for citizens of the Western Cape.

Can't find what you're looking for?

Call us: 0860 142 142 (weekdays 08:00 - 18:00)
Visit us: 142 Long Street, Cape Town (Closed for renovations until April 2011)
E-mail us: questions@capegateway.gov.za

Provincial Government Ministries

Select Ministry

Provincial Government Departments

Select Department

Events in the Western Cape

Visit our events page to find out what's happening in the province.

Find Information By:

- Life events
- Topics
- Government bodies
- Directory listing

Quick Links

- Western Cape High Court Roll
- Safely Home Campaign
- RED Door - Small Business Advice Centres
- Liquor Licensing & Permits

Documents

- State of the Province Address: February 2011
- Western Cape's Draft Strategic Plan
- Provincial Gazettes 2011
Conclusions
Conclusions

- Usability and eye tracking will improve your systems

- Contact us if interested in services
  - Prof Andre Calitz
  - Marco Pretorius

- Contact for eye tracker information
  - Marco Pretorius

- Play video
Questions?

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